FINAL DRAFT: The Arizona Trails 2010 Plan identifies the needs, attitudes & preferences of Arizona's recreational trail users, both motorized and non-motorized.

Arizona Trails 2010:

A Statewide Motorized & Non-Motorized Trails Plan

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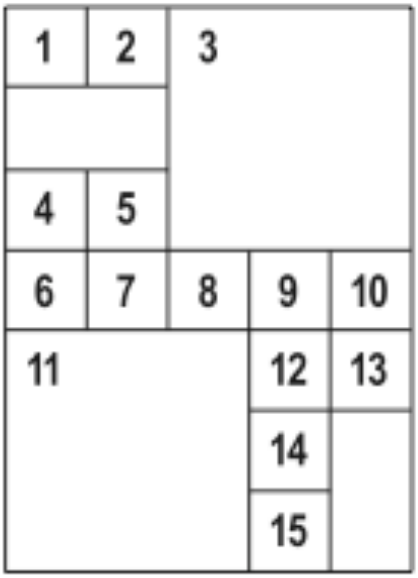

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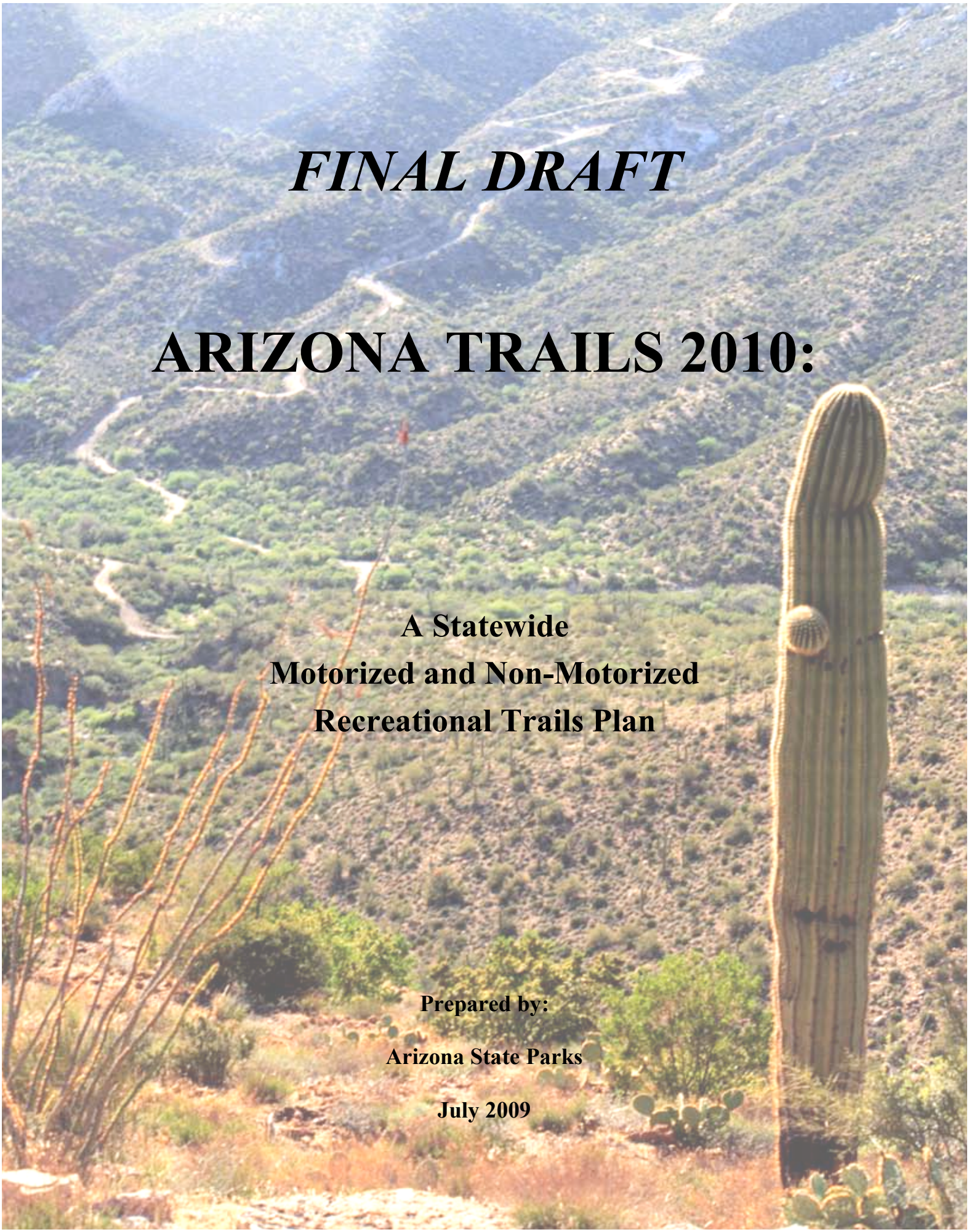

FINAL DRAFT

ARIZONA TRAILS 2010:

A Statewide Motorized and Non-Motorized Recreational Trails Plan

Prepared by:

Arizona State Parks

July 2009

Janice K. Brewer
Governor of Arizona

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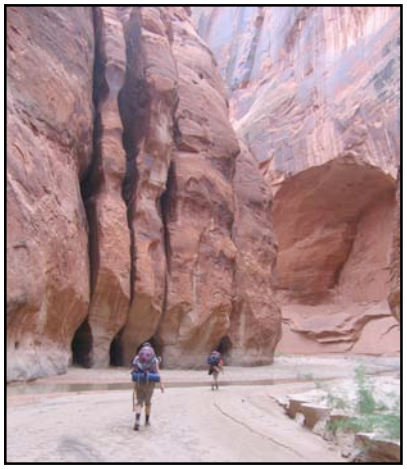
EXECUTIVE SUMMARY

Arizona Trails 2010



Trails have been an integral part of human civilization, from the earliest times following game trails on hunts, traveling between settlements to trade goods, to blazing new trails while exploring uncharted territories. Today we still use trails for those, and many other activities.

They are our conduits to work, to shop, to school. We use trails to exercise our bodies and quiet our minds. Trails lead us through places of inspiration and challenge. They are avenues to quality family time or friendly social interactions. They are elemental to our daily lives.

Simply put, trails improve our quality of life.

The demand for recreational trails in Arizona, both motorized and non-motorized, is high. Sixty-nine percent of Arizonans are trail users, twice the national average. Considerable change has occurred on Arizona's recreational trails and off-highway vehicle (OHV) routes and areas in the last five years including a 16% state population increase, and a 20% increase in numbers of recreational trail and OHV users.

In addition there has been a substantial increase in off-highway vehicle ownership–with Arizonans purchasing an average of 30,000 new all-terrain vehicles (ATV) and motorcycles annually (numbers do not include sales of the new utility terrain or side by side vehicles).

There have been drastic cuts to the budgets of agencies that manage the lands and trail resources, including reductions in the staff that plan, build or maintain the trails, making it difficult to keep up with the public's demand for trails and routes.

The Plan and Public Participation

This planning document details the results of extensive surveys of Arizonans' thoughts, preferences and priorities regarding trails and OHV routes. Throughout the year 2008, staff at Arizona State Parks and faculty at Arizona State University partnered to solicit information from more than 5,500 Arizonans about what types of motorized or non-motorized trails they use, how often they use trails, what they like or don't like about trails, and what trail managers should focus their time and dollars on to make the trail experience better. The questions were asked via telephone, online (Internet), mail, at public meetings and open forums, and in the field at trailheads. The survey and workshop results can be found throughout this document and in the appendices. They form the foundation for the priority recommendations and actions that are at the heart of the Plan.

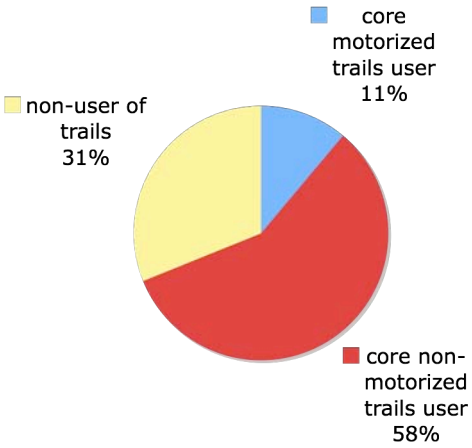
This Plan, titled *Arizona Trails 2010: State Motorized and Non-motorized Recreational Trails Plan,* includes both motorized and non-motorized trail information, public involvement results and recommendations for future actions regarding trails in Arizona. This Plan, which supercedes the *Arizona Trails 2005 Plan*, was prepared by Arizona State Parks as required by state legislation (off-highway vehicle plan A.R.S. § 41-511.04 (20), and trails plan § 41-511.22).

The purpose of this Plan is to provide information and recommendations to guide Arizona State Parks and other agencies in Arizona in their management of motorized routes and non-motorized trail resources, and specifically to guide the distribution and expenditure of the Arizona Off-Highway Vehicle Recreation Fund (A.R.S. § 28-1176), trails component of the Arizona Heritage Fund (A.R.S. § 41-503) and the Federal Recreational Trails Program (23 U.S.C. 206). For the purposes of this Plan, a "trail" is broadly defined as "a corridor on land or through water that provides recreational, aesthetic or educational opportunities to motorized and non-motorized users of all ages and abilities".

The Plan is written primarily for recreation planners and land managers. In its component parts, it provides background on trail users, on current trends and issues affecting recreational OHV and non-motorized trail opportunities, and on trail and OHV funding and management priorities. The Plan is designed as an information resource as well as a planning tool to guide agencies for the next five years.

Summary of Survey Findings

- The telephone survey results show that 68.6% of Arizonans have used a trail for recreation during their time in Arizona; 31.4% of residents do not use trails for recreational purposes.
- Statewide, 63.7% of respondents indicated that they had engaged in non-motorized activities on trails at some point during their time in Arizona, and 58% of trail users indicated that the *majority* of their trail use is non-motorized.
- Statewide, 21.5% of respondents indicated that they had engaged in motorized activities on trails at some point during their time in Arizona, and 10.7% of trail users said that motorized use accounted for the *majority* of their trail use.
- The percentage of non-motorized trail users ranged from a high of 68.3% in Coconino County to a low of 34.6% in Yuma, La Paz, and Mohave Counties. The percentage of motorized trail users ranged from a high of 22.2% in Yuma, La Paz, and Mohave Counties to a low of 7.9% in Pima County.



- Overall, 87% of respondents are either very satisfied or satisfied with non-motorized trails in Arizona, and 65% are either very satisfied or satisfied with motorized trails.
- The most common non-motorized trail activities for non-motorized trail users are: trail hiking, backpacking, mountain biking, and horseback riding.

- The most common motorized pursuits for motorized users are: all-terrain vehicle driving, four wheel driving or other high clearance vehicle driving, and motorized biking/dirt biking.
- Overall, the top three areas of environmental concern for *all trail users* are litter or trash dumping, decreased wildlife sightings, and erosion of trails. The top three concerns for *motorized users* are litter or trash dumping, damage to vegetation, and decreased wildlife sightings. The top three environmental concerns for *non-motorized users* are litter or trash dumping, erosion of trails, and decreased wildlife sightings.
- Overall, the top concerns about social conditions for *all trail users* are vandalism, urban development limiting trail access or use, and lack of trail ethics by other users. The top three concerns about social conditions for *motorized users* are urban development limiting trail access or use, vandalism, and closure of trails. The top three concerns about social conditions for *non-motorized users* are vandalism, urban development limiting trail access or use, and lack of trail ethics by other users.
- The top three trail planning and management priorities for *motorized users* are acquiring land for trails and trail access, keeping existing trails in good condition, and mitigating damage to environment surrounding trails. The top three issues for *non-motorized users* are keeping existing trails in good condition, mitigating damage to environment surrounding trails, and enforcing existing rules and regulations in trail areas.
- When asked, given limited funding, which one management priority is the most important, motorized trail users indicated acquiring land for trails and access (20%) was most important, whereas non-motorized users replied keeping existing trails in good condition (32%).
- Non-motorized users are more likely to respond that trails should be designated for multiple activities but with motorized and non-motorized users separated, or trails should be designated for a single activity.
- Both motorized and non-motorized users tend to use trails in groups of 1-5 people, although motorized users were more likely to recreate in groups of 5 or more.
- Nearly half of motorized users (44.4%) believe that access to off-highway vehicle roads and trails has declined in the last five years. In contrast just 11% of both groups believe that access to non-motorized trails has declined.
- On non-motorized trails, both groups tend to prefer social environments with very few or some other people around but not dense social settings with lots of other people present.
- The three most important desired OHV trail features for motorized users are loop trails, trails that offer challenge and technical driving opportunity, and cross-country travel areas (where riding anywhere is permitted).
- The results indicate that, by and large, respondents do not experience recreation conflict with other trail users, although there are some areas of potential concern. For instance, 13.7% of non-motorized users reported experiencing conflict with mountain bikers somewhat or very often. Also, 33.4% of motorized trail users experienced conflict with all terrain vehicle or quad riders somewhat or very often.
- More than 50% of motorized users and more than 40% of non-motorized users are willing to volunteer their time to build or maintain trails in Arizona. To encourage volunteerism, the most important consideration is providing information about when and where to show up.

Priority Recommendations

The *Arizona Trails 2010* recommendations for motorized and non-motorized trail use serve as an overall direction for Arizona State Parks, land managers, and trail and OHV users in their efforts to improve the State of Arizona's trail opportunities. These recommendations are also used by all participating agencies to guide distribution of funds administered by Arizona State Parks from the Trail Heritage Fund, OHV Recreation Fund and the Federal Recreational Trails Program until the next five-year plan is published.

The following priority recommendations were developed from the *Arizona Trails 2010* public involvement process. Recommendations within each level are in no particular order. Managers and recreational trail users are encouraged to concentrate their planning and management efforts on the recommended actions.

Motorized Trail Recommendations

First Level Priority Motorized Trail Recommendations
Protect Access to Trails/Acquire Land for Public Access
Maintain and Renovate Existing Trails and Routes
Mitigate and Restore Damage to Areas Surrounding Trails, Routes and Areas
Establish and Designate Motorized Trails, Routes and Areas
Second Level Priority Motorized Trail Recommendations
Increase On-the-Ground Management Presence and Law Enforcement
Provide and Install Trail/Route Signs
Provide Maps and Trail/Route Information
Provide Educational Programs
Third Level Priority Motorized Trail Recommendations
Develop Support Facilities
Promote Coordinated Volunteerism
Promote Comprehensive Planning and Interagency Coordination

Non-motorized Trail Recommendations

First Level Priority Non-Motorized Trail Recommendations
Maintain Existing Trails, Keep Trails in Good Condition
Protect Access to Trails/Acquire Land for Public Access
Second Level Priority Non-Motorized Trail Recommendations
Mitigate and Restore Damage to Areas Surrounding Trails
Enforce Existing Rules and Regulations
Provide and Install Trail Signs
Develop Support Facilities
Construct New Trails
Promote Coordinated Volunteerism
Third Level Non-Motorized Trail Recommendations
Provide Educational Programs
Provide Maps and Trail Information
Promote Regional Planning and Interagency Coordination

Trail and Off-Highway Vehicle Recreation Issues

The findings of the *Trails 2010: A Study of Arizona's Motorized and Non-motorized Trail Users* survey report show the importance of recreational trails and routes to Arizona residents. There are several current issues in Arizona that are affecting both the resources available for trails and off-highway vehicle routes and the user demands for these recreation opportunities. These issues are discussed further in the *Arizona Trails 2010 Plan*.

A Snapshot of Trail and OHV Issues in Arizona
Arizona's population continues to increase at record levels 6.6 million people in 2008
The number of trail and OHV users is increasing 69% of adult Arizonans are trail users—that's 3.2 million people not including children or visitors
Also increasing are the types of recreational trail activities (canyoneering; side by sides; rock crawling; extreme sports)
There are more people wanting to use trails close to home as part of their regular exercise routine and to get away from everyday pressures (walking; running; biking; bird watching; walking the dog)
There is an increasing number of people with mobility issues wanting to access and explore Arizona's trails and backcountry (people with disabilities; people with small children; senior citizens; baby boomers)
Volunteers are offering their assistance to land managers to build and maintain trails and OHV areas
Trails must compete for use of Arizona's land base (one type of trail use vs another; trail use vs other recreation activities; grazing, mining, logging, energy production; development for homes and businesses; protection of natural and cultural resources)
Trail closures and a loss of access to trails are decreasing recreational opportunities (due to environmental impacts; vandalism; urban development; air quality/dust)
Safety and law enforcement issues associated with illegal human and drug smuggling across the U.S.-Mexico border are impacting recreational trail use and the environment in southern Arizona
Agency budget reductions and fund sweeps reduce money and staff available to plan, build and maintain trails and OHV routes, and to coordinate volunteer efforts
Keep reading, *there's more throughout the plan!*

CHAPTER 1

Introduction

Trails are amazingly popular with people of all ages and abilities. In the U.S. more than 32% of adults say they enjoy using trails (Cordell et. al., NSRE 2005). In Arizona, the number of trail users more than doubles to 69% (White & Meyers 2009a). In our "Grand Canyon" State, trail use is an attractive outdoor activity available year round and offers a wide variety of environments and experiences from which to choose.

As the Nation's sixth largest state, Arizona encompasses 72,931,000 acres of land spanning fourteen major biotic communities (ADOT 2009). The diversity of Arizona's biotic communities (life zones) are such that a trip from nearly sea level at Yuma to the San Francisco Peaks near Flagstaff will take the traveler through as many life zones as a trip from the Mexican border to the Arctic Circle.

Photo: Hiking and nature study are a popular combination of recreational activities. San Francisco Peaks near Flagstaff.

Taking advantage of this diversity, long distance trails such as the Arizona Trail (non-motorized trail nearly completed) and the Great Western Trail (primarily motorized routes many still in the planning stages) offer opportunities to traverse the length of Arizona from the Mexican border to Arizona's border with Utah.

More communities are choosing to embrace trails because of the unique opportunities and benefits they provide. Trails help build strong communities by connecting neighborhoods, providing opportunities for recreation and improving health through exercise. They provide outlets for alternative transportation, protect natural resources, and stimulate economic development by attracting visitors and providing a higher quality of life for residents.

In Arizona, with 82% of the land managed by federal (42.1%), state (12.7%) or tribal (27.6%) governments, and only 0.4% owned by cities, towns and counties, most towns haven't experienced the need to build extensive recreational trail systems. However, many of the more populous cities in Arizona are expanding their existing trail systems at the request of residents, and smaller towns are beginning to seek assistance in planning local trails and OHV routes that connect their towns to the surrounding public lands. In addition to providing recreational opportunities for their residents, many towns are anticipating that these "regional" trail and OHV networks will attract visitors and tourism dollars.

Photo: Many off-highway vehicle enthusiasts enjoy driving backcountry routes with friends and family. Martinez Canyon, Middle Gila Canyons area.

Many trails and routes in Arizona weren't planned for the type and amount of use they now receive nor were they designed with sustainability in mind; they were built to get from Point A to Point B, or they just formed through repetitive use. Trail managers are now seeing increased soil erosion, water cutting, trail widening, trail braiding and social trails. Land managers and trail volunteers alike are seeking out training workshops and other resources to learn about trail planning, sustainable trail design, maintenance techniques, and funding sources to help pay for all steps in establishing and maintaining sustainable trails. The Bureau of Land Management and U.S. Forest Service in Arizona are conducting strategic planning and route evaluations for the rapidly increasing off-highway vehicle recreation use occurring on federal lands. The Arizona Game & Fish Department is coordinating with these agencies and others to reduce recreational impacts to wildlife and their habitats.

Photo: Volunteers at Dead Horse Ranch State Park repairing a trail leading down to the Verde River.

To pull together these diverse issues and the needs of agencies, organizations and individuals into a statewide effort, Arizona State Parks conducts a yearlong process of gathering public input, researching issues and developing recommendations for trails and off-highway vehicle recreation in Arizona. This effort becomes the *Arizona Trails Plan,* which is the state's policy plan regarding non-motorized trails and off-highway vehicle recreation. The Arizona State Parks Board is mandated by state statute to prepare a state trails plan (A.R.S. § 41-511.22) and a state off-highway vehicle recreation plan (A.R.S. § 41-511.04 (20)) every five years.

The purpose of the Plan is to provide information and recommendations to guide Arizona State Parks and other agencies in Arizona in their management of motorized and non-motorized trail resources, and specifically to guide the distribution and expenditure of the trails component of the Arizona Heritage Fund (A.R.S. § 41-503), the Off-Highway Vehicle Recreation Fund (A.R.S. § 28-1176), and the Federal Recreational Trails Program (23 U.S.C. 206).

Definition of Trail

Trail, path, track, route, trek—all are words that refer to a trail, but what exactly is a 'trail'? The American Heritage Dictionary broadly defines a trail as anything from an ancient footpath to a shipping route. This definition includes, but is not limited to, bikeways, rail routes and motor roads.

The image of a trail may vary from a narrow path through a forest to a paved sidewalk connecting a school to a housing development, to a groomed path in the snow. Even rivers and streams serve as "paddle" trails for canoes and kayaks. Many historic trails in Arizona were used as transportation or trade routes connecting nomadic groups with each other and later used as wagon routes and highways as settlers moved west.

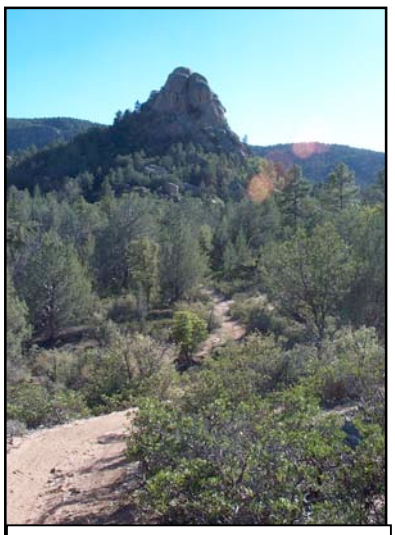


Photo: Trail, track, route or path — a trail by any other name . . .

Consequently, the meaning of the word "trail" is and always has been passionately debated. Every group of users has its own vision of what a trail should be, as well as to whom it should cater and what experiences it should provide. A final definition of "trail" may never be agreed upon, but two things are certain: trails have a richly storied history and are inherently dependent on those who use them.

In Arizona we often distinguish those linear corridors used primarily for non-motorized recreation as "trails", those used primarily for alternative transportation as "pathways", and those used primarily for motorized recreation as "routes".

However, to simplify the narrative, when we refer to "trail" in this Plan we refer to a corridor on land or through water that provides recreational, aesthetic or educational opportunities to motorized and non-motorized users of all ages and abilities.

Why a state trails plan?

Most trail plans guide the development of a particular trail or a group of trails within a small region. Because of the many land management jurisdictions and disparate goals in a state as large as Arizona, there is a need to pull together trail related information that concerns the state as a whole. This Plan is written primarily for recreation planners and land managers. In its component parts, it provides background on trail users and on current trends affecting Arizona's recreational OHV and non-motorized trail opportunities. The Plan is designed as an information resource as well as a planning tool to guide agencies for the next five years.

Specific planning objectives of the *Arizona Trails 2010 Plan* include:

- Assessing the needs and opinions of Arizona's citizens as they relate to trail and route recreation opportunities and management (motorized and non-motorized);
- Establishing priorities for expenditures from the Arizona Trails Heritage Fund, Off-Highway Vehicle Recreation Fund, Federal Recreational Trails Program and other applicable sources;
- Developing strategic directions to guide activities for the Arizona State Parks Non-motorized Trails Program and Off-Highway Vehicle Program, and other statewide or regional recreational trails efforts; and
- Recommending actions that enhance motorized and non-motorized trail opportunities to all agencies and private sector entities providing trail and OHV resources in Arizona.

What's in the Plan's Chapters?
The results of the concurrent statewide motorized and non-motorized trails planning effort are presented in the following chapters of the *Arizona Trails 2010 Plan*.

***Arizona Trails 2010 Plan* Chapters**
Chapter 1. Introduction–Definition of Trails, Benefits, Current Issues
Chapter 2. Trails 2010 Planning and Public Involvement Process
Chapter 3. Motorized Trails Recreation–Survey Results, Recommendations
Chapter 4. Non-Motorized Trails Recreation–Survey Results, Recommendations
Chapter 5. Planning For Trails and Motorized Recreation–Impacts, Regional Planning
Chapter 6. Grants and Funding—Partnerships and Funding Sources
Appendices–References, Legislation, and Survey Results/Data

What's new for 2010?
Most plan updates are reiterations of previous plans but with updated survey information. This Plan attempts to go a step further and address issues that are current or have been overlooked in past reports. Included in this Plan are current issues such as:

NEW ADDITIONS FOR THE *2010 PLAN*
Volunteerism (Chapters 3 and 4)
Trail Impacts (Chapter 5)
Invasive Species (Chapter 5)
Trail Closures Due to Air Quality Regulations (Chapter 3)
U.S.-Mexico Border Issues (Chapter 5)
Alternative Transportation (Chapter 5)
Regional Land Use Planning and Geographic Information Systems (GIS) (Chapter 5)
Federal Plans for Recreational Trails and Motorized Transportation Systems Within Our National Forests and Public Lands (Chapter 3)
Additions to Relevant Legislation and Policies and Historic Timeline of OHV Legislation (Chapters 3 and 4, and Appendix B and C)

How can the Plan's information be used?

The information contained within this Plan can be used in many ways.

- Enhance the quality of life of Arizona's residents and the quality of the experience of our visitors by promoting the protection and development of Arizona's trails and routes.
- Promote a common understanding of statewide, regional and local issues, and potential solutions affecting all trail interests.
- Provide a framework for strengthening the roles of trail and OHV advocates, managers and elected officials to be more effective in sustaining Arizona's trail heritage.
- Build a connected, effective constituency for trails and motorized recreation in Arizona.
- Establish and promote a framework for trail and OHV research, education, advocacy and action.
- Assist in justifying budget and personnel requests for trails and motorized recreation projects.
- Recommend funding priorities and actions to improve and maintain Arizona's trails and routes.

Note: This Trails Plan Update does not include numerous maps or trail locations, as it is not an inventory of existing trails or a proposed network of trails. At this point in time, because of the U.S. Forest Service and Bureau of Land Management efforts concerning the Travel Management Rule and Route Evaluation and Designation process, and the fact that many agencies have limited GIS capabilities, it would be difficult to include maps of all trails within each jurisdiction. There are dozens of local, state, federal and tribal governments in Arizona, each with their own trail standards, trail plans or travel management plans, management guidelines and statutory requirements, including the National Environmental Policy Act. This plan is not intended to dictate how any governmental agency or private entity should manage its lands or motorized or non-motorized trail resources. Rather, it is intended to provide information about the many types of trail users, describe issues and opportunities for those involved in planning, developing and maintaining trails and OHV routes in Arizona, and provide recommendations to *guide* agencies in their trail and OHV management efforts and guide expenditures from Arizona State Parks Board administered trail and OHV funds.

Demand for Trails

Considerable change has occurred on Arizona's recreational trails and off-highway vehicle (OHV) routes in the last five years including a 16% state population increase, and a 20% increase in numbers of recreational trail users. In addition there has been a substantial increase in OHV ownership–with Arizonans purchasing an average of 30,000 new all-terrain vehicles (ATV) and motorcycles annually (numbers do not include sales of utility terrain vehicles or side by sides). These increases place additional burdens on existing recreational resources necessitating more frequent trail and facility maintenance and renovation, more information and educational efforts, more law enforcement, and planning for future trails and facilities to meet the increasing demand. Tax revenues are down and local, state and federal agency budgets to manage the lands and trail resources have been cut drastically, including funds for the staff that plan, build or maintain the trails.

Photo: There is demand for single track trails for dirt bikes. Photo courtesy of Jeff Gursh.

The demand for trails—in good condition—and for adequate OHV recreation opportunities has skyrocketed over the past decade and, based on current trends, will only continue to increase. Managers are faced with increasingly complex decisions related to balancing recreation use with resource protection. There is a growing need to protect our state's natural and cultural resources from over-use, inappropriate use or land abuse from uneducated or irresponsible recreationists. Land managers are closing areas to recreationists due to extensive resource damage to soils, vegetation and wildlife populations, and most recently, to comply with air quality regulations targeting OHV use and increases in particulate matter (dust) in the air around metropolitan areas.

The findings from this study and from Arizona's 2008 Statewide Comprehensive Outdoor Recreation Plan (SCORP) clearly demonstrate how important both motorized and non-motorized trail activities are to Arizonans–84% of all trail users and 99% of "involved users" said trails are important to their *quality of life*. Out of the 22 outdoor recreation activities (such as playing sports, attending outdoor events, camping, boating) rated in the 2008 SCORP update, five activities are trail specific. The percent of Arizonans participating in these trail activities indicate their popularity and importance: driving vehicles for sightseeing or pleasure (84%); foot-powered activities such as hiking and jogging (75%); non-motorized riding such as mountain bikes and horses (49%); canoeing and kayaking (45%); and off-highway vehicle driving such as quads, dirtbikes and 4-wheeling (33%). Many other outdoor recreation activities frequently include use of trails such as nature study, birdwatching, rock climbing, visiting an archaeological site, or visiting a park, preserve or wilderness area. The priority outdoor recreation issues identified by the 2008 SCORP relate, in some fashion, to improving and enhancing Arizona's trail and OHV opportunities and experiences (ASP SCORP 2007).

Top 10 reasons why people are using Arizona's trails:

- Observe the scenic beauty
- Enjoy the sounds and smells of nature
- Be away from crowds
- Enjoy the solitude
- Be in the mountains
- Be by a stream or river
- Explore new areas
- Improve physical health
- Be by a lake
- Be with family and friends

(Source: ASP 1999)

Photo: Backpacking trails into remote areas are receiving increasing use. North Rim, Grand Canyon.

Benefits of Trails

Trails provide users a means to improve mental and physical health, are a source of community pride and cohesion, provide a venue for a variety of community, regional, and statewide activities and athletic events, and contribute significantly to Arizona's economic diversity and overall economy. Trails are often unrecognized as an important part of every community's basic infrastructure, along with schools, roads, utilities and public safety. Trails contribute significantly to the quality of life of Arizona's residents.

Better Health. Trails support an active lifestyle that improves both physical and mental health. Physical activity helps prevent heart disease, diabetes, osteoporosis, obesity, colon cancer and depression (US Dept. of Health and Human Disease 1996). An increase in physical activity can save millions of dollars in health care spending. Physical activity also reduces stress and improves mental health. As a result, it is becoming increasingly popular for trail advocates and the health community to develop partnerships and innovative approaches to combat this epidemic. Trails, especially close-to-home systems, provide opportunities to integrate physical activity into daily living by offering settings to walk, run, and bike during leisure time or for commuting.

Photo: The Murphy Bridle Path in central Phoenix receives considerable use by dog walkers, joggers and bicyclists.

Trails are exceptionally well suited to helping Arizonans become more physically active. Many are designed for the recreational activities Arizonans most enjoy, including walking, cycling and jogging (ASP SCORP 2007). They are readily accessible to most Arizonans and inexpensive to use. They are found in a variety of attractive settings and can provide moderate activity or challenging outdoor adventure. They can provide physical activity for a wide range of people, including persons with disabilities, children and youth, elderly and others who are known to be less physically active.

Most towns and cities offer a diverse array of trail opportunities, including pathways for walking, jogging or biking within neighborhoods. There are more challenging trails within desert or mountain parks and preserves, and access to miles of trails and backcountry routes within adjacent State and National Parks, National Forests, and Bureau of Land Management lands.

Strong People, Strong Economy. Trails contribute to Arizona's economy by attracting tourists to communities. Tourism creates jobs and puts money into local economies. Many trail and OHV users support local businesses by buying goods such as walking shoes, hiking boots, mountain bikes, ATVs, 'toy haulers', saddles, camping equipment, binoculars, helmets, water bottles, food and gasoline, and by renting equipment such as cross-country skis and snowmobiles. With the recent economic decline, Arizonans are taking shorter vacations, and staying closer to home. Vacation dollars are spent on local restaurants, accommodations, retail purchases and day trips. In a 2003 study by Arizona State University it is estimated that off-highway vehicle recreational use in Arizona contributes at least $4 billion a year to the state's economy (Silberman 2003).

Photo: Tourists can take a guided mule trip down the Bright Angel Trail in the Grand Canyon.

Local areas that contain unique and interesting features and terrain can provide trail guides and tour outfitters with the desired attractions to take tourists into the backcountry where they might not have the opportunity or inclination to explore on their own. Many of Arizona's tour operators offer specialized "jeep" tours into remote regions of the Sonoran Desert and Sedona's Red Rock country, allowing people to experience the rugged splendor of Arizona and still be back in the city for dinner. Hiking and horseback

tours are offered for special areas such as the Grand Canyon, Canyon de Chelly, Havasupai and Aravaipa Canyon, to name a few.

In addition to the financial gains resulting from increased tourist visitation, other economic benefits associated with trail development include enhanced property values and increased local and state tax revenues. A home near a trail can offer a pleasing view, quieter streets, recreational opportunities and a chance to get in touch with nature. Studies find that properties located near trails generally sell for five to thirty two percent more than those farther away (Dunbar 1999).

Strong Communities. Trails strengthen the social fabric. When one hikes, bikes or rides trails through neighborhoods and towns, along park or preserve pathways, and along greenways, canals and other right-of-ways, it can inspire a sense of belonging and appreciation for the local culture. A 2002 survey co-sponsored by the National Association of Homebuilders and the National Association of Realtors found that trails come in second only to highway access when those surveyed were asked about the importance of community amenities. (NAHB 2002)

According to a 1999 study, people believe that backcountry roads are beneficial because they provide access for a wide range of recreational activities, including access for senior citizens and people with disabilities (Bengston and Fan 1999). Access is a top priority concern for trail users in Arizona (Chapters 3 and 4). Trails Plan workshops had a number of attendees concerned about motorized trail access for people with disabilities as this was their only way to visit the backcountry.

Volunteering is one measure of the vitality of a society. People working together, giving their time freely, and sharing in socially valuable, meaningful activities—these are practices that create strong communities. Trails provide opportunities for volunteering throughout Arizona. Arizona's non-motorized trail systems were largely built by volunteers. Many clean-up events on public lands are co-sponsored by off-highway vehicle clubs, as well sign installations and other small projects.

Many trails also depend on the hospitality of private property owners. Some trails cross private lands, with access freely given by property owners who are willing to share their land with trail users. Some owners have even donated their land or a perpetual easement to trail or open space organizations. Arizona has a recreational liability statute that limits the responsibility of a landowner regarding recreational users who cross private lands (see Appendix B). Trail construction and maintenance builds and solidifies partnerships among community residents, businesses, landowners, local governments and trail club members. The state as a whole is also strengthened as people of all income brackets, all age groups and all cultures travel throughout Arizona for trail-based recreational experiences.

More Valued, Better Treated Environment. Trails lead users through the incredibly varied landscapes found in Arizona. They lead people through diverse plant and animal habitats like riparian areas, forests and deserts, and historic places like old mining towns, prehistoric settlements, or the sites of famous events. Interpretive signage along a trail can educate the public about the sensitivity of natural and cultural areas and raise awareness of the importance of protecting vulnerable resources. Teaching appropriate trail ethics can encourage responsible behavior in any outdoor setting.

Photo: Historic and archaeological sites are popular trail and OHV route destinations. Ruins of old mining town, Swansea.

Trails also provide a great benefit by limiting damaging cross-country travel and protecting the state's natural environment and resources. By leading users along well-designed sustainable trails and designated routes, trails keep users away from sensitive wildlife habitats and cultural features that might not be able to withstand traffic. Well-designed trails can provide environmental buffers, such as bridges or boardwalks, protecting delicate wetlands and riparian areas while allowing users to experience these important habitats. (Ministry of Health 2005)

Trails in Arizona often give users access to remote backcountry and designated wilderness areas. Indeed, the chance to experience the backcountry is one major appeal of tourism in Arizona. The need to protect and conserve these wild and primitive areas is something all land managers should include in their trail information brochures and maps.

Trails provide meaningful and satisfying outdoor experiences for many users. These experiences reaffirm a sense of connection with the natural environment and provide opportunities for an appreciation of Arizona's natural heritage, and appreciation leads to protection.

In particular, trails are a good medium for families and children, allowing inexpensive recreational experiences in a natural setting, providing educational opportunities and memories that will last a lifetime. Trails and routes let children learn new skills and gain confidence in their abilities while in a managed situation. Trails can provide students with unique living laboratories to increase understanding of scientific, environmental and cultural issues.

By linking natural and cultural resources in both rural and urban settings, trails provide users - individually and collectively - with a rich learning environment. With a system of trails that traverses Arizona's many natural and cultural regions, trails play an important role in supporting environmental education and building a public commitment to environmental conservation and stewardship.

A Snapshot of Current Issues Affecting Trails and OHV Recreation

There are several current issues in Arizona that are affecting both the resources available for trails and OHV routes and the user demands for the recreation opportunities. These issues are discussed further in the following chapters.

A Snapshot of Trail and OHV Issues in Arizona
Arizona's population continues to increase at record levels 6.6 million people in 2008
The number of trail and OHV users is increasing 69% of adult Arizonans are trail users—that's 3.2 million people not including children or visitors
Also increasing are the types of recreational trail activities (canyoneering; side by sides; rock crawling; extreme sports)
There are more people wanting to use trails close to home as part of their regular exercise routine and to get away from everyday pressures (walking; running; biking; bird watching; walking the dog)
There is an increasing number of people with mobility issues wanting to access and explore Arizona's trails and backcountry (people with disabilities; people with small children; senior citizens; baby boomers)
Volunteers are offering their assistance to land managers to build and maintain trails and OHV areas
Trails must compete for use of Arizona's land base (one type of trail use vs another; trail use vs other recreation activities; grazing, mining, logging, energy production; development for homes and businesses; protection of natural and cultural resources)
Trail closures and a loss of access to trails are decreasing recreational opportunities (air quality/dust; environmental impacts; vandalism; urban development)
Safety and law enforcement issues associated with illegal human and drug smuggling across the U.S.-Mexico border are impacting recreational trail use and the environment in southern Arizona
Agency budget reductions and fund sweeps reduce money and staff available to plan, build and maintain trails and OHV routes, and to coordinate volunteer efforts
Keep reading, *there's more . . .*

CHAPTER 2

Trails 2010 Planning and Public Involvement Process

A Concurrent State Motorized and Non-motorized Trails Planning Process
There are considerable benefits associated with a concurrent state motorized and non-motorized trails planning process including:

- providing user groups with comparative information to emphasize areas of common ground and understanding;
- packaging two plans into one volume, providing a comprehensive planning document for recreational planners who often work on both motorized and non-motorized trails;
- cost savings from combined motorized and non-motorized trail user surveys; and
- administrative and travel cost savings with conducting concurrent but separate regional issues workshops with motorized and non-motorized trail users and land managers.

The purpose of the planning process is to gather information and recommendations to guide Arizona State Parks (ASP) and other agencies in Arizona in their management of motorized and non-motorized trail and riding resources. Public involvement is a prime component throughout this effort. Early in the planning process, ASP staff coordinated with three of the agency's advisory committees – the Arizona State Committee on Trails (ASCOT), Off-Highway Vehicle Advisory Group (OHVAG), and Arizona Outdoor Recreation Coordinating Commission (AORCC) – to guide this statewide planning effort.

Scoping Meetings
In December 2007, ASP staff held several scoping meetings around the state to learn what trail and OHV planners and managers wanted this *Trails 2010 Plan* update to include. Staff e-mailed a short questionnaire to local, state and federal land managers asking similar questions about trail and OHV route information wants and needs.

Photo: Participants at the Trails 2010 Regional Workshop in Flagstaff provide Arizona State Parks staff with their region's priority issues and needs. Riordan Mansion State Historic Park.

Surveys
In January 2008, ASP partnered with Arizona State University to conduct a series of telephone, online and field surveys, as well as trends research and a compilation of regional trail plans. The different survey tools are as follows:

1) **Random Sample Telephone and Web Survey of Arizona Households**—The first survey of "Random Households" focused on the general public to determine what percent of

Arizona's population consider themselves motorized or non-motorized trail users, and then, determine trail participation rates, attitudes and preferences regarding numerous trail issues. A cross sectional survey design was used to gather data from a stratified random sample of Arizona households. The cross sectional survey design provides a "snapshot" of the frequency and characteristics of attributes for a sample of a given population. The use of standardized questionnaires and probability sampling makes surveys especially well suited to describing the characteristics of a large population.

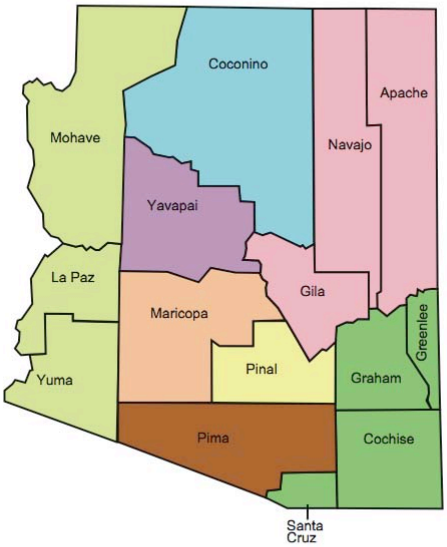
The study is based on a stratified random sampling strategy. The survey population included all adult Arizona residents (age 18 years and older). The design gave every household with a working land-line telephone a chance of being selected to be interviewed. The size of the telephone survey sample was designed to provide final results with sampling error of approximately plus or minus 5% at the 95% confidence interval.

Respondents could choose to take the survey directly over the phone or link to a web-based survey at a time of their choosing. The margin of sampling error for the short version telephone survey was +/- 1.8% at the 95% confidence interval. The margin of sampling error for the full version of the telephone and web survey was 2.3% at the 95% confidence interval. This public survey resulted in 2856 completed surveys, a 33.65% overall response rate. A total of 40.5% of respondents completed the entire survey on the phone and 59.5% of respondents completed the initial survey on the phone and the longer follow-up survey online.

To draw a stratified random sample, the state was divided into eight subgroups or strata based on county boundaries. The telephone survey was designed to result in approximately 300 completed interviews for each stratum for a total of 2400 completed surveys. This sampling strategy is similar to the scheme used in the research for 2005 trails plans but the current study used eight strata instead of fifteen. Once all the data had been collected, the sample sizes were statistically adjusted, or weighted, to accurately represent the state's population distribution. Through this procedure, the responses from each stratum/county are weighted so that the final sample size reflects the population proportion from each stratum and corrects for over-sampling bias toward rural residents that would be present without weighting.

<u>Eight Strata Used for Random Household Survey:</u>

1. Maricopa County
2. Pinal County
3. Coconino County
4. Yavapai County
5. Pima County
6. Yuma, La Paz, Mohave Counties
7. Cochise, Graham, Greenlee, Santa Cruz Counties
8. Apache, Gila, Navajo Counties



The first goal of the telephone survey was to obtain population estimates for motorized recreation trail users, non-motorized recreation trail users, and non-users statewide and by county. The second purpose of the telephone survey was to recruit participants to complete a longer in-depth questionnaire via the telephone or online.

Each individual was first asked a series of questions to determine whether the person was a non-user, a motorized user, or a non-motorized user. Each person was asked whether, during his or her time in Arizona, he or she ever used trails for motorized recreation. This was followed by a question asking if the person ever used trails for non-motorized recreation. Those people answering no to both questions were categorized as non-users. Those that answered yes to only one of the questions were classified as that specific user type. Those that answered yes to both were asked to determine what percentage of their trail use was allocated to motorized versus non-motorized use. The respondent was then categorized into his or her predominate use-type category (greater than 50% of trail use). A small number of respondents claimed to use trails equally for motorized and non-motorized recreation activities. These respondents were excluded from further analysis as they tend to homogenize the results.

Eligible respondents (trail users) were then offered the opportunity to complete a longer questionnaire to determine more detailed information. This instrument was designed by Arizona State Parks and ASU, and the respondent was offered the opportunity to continue the survey on the phone or complete the survey online. If the respondent chose to complete the survey online, he or she was asked to provide an email address and they were sent an email with a link to the online survey and unique identification number.

Survey research also has certain limitations that should be noted and taken into account when interpreting the results. Survey research can be affected by several sources of error or bias, including sampling error, non-coverage error, non-response error, and measurement error. In this study, sampling error is limited by the stratified random sampling design and large sample size. Non-coverage error refers to the fact that sampling frames may not include all eligible members of a population. For instance, "cell phone only" households are becoming more common and these households are not included in this study's sampling frame. Non-response error occurs when the final completed sample does not accurately reflect the sampling frame due to systematic bias. For instance, certain groups of respondents may be less likely to participate in the survey. To reduce non-response bias, several techniques were used to increase response rates, including multiple follow-up contacts for non-respondents. To limit measurement error the questionnaires were thoroughly reviewed by the research team and pre-tested to ensure respondents could understand and accurately respond to the questions.

2) **Targeted Group of Trail Enthusiasts or "Involved User" Web Survey**—Through an online survey, the same questions asked of the public in the Random Household survey were asked of a targeted group of motorized and non-motorized trail users, referred to "Involved Users," that have expressed prior interest in trail or OHV management. These users are typically more involved in their chosen trail activity than a casual trail user, they tend to participate in trail activities more often, and they often belong to a trail/OHV related club or

organization. A database of 517 of email addresses was provided by Arizona State Parks for the "Involved User" survey. There were 384 completed surveys, resulting in a final adjusted survey response rate of 74%.

For the Involved User web survey, a non-probability or purposive sampling strategy was used. Therefore, conclusions drawn regarding this group are representative only of those individuals who participated in the survey and cannot be generalized to any larger population or group.

3) **"Interested Public" Trails Web Survey through Arizona State Parks Website**—The same questions asked of the Random Household and Involved User respondents were available to any interested party through an online survey posted on the ASP website (www.azstateparks.com). A banner and link to the survey was placed on the ASP website inviting participation in the study. E-mail notices of the "open" trails survey were sent to a large list of individuals and organizations who had previously expressed an interest in trail and OHV issues for Arizona and specifically in participating in this trails planning process. More than 1900 people completed the survey. For this survey, a non-probability convenience sample was drawn. Therefore, conclusions drawn regarding this group are representative only of those individuals who participated in the survey and cannot be generalized to any larger population or group.

4) **Land Manager Trail Web Survey**—Land managers with responsibility for multiple aspects of recreational trail and OHV resources in Arizona were asked to respond to an online survey that focused on trail issues from a management perspective. A database of 424 email addresses was provided to ASU by Arizona State Parks for the land manager survey. This included city and county parks and recreation departments, state and federal agencies such as Arizona State Parks, Arizona Game and Fish Department, Arizona State Land Department, National Parks and Monuments, National Forests, Bureau of Land Management, National Wildlife Refuges, some of the larger tribal governments, and several of Arizona's land trust organizations. The manager survey had 186 completed surveys, resulting in a final adjusted survey response rate of 52%. A non-probability or purposive sampling strategy was used for the land manager web survey. Therefore, conclusions drawn regarding this group are representative only of those individuals who participated in the survey and cannot be generalized to any larger population or group. While percentages of respondents in each response category are reported in the results section to illustrate patterns in the responses, caution should be exercised in interpretation due to small sample sizes, especially when considering sub-groups (e.g., "federal agencies" or "state agencies").

5) **Field Survey of Off-Highway Vehicle Users at Eight Selected OHV Sites**—Interviewers visited eight high use OHV sites in Arizona to interview motorized recreationists in the field. A series of standardized questions were asked each respondent. Land managers responsible for each site were also interviewed. Results can be found in Appendix E of this document.

The Random Household, Involved User and Land Manager phone/web survey instruments followed a modified Tailored Design Method. This method involved sending numerous follow-up requests to those respondents who had not yet completed the survey. Staff asked the same

survey questions to the three trail user surveys so that the groups' responses could be compared. By soliciting broad-based input and analyzing the findings from all surveys, this Trails Plan is able to present a more accurate picture of Arizona's entire spectrum of motorized and non-motorized trail users and stakeholders.

Introduction to the User Survey Results

One of the objectives of this Plan is to identify the number of motorized and non-motorized trail users in Arizona. To accomplish this objective and to increase the public involvement in the preparation of the *Arizona Trails 2010 Plan*, Arizona State Parks partnered with Arizona State University in 2008 to conduct several trail related surveys. The first three surveys asked the same questions:

1. a statewide telephone survey of randomly selected Arizonans over the age of 18 (2856 completed surveys) referred to as the "Random Household" survey,
2. an online web survey of targeted Arizona trail users, most of whom belong to a trail or OHV organization (384 completed surveys), referred to as the "Involved User" survey, and
3. an open online survey reached by link through the ASP website of people who expressed an interest or concern with recreational motorized or non-motorized trails (1904 completed surveys) referred to as the "Interested Public" survey.

The first section of this Chapter provides an overview of the survey research methods. This section and the following two chapters present results from the Random Household, Involved User and Interested Public surveys, as well as the regional workshops, providing information for land managers and trail users to determine the issues and needs on which to focus their efforts and resources. For more detailed information, refer to *Trails 2010: A Study of Arizona's Motorized and Non-Motorized Trail Users* final technical report (White & Meyers 2009).

A Profile of Arizona's Trail Users

The following information is from the Random Household Phone and Web Survey. Trail user percentages and numbers are based on the number of Arizonans over age 18. For reference, the 2008 Arizona estimated population is 6,500,180, of which 4,777,632 are adults over age 18 (U.S. Census Bureau 2009).

Total Trail Users: **69%** of adult Arizona residents use recreational trails; this means that 3,227,455 Arizonans age 18 and over consider themselves recreational trail users. 31% say they are non-users of trails.

Motorized Trail Users: **22%** of adult Arizona residents (1,027,191 adults) said they have used a trail for motorized trail recreation; **11%** (511,207 adults) reported that motorized trail use accounts for the majority of their recreational trail time and are considered **"core" users**.

Non-motorized Trail Users: **64%** of adult Arizona residents (3,043,352 adults) said they have used a trail for non-motorized trail recreation; **58%** (2,766,249 adults) reported that non-motorized trail use accounts for the majority of their recreational trail time and are considered **"core" users**.

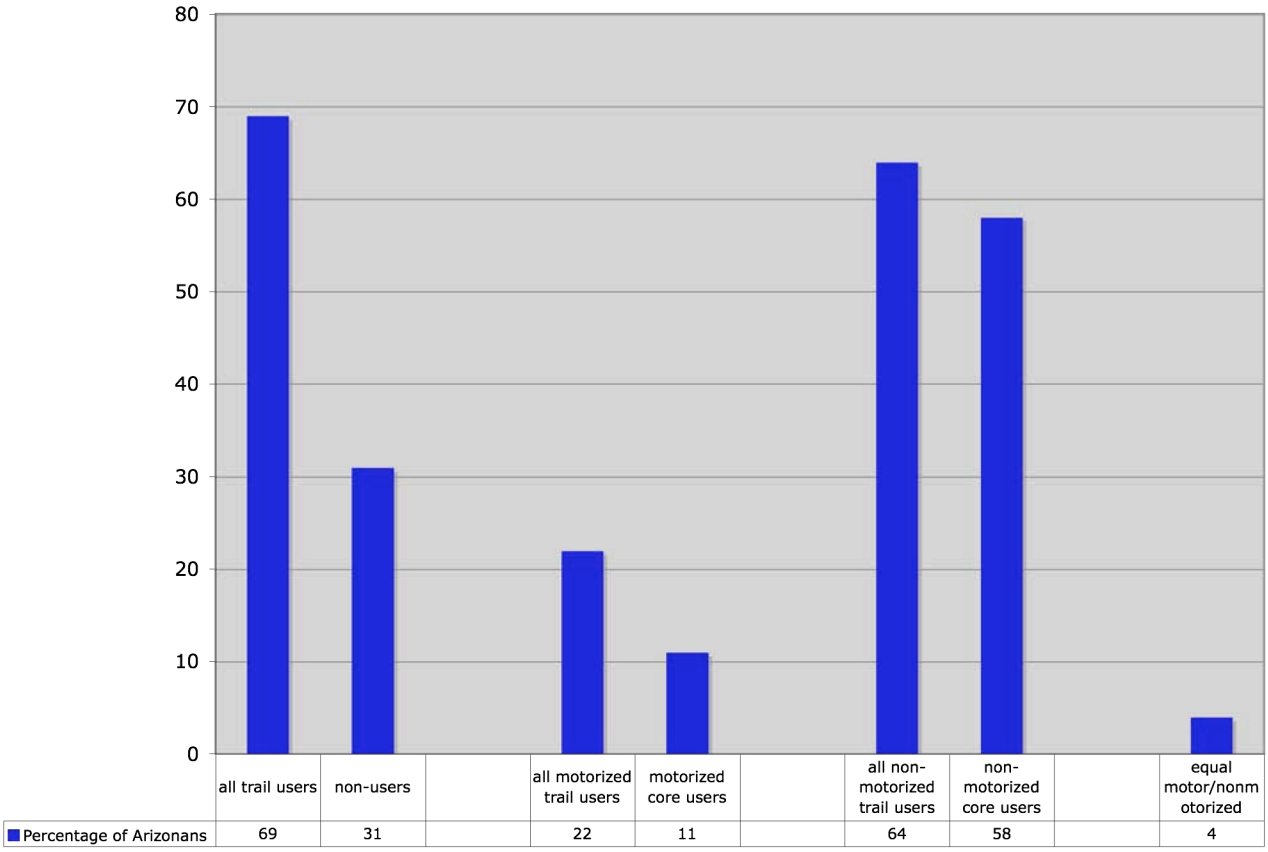
Equal Users of both Motorized and Non-motorized Trails: 4% of adult Arizona residents (210,219 adults) said they use motorized and non-motorized trails equally.

Table 1. Percentages and Numbers of Trail Users in Arizona

% and # Trail Users in Arizona (18 yrs and over)	Motorized Trail Users		Non-motorized Trail Users		Equal Motorized/ Non-motorized Trail Users	TOTAL Trail Users	Non-users of trails
	Used any Mot. Trail	Motorized Core User	Used any NM. Trail	NonMot. Core User			
2010 Plan (2008 survey)	**21.5%**	**10.7%**	**63.7%**	**57.9%**	**4.4%**	**68.6%**	**31.4%**
2008 AZ Population age 18 and over	1,027,191	511,207	3,043,352	2,766,249	210,219	3,227,455	1,500,176
2005 Plan (2003 survey)*	**24.5%**	**7.0%**	**62.7%**	**56.5%**	**2.9%**	**66.4%**	**33.6%**
2003 AZ Population age 18 and over	995,067	284,305	2,546,560	2,294,747	117,783	2,696,835	1,364,664

*2003 AZ Population=5,585,512; age 18 and over=4,061,499. Source: AZ Department of Economic Security website, 2009.

Figure 1. Percentages of Trail Users in Arizona



The Random Household "all trail user" survey responses to the various questions outlined in Chapters 3 and 4 are from the 69% of adult Arizonans who said they use recreational trails. The motorized and non-motorized trail user responses are from the respective "core" users—11% and 58%.

These Random Household respondents are a combination of casual trail users recreating once or twice a year, to avid trail users who go out every week, to anywhere in between. They are a cross-section of the full spectrum of motorized and/or non-motorized trail users in Arizona. Responses from the Involved Users and Interested Public web surveys are included for comparison purposes. The Involved Users include mostly avid trail and OHV users. The Interested Public may be avid trail or OHV users, casual recreationists, or people just interested in trail or off-highway vehicle issues. Where applicable, responses from the 2003 Arizona Trail Surveys, both Random Household (general public) and Involved User (target group), are also included for trend comparison purposes.

- **Random Household all trail users**=69% of adult Arizonans who consider themselves motorized, non-motorized or equally motorized/non-motorized trail users.

- **Random Household motorized trail users**=11% of adult Arizonans who consider themselves primarily motorized trail users or "core users" [might also be abbreviated as motorized, motor, mot].

- **Random Household non-motorized trail users**=58% of adult Arizonans who consider themselves primarily non-motorized trail users or "core users" [might also be abbreviated as non-motorized, non-mot, nm].

- **Involved Users motorized**=active trail users who consider themselves primarily motorized trail users randomly selected from Arizona State Parks's mailing list of recreational OHV users, clubs and organizations.

- **Involved Users non-motorized**=active trail users who consider themselves primarily non-motorized trail users randomly selected from Arizona State Parks's mailing list of recreational trail users, clubs and organizations.

- **Interested Public motorized**=interested public who took the trails web survey linked through the Arizona State Parks's website; respondents could be OHV users or those interested in or concerned with OHVs or motorized recreation management.

- **Interested Public non-motorized**=interested public who took the trails web survey linked through the Arizona State Parks's website; respondents could be trail users or those interested in or concerned with non-motorized trails or trail management.

Table 2. 2008 Survey Responses Regarding Trail User Types by County

Strata (Counties) % and # of Core Users age 18 and over	Core or Primary Use Motorized User	Core or Primary Use Non-Motorized User	Non-user	Total Population 18 yrs and over
Maricopa	**9.6%**	**59.2%**	**31.2%**	**100%**
	277,944	1,713,986	903,317	2,895,246
Pinal	**13.8%**	**48.3%**	**37.9%**	**100%**
	106,630	373,206	98,583	260,114
Coconino	**12.2%**	**68.3%**	**19.5%**	**100%**
	12,342	69,097	20,555	105,412
Yavapai	**12.1%**	**64.4%**	**23.5%**	**100%**
	22,035	117,276	42,795	182,106
Pima	**7.9%**	**63.5%**	**28.7%**	**100%**
	61,042	490,655	221,760	772,685
Yuma, La Paz, Mohave	**22.2%**	**34.6%**	**43.2%**	**100%**
	71,668	111,699	139,462	322,829
Cochise, Graham, Greenlee, Santa Cruz	**12.8%**	**57.7%**	**29.5%**	**100%**
	22,168	99,929	51,090	173,188
Apache, Gila, Navajo	**19.4%**	**51.4%**	**29.2%**	**100%**
	34,302	90,882	51,629	176,813
Statewide Totals (weighted)	**10.7%**	**57.9%**	**31.4%**	**100%**
	511,207	2,766,249	1,500,176	4,777,632

Source for July 1, 2008 estimated Arizona population numbers: Population Statistics Unit, AZ Dept. of Commerce, Jan. 2009; these numbers may differ slightly from U.S. Census Bureau numbers and should be used only as general estimates.

Figure 2. Percentages of Trail Users by County

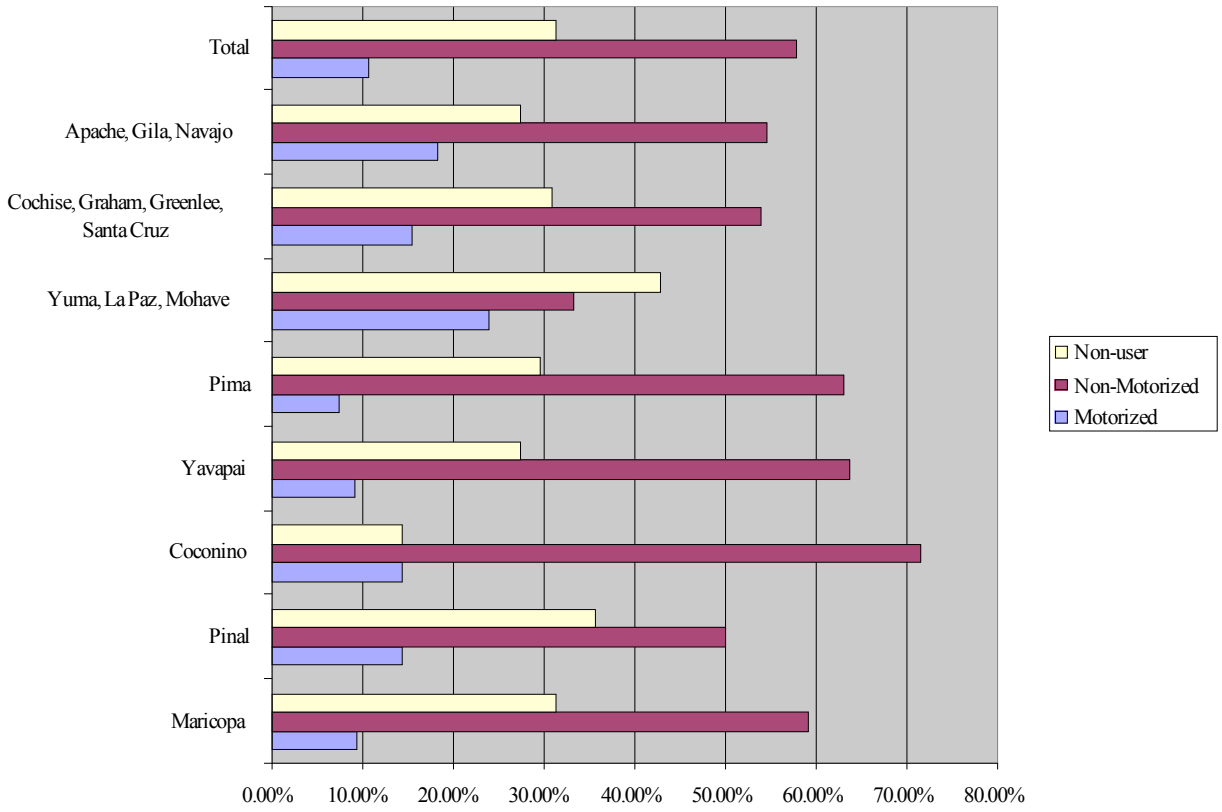


Table 3. Comparison of 2003 and 2008 Survey Responses Regarding Trail User Type

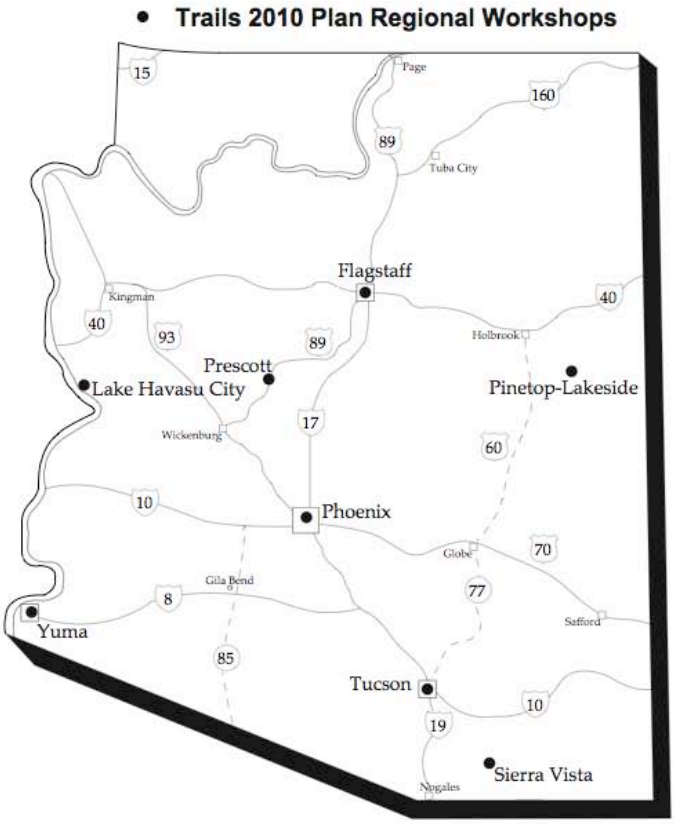
Strata (Counties)	Core Motor 2003	**Core Motor 2008**	Core Non-Motor 2003	**Core Non-Motor 2008**	Non-user 2003	**Non-user 2008**	Total 2003	**Total 2008**
Maricopa	5.6%	**9.6%**	55.1%	**59.2%**	36.2%	**31.2%**	100%	100.0%
Pinal	8.6%	**13.8%**	48.9%	**48.3%**	40.2%	**37.9%**	100%	100.0%
Coconino	11.1%	**12.2%**	69.4%	**68.3%**	15.8%	**19.5%**	100%	100.0%
Yavapai	10.5%	**12.1%**	69.2%	**64.4%**	16.8%	**23.5%**	100%	100.0%
Pima	5.3%	**7.9%**	66.9%	**63.5%**	26.5%	**28.7%**	100%	100.0%
Yuma, La Paz, Mohave	18.2%	**22.2%**	37.9%	**34.6%**	40.6%	**43.2%**	100%	100.0%
Cochise, Graham, Greenlee, Santa Cruz	11.6%	**12.8%**	53.0%	**57.7%**	30.9%	**29.5%**	100%	100.0%
Apache, Gila, Navajo	11.9%	**19.4%**	52.4%	**51.4%**	31.8%	**29.2%**	100%	100.0%
Statewide Totals	7.0%	**10.7%**	56.5%	**57.9%**	33.6%	**31.4%**	100.0%	**100.0%**

"Core" refers to respondents who reported their trail use was primarily motorized or non-motorized. 2003 surveys gathered data by 15 individual counties; the numbers were consolidated into 8 county strata for 2008 comparisons.

Regional Workshops and Public Comments

In late 2008 after the surveys were completed, Arizona State Parks conducted a series of eight regional workshops for trail users and general public to present the survey findings, and solicit ideas and comments about local trail and OHV issues:

October 29: Prescott
November 5: Flagstaff
November 6: Pinetop-Lakeside
November 17: Lake Havasu City
November 18: Yuma
December 1: Tucson
December 2: Sierra Vista
December 10: Phoenix



Arizona State Parks also conducted a series of eight regional workshops for trail managers to receive their input and recommendations:

November 6: Flagstaff
November 7: Pinetop-Lakeside
November 18: Lake Havasu City
November 19: Yuma
December 2: Tucson
December 3: Sierra Vista
December 8: Prescott
December 10: Phoenix

Attendance at the sixteen workshops varied, but more than 120 people participated in the public workshops and 46 people participated in the land manager workshops. Summaries of the workshop comments follow this section. State Parks staff also received 35 separate comments (written or emailed) from people unable to attend the workshops but who wished to provide input.

Regional Workshop Summary: Public, Trail and OHV Users, and Land Managers

Arizona State Parks staff conducted sixteen Regional Workshops for this Trails Plan in eight regions of the state to gather information from individuals and agencies that expressed interest in participating in trails planning. Separate regional workshops were held for representatives of 1) the general public and motorized and non-motorized trail users, and 2) land and resource management agency professionals.

Through discussions, issues regarding motorized and non-motorized trail use emerged, including issues that were not fully addressed in the phone and web surveys. This section reports the top discussion items/needs by region, and statewide.

Table 4. Trail and OHV Issues from Regional Workshops—Regional Overview

FLAGSTAFF

Public—Trail and OHV Users

- Keep trails and trail access open
- More long distance loop trails
- Cross-jurisdictional planning for trail connectivity
- Establish volunteer relations and agreements
- Collaborate with the Arizona State Land Department for trail access and use
- Fulfill NEPA requirements to acquire or develop lands

Land Managers

- Comprehensive maintenance plan for non-motorized trails
- Comprehensive local plan for motorized trails
- Education – why was an area closed, where are open routes. Use brochures, internet, dealers, manufacturers, signage, etc.
- Incentives for communities to address volunteer programs
- NEPA and ranger/enforcement funding

PINETOP-LAKESIDE

Public—Trail and OHV Users

- Keep trails and trail access open
- Need for more diverse riding areas – beginners, rough rider areas, loop trails, and high-quality OHV trails and destinations
- Interagency coordination for trail connectivity and resource sharing
- Need for increased community service/volunteer programs
- Need for education (especially youth) and enforcement of laws and regulations

Land Managers

- Maintenance of existing trails
- Trail assessment and reconstruction
- Cross-jurisdictional planning for trail connectivity (urban to rural)
- Increased use of trained volunteers

TUCSON

Public—Trail and OHV Users

- Keep trails and trail access open
- Develop new trails
- Utilize volunteers and provide more training to public for volunteers/leadership
- Education campaigns (i.e., Nature Rules, billboards, interactive website)
- Increase law enforcement and ranger presence
- Expand and strengthen Arizona State Parks and other entities in line with increasing needs/activities (e.g., off-highway vehicle recreation)

Land Managers

- Trail conferences and workshops
- Interagency planning and collaboration (municipalities and counties)
- Youth involvement in the outdoors
- Conduct surveys, planning, public input to define trail user demand/needs
- Need for maps to show routes across State Trust lands

LAKE HAVASU CITY
Public—Trail and OHV Users • Keep trails and trail access open (e.g., State Trust land, private property) • Increase law enforcement presence • Establish volunteer programs (e.g., adopt-a-trail) • Collaborate with the Arizona State Land Department for trail access and use • Sign and rate trails (i.e., difficulty level)
Land Managers • Develop regional trails plan • Evaluation and designation of off-highway vehicle routes (signing and maps) • Trail maintenance (crews and volunteers) • Enforcement of laws and regulations

PHOENIX
Public—Trail and OHV Users • Keep trails and trail access open • Utilize volunteers and provide more training and materials to volunteers • Increase education and enforcement • Interagency coordination • Trail maintenance
Land Managers • Enforcement/presence on the ground • Acquire land for trail access (capitalize on current lower land values) • Need for volunteer support; materials, training, and funding for volunteers • Trail maintenance crews for non-motorized and motorized trails • Facilitated coordination between agencies for comprehensive trail planning

YUMA
Public—Trail and OHV Users • Keep trails and trail access open • Establish volunteer programs (e.g., adopt-a-trail) • Enforcement of existing rules and regulations • Border issues/transient camps affect trail desirability • Education/maps-tourists not familiar with area trails and desert issues • Need for State Land Department input on trail planning • Motorized users are “lumped” together but are different user types having different needs/impacts
Land Managers • Adequate well-defined trail system in place (city) • Motorized route evaluation and designations • Establish volunteer programs • Federal and local trail connectivity planning

SIERRA VISTA
Public—Trail and OHV Users • Keep trails and trail access open • Education workshops for land agency staff and trail users • Agency decisions lack public involvement • Interagency communication/planning • Seek private sponsorships and other funding sources • Provide technical assistance to county planners
Land Managers • More presence on the ground • Maintenance and continual clean-ups • Education workshops for land agency staff and the public • Well mapped trails and trailheads

PRESCOTT
Public—Trail and OHV Users • Keep trails and trail access open • Work with developers for trail access • Cross-jurisdictional planning for trail connectivity • Protect funding for trails • Education – youth and adult, trail ethics • Information (e.g., up to date maps) • Utilize volunteers
Land Managers • Federal and local trail connectivity planning • Build Prescott Circle Trail • Establish volunteer programs • Trail maintenance • More presence on the ground

Many issues were reiterated as key issues/concerns at each Regional Workshop, and also across a multitude of Regional Workshops. This indicates that the issue was of more than regional importance. The following table and narrative presents the top workshop issues.

Table 5. Top Trail and OHV Issues from Regional Workshops—Statewide View

Public Workshops – Trail and OHV Users Top Three Issues
1. Keep Trails and Routes and Their Access Open
2. Implement Interagency/Cross-Jurisdictional Planning and Coordination
3. Improve Volunteer Coordination and Management
Other Trail and OHV Issues
• Provide Law Enforcement/ On the Ground Presence • Implement Trail and OHV User Education • Improve Trail and Route Maintenance • Provide Trail and Route Maps

Top Three Trail and OHV Issues from Public Workshops—Statewide View

1. Keep Trails and Routes, and Their Access Open
Protecting access for trails and routes was at the forefront of conversations at the public workshops. Workshop participants expressed concern about the number of existing trails or routes being closed. This was especially concerning for motorized users and their perspective on current and potential future impacts of Federal route designations and State Land access closures. This discussion included acquisitions of easements to protect access to trails and routes, protection from encroaching development, and land agency cooperation/collaboration.

2. Proactively Implement Interagency/Cross-Jurisdictional Planning and Coordination
The need for agencies to plan beyond their jurisdictions for regional trail connectivity was a common theme at workshops throughout the state. Planning aspects included many levels: long-term planning, growth/land use planning, trail interconnectivity in conjunction with regional or county planning. Land managers and the public alike had interest in connecting urban areas (city/town/county) to more remote areas (federal lands, larger less developed parks and preserves) through trails and routes.

3. Improve Volunteer Coordination and Management
Both the public and land managers throughout the state raised the issue of volunteerism. The public expressed willingness to volunteer to help agencies in all aspects of trails including maintenance, construction and education. They do not feel that agencies adequately respond to volunteer requests. The land managers acknowledged the value of volunteers, but expressed a lack of agency funds, personnel and time to coordinate and effectively manage and train volunteers. However, agencies would like to see a large cadre of trained volunteers to offset staff and budget cuts, and more importantly, involve trail users in trail management to create a sense of stewardship/ownership.

Other Trail and OHV Issues from Public Workshops

•Provide Law Enforcement/On the Ground Presence
Comments related to enforcement of existing laws, heavier fines, peer patrols, complaint registers, and identifying enforcement contacts. Users would like to see deviant trail behavior penalized to reduce environmental impacts and negative reactions from land managing agencies including closure of trails.

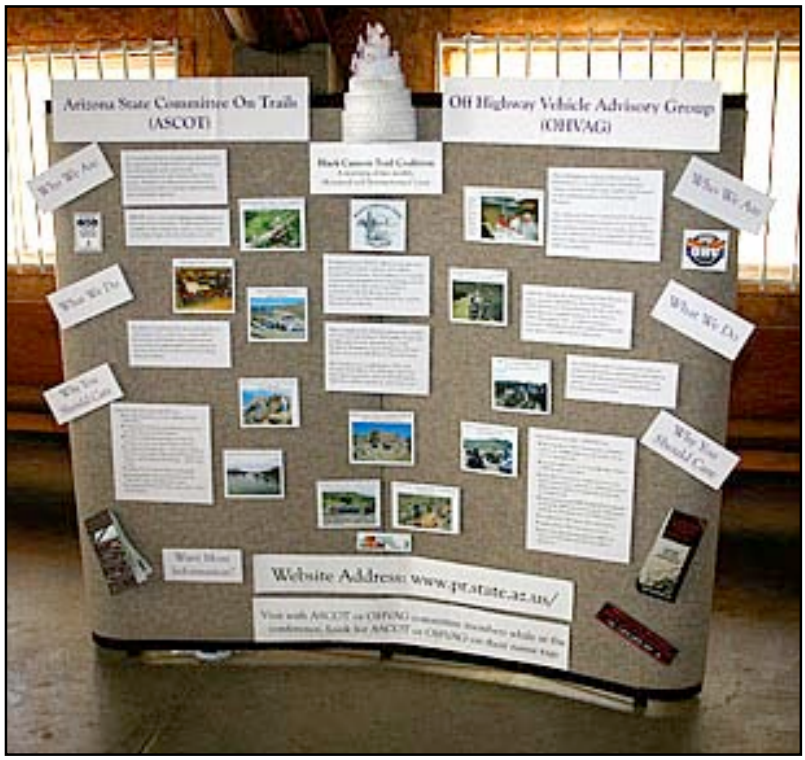
•Implement Trail and OHV User Education
User education was a prevalent theme among all workshops. There is a need for education of environmental ethics including *Leave No Trace*, *Tread Lightly!*, *Nature Rules—Stay on Roads and Trails*, and other resource protection messages. Education through driver training, education of users, education of nonresidents, education in schools, and environmental education were all identified as areas of need. Trail etiquette is also needed, teaching differing user groups to share the trail can help prevent user conflicts and increase user enjoyment.

•Improve Trail and OHV Route Maintenance
One of the biggest complaints trail users have about trails is the amount of litter and trash found along trails and routes. This can refer to individual pieces of trash or dumping of furniture, appliances and other household or industrial trash. Other maintenance issues mentioned were trail tread in poor condition, need to remove brush and overhanging branches, erosion and water runoff along trails, trail widening and braiding, and need for frequent replacement of informational and directional signs.

•Provide Maps and Trail and OHV Route Information
A common need mentioned is for current and accurate maps and information telling users where trails and routes exist. There is a need to better educate users where trails are in the State and to have agencies better promote trails and routes within their jurisdiction. Users found that in most cases comprehensive maps and trail information do not exist and when they do, they are difficult to locate. More promotion and awareness of existing designated trails and routes will promote proper trail usage and reduce social trails.

Advisory Committees

In late 2007 and early 2008, staff brainstormed the planning process with the Arizona State Parks Board's two primary recreation advisory committees, the Arizona State Committee on Trails (ASCOT) and the Off-Highway Vehicle Advisory Group (OHVAG) at their quarterly meetings.



These two committees also comprise the federally required State Recreational Trails Program Advisory Committee and they meet jointly at least once a year in a public meeting to discuss mutual topics such as the State Trails Plan and expenditure of the Recreational Trails Program funds. This larger joint committee met on May 2, 2008 and on May 15, 2009 to discuss the planning process and draft trails plan, respectively. Staff also submitted the planning process to the Arizona Outdoor Recreation Coordinating Commission and the Arizona State Parks Board at their regular public meetings in 2008. All committees received regular reports on the survey findings and the plan's progress throughout 2008 and 2009. The draft plan is submitted to all committees in Spring 2009 and staff receives their comments and recommendations, as well as public comments at their May—September 2009 meetings.

Draft Plan

In preparing the draft plan, State Parks staff processed responses from more than 5,500 people who attended meetings, filled out surveys or sent in their comments. The draft plan was available for public comment from April through June, 2009. The draft plan could be downloaded from the State Parks webpage, or a CD could be requested from State Parks staff beginning the first week in April. Comments were due by June 30, 2009; acceptable comment delivery methods included mail in to *Arizona Trails 2010 Draft Plan* at Arizona State Parks, 1300 W. Washington, Phoenix, AZ 85007 or email to trails2010@azstateparks.gov. See Appendix G for responses to public comments received.

Final Plan

The final plan, *Arizona Trails 2010: A Statewide Motorized and Non-motorized Recreational Trails Plan*, is submitted for approval to the Arizona State Parks Board at its Fall 2009 meeting.

CHAPTER 3

A Profile of Motorized Trail Recreation in Arizona

With growing populations and rapidly increasing use of off-highway vehicles (OHVs) in Arizona, and across the nation, OHV planning for the future is brought to the forefront for land and resource management agencies in Arizona. Land agencies are in a demanding position of balancing the provision of legitimate OHV opportunity with resource protection concerns. Both states and Congress are increasingly proposing and passing OHV laws to address concerns about safety, impact to the environment, and social conflict. The social dimension of OHV use is crucial for policy making and planning efforts. This *Trails Plan* provides decision makers and resource planners insight into Arizona's motorized recreational public land use activities and perceptions to help plan for and manage resources to meet the public's needs, achieve economic benefit, build stronger communities, and to sustain land resources.

This chapter introduces OHV use in Arizona; OHV legislation; Random Household Survey results which provide an in-depth understanding of motorized trail user perceptions and attitudes toward trail activities, issues, and management; land manager survey results, OHV recreation opportunities; priority issues and recommendations, and OHV Program accomplishments. Discussion items in this chapter include survey results; for research study definitions and methods, see Chapter 2. Note that motorized vehicle use and off-highway vehicle use are used interchangeably throughout this chapter.

Definition: Off-Highway Vehicle
Off-highway vehicles are motorized vehicles that include all-terrain vehicles (ATVs), utility terrain vehicles (UTVs, side by sides, recreational OHVs or ROVs), sandrails, dirtbikes, trial bikes (competitive), four-wheel drive vehicles, rock crawlers, snowmobiles, dune buggies, and other vehicles.

An OHV as defined in Arizona legislation *"means a motorized vehicle when operated primarily off of highways on land, water, snow, ice or other natural terrain or on a combination of land, water, snow, ice or other natural terrain [and] includes a two-wheel, three-wheel or four-wheel vehicle, motorcycle, four-wheel drive vehicle, dune buggy, amphibious vehicle, ground effects or air cushion vehicle and any other means of land transportation deriving motive power from a source other than muscle or wind. It does not include a vehicle that is either: designated primarily for travel on, over or in the water [or] used in installation, inspection, maintenance, repair or related activities involving facilities for the provision of utility or railroad service."* (A.R.S. § 28-1171)

Photo: ATVers enjoying Alto Pit OHV Recreation Area, Prescott National Forest.

Motorized vehicles are manufactured for use "off-highway" and have been for over 60 years. The first commercially made OHV was the four-wheel drive jeep (1945), followed by the motorized bicycle (1947), sport utility vehicle – Land Rover Series II (1958), snowmobile (1959), and the dune buggy (1965).

Photo: Four wheel drive vehicles are a popular way to explore Arizona's back roads. Photo courtesy of Larry Burns.

The physical characteristics and technical ability of motorized vehicles are rapidly and continually changing over time. ATVs can be outfitted with tracks to travel over snow and four-wheel drive vehicles customized to crawl over large boulders and "breathe" underwater. With OHV recreation being one of the fastest growing activities on public lands in the nation, it is an ongoing policy issue.

History of Arizona Off-Highway Vehicle Legislation (see also Appendices B & C)

Establishment of the Off-Highway Vehicle (OHV) Recreation Fund: On May 15, 1989, Senate Bill 1280 was signed into law establishing the OHV Recreation Fund. The legislation directed a survey to determine the percentage of state taxes paid on motor fuel used by OHVs. The first survey was required to be completed by December 31, 1990. Arizona State University was contracted to complete the survey with oversight of a technical committee. The results of that survey indicated 1.747% of all motor fuel purchased in the state was consumed for OHV use. This was estimated to be $5,977,546 in state motor fuel tax revenues in 1990. When the study was presented to the Legislature in January of 1991, the magnitude of nearly $6 million to the Fund ran into considerable political opposition.

During this same time period, the Arizona Off-Highway Vehicle Advisory Group (OHVAG) was appointed by the governor to give additional guidance to the program. Finally, the legislation was amended in June 1991 to include a funding mechanism to a set percentage of 0.55% of the annual state motor fuel tax revenues, which was estimated to yield approximately $1,800,000 for Fiscal Year (FY) 1991. In April of 1996, Governor Mofford repealed several councils and boards, including OHVAG. In May of 1996, the Arizona State Parks Board reestablished the OHVAG as an advisory committee under its jurisdiction.

Since 1991, Arizona State Parks has administered 70% of the OHV Recreation Fund for OHV programs and projects that cross multiple land jurisdictions. Thirty percent of the funds were provided to the Arizona Game and Fish Department for information, education, and law enforcement activities. In 2008, Senate Bill 1167 changed this set percentage to 60% and 35% respectively, and 5% to the Arizona State Land Department. The Fund has a history of legislative sweeps of more than $12 million as detailed in Appendix C: *Timeline of Pertinent Arizona OHV Legislation and Policy Decisions, 1989-2009*. These sweeps have severely impacted Arizona's OHV Recreation Program terminating programs and grant projects. The FY2008 and FY2009 sweeps of nearly $3,000,000 has once again caused the termination of OHV program activities and project agreements with land agency partners.

New OHV laws and funding source–OHV Decal: In June of 2008, Senate Bill 1167 established new laws that will help to manage Arizona's rapidly growing OHV use. This effort was due to a collaborative effort between a broad coalition of OHV enthusiasts, sportsmen, conservationists, elected officials and the public. The new law includes OHV equipment requirements; safe, ethical, responsible operation laws; and requires an annual user indicia (an OHV decal or sticker) for most OHVs under 1800 pounds. Seventy (70%) of OHV Decal revenues contribute to the OHV Recreation Fund (in addition to the 0.55% motor vehicle fuel tax). The remaining 30% of Decal revenues contribute to the Highway User Revenue Fund. (See page 165 for flow chart of the Off-Highway Vehicle Recreation Fund.)

Photo: The new OHV Decal is placed on an OHV license plate. Photo courtesy of AZ Game & Fish Dept.

The Arizona Game and Fish Department receives 35% of the yearly Fund revenues for OHV related information, education, and law enforcement activities. The Arizona State Land Department receives 5% of the Fund for OHV related cultural and resource clearance and compliance activities, mitigation of damages, and enforcement of OHV laws on State Trust lands. The Arizona State Parks Board receives 60% of the Fund to meet the OHV management needs statewide of land managers and recreational OHV users (see page 163 for more details). At an annual cost of $25 per OHV Decal, the Arizona Department of Transportation reported that Decal revenues generated over $500,000 during the first month of sales in January 2009. This monthly dollar amount is expected to taper off substantially by mid year.

New Air Quality/PM-10 Laws: Another piece of legislation that passed in June of 2007 that impacts OHV management and use was Senate Bill 1552. This legislation addressed several sources of particulate emissions that affect air quality: unpaved roads and parking areas, leaf blowers, vacant lots, agricultural practices, and recreational OHVs. The law is a result of Maricopa County region, Area A, failing to attain Federal Air Quality Health Standards set by the Environmental Protection Agency (EPA). Dust emissions from OHVs contribute to particulate emissions. These small particles 10 microns and less in diameter (PM-10) can cause heart, lung, and other health problems.

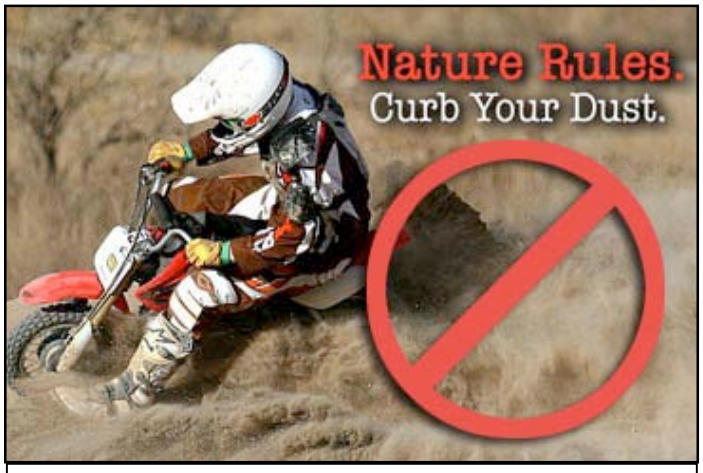


Photo: In response to air quality concerns, city / town ordinances and state OHV use restrictions are in place for many unpaved roads and vacant lots in Maricopa County, especially on PM-10 High Pollution Advisory Days.

The new law requires cities and towns within Area A to adopt ordinances that prohibit recreational OHVs on unpaved surfaces that are not public or private roads and closed by the landowner. A recreational OHV cannot operate on an unpaved surface during High Pollution Advisory (HPA) Days for particulate matter. This new law also requires the Arizona Department of Environmental Quality to produce and distribute OHV materials to businesses that rent and sell OHVs to educate and inform the OHV user on dust control ordinances and methods for reducing the generation of dust.

New city ordinances to address these laws have officially closed many unauthorized riding areas in Maricopa County as well as authorized high-use OHV destinations, including the Granite Mountain OHV area in north Scottsdale. In 2008, federal and state land management agencies convened to facilitate discussion aimed toward developing a series of management actions to mitigate the generation of particulate emissions by OHV activities while providing reasonable recreational access on public and state lands in Maricopa County. Users can check with the Maricopa County Air Quality Department, the land owner/manager, or the local city office to find out where recreational use is permissible. For a map of the affected area and more details on the HPA law, go online to http://www.azdeq.gov/environ/air/prevent/index.html#ohv. ADEQ also offers free HPA text message alerts; you can sign up for this service online at *www.azdeq.gov/sms.html*. See Appendix E for results from two 2008 dust suppressant tests conducted by 1) U.S. Environmental Protection Agency, and 2) Bureau of Land Management funded by Arizona State Parks' OHV Recreation Fund.

Sales of Off-Highway Vehicles

Use of OHVs for recreation continually increases and this trend is clearly revealed through the rising sales of OHVs. Sales of off-highway motorcycles and all-terrain vehicles (ATVs) in Arizona grew steadily from 1995 to 2006, increasing 623% (MIC, 2008). RideNow Powersports, the largest motorsports distributor in Arizona, provided insight into the trends of OHV sales (not including full size vehicles) in Arizona.

Table 6. Arizona New Off-Highway Motorcycle and ATV Retail Sales Units

Year	ATVs	Off-Highway Motorcycles	Total
1995	3,518	1,605	5,123
1996	4,623	1,890	6,513
1997	5,848	2,116	7,964
1998	7,508	2,883	10,391
1999	10,672	3,483	14,155
2000	14,629	5,396	20,025
2001	17,435	6,133	23,568
2002	18,450	6,341	24,791
2003	20,102	7,081	27,183
2004	21,262	7,463	28,725
2005	25,825	8,583	34,408
2006	28,073	8,981	37,054
2007	19,042	6,993	26,035
2008	10,189	4,449	14,638

Source: *MIC Retail Sales Report*, based on actual sales registration from Arctic Cat, Bombardier, Honda, John Deere, Kawasaki, KTM, Polaris, Suzuki, and Yamaha.
*ATV sales do not include ROVs/side-by-sides. Off-highway motorcycles includes dual motorsports.

Popularity of side-by-side vehicles (i.e., recreational off-highway vehicle – ROV, also called utility terrain vehicle – UTV) increased with each passing year since its introduction in 2001. Prior to 2001, all-terrain vehicle (ATV) sales were 65% of RideNow vehicle sales. By 2008, side by side vehicle sales surpassed ATV sales in Maricopa County.

Photo: The Recreational OHV (ROV), also called utility terrain vehicle or side by side, differs from the quad or ATV in that it is has two front seats and you do not straddle the vehicle. Photo courtesy of Tom Stark.

A variety of factors contribute to the popularity of the ROV including the capability to carry a passenger(s), a perception of increased safety, and cost and maintenance reductions of owning one ROV versus two one-passenger ATVs (communication with RideNow 2009).

Another vehicle trend is the increase in utility versus sport model ATVs in Arizona's high country (more rural and/or forested areas of Arizona). Phoenix and Tucson metropolitan areas take the lead in OHV sales. New vehicle sales are affected by the recent gas price spikes and the downturn of the economy, however "street legal" motorcycle sales increased. Sale trends of previously owned OHVs are unknown.

According to the Motorcycle Industry Council (MIC, 2007) the nation's seven leading motorcycle brands which accounted for 84% of the new motorcycle unit sales (on-highway and off-highway) in 2006: Harley-Davidson/Buell (23.1%), Honda (20.5%), Yamaha (15.3%), Suzuki (12.3%), Kawasaki (10.1%), KTM (1.7%), BMW (1.1%).

Photo: Side by side OHV sales are on the rise. To provide better responsible riding messages to OHV customers, Powersport dealers participate in an educational field trip with land management staff through Arizona's OHV Dealer Program.

Providing adequate information to educate customers of motorsports product outlets is crucial. RideNow Powersports recommendations for educating the off-highway vehicle public include an approved off-highway vehicle education course requirement, or incentive for taking a course, prior to receiving an Arizona OHV Decal - the target customer is male between ages 24 to 42.

Inconsistent on-the-ground enforcement/education is a customer complaint. To be more effective in partnering with motorsports dealerships, land management agencies need consistent

communication across authorities and decision-makers, and to inform dealerships of OHV sites being heavily impacted as soon as possible so that dealers can assist through education and other resources, prior to increased site impact and closure. The Arizona Dealer Association and American Sand Association are partners with multiple dealerships and are resources for distributing OHV information.

More recently, the Arizona State Parks' OHV Program formed partnerships with several dealerships to provide information to their customers on responsible OHV use. This OHV Dealer Program is in the pilot stages and is currently not expanding due to loss of staff and legislative budget sweeps of the OHV Recreation Fund.

Motorized Trail Activity Participation in Arizona

Based on the 2008 Random Household Survey conducted for this Plan, motorized trail users represent 22%, or 1,027,191 adult Arizona residents - those that used a trail for motorized use at least once in the last year. "Core" users represent 10.7%, or 511,207 adults - those whose motorized trail use accounts for the majority of their recreational trail time.

The *2003 Arizona Trails Study* found that 7%, or 284,305 adult Arizonans considered themselves motorized trail "core" users. Theoretically, if 7% of the population considered themselves motorized trail "core" users based on 2008 population statistics, there would be 334,434 motorized "core" users. However, the percentage of motorized trail "core" users increased to 10.7% in 2008, resulting in 511,207 people, an 80% change in five years based on Arizona population changes. These findings highlight not only Arizona's increasing population but also the state's increasing percentages of motorized trail recreationists. Chapter 2 presents public participation results in trail activities by County. The survey findings section of this chapter details motorized activity participation rates of "core" motorized trail users in Arizona.

Motorized Recreation Opportunity

Off-highway vehicle opportunities in Arizona incorporate stunning desert and canyon landscapes, plateaus, woodlands, dense forests and alpine meadows. OHV enthusiasts use unpaved roads, trails, and areas for a variety of purposes such as riding trails, sightseeing for pleasure, viewing wildlife, and accessing camping, trailheads, and hunting and fishing areas. Such opportunity allows OHV users a primitive backcountry experience, with opportunities to learn about the ancient cultures, history and environments of Arizona. There is an increasing number of families, Baby Boomers and those with mobility challenges turning to motorized recreation as a way to enjoy Arizona's backcountry areas.

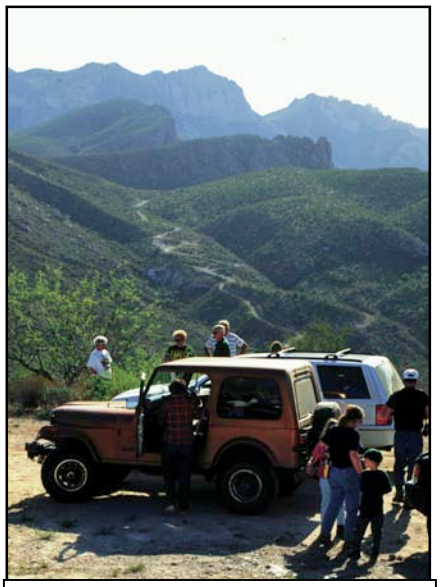


Photo: Using a motorized vehicle on unpaved roads to go sightseeing or driving for pleasure is the most popular motorized vehicle activity in Arizona.

Many OHV sites are created by the sheer number of OHV users that visit the locality. OHV destinations across the State that receive intense OHV use present a great challenge

for land management agencies. Although OHVs have been manufactured since 1945, active management for OHV recreation is relatively new.

Land resources and quality recreation opportunities are impacted by irresponsible behaviors including illegal activities (e.g., vandalism, trash dumping), lack of funding for agencies to manage lands, lack of consistent OHV regulations, and many other issues. State OHV laws have recently been put in place and land agencies are in the process of limiting motorized use to designated roads, trails, and areas to help manage for quality OHV recreation experiences and to ease the pressure on land resources.

This section provides an overview of land agencies that manage for OHV recreation in Arizona. A supplemental report (Appendix H) showcases eight high-use OHV destinations including management issues/needs and discussion about the sites.

Land Management Agencies

The Bureau of Land Management (BLM) and U.S. Forest Service (FS) provide for and manage most of the OHV recreation opportunity in Arizona. These agencies control over 22 million surface acres of the State's lands and have a multiple-use mandate that includes recreation and conservation. The Arizona State Land Department (ASLD) receives high OHV use on State Trust lands (9.3 million acres). The ASLD is not mandated to manage recreation on State Trust lands. New OHV legislation allows OHV users with the new Arizona OHV Decal to *"…cross existing roads, trails, and designated routes on State Trust lands."*

Bureau of Land Management

The Bureau of Land Management (BLM) National System of Public Lands manages 12 million acres in Arizona. The transportation network, unlike the Forest Service, is largely inherited from traditional, historic uses of the land. Mining and livestock operations have created most of BLM's system of travel routes. The 1980s and 1990s saw a significant increase in the use of motorized recreation and a portion of the transportation system was added during that era.

The BLM developed a comprehensive approach to travel planning and management. BLM issued the "National Management Strategy for Motorized Off Highway Vehicle Use on Public Lands" (2001), "National Mountain Bicycling Strategic Action Plan (2002), and "The BLM's Priorities for Recreation and Visitor Services" (2003). Arizona BLM is in the process of establishing a designated travel network through its land use planning efforts. Currently, about 15% of Arizona BLM's transportation network is limited to *designated* roads, primitive roads[1] and trails. The remaining 85% is limited to *existing* roads, primitive roads[1] and trails.

Photo: BLM manages the Hot Wells Dune OHV Area near Safford, AZ.

[1]BLM defines "Primitive Roads" as those routes that are managed for high clearance, four wheel drive vehicles. Other federal agencies would call them "motorized trails".

Photo: BLM staff and volunteer Ambassadors on patrol and contacting OHV users. Middle Gila Canyons area, Tucson Field Office.

Arizona BLM is developing Resource Management Plans (RMP) for its various units, known as field offices and National Landscape Conservation System (NLCS) units. The plans often take three to five years to develop and generally cover an entire field office, monument or conservation area.

There are currently four districts, eight field offices, five National Monuments, and three National Conservation Areas that cover the 12 million surface acres managed by Arizona BLM. There are 31,000 miles of existing roads, primitive roads[1] and trails on BLM managed land in Arizona.

The purpose of the RMP is to allocate lands for certain uses, e.g. grazing allotments, recreational areas, and wildlife management areas. As part of the RMP, under 43 CFR 8340, BLM offices are required to allocate the entire planning area into three subdivisions: *open* (travel permitted anywhere), *closed* (e.g. wilderness areas), and *limited* (*limited* to existing or designated roads/trails, *limited* to administrative use, *limited* to certain vehicular use). The RMPs also define "desired future conditions" of the planning area's transportation network.

During the RMP development process, BLM conducts route inventories within the various planning areas and the public is given a 90 day period to comment on the existing transportation network. The RMP Record of Decision (ROD) is signed, which implements the Plan, which has a lifespan (in most cases) of 15 to 20 years.

Implementation plans, known as "Travel Management Plans" (TMPs) will tier off the RMP to accomplish specific route designations; establish routes as roads, primitive roads[1] or trails; and establish monitoring protocols, remediation procedures and maintenance schedules. A standard signing protocol, statewide route numbering system, and map format (known as "Arizona Access Guides") have been established.

A total of five RMPs have been completed, as of early 2009. Two National Monuments are included: Grand Parashant and Vermillion Cliffs. The Field Office RMPs include Lake Havasu, Yuma, and Arizona Strip. Hassayampa Field Office plus Agua Fria and Ironwood Forest National Monument RMPs will be signed in mid 2009. Kingman, Safford, Tucson and Lower Sonoran Field Offices plus Sonoran Desert National Monument are future RMP efforts.

Currently, all Districts (including Field Offices and NLCS units) are developing TMPs and BLM estimates the entire Arizona BLM transportation network will be designated by the end of 2012.

U.S. Forest Service

The new Forest Service Travel Management Rule (TMR), published in 2005, requires each national forest or ranger district to designate roads, trails, and areas open to motor vehicles within a 4-year timeframe. It acknowledges motorized recreation as an appropriate recreation under proper management and provides a definition for OHVs. Implementation will generally restrict cross-country travel.

The Forest Service rule does not affect snowmobiles; cross-country restriction of snowmobiles is left to the discretion of the local manager. TMR does include travel planning for big game retrieval and dispersed camping. A wide range of elements are included in the travel analysis and motorized route/area designation process including environmental, social, and cultural analysis; public involvement; and coordination with other agencies and tribal governments.

Photo: ATVers exploring a new route in the Apache-Sitgreaves National Forest.

Motorized route/area designations will be identified on a motor vehicle use map (MVUM) (36 CFR 212.56) that is mandated to be published by 2009. Once the map is published, motor vehicle use inconsistent with designations is prohibited (36 CFR 261.13). Until designation is complete, current rules and authorities will remain in place.

In Arizona, there are six National Forests and 26 Ranger Districts that cover over 10 million surface acres and over 30,000 miles of routes. Each Forest may use a different process for reaching motorized route/area designations. Analysis and public comment will occur in different phases on each ranger district.

Photo: Volunteers and Forest staff installing a map kiosk, Tonto National Forest, Cave Creek Ranger District.

All six National Forests in Arizona are also currently in the process of forest plan revisions. Forest Plans provide a broad long-term strategy for guiding natural resources and land use activities on the Forest, including motorized recreation, setting the vision and direction for the future.

Plans are being revised as some are near 20 years old and may not address current issues. The Plans do not address specific actions or projects, but are important in identifying the general suitability of motorized recreation across each Forest.

The Forest Service is also considering how to proceed with inventoried roadless areas. In January 2001, the United States Department of Agriculture (U.S.D.A) Forest Service issued *The Roadless Area Conservation Rule* (36 CFR 294). Within roadless areas, road construction and logging is prohibited. There are approximately 1.1 million acres of inventoried roadless areas in Arizona. In 2005, the national Rule was repealed and replaced with a State Petitions Rule that

required governors of each State to petition the USDA for establishment of management requirements for roadless areas within their States. The Arizona Game and Fish Department was directed to lead the petitioning effort in Arizona. In September 2006, a U.S. Federal District Court of California reinstated the Roadless Rule and the State Petition Rule was suspended.

Arizona State Land Department

The Arizona State Land Department (ASLD) manages over nine million surface acres of State Trust lands, which accounts for 12.7% of land ownership in Arizona. These lands also receive high OHV use. State Trust lands are scattered throughout the State, and the majority are located in more rural areas. (See Figure 3.)

State Trust lands are not public lands, but are instead a trust created to earn funds for trust beneficiaries, mainly Arizona's educational and public institutions. Federal land managers frequently inventory routes on State Trust lands that are checker-boarded between their jurisdictions to assist in motorized route connections. The ASLD has given BLM permission to show main connector routes on BLM planning document maps.

Through a partnership with OHV stakeholders, a State Trust land parcel surrounding Phoenix Metropolitan was signed, mapped, and made temporarily available for motorized recreation on existing routes for those who have purchased a recreation permit. Use of this site can be closed at anytime; however, OHV sites near urban population centers may help alleviate the pressure on public lands while providing the public recreation opportunity near population centers.

Additional collaboration between multiple entities to provide such opportunities may benefit multiple OHV stakeholders. However, according to the ASLD, recreational use on State Trust lands does not financially benefit trust beneficiaries, which is the agency's primary mandate.

Figure 3. Arizona State Land Department Fact Sheet—*Trails on Trust Land*

Arizona State Land Department

TRAILS ON TRUST LAND

Serving Arizona's Schools and Public Institutions Since 1915

WHAT IS STATE TRUST LAND?

Trust Land is not Public Land. Trust Land is different from public land such as parks or National Forests, in that Trust Lands are managed by the Land Department to generate revenue for 14 specific beneficiaries. Today the Trust manages 9.3 million acres of land, and approximately 90% of the revenue generated from sales or leases supports the K-12 Education.

SUPPORT EDUCATION - RESPECT THE TRUST

The largest beneficiaries include the Common Schools (K-12) and Universities.

"Thanks to the State Land Department, and the Trust it supports, the common schools were able to provide a long term source of funds to pay for teachers, classrooms and prevent drop-outs."

- Tom Horne, Arizona State Superintendent of Public Instruction

IT'S A REC PERMIT, NOT A WRECK PERMIT!

A recreation permit is required for: hiking; horseback riding; bicycling; picnicking; photography; bird watching; sightseeing; camping or traveling on existing Trails over Trust Land. There are three (3) different permits one can obtain.

An **individual/family rec permit** is needed for casual recreation, and travel on existing roads & trails

A **group event permit** is needed for casual recreation events with 12 to 50 participants

A **Special Land Use Permit (SLUP)** is needed for all competitive or commercial events as well as casual recreation events larger than 50 participants

PROTECT TRUST LAND - DON'T TRASH THE TRUST

SOME TRAILS ON TRUST LAND -

Such as the Arizona Trail and Maricopa Trail were purchased from the Trust as perpetual Rights of Way, making them available to the public. Recreational permits are not required on these Trails themselves, but are required if you leave the width of the trail or may be required to access a trailhead.

An OHV decal allows crossing Trust Land while riding a vehicle that weighs less than 1800 pounds. A Land Department Recreation **Permit** is **required** for any other recreational activities on **Trust Land.**

PAY TO PLAY

All State Trust Land transactions must be in accordance with the State's mandate to generate revenue for the beneficiaries. Trails on Trust Land can be accommodated in a variety of ways.

Trails may be allowed through a Right of Way, or if the use of the trail is intended to be temporary, then a Special Land Use Permit (SLUP) may be appropriate.

TALK BEFORE YOU WALK

A Pre-application meeting is **mandatory** before an application can be filed. Planning a trail on Trust Land requires you to contact the State Land Department to discuss the concept of the Trail. Please contact the Department early in the trail planning process, due to the length of application processing times.

FOR MORE INFORMATION, CONTACT THE STATE LAND DEPARTMENT AT WWW.LAND.STATE.AZ.US

Survey Findings for Motorized Trail Users

The pattern of population growth across Arizona combined with the associated demand for motorized recreation on state and public lands has created a somewhat daunting task for land management agencies in Arizona. This section provides decision makers with key information about the motorized trail user population in Arizona and their preferences and attitudes towards motorized trail use and impacts.

The survey findings help fill the knowledge gap of the social dimension of off-highway vehicle use, and assist in developing a proactive approach to determining and implementing motorized OHV management and solutions. Off-highway vehicle use with effective decision-making, management, and planning will help ensure consistent and positive management of environmentally responsible motorized OHV use on state and public lands in Arizona.

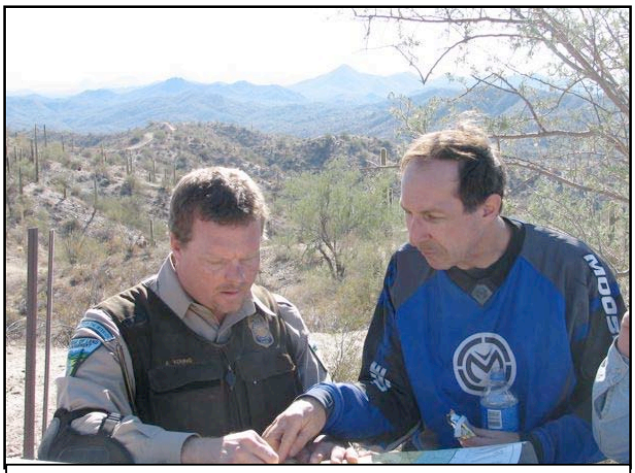


Photo: Agency staff work with user groups and volunteers to plan, establish and maintain OHV recreation opportunities.

The survey findings focus on the 10.7% of adult Arizonans from the 2008 Random Household Survey who consider themselves primarily motorized trail users – "core" motorized users.

The responses from the motorized "Involved Users" and "Interested Public" web surveys are also included where applicable for comparison purposes. Some comparisons from the 2003 Arizona Trails Survey for "core" motorized trail users are also included for trend comparison purposes. Incorporating all survey response data into this section makes it difficult to illustrate the Random Household Survey "core" motorized trail user responses, which is a representative sample of Arizona's core motorized trail user adult population. The Involved User Survey may not hold a proportionate number of ATV or UTV/ROV (side by side vehicle) users, based on differences in ATV and UTV/ROV participation rates between the Random Household Survey and Involved User Survey. Based on survey responses, there are a lower percentage of Involved Users (active trail users selected from a list of motorized trail users, clubs, and organizations) participating in ATV and UTV/ROV activities than the general public (Random Household) survey.

The complete data set is provided in Appendix D. Definitions of trail user types and survey definitions are described in Chapter 2.

Demographics

Most survey participants are full-time residents of Arizona (97%) and have lived in Arizona an average of 27 years. *Motorized trail users* are mostly white (87%) and male (Random Household=64.7%, Involved Users=90.5%, Interested Public = 90.3%) with a mean age of approximately 48 years old.

Participation Rates by Vehicle Type/Activity

One of the primary objectives of this study is to estimate trail use in Arizona with participation broken down into specific types and activities. The most common pursuits for "core" **motorized users on a motorized trail** were *quad or all-terrain vehicle driving* (72.2%), *four wheel driving or other high clearance vehicle driving* (71.6%), and *motorized trail biking/dirt biking* (61.1%). Trail hiking is the most popular non-motorized trail activity for motorized users.

Table 7. ***In the last twelve months, how often have you participated in each of the following motorized recreation activities in Arizona?***

Motorized Users Participation in Motorized Trail Activity	% Not at all	% At least once a year**	% At least once a month**	% At least once a week**
4WD/other high clearance vehicle	29.4	**71.6**	35.3	17.7
Quad or all-terrain vehicle driving	27.8	**72.2**	44.5	27.8
Motorized trail biking/dirt biking	38.9	**61.1**	33.4	16.7
Rock crawling	83.3	**16.6**	11.2	5.6
Utility terrain vehicle/modified golf cart (side by side)	66.7	**33.3**	16.8	11.2
Dune buggy or sand rail driving	77.8	**22.2**	5.6	0
Snowmobiling	94.4	**5.6**	0	0

**To help categorize user participation rates, the percentages of users who said they participated in that activity weekly, monthly, and yearly were combined. Numbers are cumulative.

Figure 4. Percent of motorized users participating in motorized recreation activities in Arizona

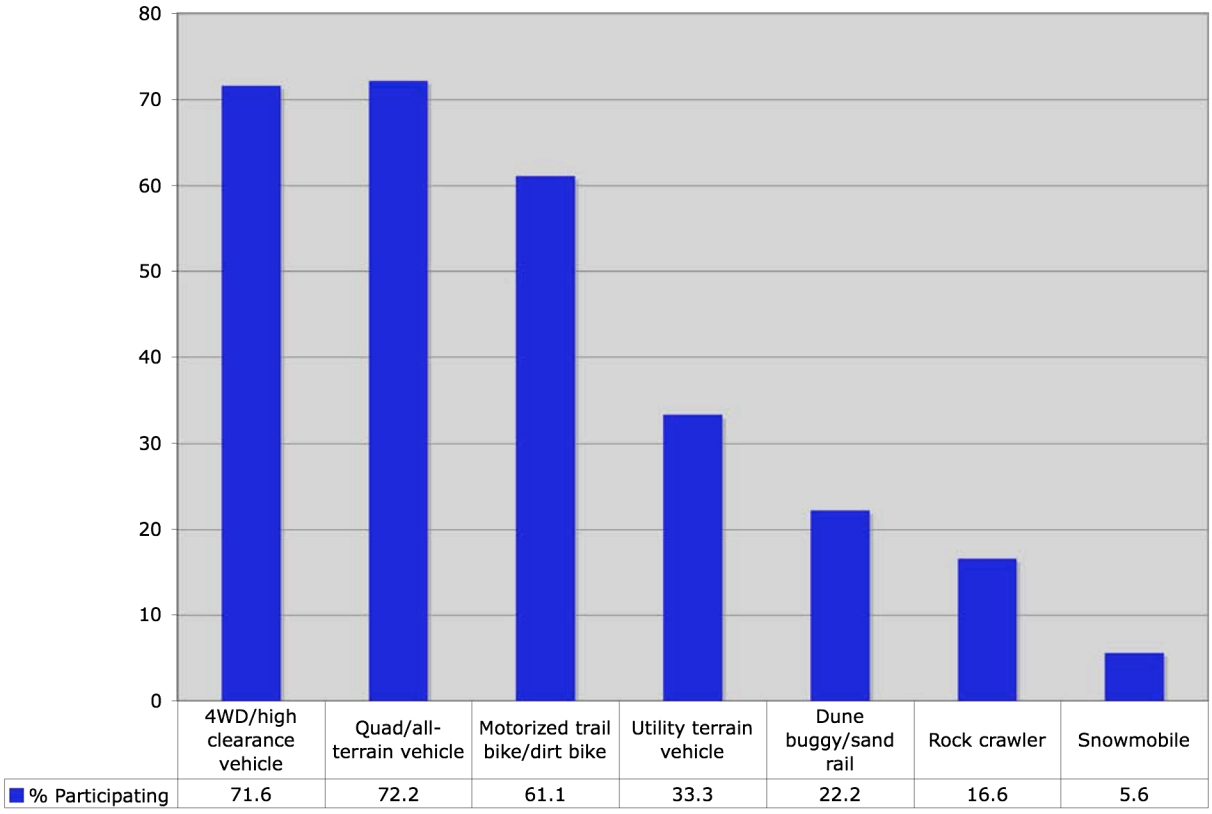


Table 8. ***In the last twelve months, how often have you participated in each of the following non-motorized recreation activities on trails in Arizona?***

Motorized Users Participation in Non-motorized Trail Activity	% Not at all	% At least once a year**	% At least once a month**	% At least once a week**
Trail hiking	18.2	**81.8**	36.4	9.1
Backpacking	60.0	**40.0**	10.0	0
Mountain biking	70.0	**30.0**	0	0
Horseback riding	70.0	**30.0**	0	0
Canoeing/kayaking	80.0	**20.0**	0	0
Cross-country skiing/snowshoeing	90.0	**10.0**	0	0

*Respondents were asked to report if they participated in trail activities once a year, a few times a year, once a month, once a week, or more than once a week. **To help categorize user participation rates, the percentages of users who said they participated in that activity weekly, monthly, and yearly were combined. Numbers are cumulative.

The most common pursuit for "core" motorized users on a motorized trail is quad or all-terrain vehicle driving with 72% of respondents saying they participate in this OHV activity.

Photo: High elevation ATV trails attract desert residents in the summer. Photo by Mike Sipes.

A comparison of 2003 and 2008 Arizona Trail Survey results revealed that "core" motorized trail user participation by vehicle type shows a significant increase in the percent of people who report using trails:

- *dirt biking* increased 45% in the last 5 years,
- *quad or all-terrain driving* increased 30%, and
- *dune buggy or sand rail driving* increased 17%.

Table 9. Comparison of 2003 to 2008 Survey Results - Percentage of "Core" Motorized Trail User Participation by Vehicle Type

Core Motorized Trail User Activity by Vehicle Type	*2003 Core Motorized Trail Users %	*2008 CORE MOTORIZED TRAIL USERS % and #
Four wheel driving/other high clearance vehicle	55/10.6	71.6% (366,024)
Quad or all-terrain vehicle driving	42.4	72.2% (369,091)
Motorized trail biking/dirt biking	16.6	61.1% (312,347)
Rock crawling	-	16.6% (84,860)
Utility terrain vehicle or modified golf cart driving	-	33.3% (170,232)
Dune buggy or sand rail driving	5	22.2% (113,488)
Snowmobiling	.5	5.6% (28,628)

* Results are from the 2003 and 2008 Random Household Surveys. Rock crawling and utility terrain vehicle types were not included on the 2003 survey since they were not considered common in 2003. The margin of sampling error for the 2008 Random survey is 2.3% at the 95% confidence interval. 2008 "core motorized trails users" equal 10.7% of adult Arizona residents (511,207 adults) who reported that motorized trail use accounts for the majority of their recreational trail time.

Non-motorized trail users also use motorized trails. Some have used a motorized trail only once in the last year. Considering all trail users, including both "core" motorized and "core" non-motorized trail users, that use motorized trails in Arizona, nearly two million people participated in *four wheel driving/other high clearance vehicle*, and also *quad or all-terrain vehicle driving* at least once in the last year.

Table 10. Percentage of "All Trail Users" Participation by Vehicle Type

Motorized Trail Use Activity by Vehicle Type	***2008 ALL TRAIL USERS** (Number of Adults) % and #
Four wheel driving/other high clearance vehicle	56.8% (1,833,194)
Quad or all-terrain vehicle driving	60.5% (1,952,610)
Motorized trail biking/dirt biking	44.7% (1,442,672)
Rock crawling	17.9% (577,714)
Utility terrain vehicle or modified golf cart driving (side by side)	26.3% (848,821)
Dune buggy or sand rail driving	13.5% (435,706)
Snowmobiling	2.6% (83,913)

*2008 "all trails users" equal 69% of adult Arizona residents (3,227,455 adults) that consider themselves trail users. Of these trail users, the indicated percentages have used motorized trails at least once in the last year.

Participation Rates: Motorized Trail Use to Get to or Access Recreational Sites

Motorized recreation activities and experiences are diverse, and trails and areas are used for a variety of purposes and should be considered in recreation planning processes. To illustrate the diversity of off-highway vehicle user participation in other recreational activities, the following example is provided.

Table 11. Diversity of Reasons Motorized Users Participate in Off-Highway Vehicle Recreation Activities

Motorized Users use recreational trails to:	**Description of Recreational Activities**
View Nature	Driving or riding at slower speeds to sightsee or view wildlife.
Use Technical Skills	Desert racing, rockcrawling, and riding/driving challenging trails.
Participate in a Game	Use of a vehicle to participate in games such as geocaching and paintball (Note that shooting a gun from a motorized vehicle is illegal in Arizona.)
Access a Destination	Driving or riding to a destination to participate in other recreational activities such as camping, fishing, hiking, visiting archaeological sites, and hunting.
Ride Rough	Riding at locations that are easily accessible and use an OHV at high speeds, driving in continuous circles, jumps, wheelies, and/or mud bogging.
Develop Youth Skills	Youth participation in OHV use to develop beginner rider skills and/or "play".
Visit as a Tourist	Tourism companies take people out on jeep rides, or provide users with ATV rentals for an Arizona backcountry experience.

Respondents of the Random Household Survey were asked, in the last twelve months, how often they have used motorized trails in Arizona for a variety of other purposes. Core motorized users use a motorized vehicle on unpaved roads to access or get to recreational sites (at least once a year): *to go sightseeing/driving for pleasure* (94.1%), *access camping or picnicking areas* (83.3%), *access hunting or fishing areas* (64.7%), and *visit historic or archaeological sites* (61.1%).

Table 12a. ***In the last twelve months, how often have you used your motorized vehicle on unpaved roads to access or get to the following types of recreation sites?***

Core Motorized Users: Used motorized vehicle on unpaved roads to access or get to recreational sites*	% Not at all	% At least once a year	% At least once a month	% At least once a week
To go sightseeing/driving for pleasure	5.9	**94.1**	35.3	11.8
Camping or picnicking areas	16.7	**83.3**	27.8	16.7
Trailheads	41.2	**52.9**	11.8	5.9
Historic or archaeological sites	38.9	**61.1**	5.6	0
Wildlife viewing/bird watching area	44.4	**55.6**	16.7	0
Hunting or fishing area	35.3	**64.7**	11.8	0
Other types of recreation areas	38.9	**55.6**	16.7	11.1

*Numbers are cumulative. The 2nd column titled "at least once a year" equals the sum total of those who responded to "once a year, a few times a year, once a month, once a week, and more than twice a week".

In comparison, core non-motorized users use a motorized vehicle on unpaved roads to access or get to recreational sites (at least once per year): *to go sightseeing/driving for pleasure* (60.6%), *access camping or picnicking areas* (54.4%), and *visit trailheads* (51.2%). Non-motorized users access to *hunting or fishing areas* on unpaved roads occurred least (27.2%).

Table 12b. ***In the last twelve months, how often have you used your motorized vehicle on unpaved roads to access or get to the following types of recreation sites?***

Core Non-motorized Users: Used motorized vehicle on unpaved roads to access or get to recreational sites*	% Not at all	% At least once a year	% At least once a month	% At least once a week
To go sightseeing/driving for pleasure	39.4	**60.6**	14.9	4.7
Camping or picnicking areas	45.6	**54.4**	7.2	.8
Trailheads	48.8	**51.2**	12.8	5.6
Historic or archaeological sites	55.6	**43.7**	4.8	0
Wildlife viewing/bird watching area	65.9	**34.1**	8.8	3.2
Hunting or fishing area	72.8	**27.2**	5.6	.8
Other types of recreation areas	58.7	**38.9**	7.2	2.4

*Numbers are cumulative. The 2nd column titled "at least once a year" equals the sum total of those who responded to "once a year, a few times a year, once a month, once a week, and more than twice a week".

Satisfaction with Trails

To meet the demands of recreationists in Arizona, public land managers must understand visitor satisfaction with motorized trails. According to comments received at the Regional Trails Plan Workshops, "satisfaction" was defined differently for all individuals such as staging ability, trail maintenance, distance from their home, difficulty level, availability of opportunity, and many other factors.

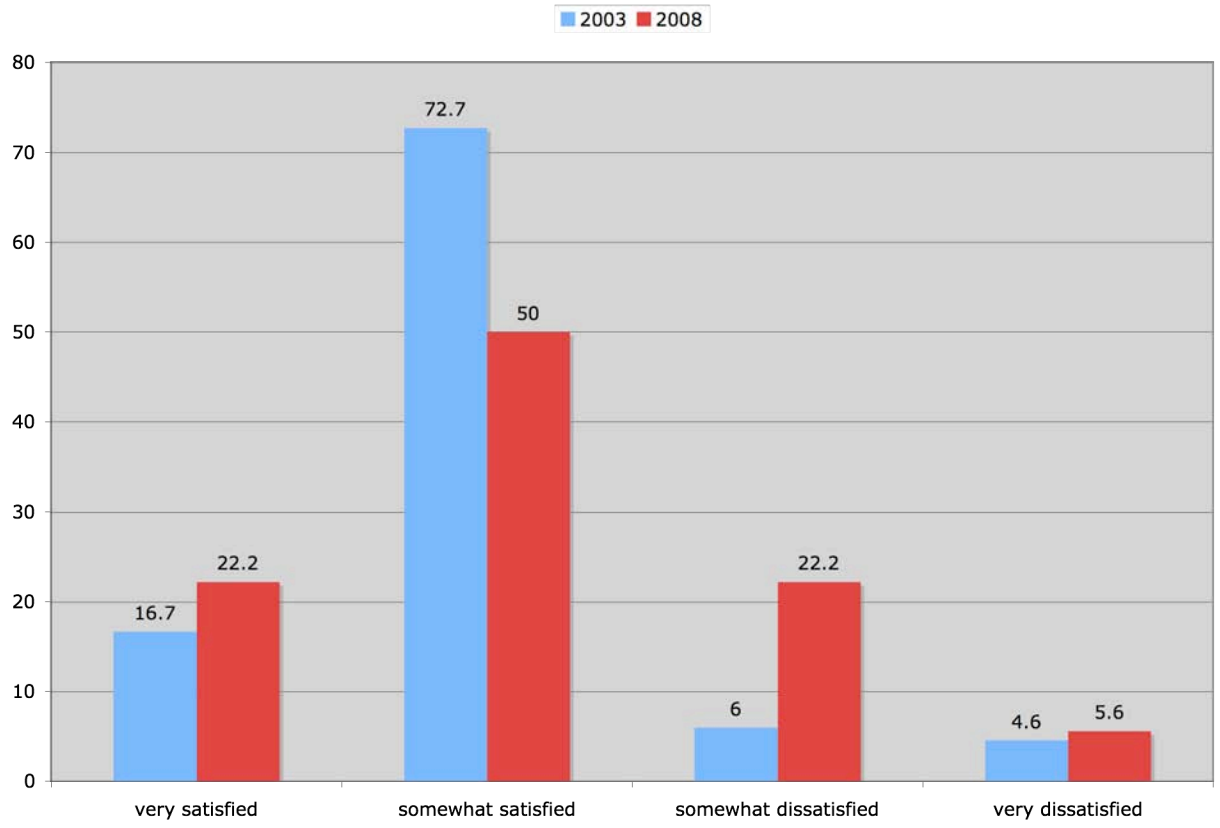
The majority of motorized trail users are somewhat satisfied with motorized trails in Arizona. In 2008, 72.2% of core motorized trail users said they are *somewhat satisfied* or *very satisfied* with motorized trails. In 2003, 89.4% of core motorized trail users were *satisfied, very satisfied*, or *extremely satisfied* with recreational trails. This downward trend in satisfaction should be noted by land managers.

Table 13. ***Overall, how satisfied are you with motorized trails in Arizona?***

Satisfaction with Motorized Trails	**% very satisfied** (2003: very and extremely satisfied)		**% somewhat satisfied** (2003: satisfied)		**% somewhat dissatisfied** (2003: slightly satisfied)		**% very dissatisfied** (2003: not at all satisfied)	
Survey Year	2008	2003	2008	2003	2008	2003	2008	2003
Motorized trail users	**22.2**	16.7	**50.0**	72.7	22.2	6.0	5.6	4.6

*In 2003 this question was asked regarding satisfaction with "recreational trails" in general, not separated into motorized or non-motorized as was done in 2008, and 2003 used a 5 point scale with different response options while 2008 survey used a 4 point scale.

Figure 5. Motorized Trail Users Satisfaction with Motorized Trails



Quality of Life

Quality of life is a physical and psychological component of the well-being of an individual, and typically cannot be reported in budget terms. Ninety-four percent of motorized trail users (Random Household) said trails are *very or somewhat important* to their quality of life (Involved Users=99.5%; Interested Public=99.4%).

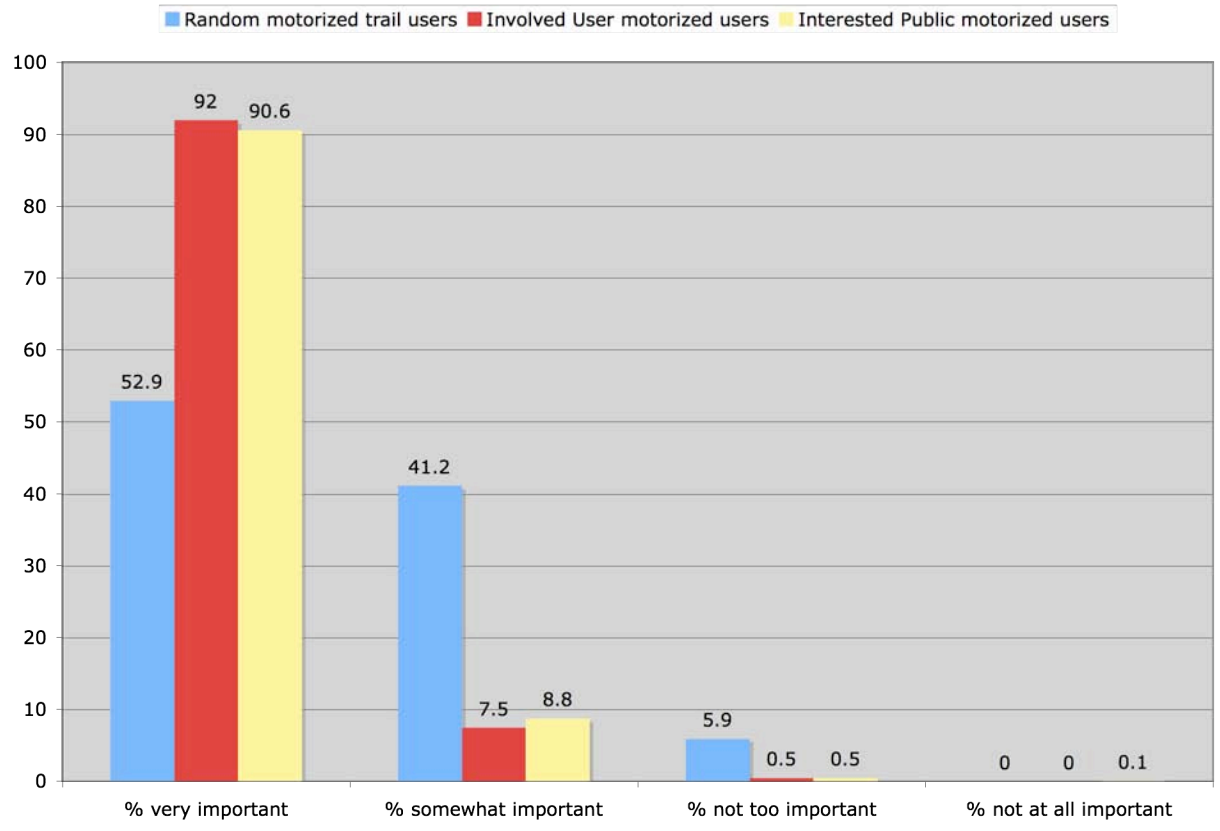
This question concerning importance of trails to a respondent's quality of life demonstrates a clear difference between the Random Household Survey participants, and the Involved User and Interested Public survey participants; note responses in the "very important" category.

Table 14. ***How important are recreational trails to your overall quality of life?***

Importance of Trails to QUALITY OF LIFE	% very important	% somewhat important	% not too important	% not at all important
Random motorized trail users	**52.9**	41.2	5.9	0
Involved User motorized users	**92.0**	7.5	.5	0
Interested Public motorized users	**90.6**	8.8	.5	.1

*This Question was not asked in 2003.

Figure 6. Percent of motorized users who say trails are important to their quality of life



Miles Traveled

In 2008, motorized trail users travel an average of 42.19 miles one-way to reach a motorized trail used most often. Five years ago, motorized trail users traveled 8.81 miles less to reach a motorized trail they used most. This may be due to urbanization including complex sprawl patterns, loss of open space and desert land, loss of access to public lands, and many other factors. The majority of users (52%) travel 10 to 50 miles to get to the trails they use the most. Motorized users in Maricopa, Pima and Pinal Counties tend to travel further than users who live in more rural counties.

Also in 2008, Involved Users travel an average of 27.61 more miles (69.8 miles) than Random Household Survey core motorized trail users (42.19 miles). The greater travel distance for the motorized Involved User Survey respondents may be due to their participation in clubs or groups, the tendency to typically use trails on a more frequent basis than the general public (Random Household), may be more equipped for backcountry/overnight trips, and so on.

Table 15. ***Approximately how many miles do you travel one-way from your home to use the motorized trails you use the most?***

Number of miles traveled for motorized trail use 5% trimmed mean	**2008 (Mean Miles)**	**2003 (Mean Miles)**
Random Household motorized trail users	**42.19**	**51.0**/62.5
Involved User motorized trail users	**69.8**	**37.8**/65.7

*In 2003, respondents were asked how many miles they traveled to use their type of trail that 1) they use the most, and 2) they enjoy the most, shown as 51.0/62.5.

Trails Managed for Single or Shared Uses

Many motorized routes in Arizona are considered "**shared use**" allowing dirt bikers, ATVers, and full size vehicles on the same route. Usually, non-motorized uses are also allowed on these routes. Single-track trails restrict use to dirt bikes due to the preferred trail width, terrain, safety and use considerations. There are trails constructed specifically for ATVs and quads, but some agency requirements dictate these trails must be less than 50" in width. Land managers must determine if trail/route uses should be combined, such as both motorized and non-motorized uses on one trail, or separated. Motorized trail users from Random, Involved and Interested surveys (40% to 60%) consistently respond that motorized and non-motorized activities can be **combined**, while the majority of non-motorized users (54% to 56%) respond that motorized and non-motorized activities should be **separated** into distinct trails. Explanations for this consistent finding over the last 5 years may be a perceived safety factor due to the weight or speed of the vehicle, or the sound of a vehicle which can reduce the feeling of being in nature to the non-motorized user.

Table 16. ***Do you think recreation trails should be managed for single or multiple trail activities?***

Trails should be managed for:	**2008 Random Survey %**		**2003 Random Survey %**	
	Motorized	Non-motorized	Motorized	Non-motorized
A single activity–EITHER motorized use OR non-motorized use only	**11.1**	27.2	17.2	30.5
Multiple activities with motorized and non-motorized activities COMBINED	**44.4**	13.6	40.4	5.7
Multiple activities with motorized and non-motorized activities SEPARATED	**38.9**	54.4	34.8	55.8

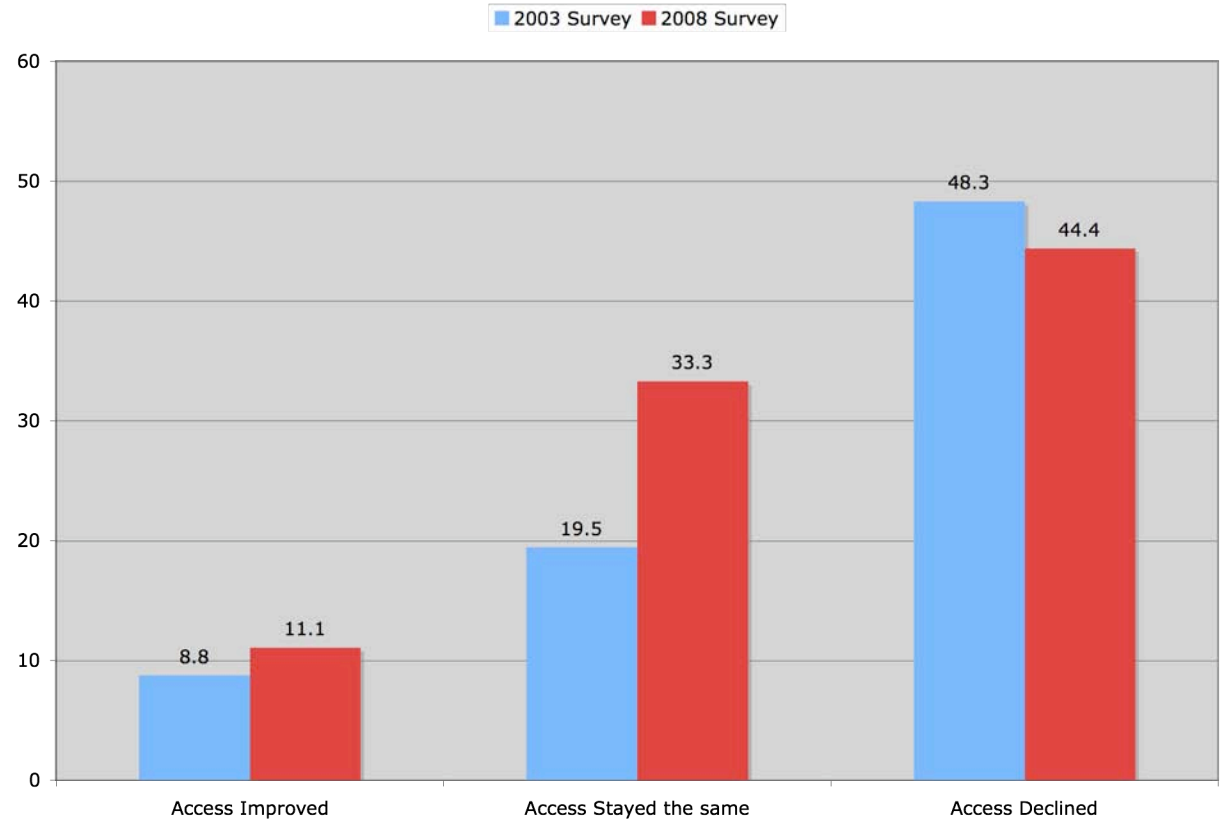
Public Access to Trails

Nearly half of core motorized trail users (44.4%) believe that access to off-highway vehicle roads and trails has declined. More Involved User respondents (79%) think that access to trails has declined, compared to the Random Household respondents. For the most part, the responses from the 2008 survey were similar to 2003 survey findings. Trail access was a frequently mentioned topic at Trails Plan Workshops. Motorized users stated a variety of factors they perceive as the reasons for declining access, such as new air quality dust ordinances, federal land evaluation and designation of motorized routes, State Trust land access limitations, and urban development limiting access.

Table 17. ***In the past five years, do you think that access to trails has improved, stayed the same or declined?***

Access to Off-highway Vehicle Roads and Trails (Core Motorized Trail User)	**Improved**		**Stayed the same**		**Declined**	
Survey Year	2008	2003	2008	2003	2008	2003
% Motorized trail users (Random Household)	**11.1**	8.8	**33.3**	19.5	**44.4**	48.3

Figure 7. Percent of motorized users who say access to trails has improved, stayed the same or declined



Access to trails and OHV routes on public and State Trust lands have traditionally remained open to recreationists, but as more people use these access roads, whether for recreation or for other purposes, more problems occur. Fences are cut, windmills and other private property are used for target practice, livestock tanks are used as hill climbs, and trash is left behind.

Private landowners are closing these access roads to protect their families, property and livestock. Recreationists (and other land users) need to practice better land ethics and etiquette to help encourage continuation of public and private lands access.

Perceptions of Recreation Conflict
Recreation conflict can be attributed to another individual's or group's behavior. This survey question asked respondents to report how often they experience conflict with other users.

The results indicate that, by and large, respondents do not experience much recreation conflict with other trail users, although there are some areas of potential concern. For instance, 33.4% of core motorized trail users experienced conflict with all terrain vehicle or quad riders somewhat or very often. Interestingly, this is significantly higher than the 28.8% of core non-motorized users that reported conflict with ATV or quad riders.

This finding illustrates that conflict occurs both within groups as well as between groups.

Table 18. ***How often do you experience conflict with the following types of recreation users when using trails/routes in Arizona?***

Conflict with Recreation Users	% Very often		% Somewhat often		% Not too often		% Not often at all	
	Motor	Non-Mot	Motor	Non-Mot	Motor	Non-mot	Motor	Non-mot
ATV or "quad" riders	**16.7**	**7.3**	16.7	12.1	16.7	18.5	50.0	60.5
Hikers	5.6	6.5	11.1	15.4	33.3	14.6	50.0	62.6
Dirt bikers	5.6	2.4	16.7	11.3	33.3	23.4	44.4	59.7
Full size vehicles	5.6	2.4	16.7	7.3	16.7	16.1	61.1	70.2
Mountain bikers	5.9	1.6	5.9	12.1	29.4	22.6	58.8	62.1
Equestrians/horses	5.9	1.6	5.9	10.5	29.4	19.4	58.8	66.9

Group Size and Traveling with Children
Survey respondents were asked how many adults and children are typically with them when using the trails they use most. On motorized trails, trail users recreate more frequently in larger groups and with children under age 18.

Traveling with adults: On motorized trails, both motorized trail users (71%) and non-motorized trail users (55%) tend to go out in groups (two or more adults). On non-motorized trails, motorized users (70%) tend to go out on trails with more multiple adult partners (two or more adults) than do non-motorized users (40%).

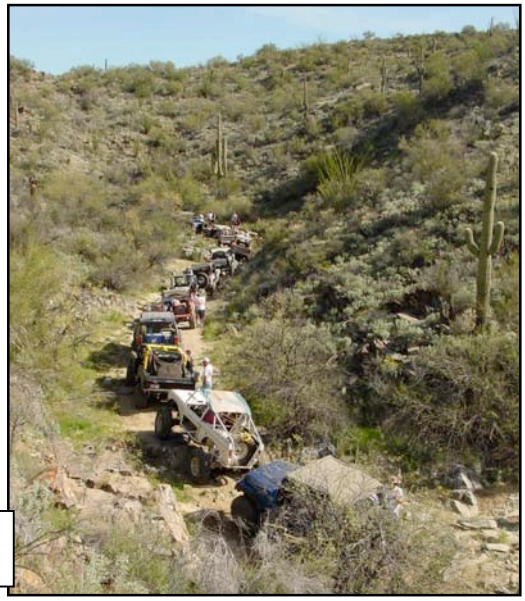


Photo: Motorized trail users tend to go out in groups of two or more adults. Photo courtesy of BLM.

Traveling with children: On motorized trails, both motorized users (65%) and non-motorized users (60%) tend to go out with one or more children. On non-motorized trails, 40% of motorized users and 49% of non-motorized users go out on trails with one or more children.

These findings support the common perception that OHV recreation is primarily a family activity.

Table 19. ***How many people are typically with you when you use trails/routes in Arizona?***

Travel on Trails/Routes with Other People	% Core Motorized Trail Users (Random)			
	0	1	2-4	5>
Travel with others age 18 and over using non-motorized trails	10.0	20.0	50.0	20.0
Travel with others age 18 and over using motorized trails	5.6	27.8	44.4	22.2
Travel with others under age 18 using non-motorized trails	40.0	20.0	30.0	10.0
Travel with others under age 18 using motorized trails	35.3	17.6	35.3	11.8

Preferences Regarding Motorized Trails and Routes

Survey respondents were asked their preferences concerning different types of motorized trails. Random Household motorized user responses indicate that *loop trails* and *trails that offer challenge and technical opportunity* are most important (based on average mean values). The Involved User and Interested Public motorized users responded that *loop trails* and *scenic backcountry roads maintained for passenger vehicles* are most important.

Photo: Trails can offer technical driving opportunities. Courtesy of Sandee McCullen.

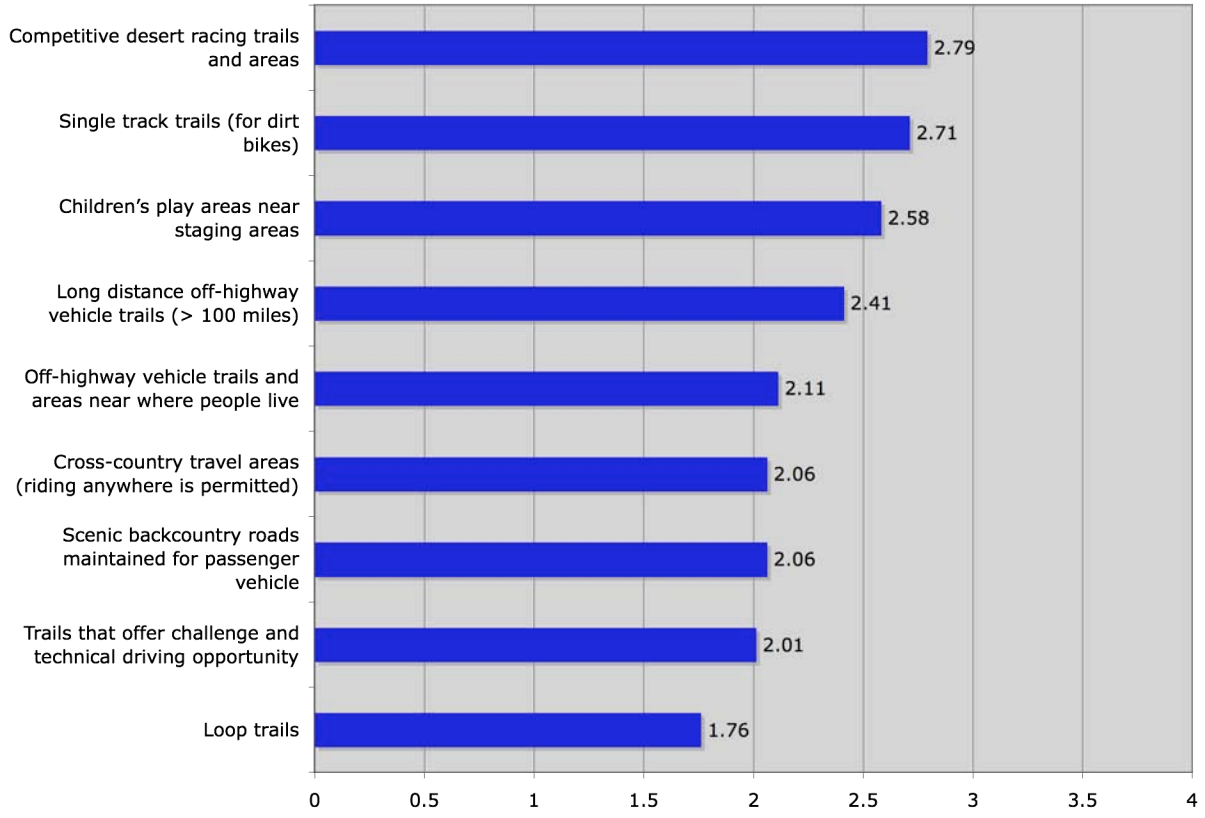
Children's play areas near staging areas, *single track trails* (for dirt bikes), and *competitive desert racing trails and areas* are not less important to users but rather are specialized uses for a smaller population of motorized users. Additionally, public workshops validated the idea that children's play areas near staging areas may have been misinterpreted as having typical playground features such as swing sets versus the intended beginner OHV rider area or "tot lot".

Table 20. ***Trail managers have limited resources to provide for all types of motorized trail activities and experiences. How important are each of the following to you personally?***

Preferences regarding Motorized Trails—Mean	Random Household (Mean Score)
	Core Motorized User
Loop trails	**1.76**
Trails that offer challenge and technical driving opportunity	2.01
Scenic backcountry roads maintained for passenger vehicle	2.06
Cross-country travel areas (riding anywhere is permitted)	2.06
Off-highway vehicle trails and areas near where people live	2.11
Long distance off-highway vehicle trails (> 100 miles)	2.41
Children's play areas near staging areas	2.58
Single track trails (for dirt bikes)	2.71
Competitive desert racing trails and areas	2.79

Note. Mean scores are values on a four-point scale where 1=Very important, 2=Somewhat important, 3=Not too important, or 4=Not important at all. *Lowest* mean score is most important.

Figure 8. Preferences of motorized users regarding importance of various trail/route types



Read from bottom up—Lowest mean score means most important

Environmental Concerns

Perceptions of environmental concerns are important as these attitudes can affect both trail users' satisfaction as well as the ecological integrity of the recreation setting. Survey respondents were asked to rate a series of seven environmental concerns on a four-point scale ranging from 1-"Not a problem" to 4-"Very serious problem".

Photo: Litter and trash dumping is a top concern for both motorized and non-motorized trail users.

Based on mean scores, Random Household motorized trail users considered *litter or trash dumping* (3.18), *damage to vegetation* (2.39), *decreased wildlife sightings* (2.36), and *erosion of trails* (2.34) as top concerns. Both Involved User and Interested Public respondents share the same top concern as the Random respondents, with *litter or trash dumping* ranking the highest, followed by *erosion of trails*.

An unfortunate fact about deserts surrounding metropolitan areas is they are targets for people who want to get rid of bags of garbage, construction debris or large items such as old refrigerators or cars, leaving unsightly and sometimes hazardous waste for others to remove.

Table 21. ***How much of a problem do you think each of the following environmental conditions is on trails/routes you use most?***

Perceptions of Environmental Conditions (Mean Scores for Motorized Users)	Motorized User (Mean Score)		
	Random Household	Involved User	Interested Public
Litter or trash dumping	**3.18**	**2.98**	**2.85**
Erosion of trails	2.34	2.93	2.79
Decreased wildlife sightings	2.36	2.57	2.64
Damage to vegetation	2.39	2.64	2.50
Damage to historical or archaeological sites	2.19	2.43	2.36
Dust in the air	2.20	2.08	2.18
Loss of scenic quality	2.17	2.44	2.37

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem. *Highest* mean score is most severe.

Figure 9. Rating by motorized users regarding level of severity of environmental conditions

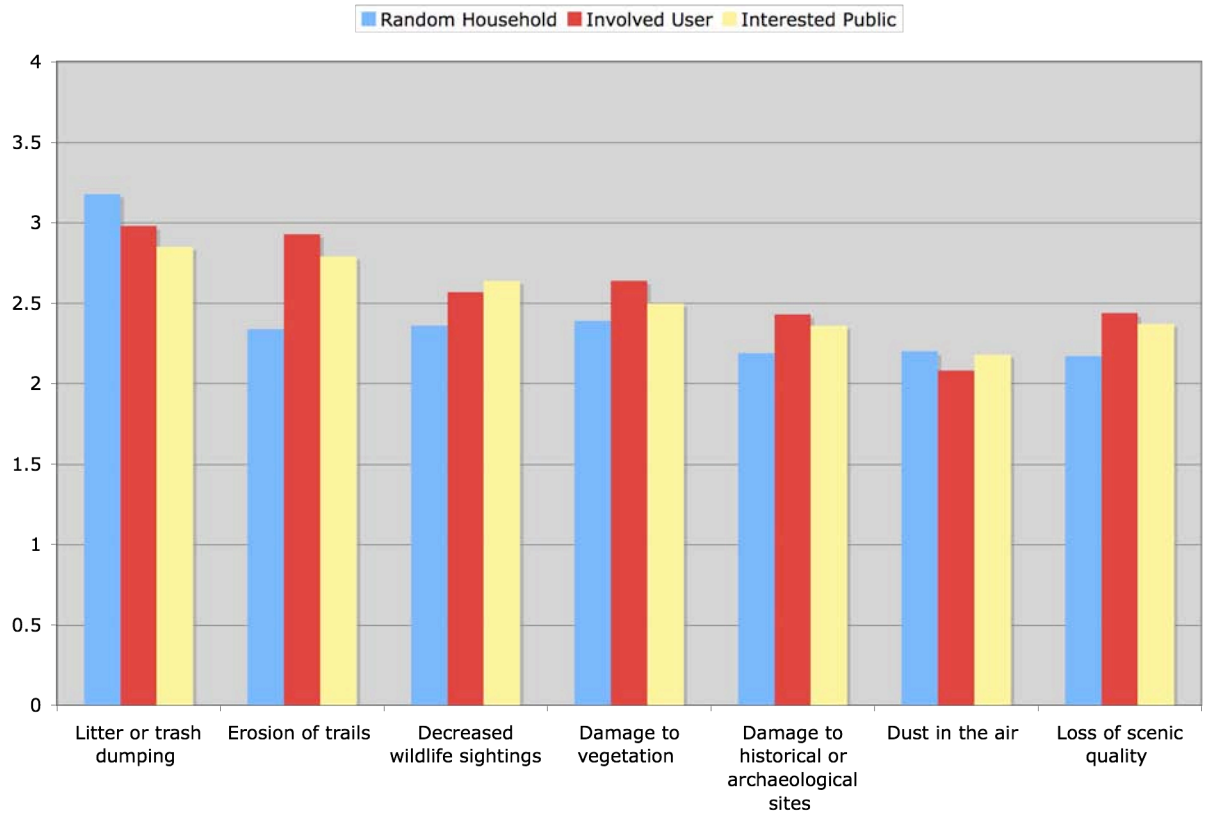


Photo: Stolen cars are often dumped in the desert leaving eyesores, safety hazards and environmental issues for recreationists and land managers. Photo courtesy of Mike Merrill.

Social Concerns

Social issues affect the quality of recreational trail experiences. Survey respondents were asked to rate a series of nine social concerns on a four-point scale ranging from 1 (Not a problem) to 4 (Very serious problem).

Based on mean scores, Random Household motorized trail users considered *closure of trails* (2.82), *urban development limiting trail access or use* (2.81), and *vandalism* (2.76) as top concerns.

Closure of trails was the most common reported issue during Trails Plan Workshops, and *keep existing trails open* was reiterated continuously.

Motorized users stated that current and potential future impacts of the Bureau of Land Management and U.S. Forest Service route designation processes significantly limit use of existing trails. They also stated State Trust land access is being closed; these routes serve as crucial connectors to other public lands.

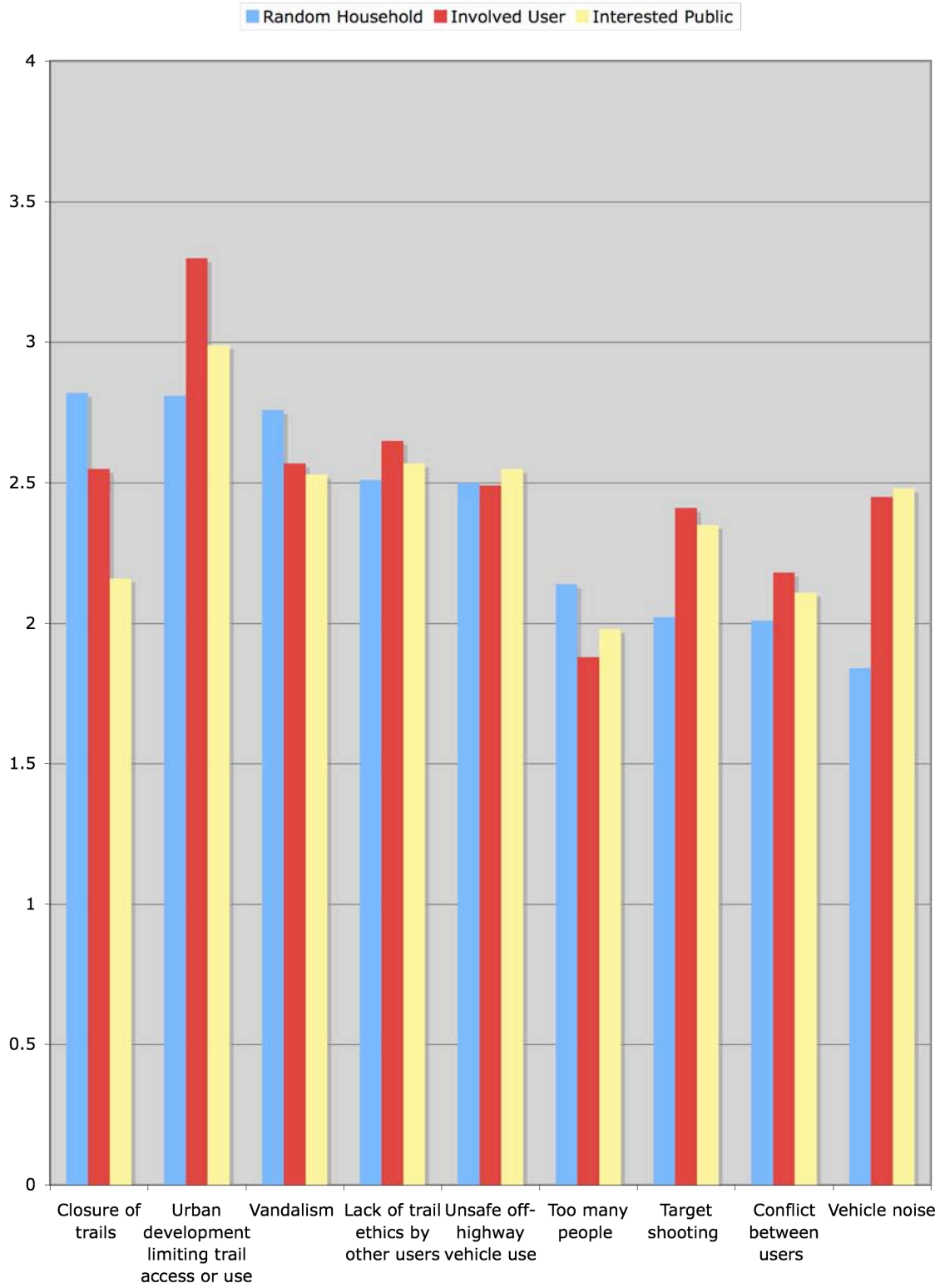
Photo: Closure of trails, routes and areas is an increasing concern of motorized users.

Table 22. ***How much of a problem do you think each of the following social conditions is on trails and routes you use most?***

Perceptions of Social Conditions (Random Household motorized responses)	**Motorized Mean Scores**		
	Random Household	**Involved User**	**Interested Public**
Closure of trails	**2.82**	2.55	2.16
Urban development limiting trail access or use	2.81	**3.30**	**2.99**
Vandalism	2.76	2.57	2.53
Lack of trail ethics by other users	2.51	2.65	2.57
Unsafe off-highway vehicle use	2.50	2.49	2.55
Too many people	2.14	1.88	1.98
Target shooting	2.02	2.41	2.35
Conflict between users	2.01	2.18	2.11
Vehicle noise	1.84	2.45	2.48

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem. *Highest* mean score is most severe.

Figure 10. Rating by motorized users regarding level of severity of social conditions – Highest mean score is most severe.



Trail and Route Planning and Management Priorities

Trail managers have limited resources to develop and maintain trails. To help inform management decisions regarding resource allocation and issue prioritization, one section of the survey included a series of eleven questions that allowed respondents to rate the importance of various trail issues, management priorities, and support facilities.

Based upon mean scores on a scale of 1=Very important to 4=Not important at all, the top three priorities for Random Household, Involved User, and Interested Public motorized users were *acquiring land for trails and trail access* (1.62), *keeping existing trails in good condition* (1.66), and *mitigating damage to environment surrounding trails* (1.67).

Table 23. ***Trail managers have limited resources to develop and maintain trails, and must focus their money and time on the most serious needs first. How important is each item is to you?***

Motorized Trail Priorities by Mean Management and Funding Need	Motorized Users Mean Scores		
	Random	Involved	Interested
Acquiring land for trails and trail access	**1.62**	**1.31**	**1.44**
Keeping existing trails in good condition	**1.66**	**1.59**	**1.68**
Mitigating damage to environment surrounding trails	**1.67**	**1.72**	**1.68**
Routine upkeep of existing motorized trails, routes and areas	1.71	2.55	2.61
Establish motorized trails and areas	1.72	2.55	2.61
Enforcing existing rules and regulations in trail areas	1.78	1.91	1.86
Providing trail signs	1.85	2.01	2.05
Providing educational programs that promote safe and responsible recreation	1.90	2.19	2.10
Providing trail maps and information	1.99	2.06	2.11
Provide law enforcement and safety for motorized trails/routes	2.02	2.15	2.22
Developing support facilities (restrooms, parking, campsites)	2.15	2.67	2.64

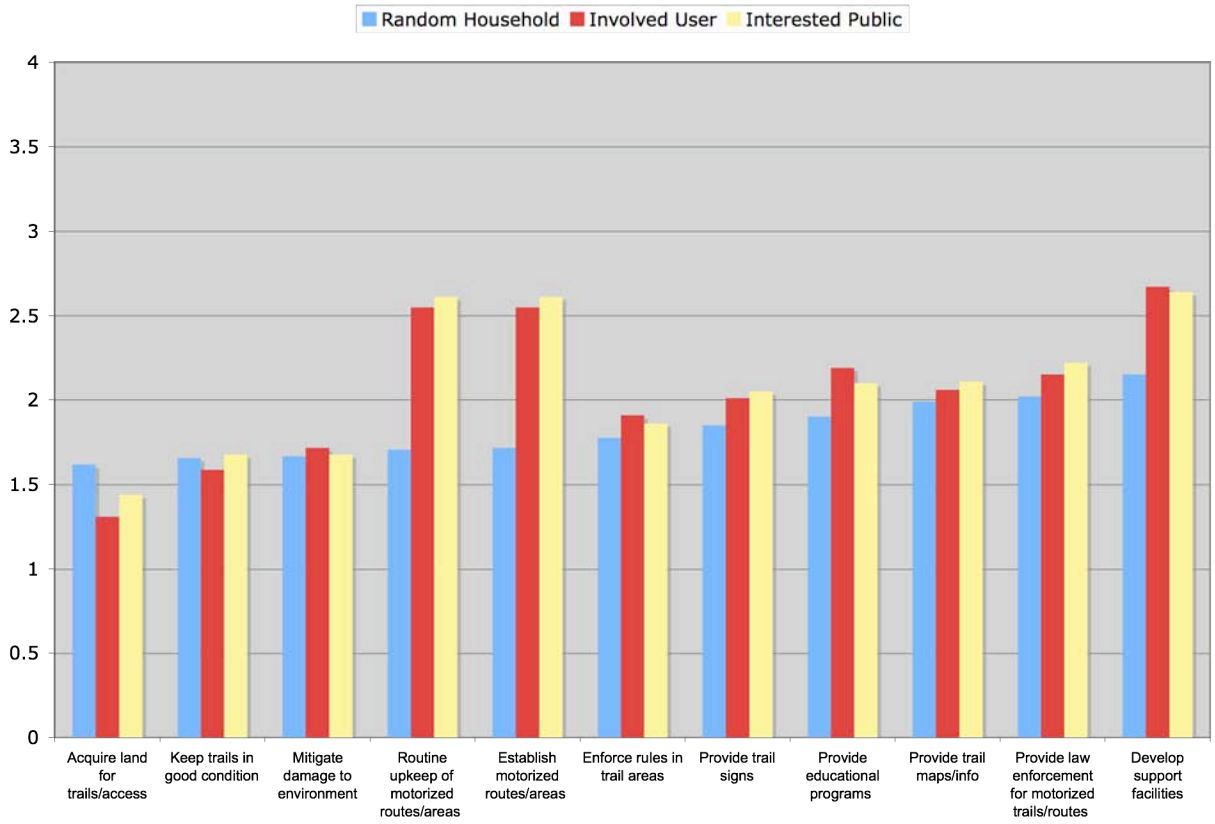
Note. Mean scores are values on a four-point scale ranging from 1=Very important to 4=Not at all important. *Lowest* mean score is most important.

Given limited funding, which ONE of these trail management priorities do you feel is the most important?

When asked, "Given limited funding, which one management priority is the most important," *acquiring land for trails and trail access* was selected the most important by motorized respondents in all survey groups. This was followed by: *enforcing existing rules and regulations in trail areas, establishing motorized trails and areas,* and *mitigating damage to environment surrounding trails.*

Photo: The Tonto National Forest installed 180 feet of suspended gate panels over the flowing portions of Camp Creek Wash to serve as a barrier to motorized travel and prevent further damage in the Cave Creek Complex area closure for fire rehabilitation.

Figure 10. Rating by motorized users regarding level of importance of trail/route management and funding need – Lowest mean score is most important to motorized users.



Volunteers
With lack of staff to adequately manage public land resources, volunteers become crucial to managing motorized trails.

Motorized users (52.9%) are more willing to volunteer than non-motorized users (39.3%). Involved and Interest Public motorized users are more willing to volunteer than the general public (Random Survey respondents - motorized users).

Table 24. ***In the next year, would you be willing to volunteer your time to build or maintain trails in Arizona?***

Willing to Volunteer	% Motorized Users		
	Random	Involved	Interested
Yes	52.9	89.6	77.6
No	35.3	1.5	5.6

Survey respondents were also asked the importance of a series of volunteer incentive on a four-point scale ranging from "Very Important" to "Not at all Important".

The top three volunteer incentives for the Random, Involved, and Interest Public motorized users based on the combined respondents that selected very important or somewhat important is *information about when/where to show up*, *training*, and *food and water for the event*.

Photo: The majority of motorized trail users are willing to volunteer. And if you feed them, they will smile!

Land Manager Survey Results – Motorized Trail Use

For the *Trails 2010 Plan*, Arizona land managers were given a separate web survey to collect their unique expertise and opinions on safety concerns, environmental and social concerns, management priorities, among other topics. A non-probability or purposive sampling strategy was used for the land manager web survey. Therefore, conclusions drawn regarding this group are representative only of those individuals who participated in the survey and cannot be generalized to any larger population or group.

Considering that the Federal Agencies manage the most OHV recreation opportunity, some State agencies (such as the Arizona Game and Fish Department) help manage OHV use on federal and state lands, and Cities and Counties do not manage or manage limited OHV opportunities, the issues with motorized recreation are fairly similar.

Land Manager Survey results are separated by sub-groups (Federal, State, and City/County) throughout this discussion.

Safety

According to Land Manager Survey respondents, *lack of law enforcement*, *user education of rules and regulations regarding trail recreation*, and *vandalism along trails* are the top three safety concerns. *Personal safety* is a slight to moderate problem on motorized trails.

Photo: Wear appropriate safety gear when operating an OHV. ASP Photo Contest Winner Brian Lawson.

Some riders do not wear proper safety gear (e.g., helmets, protective clothing), are inexperienced in riding a particular vehicle, are unprepared for problems or emergencies (lack of maps, water, cell phone), or ride without regard for safety (theirs and others).

According to the U.S. Consumer Product Safety Commission (2006), there were 117 reported ATV related fatalities in Arizona from 1982 to 2006, with 46 fatalities from 2003 to 2006.

Of the total 8,104 reported ATV deaths that occurred between 1982 and 2006 in the nation, 29% were under 16 years old. Reports indicate that many of these deaths were caused by lack of properly fitted helmet, excessive speed, inexperience in handling the vehicle, or two people riding a vehicle designed for one person.

The following "Recreational Off-Highway Vehicle" (ROV, UTV, side by side) ***Safety Rules*** focus on safe and responsible OHV use:

1.	Always wear protective gear, use the seat belts, keep all parts of your body inside the vehicle, and wear a helmet when driving the vehicle for recreational purposes.
2.	Never drive on public roads -- another vehicle could hit you.
3.	Drive only in designated areas, at a safe speed, and use care when turning and crossing slopes.
4.	Never drive under the influence of alcohol or other drugs.
5.	Never drive an ROV unless you're 16 or older or have a driver's license. ROVs are not toys.
6.	Never carry more passengers than the ROV is designed for, and never allow a passenger who is too small to sit in a passenger seat to ride in the ROV.
7.	Read and follow the operator's manual and warning labels.

Environmental Impacts

Land Manager Survey respondents are particularly concerned with an increase of off-highway vehicle (OHV) use and the potential to cause impact to ecosystems. The most problematic environmental conditions on motorized trails are: *soil erosion; damage to vegetation; impacts to air quality, especially dust or particulate matter;* and *habitat fragmentation.*

Table 25. Motorized Trail/Route Environmental Impacts for Arizona Land Managers
Regarding trails, how much of a problem is each of the following environmental issues to you?

Environmental Impacts	#1 Issue	#2 Issue	#3 Issue	#4 Issue	#5 Issue
State Agencies	Damage to vegetation	Soil erosion	Habitat fragmentation	Impacts to air quality, especially dust or particulate matter	Impacts to water quality
Federal Agencies	Soil erosion	Damage to vegetation	Impacts to air quality, especially dust or particulate matter	Increase in invasive species	Habitat fragmentation
Cities and Counties	Soil erosion	Damage to vegetation	Impacts to air quality, especially dust or particulate matter	Habitat fragmentation	Decreases in wildlife sightings

* Ranking is based on the mean scores, which are values on a four-point scale ranging from 1=Not a problem to 4=Very serious problem. *Highest* mean score is most important. Respondents rated seven environmental issues.

Photos: Examples of erosion, trampling of vegetation, and habitat degradation.

Social Impacts

Social impacts affect a visitor's experience, as well as on how those visitors affect the local community. Based on Land Manager Survey results, the most problematic social conditions on motorized trails are: *users not staying on designated trails or routes; trail widening; inappropriate user behavior; vandalism; destruction/removal of signs*; and *conflicts between local residents and other trail users*.

Table 26. Motorized Trail/Route Social Conditions for Arizona Land Managers

Social Conditions	#1 Issue	#2 Issue	#3 Issue	#4 Issue	#5 Issue
State Agencies	Users not staying on designated trails or routes	Trail widening	Conflicts between local residents and other trail users	Trail braiding	Inappropriate user behavior
Federal Agencies	Users not staying on designated trails or routes	Inappropriate user behavior	Trail widening	Trail braiding	Destruction/ removal of signs
Cities and Counties	Users not staying on designated trails or routes	Vandalism	Destruction/ removal of signs	Inappropriate user behavior	Fence cutting

* Ranking is based on the mean scores, which are values on a four-point scale ranging from 1=Not a problem to 4=Very serious problem. *Highest* mean score is most important. Respondents rated eleven social issues.

Photo: Users not staying on designated trails or routes is a top concern of land managers.

Affordability of Motorized Trail Maintenance

The U.S. Forest Service and Bureau of Land Management are currently in the process of travel management planning. The cost to plan a regional trail system; to inventory and designate routes to be open, closed, or provide for limited travel (e.g., seasonal, limited use) to the public; and to improve, close, and maintain motorized routes is considerable. Although no questions were asked in the Land Manager Survey regarding affordability of motorized trail maintenance, this is a factor that is of concern and is considered when evaluating and designating motorized routes.

The Modoc National Forest (located in northern California) Motorized Travel Management Draft Environmental Impact Statement (2008) provides average maintenance costs per mile of forest road which were "derived using the Washington Office unit costs including overhead, and local information from condition surveys conducted in the field". Maintenance costs will vary for Arizona forest roads and trails.

Table 27. Average Annual Maintenance Costs of Forest Road per mile (Modoc National Forest, CA)

Operational Maintenance Level (Brief description provided)	Annual Maintenance Cost (per mile)
1 Maintenance done only to minimize resource impacts	$78
2 Not suitable for passenger cars; low traffic volume and low speed	$213
3 Low to moderate traffic volumes	$538
4,5 Highest traffic volume and speeds	$828

Motorized Recreation Funding Priorities

Managers were asked to rate twelve funding issues that relate to the management of motorized trails. Enforcement of laws and regulation is a high priority. Historically enforceable State OHV laws were weak in Arizona, and legislative sweeps of OHV funds for enforcement impacted effective OHV enforcement. Recently, robust state OHV laws were created and additional funding for law enforcement is anticipated to be generated through the new required OHV Decal, which should assist with this law enforcement issue. Evaluation and designation of routes, particularly on federal and State Trust land is necessary to be able to tell the public where it is, and is not, acceptable to ride or drive an OHV. On the ground ranger presence is also a top funding priority for land managers to contact visitors, education, and conduct site monitoring. Education promotes responsible use on trails and routes.

Table 28. Motorized Trail/Route Funding Priorities for Arizona Land Managers*

Funding Issues	#1 Issue	#2 Issue	#3 Issue	#4 Issue	#5 Issue
State Agencies	Enforcement of laws and regulations	Evaluation and designation of OHV routes	Prevention, restoration and mitigation of damage to areas surrounding trails	Providing on the ground ranger presence (visitor contact, education, monitoring)	Completion of environmental/ cultural clearance compliance/ activities
Federal Agencies	Providing on the ground ranger presence (visitor contact, education, monitoring)	Enforcement of laws and regulations	Implementing education programs promoting responsible, safe trail use	Prevention, restoration and mitigation of damage to areas surrounding trails	Evaluation and designation of OHV routes
Cities and Counties	Enforcement of laws and regulations	Prevention, restoration and mitigation of damage to areas surrounding trails	Evaluation and designation of OHV routes	Implementing education programs promoting responsible, safe trail use	Purchase and installation of trail signs

*Ranking is based on the mean scores, which are values on a four-point scale ranging from 1=Not at all important to 4=Extremely important. *Highest* mean score is most important. Respondents rated thirteen funding issues.

Motorized Trail Priority Recommendations — Issues and Actions

This section presents priority recommendations for motorized trail uses and the issues that support the need for implementation of the recommendations provided. Priority recommendations are based on the Survey Data (Random Household, Involved Users, Interested User, and Land Manager surveys), and Trails Plan Workshops conducted for the *Trails 2010 Plan,* and on the professional experience of Arizona State Parks staff. Recommendations within each level all have equal weight. Arizona State Parks acknowledges that all eleven recommendations are important for effective management of OHV use, are inter-related, and most incorporate specific actions for the protection of Arizona's natural and cultural resources.

This section also cites the legislative references that mandate Arizona State Parks to prepare the statewide OHV and Trails Plan and make recommendations to agencies and the private sector regarding expenditures from the OHV Recreation Fund.

Legislative Mandate to Prepare Statewide Off-Highway Vehicle Plan

Arizona legislation A.R.S. § 41-511.04 directs the Arizona State Parks Board to *"maintain a statewide off-highway vehicle recreation plan. The plan shall be updated at least once every five years and shall be used by all participating agencies to guide distribution and expenditure of monies under 28-1176. The plan shall be open to public input and shall include the priority recommendations for allocating available monies in the Off-Highway Vehicle Recreation Fund established by Section 28-1176."*

Table 29. Motorized Recreation Recommendations

First Level Priority Motorized Recommendations
Protect Access to Trails/Acquire Land for Public Access
Maintain and Renovate Existing Trails and Routes
Mitigate and Restore Damage to Areas Surrounding Trails, Routes and Areas
Establish and Designate Motorized Trails, Routes and Areas
Second Level Priority Motorized Recommendations
Increase On-the-Ground Management Presence and Law Enforcement
Provide and Install Trail/Route Signs
Provide Maps and Trail/Route Information
Provide Educational Programs
Third Level Priority Motorized Recommendations
Develop Support Facilities
Promote Coordinated Volunteerism
Promote Comprehensive Planning and Interagency Coordination

The recommendations for motorized trail use are used by all participating agencies to guide distribution of funds administered by Arizona State Parks from the OHV Recreation Fund and the Federal Recreational Trails Program until the next plan is published. These recommendations also serve as an overall direction for Arizona State Parks, land managers, and OHV users in their efforts to improve the State of Arizona's motorized trail opportunities.

First Level Priority Recommendations for Motorized Trail Use

Protect Access to Trails/Acquire Land for Public Access

Issue: Access refers to the ability of the user to get to the trailhead or area where recreational opportunities exist. Protecting access to unauthorized or "illegal" routes is not considered part of this issue; state and federal agencies will evaluate unauthorized routes as part of their designation process. Access is being diminished due to land agency closure of trails; air quality ordinances; urban development limiting trail access or use; private landowners closing access roads citing destruction of property, littering, and disrespectful behavior; and variation in rules and trail designations that cross private, public and state lands. Closure of designated trails and routes without providing other designated routes in the same area leads to overuse and impacts in new areas. Access is also an issue of trail/route connectivity between jurisdictions, especially regarding the use of trails and roads on Arizona State Trust lands to access adjacent federal lands. Protecting access is the highest priority for the motorized trail user.

Actions:

- Implement more comprehensive planning with projections into the future to identify unprotected access points for designated trails and routes, and acquire land for existing and proposed trails and trail access, easements, and right-of-ways.
- Permanently secure access to designated trails, routes, trailheads, and across private and State Trust lands.
- Consider increased trail access and parking areas near urbanized areas.
- Coordinate with private landowners on trail issues and solutions.
- Work with land management and law enforcement agencies to provide consistent trail signage and enforcement of laws and regulations across jurisdictions.
- Treat staging areas and high use unpaved roads for dust mitigation in areas of concern.
- When considering closing a route, first research the feasibility of redesigning the trail to correct design flaws or protect resources; plan for increased use on adjacent trails.

Maintain and Renovate Existing Trails and Routes

Issue: Many motorized trails and routes are perceived as eroded or poorly aligned, and a top motorized trail priority is to keep existing trails in good condition. Trails are eroded due to natural causes, overuse, improper design or lack of regular maintenance. Often badly eroded or aligned trails cause users to create unauthorized alternate routes.

Photo: Saffel Canyon OHV Trail renovation grant project (ATV bridge to keep vehicles out of wash) funded by the Recreational Trails Program (Motorized Portion). Photo courtesy of Hank Rogers.

Land agencies are currently in the process of officially designating trails and routes that are appropriate for recreational motorized use; these "designated" trails and

routes will need to be renovated and maintained. Renovation of a trail provides opportunity to address and/or mitigate any resource impacts caused by trail use. Trash and litter was identified as one of the public's biggest concerns. Also, with increased OHV use, open mine shafts are an ongoing public safety issue.

Actions:

- Identify and take action on reconstruction and maintenance needs of designated motorized trails and routes.
- Incorporate sustainable trail design when realigning, renovating or maintaining trails.
- Provide education about the litter problem (Pack it in—Pack it out); provide trash bags other litter control means; partner with volunteer groups such as OHV clubs and organizations-Keep Arizona Beautiful
- Identify open mine shafts on, and surrounding, motorized routes and implement proper safety precautions such as signage, fencing and permanent closure of shafts. Coordinate with wildlife officials when considering mine shaft closures.
- Develop programs, including use of volunteers, to provide routine upkeep of designated trails and routes.
- Consider resource protection needs during any trail renovation.

Photo: Open mine shafts can be a real danger to OHV users; many mine shafts are unfenced and unsigned. These old routes were created by miners and were never intended for recreational use. Caution is urged when traveling in the back country.

Mitigate and Restore Damage to Areas Surrounding Trails, Routes, and Areas

Issue: Arizona is experiencing a rapid increase of OHV users, many new to the activity and to Arizona's unique environments. A number of motorized users simply don't understand and/or have a lack of appropriate trail ethics. Cross-county travel occurs and unauthorized trails are created which adversely affect wildlife habitat, watersheds, cultural resources, grazing and other multiple-use activities. Managers perceive damage to vegetation and soil erosion along motorized routes as serious problems. In addition, portions of the state are out of air quality compliance for particulate matter (PM-10/dust) and OHVs contribute to the issue.

Protection of Arizona's natural and cultural resources is important to both the public and land managers. Mitigating and restoring damage to the environment surrounding trails and routes is a high priority issue for trail users and land managers, based on 2008 survey results (funding and management priorities, environmental and social concerns). Mitigation includes trail and area closures, signage, fencing and other barriers, restoration of the land, revegetation, treatment for the spread of invasive species, dust mitigation, prevention of impacts to wildlife and their habitats, and protection of water quality.

Mitigation and restoration actions address environmental impacts after they occur; prevention and protection actions address impacts before they occur. Several of the other priority recommendations, such as Establish/Designate Trails, Maintain/Renovate Trails, Increase on the ground Management Presence/Law Enforcement, Signage, Education, and Promote Comprehensive Planning, address protecting natural and cultural resources before damage occurs.

Actions:

- Rectify or reduce existing damage caused by off-highway vehicles, to natural (vegetation, wildlife, water, soils) or cultural (prehistoric, historic, archaeological) resources or the environment surrounding OHV trails and areas. This may include land restoration, revegetation, invasive species treatment, long-term rehabilitation, barriers, route realignments, or closures.
- Mitigation should be part of any trail or route development or renovation.

Reduce the need for mitigation and restoration through prevention activities such as:

- Seek innovative ways to provide education and interpretive signage on the area's environment, and the effects of human and off-highway vehicle impacts on the environment. Kiosks and shelters are a good way to draw attention to interpretive materials, which could inform visitors about conservation practices, treading lightly on the land, and the ethics of watching wildlife to minimize disturbance. Signs, maps and other materials should emphasize the need for users to stay on designated roads and trails.
- Provide visitors with pull-outs, viewing blinds and platforms, observation towers, and boardwalks where appropriate to enhance visitor experiences and reduce impacts and disturbances to wildlife and sensitive areas.
- Delineate camp areas on long-distance and heavily used trails to focus impacts in one established area, leaving the surrounding area undamaged.
- Minimize impacts of OHV use on grazing and other land uses.
- Maintain viable wildlife habitats and linkages through identification and protection of sensitive areas and important wildlife corridors.
- Explore and implement solutions to reducing particulate matter due to trail/route use, such as dust suppressants.

Photo: Mitigation project–Before and After photos of off-trail endangered species rehabilitation project funded by the Off-Highway Vehicle Recreation Fund (2007). Photos courtesy of BLM, Kingman Field Office.

Establish and Designate Motorized Trails, Routes, and Areas

Issue: Many motorized roads, trails, and areas currently in use have not been officially designated for motorized use in Arizona. Many OHV routes were once mining, logging or ranch roads, or decades-old exploratory jeep trails. They weren't designed or built for the heavy recreational uses they now accommodate and most were never cleared for environmental or cultural concerns. Very few motorized trails were designed to provide the varied and challenging opportunities desired by the OHV user.

The evaluation and designation step for officially establishing motorized trails and routes, currently being implemented by the BLM and Forest Service, is a high priority for both federal and state land managers and motorized trail users. This step determines which routes (previously authorized or unauthorized) will be part of the official transportation system, and includes evaluation of the route for environmental or cultural impacts, trail use and activity types, feasibility to implement ongoing management (maintenance, enforcement, resource protection, etc.), and public involvement. Implementation of the designation process will also protect access to many existing trails and routes, and will close routes that cannot meet agency standards.

Photo: Existing wooden fence at the Beginner Riding Area (5mph speed limit) at Alto Pit OHV Recreation Area on the Prescott National Forest was replaced with a two strand poly fence.

Cities, towns and counties do not usually provide OHV recreation opportunity in Arizona – there is a lack of managed OHV destinations near large urban centers. There are only two public sites in Arizona that have an area designed specifically for youth OHV riding. There is an increasing population of motorized users with physical disabilities dependent on the use of motorized vehicles for travel "to get into the backcountry."

Actions:

- Inventory, evaluate and designate motorized trails, roads and areas.
- Before designation, conduct environmental assessments and cultural clearances on all motorized routes. Close existing routes that cannot meet agency standards.
- Inform the public, through press releases, maps and websites, as soon as OHV routes and trails are officially designated. Involve users in the designation process.
- Establish a variety of OHV recreation opportunities that are important to the trail user public including loop trails, trails that offer challenge and technical driving opportunity, scenic backcountry roads maintained for passenger vehicles, and cross-country travel areas.
- Develop OHV connectors and networks to create loop trails or provide longer rides.
- Make trails and routes accessible for individuals with physical disabilities.
- Encourage or provide preference to cities and counties to become active in OHV management; to provide OHV sites and beginner riding areas near population centers.

Second Level Priority Recommendations for Motorized Trail Use

Increase On-The-Ground Management Presence and Law Enforcement

Issue: Enforcing rules and regulations on trails, routes and areas is a high priority for motorized trail users and land managers. There is a lack of on-the-ground management presence and self-policing for safety, information, education and enforcement activities. There is a lack of adequate law enforcement to sufficiently meet resource protection needs and reduce dust emissions. There is no effective mechanism for the public to report illegal operators in a timely manner to appropriate law enforcement agencies. Trail laws and regulations are often unknown

or ignored by users. Land managers do not have the staff or time to effectively monitor trails and users or educate recreationists. There is a need for increased search and rescue efforts in conjunction with OHV use due to lost, injured, and/or unprepared users.

Actions:

- With new OHV laws in place, implement a well-coordinated effort across jurisdictions to maximize effort and impact. This coordinated effort should be centralized so there is a consistent enforcement direction and interpretation.
- Encourage State and counties to provide assistance on federal lands for law enforcement.
- Federal agencies should increase on the ground enforcement efforts, particularly for resource protection.

Photo: Land management agency staff and volunteer OHV Ambassadors work together to better educate OHV users and the public about responsible land use and trail ethics.

- Educate courts to provide consistency regarding sentencing (e.g., fines, education programs, community service). Heavier fines for repeat offenders are encouraged.
- Identify enforcement contacts or install complaint registers for trail users to report information.
- Increase staff through a variety of means including ranger presence, law enforcement presence, volunteers, and site hosts.
- Promote volunteer programs with clubs and individuals to monitor trail use and educate users regarding rules and regulations (e.g., OHV Ambassadors/peer patrols).
- Agency personnel are encouraged to coordinate law enforcement efforts with the Arizona Game and Fish Department and participate in their enforcement training programs.

Provide and Install Trail Signs

Issue: Properly placed signs can keep users on designated trails and routes and inform users why this is important. Users require a number of different kinds of signage to safely and enjoyably pursue their trail experience. There is a lack of adequate signage on motorized routes and areas. Federal land managers are currently in the process of establishing designated motorized routes and are sometimes apprehensive to install signs until designations are complete. Signs are continuously damaged and vandalized and need frequent replacement. There are inconsistent inter-agency standards for signage.

Photo: Trail markers help keep recreationists on appropriate routes.

Actions:

- Install locator signs that lead people to trailheads and parking areas, directional signs along the trail, destination signs to let people know they have reached end points, interpretive signs that describe the natural or cultural history of the area,

educational signs explaining why environmental and cultural protections are required, and regulatory signs that explain the rules of conduct.
- Adopt consistent interagency universal standards for signage.
- Develop bilingual signage and information.
- Enlist the help of volunteers to routinely monitor and replace signs as needed. To reduce vandalism, visibly advertise that these signs were installed by volunteers from "X Club".

Provide Maps and Trails Information

Issue: Trail users need information and accurate maps that inform them where designated trails exist. Accurate, up to date maps and trail information are difficult to find. There are a limited number of comprehensive OHV trail maps in Arizona, as well as site-specific maps. Federal land managers are currently in the process of establishing designated motorized routes and are sometimes apprehensive to distribute maps until designations are complete. Many current maps do not include routes that cross State Trust lands.

Actions:
- Develop interim maps with current date listed until route designations are complete.
- Post maps and information on agency websites and trailhead kiosks so they are widely accessible.
- Develop bilingual maps and information.
- Provide GPS coordinates, rules and laws, and other responsible riding information on maps.
- Coordinate and enter into negotiations with the State Land Department to include on maps the key OHV routes that cross State Trust lands.
- Agencies and/or the private sector should establish a central repository for maps with a database manager to ensure accuracy and consistency. This would increase GIS effectiveness and efficiency. Overlays of interest could be added on web-based applications. Map costs should be kept low to encourage a wider distribution and use.

Photo: Posting maps on trailhead kiosks informs the public where it is appropriate to ride.

Provide Educational Programs

Issue: Trail users who lack proper trail etiquette and environmental ethics can detract from other trail users' recreation experience and negatively impact the environment.

Current education efforts are insufficient to meet the need for effective responsible user education (need to target residents, visitors, dealers, buyers, and rental businesses), resulting in negative impacts to land and water resources, cause site closures, and contribute to the negative perception of OHV use. Many users are unaware of new laws relating to dust restrictions, vehicle operation, and registration of vehicles. More well-placed educational materials and targeted programs may reduce the need for increasing law enforcement efforts.

Actions:
- Develop consistent responsible use messages and promote through websites and mass media, and provide OHV related articles for newspapers, magazines, and newsletters.

- Compile a comprehensive list of OHV laws and regulations and also prepare and publicize condensed versions (e.g., brochures, FAQs).
- Partner with motor sport dealer businesses to educate motor vehicle buyers and renters.
- Develop and implement an approved State OHV education curriculum.
- Incorporate OHV recreation use into driver education and school youth programs.
- Improve posting of regulations at trailheads and along routes.
- Maintain and use OHV interest mailing lists to announce new information, messages, policies and regulations.

Third Level Priority Recommendations for Motorized Trail Use

Develop Support Facilities

Issue: In addition to the actual trail corridor, users require support facilities to aid in the area's use and activities. Support facilities can include restrooms, parking areas, kiosks, water faucets, picnic and camp sites, shelters, wildlife viewing blinds and platforms.

Photo: New pipe rail fence around the Boulders staging area (near Phoenix metro) delineates the parking area. Dust suppressant test taking place in photo. Courtesy of BLM, Hassayampa Field Office.

Well-designed support facilities increase the user's experience and satisfaction along with protecting the natural resources, including keeping areas clean and free of litter and waste. Many users do not know land ownership information and facilities help demonstrate the area is "managed" and "owned" by someone.

Actions:

- Develop trailheads with adequate parking areas and litter control (such as individual litter bags), and where appropriate, restrooms, drinking water, and/or other management features such as a sign-in register.
- Develop picnic sites or camp sites in conjunction with the trailhead, where appropriate.
- Develop a volunteer host campsite to assist with on the ground presence and user contact.
- Support facilities should be accessible to all users; comply with ADA guidelines.
- Consider facilities along long-distance trails, such as viewing platforms, shelters or planned camp sites, that could be used to reduce impacts to surrounding areas.

Promote Coordinated Volunteerism

Issue: Volunteers are a valuable supplement to an agency's labor force. Based on the Random Household survey, more than half of core motorized trail users are willing to volunteer, and 90% of the motorized Involved Users, many of which are club members, are willing to volunteer. During *2010 Trails Plan* Workshops, users requested greater use of their public service and to "bring back adopt-a-trail."

Photo: The Arizona Ambassador Program began in 2007 as a partnership between resource agencies and OHV volunteers to provide additional on the ground presence in high use OHV areas. Middle Gila Canyons area, BLM.

Land managers desire increased use of volunteers but lack the time to effectively coordinate, manage, and train volunteers to use them to their potential. Some agencies hesitate to use OHV volunteers due to a perceived liability of the activity.

Actions:

- Recognize and support the need to allocate staff time to coordinate volunteers.
- Seek grants and partnerships to support volunteers.
- Enlist a volunteer to take a leadership role or be the liaison between the agency and volunteers, and to coordinate trail projects.
- Provide volunteer trainings for trail maintenance and monitoring, leadership and coordination, and specialized skills.
- Individual Ranger Districts and Field Offices should establish local cadres of OHV ambassadors or peer patrols to increase the volunteer force and on the ground presence.

Promote Comprehensive Planning and Interagency Coordination

Issue: Interagency cooperation and consistency, and regional trail planning was a common theme throughout the *2010 Trails Plan* Workshops. Better communication between agencies is important to ensure interconnectivity between trail systems, securing access from encroaching development, trail signage and regulation standardization, and sharing enforcement resources. Interagency planning and coordination is especially important for the protection of natural and cultural resources, particularly for ecosystems and wildlife corridors.

There is a lack of planning for OHV recreation near population centers, and a need to implement best management practices for OHV recreation in Arizona. "Seamless" transitions of trails and routes across jurisdictions is especially important for OHVs because motorized vehicles travel longer distances within trips than non-motorized users, so longer loop trails and interconnected routes are a necessary component of a good OHV trail system.

Photo: Agencies are encouraged to involve users in planning efforts and policy and management changes that affect users.

Actions:

- Collaborate with neighboring agencies to interconnect trail systems and share resources.
- Develop regional trail system plans and involve relevant agencies, organizations, and users in all planning efforts.
- Continue implementation of programs and efforts such the Wildlife Linkages Assessment, Invasive Species task force, and Watchable Wildlife programs; get involved.
- Compile a resource guide (best management practices) for managing OHV recreation.
- Develop an expert team to help introduce and guide municipalities in OHV management.
- Conduct a needs assessment for OHV management near major population centers.
- Review successful business models for privately operated OHV use areas.
- Involve the recreational users in planning efforts and keep them informed of new policies and changes in management. They may be able to provide assistance and resources.

Program Accomplishments

Off-Highway Vehicle Advisory Group (OHVAG)

The Off-Highway Vehicle Advisory Group (OHVAG) is a seven-member committee that provides program direction and funding recommendations to the ASPB. Seven members are appointed by the Arizona State Parks Board to a maximum of two consecutive three-year terms. Five of the seven members must be affiliated with an OHV organization or group; one seat must represent casual OHV recreationists or the general public, and one seat must represent a sportsperson's group (defined as a member of an organization representing hunting, fishing, or similar sportsperson outdoor activities). Members must be Arizona residents, and no more than two OHVAG members may reside in the same county. The sportsperson member replaced a citizen-at-large position on the OHVAG in January of 2009.

Photo: OHVAG members on a field trip to visit an OHV grant project.

The mission of the OHVAG is to develop and enhance statewide off-highway vehicle opportunities, and to develop educational programs that promote resource protection, social responsibility, and interagency cooperation. OHVAG and State Parks staff work with OHV partners to evaluate State OHV needs, the *Trails Plan*, and make funding recommendations for the OHV Recreation Fund and Recreational Trails Program revenues to the Arizona State Parks Board annually. Recommendations are forwarded to the Arizona State Parks Board for final approval.

OHVAG assists the State OHV Program:

- Provides policy advice on OHV issues affecting Arizona to the Arizona State Parks Board.
- Serves as a liaison to the federal Recreational Trails Program – Motorized Portion Grant rating process annually.
- Assists with the Statewide OHV Plan every five years.
- Uses priorities identified in the OHV Plan to make recommendations towards the expenditure of Arizona State Parks administered OHV funds (review and make recommendations for grant criteria and OHV Recreation Fund partnership programs and projects) as needed.
- Assists with the development of public information materials including brochures, implementation of statewide OHV education efforts, and cosponsors workshops and conferences on occasion.

2007 State Trails Conference: ***Opportunities, Issues and Strategies for the Future***
In 2007, a State Trails Conference was planned by a joint effort of the motorized and non-motorized committees to bring the trail and OHV communities together to share issues and develop strategies for the future.

The conference was very successful. Attendance reached nearly 200 people from every corner and numerous agencies across Arizona as well as two attendees who traveled all the way from American Samoa. The three-day event held at a camp facility outside Prescott covered a wide range of topics and most importantly brought the Arizona trails and OHV communities together to learn and network. Powerpoints from the conference sessions and photos are available on the Arizona State Parks webpage at http://azstateparks.com/trails/trail_workshops_2007_2.html

Off-Highway Vehicle Legislation

Thanks to a lengthy collaborative effort between a broad coalition of off-highway vehicle enthusiasts, sportsmen, conservationists, elected officials, land agencies, and the public, new state laws took effect January 1, 2009 that will help to better manage Arizona's rapidly growing OHV use. New laws include: safety and equipment requirements to operate an OHV in Arizona; safe, ethical, and responsible operation of OHVs; and requirement of an annual purchase of an Off-Highway Vehicle Decal for the operation of any ATV or OHV in Arizona that meets both the following criteria:

- Designed by the manufacturer primarily for travel over unimproved terrain.
- Has an unladen weight of eighteen hundred pounds or less.

Off-Highway Vehicle Recreation Projects
Small Project Agreements: Agencies that manage high use OHV sites, including the U.S. Forest Service, Arizona State Land Department, and Bureau of Land Management, received up to $10,000 to conduct small projects to improve on-site management. Forty-eight small projects were initiated during 2007 and 2008 to conduct activities such as trail maintenance, route signing and maps, erosion control, fence repair, habitat damage improvements from OHVs, and dust stabilization of trailhead parking areas to protect the public's health and help achieve compliance with new dust (PM-10) ordinances. Projects are funded by the OHV Recreation Fund.

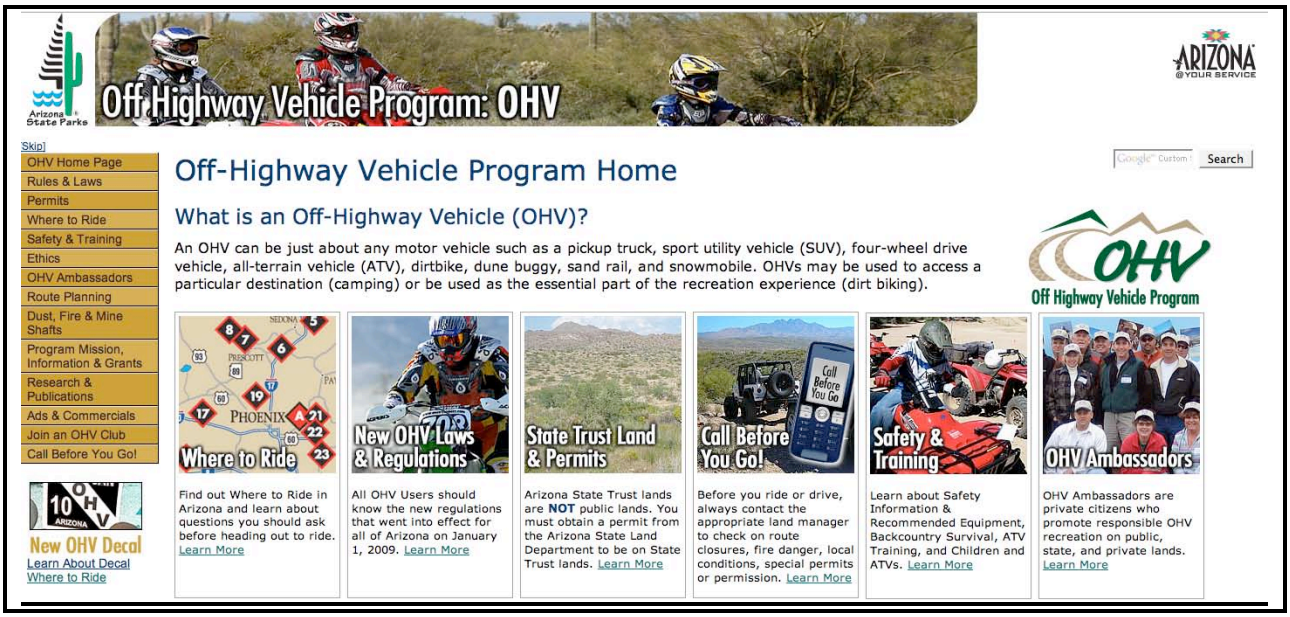
Large Competitive Grants: During the last five years (FY2004-FY2008) the Arizona State Parks Board awarded $3,787,754 in competitive grants to eligible entities to support motorized trail projects across the State. Competitive grants were funded by the Recreational Trails Program–Motorized Portion. Grants are recommended to the Arizona State Parks Board by the Off-Highway Vehicle Advisory Group (OHVAG).

Criteria for rating motorized grant applications, for the last 5 years, were based on the *Arizona Trails 2005 Plan*. See Chapter 6 for more detail on competitive grant projects.

Route Evaluations: The OHV Recreation Fund reimburses a portion of route evaluation costs for the Forest Service and Bureau of Land Management. The route evaluation process examines factors such as the natural and cultural resources, use patterns, access needs and sustainability of the route. Evaluation is a major step in the route designation process. Completion of route designations allows for communication to the public on where to travel – through maps, signs, and other means. The USFS and the BLM are reimbursed up to $15.00 per mile from the OHV Recreation Fund for route evaluations. Initiation of 13 agreements for the evaluation of more than 14,000 miles of routes and one area was approved during 2007 and 2008.

Information and Education

OHV Website: Arizona State Parks, in cooperation with The Explore Arizona, Outdoor Information Center, revamped the Arizona State Parks OHV website to include comprehensive Arizona OHV information including places to ride, new laws and regulations, safety training, and other OHV information needs.



OHV Dealer Pilot Program: A new education program geared specifically towards motorsports dealerships provides information on responsible use and proper safety equipment to the public at the time of OHV equipment purchase. Staff at ten dealerships throughout Arizona were trained during the pilot program. Dealer salespeople provide their customers with responsible riding information and news fact sheets on new OHV laws, fire closures, and other critical information needs. With sales down and substantial layoffs at dealerships, motorsports dealers continue to be supportive. Due to fund sweeps and the State hiring freeze, expansion of the program beyond the pilot is currently not possible.

Opening of the Outdoor Information Center: The Explore Arizona, Outdoor Information Center (OIC), a one-stop shop for custom maps and information on public land, had its grand opening December 4, 2008. More than 25% of OIC customers are OHV recreation enthusiasts. The OHV Recreation Fund contributed funding to the Bureau of Land Management to assist with OIC start-up costs. Unfortunately, budget reductions have reduced staffing and other capabilities, and the future of the Center is unknown at this time.

OHV Curriculum: The Arizona Game and Fish Department (AGFD) has completed an Arizona specific OHV curriculum to implement an approved statewide OHV education program as outlined in State statute (A.R.S. § 28-1175). This comprehensive program addresses safe and responsible operation of OHVs and includes environmental ethics, rules and regulations, air/watershed issues, and preparing for vehicle operation. The curriculum will be delivered to the public in a classroom setting and online.

OHV Media Campaign: The AGFD launched a media campaign which focused on the *"Nature Rules, Stay on Roads and Trails"* message including billboards throughout Arizona, responsible riding radio spots, bus stop posters in both the Phoenix and Tucson metro areas, paper and magazine ads, a new OHV trailer that goes to events across the state for continued outreach, new OHV laws informational card, and creation of an e-newsletter to inform OHV enthusiasts and hunter advocates about current OHV activities and public involvement opportunities.

OHV Ambassador Volunteer Program

In 2007, Arizona State Parks, in conjunction with many partners, coordinated the establishment of the volunteer OHV Ambassador pilot program. The program was created as a result of the identified need to increase on-the-ground OHV management presence. This pilot program encompasses local, state, and federal agencies, along with other entities.

The program provides volunteers with the highest level of multi-agency training to 1) conduct small projects such as fence repair and sign installation, 2) monitor trails to document hazards and irresponsible OHV use, and 3) provide information to OHV users at high use OHV staging areas and special events.

The Bureau of Land Management, Forest Service, Arizona Game and Fish Department, Arizona State Land Department, Arizona State Parks, Maricopa County Sheriff Office, Arizona OHV Coalition, and volunteers work in partnership to conduct the 3-day OHV Ambassador orientation trainings.

County sheriffs and resource agency personnel provide on-site support to volunteers, including "role-playing" possible situations Ambassadors may encounter in the field. Additional trainings are offered to Ambassadors throughout the year. Equipment such as statewide education trailers and radios are used to assist with program activities.

As of March 2009, 72 OHV Ambassadors have been trained and have contributed over 2200 hours of service, made over 4,500 information contacts, and documented trail conditions by traveling over 1,500 miles at high-use OHV sites.

Photo: Education trailers stocked with OHV brochures, maps, and other information, as well as tools and air for tires, provide incentives for recreationists to stop by and talk to OHV Ambassadors and agency personnel at "meet and greet" events. AGFD Outdoor Expo 2009.

Ambassadors have participated in 10 site clean ups, 27 meet and greets, 41 trail patrols, 2 trail sustainability workshops, and 8 fence repair and signage events. Ambassadors also participated in special education events such as the Arizona Game & Fish Department's Outdoor Expo, Boulders OHV Area Dedication, SuperBowl, and National Public Lands Day events.

The OHV Ambassador Program received national recognition in its pilot stages.

Photo: OHV Ambassadors increase the on-the-ground presence of agency representatives, providing OHV users with information and maps, as well as local regulations.

It was recognized by Joel Holtrop, Deputy Chief, National Forest System, USDA Forest Service during a *House Natural Resources Committee, Subcommittee on National Parks, Forests and Public Lands* hearing as a model travel management implementation strategy.

The Program contributed to receiving the national American Recreation Coalition Beacon Award and is positively identified through multiple media outlets and publications including the USDI People, Land, and Water publication. The OHV Ambassador Program was presented at the Arizona Parks and Recreation Association Conference and the National Trails Symposium in 2008.

Although agency partners and volunteers greatly assist in maintaining the OHV Ambassador Program, fund cuts and the State hiring freeze put the future of the Program in jeopardy.

Photo: A key strength in the OHV Ambassador Program is increasing on-the-ground presence of agency representatives through well-trained volunteers. These volunteers know the area and can provide information to OHV users about OHV routes and local regulations and are in radio contact with agency rangers or law enforcement should it be needed.

CHAPTER 4

A Profile of Non-Motorized Trail Recreation in Arizona

Non-motorized trails have a rich history in Arizona. Along with the growing population of the state, non-motorized trail recreation continues to grow in usage and popularity. The term 'trail' has also expanded to include different functions and uses, from a recreational backcountry trail to a local urban alternate transportation pathway. These differing functions and uses come with unique planning, design and funding needs.

While recreational trails are abundant across Arizona, funds and staff to maintain these trails are not. New urban trails are heavily planned around the State, but the funds to build these trails are not readily available. This Plan provides decision makers and planners insight into the non-motorized trail community, its use of trails, activities, needs and preferences. This knowledge will assist land managers in planning for current and future trail needs.

One of the objectives of this plan is to identify the most significant issues related to trail use in Arizona. This chapter presents priorities from the combined Random Household, Involved User and Interested Public surveys and the regional workshops. This chapter and the *Trails 2010: A Study of Arizona's Motorized and Non-Motorized Trail Users* survey reports (White and Meyers 2009a,b,c) provide sources of information for land managers and trail users to determine the issues and needs on which to focus their efforts and resources.

The following types of information from Arizona's non-motorized trail users are presented in this chapter. Survey methods and definitions are presented in Chapter 2. Additional topics and information from the survey are presented in Appendix D.

- Estimates of trail use in Arizona with participation separated into specific recreational types and activities
- Satisfaction with trail opportunities in Arizona
- Preferences for trail settings and management level
- Environmental and social concerns on trails in Arizona
- Priorities for trail management and planning in Arizona

Survey Findings for Non-motorized Trail Users

Photo: Grand Canyon National Park attracts 5 million tourists annually, but only a fraction of them venture to hike into the Canyon on one of its many trails.

Demographics
Most survey participants were full-time residents of Arizona (95%) and have lived in Arizona an average of 25 years.

Non-motorized trail users were mostly white (84%) and nearly equally divided between male and female (Random Household= 52% to 48%, respectively; Involved Users and Interested Public=55% to 44%, respectively) with a mean age of 52 years old.

Percentages of Non-motorized Trail User Participation by Activity

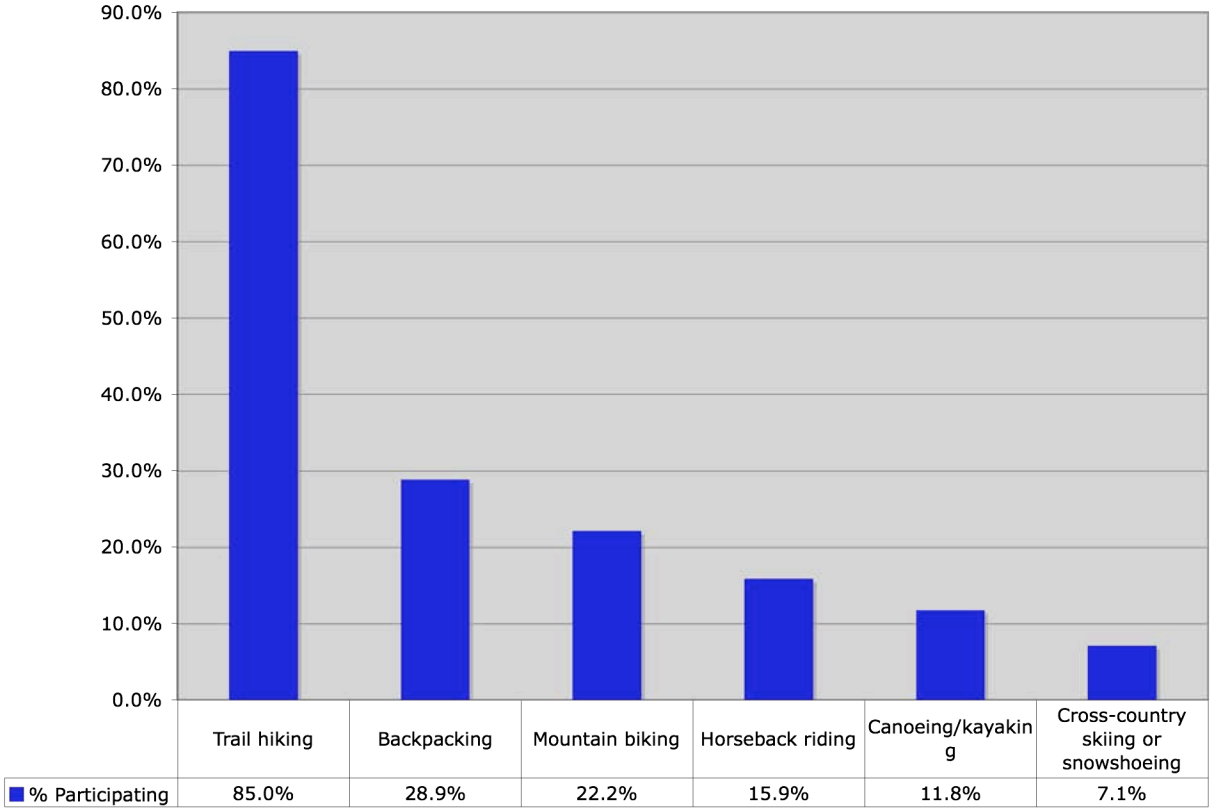
Non-motorized Trail Users: **64%** of adult Arizona residents (3,043,352 adults) said they have used a trail for non-motorized trail recreation; **58%** (2,766,249 adults) reported that non-motorized trail use accounts for the majority of their recreational trail time and are considered **"core" users**. This chapter presents the results for the core non-motorized trail users. Survey respondents were asked a series of questions about their trail use and participation in various trail activities. They were also asked how frequently they participated in each activity. The 2008 participation numbers show a general increase in all trail activities from the *2003 Arizona Trails Survey*.

Table 30. ***During your time in Arizona, have you ever used any trail for non-motorized recreation? About what percent of your time on recreation trails is spent as a non-motorized trail user?***

Non-motorized Trail Activity	2008 % Non-motorized Trail Users	2003 % Non-Motorized Trail Users
Trail hiking	85.0%	75.5%
Backpacking	28.9%	20.7%
Mountain biking	22.2%	14.3%
Horseback riding	15.9%	13.5%
Canoeing/kayaking	11.8%	9.3%
Cross-country skiing or snowshoeing	7.1%	5.3%

* Comparison from the 2008 to 2003 Random Household survey results from respondents who said non-motorized trail use was their primary trail use.

Figure 12. Percent of non-motorized users participating in non-motorized trail activities in Arizona



The actual number of Arizonans who say they participate in non-motorized trail activities shows the popularity of trails and provides land managers a perspective on the use and impact on trails. These numbers of people engaging in trail activities do not include visitors and tourists to Arizona.

Table 31. Percentage and Number of 'All Trail Users' Participating in Trail Activity
(includes all non-motorized trail users and motorized trail users who also use non-motorized trails)

Non-motorized Trail Activity	2008 % ALL TRAIL USERS	Number of people in Arizona engaging in the activity
Trail hiking	84.8%	2,730,400
Backpacking	29.7%	958,500
Mountain biking	22.8%	735,850
Horseback riding	16.9%	548,665
Canoeing/kayaking	12.4%	400,200
Cross-country skiing or snowshoeing	7.4%	238,800

Hiking and Backpacking

Hiking still comprises the largest trail user group in Arizona; the 2008 survey estimates that 85% of adult residents used a trail for recreation last year. This equates to about 2,730,400 hikers, which does not include children under age 18 or the large number of tourists and visitors that travel to Arizona each year and go hiking.

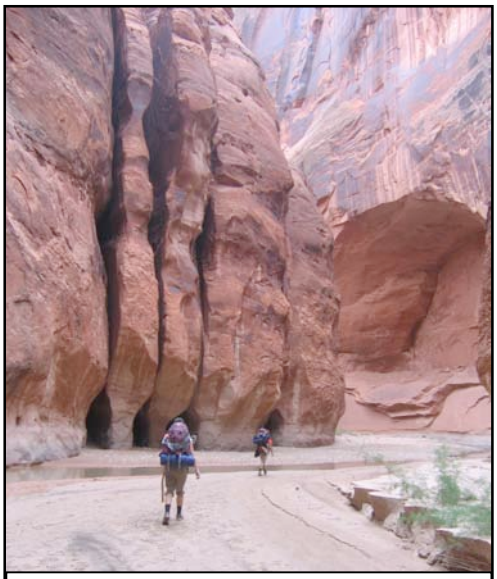


Photo: Paria Canyon in northern Arizona is a popular destination for backpackers.

Backpacking, or overnight hiking, is the second largest non-motorized trail activity in the state. Arizona still has plenty of remote primitive areas and wilderness opportunities for the adventurous to explore. The 2008 survey estimates 30% of Arizonans backpack, this equates to about 958,500 adult residents engaging in the activity.

The Active Outdoor Recreation Economy: A $730 Billion Annual Contribution to the U.S. Economy (2006) estimates the Mountain States (AZ, CO, ID, NM, MT, UT, NV, WY) total economic activity for trail recreation to be over $10 billion. According to their study, trail activity includes trail running, day hiking, backpacking and climbing – this Plan does not include climbing and separates day hiking and backpacking into separate categories.

Mountain Biking

With the long tradition of hiking and horseback riding in Arizona, mountain bicyclists are a relatively new user group. The state trails advisory committee was renamed from the Arizona Hiking and Equestrian Trails Committee to the Arizona State Committee on Trails in 1992 to include mountain bicyclists. Despite their recent arrival, mountain bicyclists represent one of the largest and most active user groups in the State. According to the 2008 trails survey, 23% of adult residents (735,850 people) are mountain bicyclists in Arizona.

There is no specific Arizona information on the economic impact of mountain bicycling. The Outdoor Industry Foundation's publication, *The Active Outdoor Recreation Economy: A $730 Billion Annual Contribution to the U.S. Economy (2006),* estimates the activity contributes $133 billion annually to the U.S. economy. The study breaks down the impact to the Mountain States (AZ, CO, ID, NM, MT, UT, NV, WY) and notes that the Mountain States are home to more than 4 million bicyclists – 27% of the adult population.

The Mountain States Bicycling Recreation Economy:

- Contributes $6.2 billion annually to the regional economy
- Supports more than 60,000 jobs across the region
- Generates more than $1 billion in annual state and federal tax revenues
- Produces $4.1 billion annually in retail sales and services; $429 million in bicycling gear sales and services; and $3.7 billion in bicycling trip-related expenditures

Photo: Mountain biking in the Sonoran Desert has its unique challenges and rewards. Photo courtesy of Scott Morris.

Equestrians/Horseback Riding

Equestrians have a rich history in Arizona. Many people envision the "Wild West" when they think of Arizona—cowboys riding horses. While horseback riding is no longer the primary mode of transportation, the tradition is still alive in the state. The *Arizona Trails 2010 Plan* estimates that 17% of adult residents are equestrians, this equates to 548,665 Arizona residents. Trail riding is a popular activity throughout the state and there are many 'horse camps' with multiple loop trails situated in both desert and forest environments.

The economic impact of equestrians is substantial; a 2001 study *A Partial Economic Impact Analysis Of Arizona's Horse Industry* (Beattie et al, 2001) estimates the total economic impact of the horse industry at over $1.1 billion a year. Direct expenditures on private pleasure horse maintenance and ownership, horse racing and horse show activity, and by resident spectators at other horse-related events was estimated to be between $660 to $760 million in 2001. And this excludes the major categories of commercial pleasure riding, participants at rodeo, roping, and polo events, and breeding of horses for export sale (outside Arizona).

Photo: Whether you own a horse or use a horse from a riding stable, horseback riding in Arizona remains a popular trail activity for residents and tourists alike.

The study estimates the combined indirect and induced (ripple) effect of the direct expenditures contributes an additional $444–$504 million, bringing the total economic impact of the horse industry to over $1.1 billion.

Direct Horse Industry Expenditures broken down by category include:

- Arizona pleasure horse owners spend an estimated $500 to $600 million on the care and maintenance of pleasure horses and related infrastructure (including the annualized cost of horse, tack, equipment, land and facilities ownership).
- Horse racing in Arizona generates an estimated $108 million in expenditures.
- Horse show events contributes an estimated $43 million in expenditures.
- Arizona resident expenditures as spectators at other horse-related events (rodeos, roping, polo, gymkhana) come to $9 million.

Photo: Horse trails can be found throughout Arizona. Little Eldon Springs Horse Camp near Flagstaff. Arizona State Parks Photo Contest Winner.

Photo: Water trails provide canoers and kayakers with scenic and challenging recreational experiences. Verde River Greenway, Dead Horse Ranch State Park.

Paddle Trail Users
Arizona is known for its arid landscape, however there is a notable public that uses paddle or water trails.

Use of canoes or kayaks on many of Arizona's rivers and streams is seasonal, depending on the water flows due to rainfall, snowmelt or upstream release of water from dams.

The major rivers in Arizona that support non-motorized boating are the Colorado, Salt, Verde and Gila Rivers. And there are many smaller streams that provide seasonal canoeing and kayaking opportunities during years of heavy precipitation. Of course, Arizona has many lakes and reservoirs that are available year round to non-motorized boating.

The 2008 survey estimates 12.4% of adult residents canoe or kayak, this equates to about 400,200 adult residents in Arizona engaging in this challenging activity.

The Arizona State Trails System added Paddle Trails as a separate category in the early 2000s. In 2004 the first paddle trail, the Gila Box River Trail, was nominated and accepted into the State Trails System. This paddle trail flows through a very scenic desert canyon in southeast Arizona and is a rare treat for paddlers when there is sufficient flow through the Box.

Photo: The Colorado River provides a wide range of water trail experiences from white water rafting, to canoeing or kayaking through steep narrow canyons and wide open deserts. The reservoirs along the river provide another type of boating activity altogether.

Table 32. ***In the last twelve months, how often have you participated in each of the following recreation activities on trails in Arizona?***

Non-motorized Users Participation in Non-motorized Trail Activity (numbers are cumulative)	**% At least once a year**	**% At least once a month**	**% At least once a week**
Trail hiking—all trail users (motorized and non-motorized)	84.6	36.9	15.9
Trail-hiking—random non-motorized trail users*	**85.0**	**37.1**	**16.6**
Trail-hiking—involved non-motorized trail users	93.8	59.9	40.1
Trail-hiking—interested non-motorized trail users	95.8	68.1	45.4
Backpacking—all trail users	29.7	6.4	2.1
Backpacking—random non-motorized trail users*	**28.9**	**5.9**	**2.4**
Backpacking—involved non-motorized users	47.1	8.6	1.8
Backpacking—interested non-motorized users	57.4	12.6	2.5
Mountain biking—all trail users	22.8	8.1	3.7
Mountain biking—random non-motorized users*	**22.2**	**8.8**	**4.0**
Mountain biking—involved non-motorized trail users	37.9	21.7	16.1
Mountain biking—interested non-motorized trail users	47.4	30.4	24.0
Horseback riding—all trail users	16.9	4.0	1.4
Horseback riding—random non-motorized users*	**15.9**	**3.7**	**0.**
Horseback riding—involved non-motorized trail users	52.3	44.4	39.5
Horseback riding—interested non-motorized trail users	26.0	15.8	12.5
Canoeing/kayaking—all trail users	12.4	1.6	.0
Canoeing/kayaking—random non-motorized user*	**11.8**	**1.7**	**.2**
Canoeing/kayaking—involved non-motorized users	22.3	.6	.6
Canoeing/kayaking—interested non-motorized users	29.9	3.2	.7
Cross-country skiing/snowshoeing—all trail users	7.4	1.0	.0
Cross-country skiing/snowshoeing—non-motor*	**7.1**	**1.0**	**.0**
Cross-country skiing/snowshoeing—involved non-mot	9.9	1.8	1.8
Cross-country skiing/snowshoeing—interested non-m	21.1	2.0	1.4

*2008 Random Household Survey "Primary or Core" Non-motorized trail users.

Photo: Using packstock on the trail allows for taking more gear and staying out longer. Saguaro National Park.

Photo: It is recommended to carry water and a cell phone for emergencies when hiking. Nature hike at Red Rock State Park.

Other Forms of Non-Motorized Trail Use in Arizona

In addition to the standard types of non-motorized trail use reported earlier, respondents of the survey were also asked about other purposes for trail use. These respondents' primary purpose may not be recreational trail use yet trails are used in the activity.

Photo: Bird watchers frequently use trails, such as this trail at Red Rock State Park near Sedona.

Eleven percent of survey respondents who said their primary trail use was non-motorized, did not participate in any of the six typical trail activities, however, they did indicate they had used a trail in the past twelve months for other purposes. Forty-seven percent of these respondents used a trail for exercise, 38% for viewing historic or archaeological sites, and 31% to view wildlife or bird watch. In addition, 26% and 7% used a trail to walk or bike (respectively) as an alternate form of transportation to get to work, stores or school. Land managers, including city and county park managers, need to be aware of all uses of their trails, and as shown in the following table, the user numbers can be significant.

Table 33. ***In the last twelve months, how often have you used non-motorized trails in Arizona for the following purposes?***

Used non-motorized trails for these purposes* (question not asked or asked very differently in 2003)	**2008 % Non-motorized Trail Users**	**2003 % Non-motorized Trail Users**
Exercising	85.0%	-
Visiting historic or archaeological sites	65.9%	52.1%
Wildlife viewing or bird watching	54.4%	40.0%
Walking as a form of alternative transportation*	35.7%	67.1%
Bicycling as a form of alternative transportation*	28.3%	13.7%

*Since the questions regarding walking and bicycling were asked so differently in 2003 (they were asked as a pure activity, not as a "form of alternative transportation"), the 2003 and 2008 numbers are not comparable.

Satisfaction with Non-Motorized Trails in Arizona

The majority of non-motorized trail users are satisfied with trails in Arizona. A total of 87% of all trail users (random) said they are somewhat or very satisfied with non-motorized trails. As a measure of overall satisfaction, this response may include a number of factors important to the user. The abundance of federal lands, communities planning for trails, and year round climate not available in many parts of the country may be factors influencing Arizona residents' satisfaction with trails. This question is likely rated high because of the overall availability and diversity of trails in Arizona, not necessarily with their condition. Trail users specific concerns with trails are discussed later in this Chapter.

Table 34. ***Overall, how satisfied are you with non-motorized trails in Arizona?***

Satisfaction with NON-MOTORIZED TRAILS	% very satisfied	% somewhat satisfied	% somewhat dissatisfied	% very dissatisfied
Random Household all trail users	45.7	41.3	4.3	2.2
Random non-motorized trail users	47.3	39.5	3.9	2.3
Involved Users all trail users	40.4	47.7	7.3	2.7
Involved Users non-motorized	30.4	52.2	12.4	4.3
Interested Public all trail users	43.8	46.5	5.6	1.4
Interested Public non-motorized	36.1	52.6	8.7	2.5

Trails Managed for Single or Shared Use

Most non-motorized trails in Arizona are considered "**shared use**" allowing hikers, mountain bikers and equestrians on the same trail. Some trails restrict use to a single activity based on location, terrain, safety or use considerations. There is also the issue of allowing both motorized and non-motorized uses on the same trail. Both motorized and non-motorized respondents were asked if they felt trails should be managed for single or multiple activities. Non-motorized trail users are more sensitive to combined uses than motorized users. Forty to sixty percent of *motorized users* (Random, Involved and Interested) consistently respond that motorized and non-motorized activities can be combined, while the majority (54-56%) of *non-motorized users* (Random and Involved) respond that the two categories of activities should be separated into distinct trails. The speed of a motorized vehicle can be a safety issue and noise may detract from the experience a non-motorized user seeks in using trails.

In addition, more non-motorized users (27-30%) than motorized users (7-11%) feel that trails should be limited to a single activity, such as only hiking or only dirt biking.

Table 35. ***Do you think recreation trails should be managed for single or multiple trail activities?***

Trails should be designated and managed for:	2008 Random Household Survey		2008 Involved User Survey		2008 Interested Public Survey		2003 Random Household Survey		2003 Involved User Survey	
	% Non-Motor	% Motor	% Non-Motor	% Motor	% Non-Motor	% Motor	% Non-Motor	% Motor	% Non-Motor	% Motor
A single activity–EITHER motorized use OR non-motorized use only	27.2	11.1	30.2	7.4	42.1	7.1	30.5	17.2	18.6	6.0
Multiple activities with motorized and non-motorized activities COMBINED	13.6	44.4	10.5	59.4	8.7	54.9	5.7	40.4	6.7	52.0
Multiple activities with motorized and non-motorized activities SEPARATED	54.4	38.9	56.2	30.2	46.5	34.5	55.8	34.8	70.0	36.0

Trail User Preferences Regarding Non-Motorized Trails

One section of the survey focused on respondents' preferences for different attributes of non-motorized recreation trails; respondents were asked to rate their preference in regards to trail length, level of difficulty, type of social environment and level of management. Overall, trail users prefer trails that are: 1-5 miles in length, are moderately varied in level of difficulty, have some other people present, and have a moderate level of management.

Table 36. ***When you use trails for non-motorized activities in Arizona, what do you most prefer?***

Preferences Regarding Attributes of Non-motorized Trails												
length of trail	**<1 mile**			**1-5 miles**			**6-15 miles**			**>15 miles**		
	Random	Involv	Int.	Random	Involv	Int.	Random	Involv	Int.	Rand	Involv	Int
All trail users %	7.5	5.5	3.9	67.9	46.8	53.1	17.2	34.7	30.0	3.7	12.2	10.5
Non-motorized users %	7.3	0	.6	68.5	24.8	34.1	16.9	55.9	46.4	4.0	19.3	17.2
level of difficulty	**easy, level, flat**			**moderately varied**			**challenging**					
	Random	Involv	Int.	Random	Involv	Int.	Random	Involv	Int			
All trail users %	15.6	6.4	5.8	70.4	67.9	64.4	12.6	25.2	27.7			
Non-motorized users %	16.0	1.9	2.2	69.6	67.1	63.3	12.8	29.8	33.2			
social environment	**very few people present**			**some other people present**			**lots of other people present**					
	Random	Involv	Int	Random	Involv	Int.	Random	Involv	Int			
All trail users %	43.6	47.7	51.1	52.6	49.5	44.7	2.3	.6	1.3			
Non-motorized users %	43.9	51.6	56.3	52.8	48.4	41.5	2.4	0	1.2			
level of management	**very little mgt;** few rules, services & facilities			**moderate mgt;** some rules, services & facilities			**high mgt;** many rules, services & facilities					
	Random	Involv	Int	Random	Involv	Int.	Random	Involv	Int			
All trail users %	24.2	47.1	47.0	68.9	50.5	50.0	6.1	1.2	.8			
Non-motorized users %	21.1	44.1	46.1	71.5	54.0	51.6	6.5	1.2	.9			

Note: Abbreviations are for Random Household, Involved User and Interested Public survey results.

Photo: The diversity of trail opportunities in Arizona is outstanding, varying in the trail length, level of difficulty, social environment and level of management. *What do you prefer?* (navigating Lower Antelope Canyon)

Quality of Life

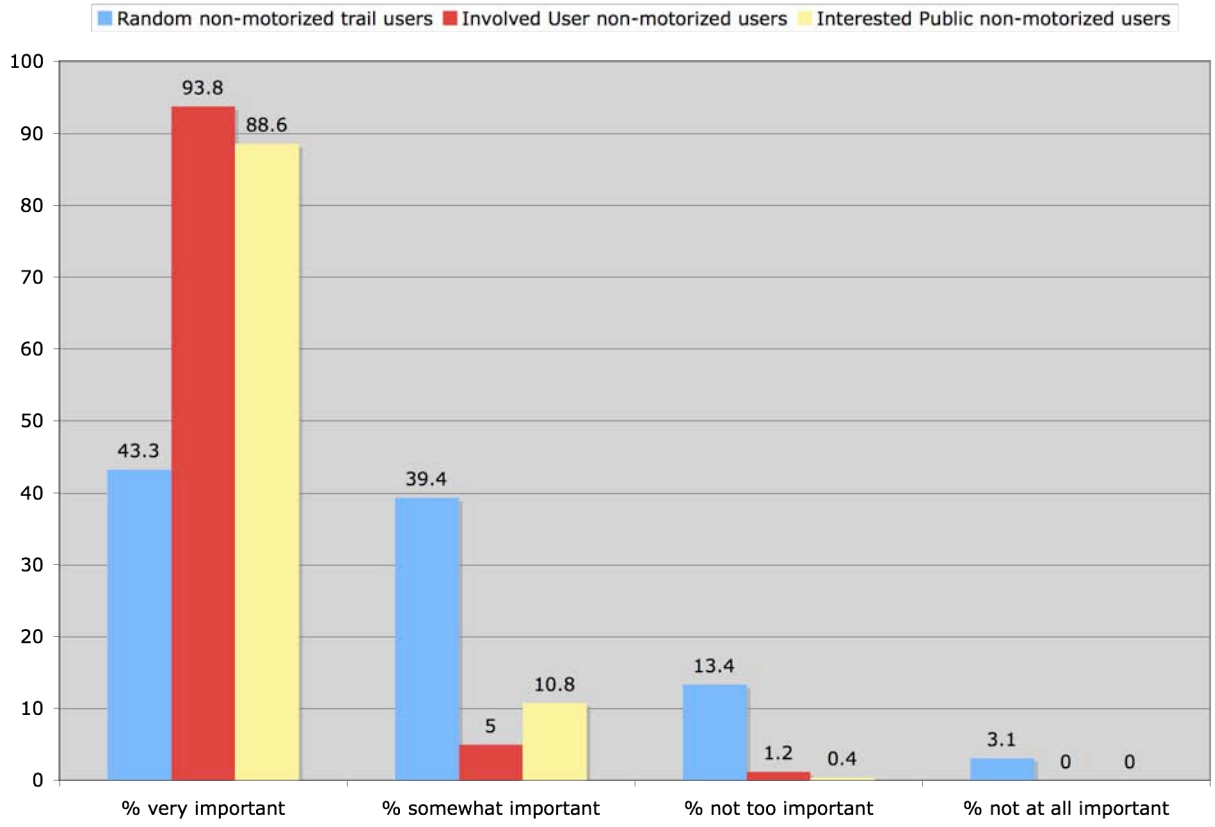
Trails are often said to improve the overall quality of life in residents. Many trail benefits are intangible and cannot be properly reported in budget terms when funding is being decided.

The *2008 Trails Survey* captured Arizona trail users' importance of trails to overall quality of life to try and objectively report this data to decision makers. A total of 84% of all trail users (Random Household) said trails are "very or somewhat important" to their *quality of life* (Involved Users=98.6%; Interested Public=99.4%).

Table 37. *How important are recreational trails to your overall quality of life?*

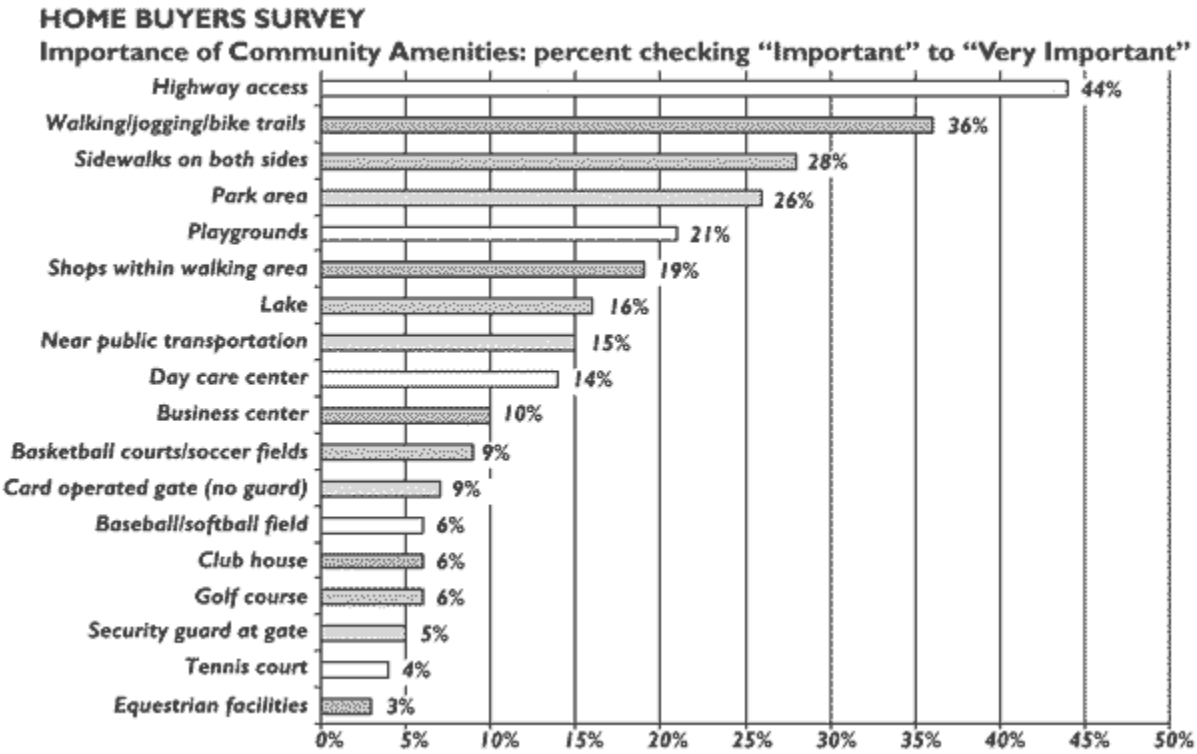
Importance of Trails to *QUALITY OF LIFE*	% very important			% somewhat important			% not too important			% not at all important		
	Random	Involved	Interested	Random	Involved	Interested	Random	Involved	Interested	Random	Involved	Interested
All trail users	44.4	92.8	89.8	39.6	6.4	9.6	12.5	.8	.8	2.8	0	0
Non-motorized trail users	43.3	93.8	88.6	39.4	5.0	10.8	13.4	1.2	.4	3.1	0	0

Figure 13. Percent of non-motorized users who say trails are important to their quality of life



Another example of how trails fit into quality of life is the results of a study of community amenities. In April 2002, a survey of 2,000 recent home buyers was co-sponsored by the National Association of Home Builders (NAHB 2002) and the National Association of Realtors. The survey asked about the "importance of community amenities," and *trails* came in second only to *highway access*. Those surveyed could select any number of the 18 amenities, and 36% picked walking, jogging or biking trails as either "important" or "very important". Sidewalks, parks, and playgrounds ranked next in importance. Ranking much lower were ball fields, golf courses, and tennis courts.

Figure 14. Home Buyers Survey



A Power Point slide show of the complete survey conducted by the NAHB, is on line at www.nahb.com/news/smartsurvey2002.htm

Trail User Perceptions of Public Access to Trails

Survey participants were asked to respond to the following question regarding access to trails - *In the past five years, do you think that access to non-motorized trail has improved, stayed the same, or declined?* The table below shows that according to the general public (random household survey) almost ¼ of the population believes trail access has improved. Only 11% of non-motorized users feel that access has declined. The results of this question should be compared with the results of two related questions on the following pages, 1) the public rated level of concern of social conditions with *closure of trails* and *urban development limiting trail access or use* and, 2) trail management priorities where the public rated the importance of *acquiring land for trails and trail access*.

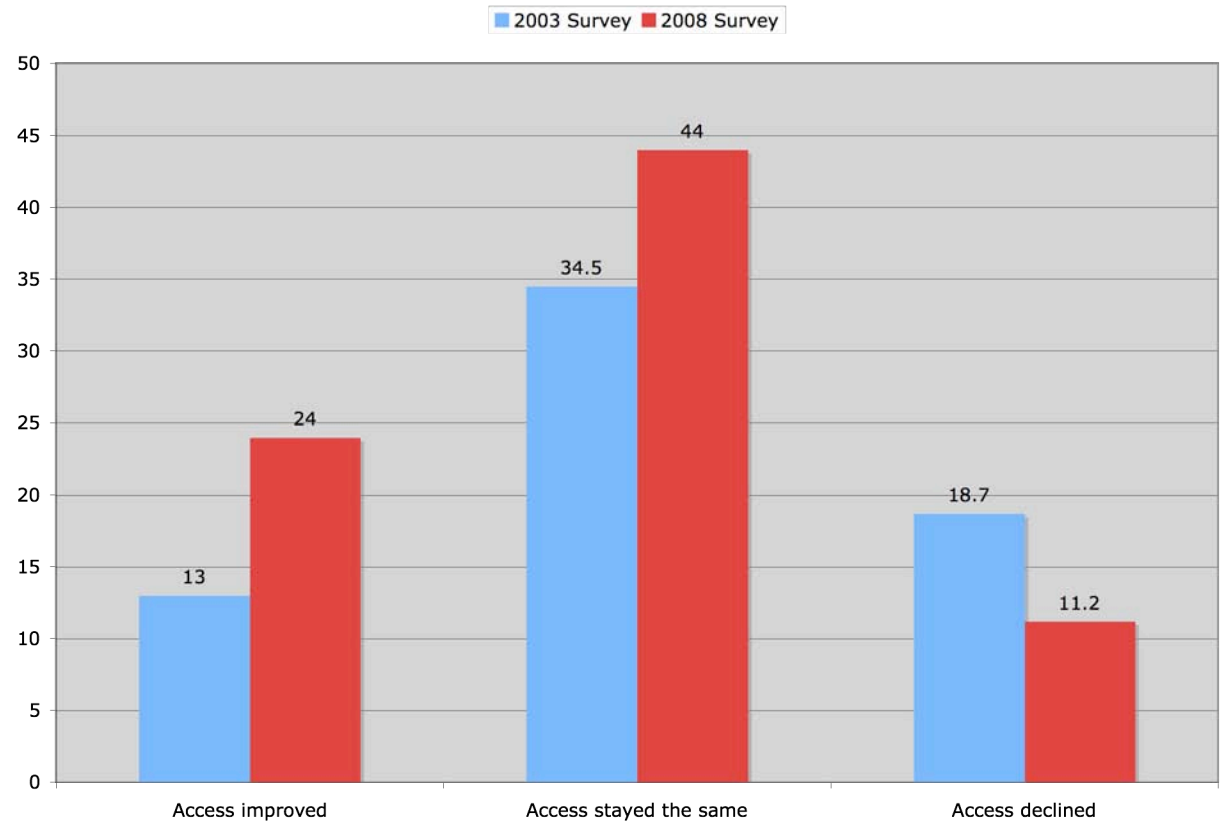
In this question, the majority of the respondents (with the exception of the involved users) feel that access has either stayed the same or improved. This could be related to the overall large

number of trails available in the state. However, when asked specifically about social concerns and trail management priorities, access issues rose among the highest concerns and priorities.

Table 38. ***In the past five years, do you think that access to non-motorized trails has improved, stayed the same or declined?***

Access to Trails	improved		stayed the same		declined	
	2008	2003	2008	2003	2008	2003
Non-motorized trails—random household %	24.0	13.0	44.0	34.5	11.2	18.7
Non-motorized trails—involved users %	25.9	22.3	24.7	34.5	40.7	30.8
Non-motorized trails—interested public %	28.3	-	34.5	-	21.8	-

Figure 15. Percent of non-motorized users who say access to trails has improved, stayed the same or declined



Trail Users Perceptions of Environmental Concerns

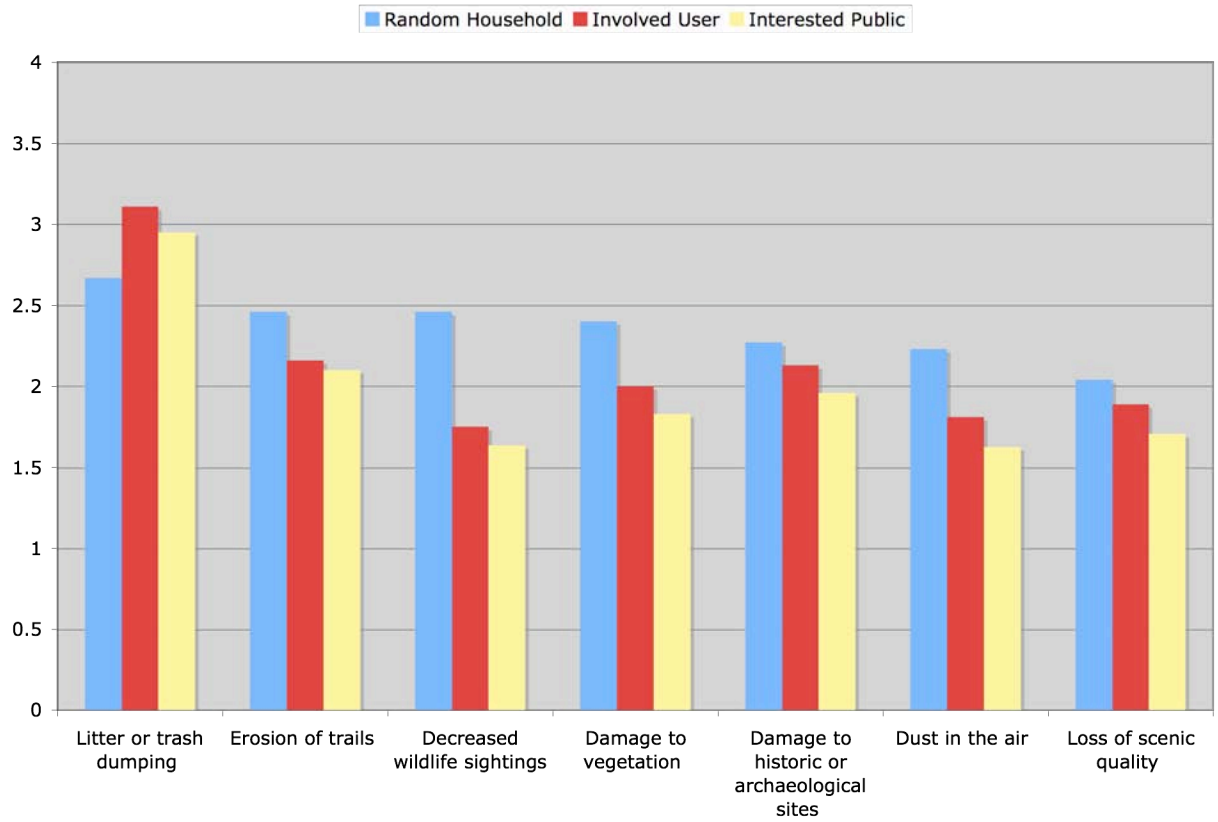
Perceptions of environmental concerns are important as these attitudes can affect both trail users' satisfaction as well as the ecological integrity of the recreation setting. Survey respondents were asked to a series of seven environmental concerns on a four-point scale ranging from 1="Not a problem" to 4="Very serious problem". Both Involved User and Interested Public non-motorized users share the same top concern as the Random Household respondents, with *litter or trash dumping* ranking the highest, followed by *erosion of trails*. The third concern for Random Household respondents was *decreased wildlife sightings*, while *damage to historic or archaeological sites* was third for Involved User and Interested Public non-motorized users.

Table 39. ***How much of a problem do you think each of the following environmental conditions is on trails you use most?***

Environmental Conditions—Mean	Non-motorized User—Mean		
	Random Household	Involved User	Interested Public
Litter or trash dumping	**2.67**	**3.11**	**2.95**
Erosion of trails	2.46	2.16	2.10
Decreased wildlife sightings	2.46	1.75	1.64
Damage to vegetation	2.40	2.00	1.83
Damage to historic or archaeological sites	2.27	2.13	1.96
Dust in the air	2.23	1.81	1.63
Loss of scenic quality	2.04	1.89	1.71

Note. Ranked by the mean scores for Random Household non-motorized responses; *highest* score is most important; highest importance for each group is highlighted. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

Figure 16. Rating by non-motorized users regarding level of severity of environmental conditions
Highest mean score is most severe.



Trail User Perceptions of Social Conditions

Social concerns may reduce the overall quality of trail users' recreational experience. Survey respondents were asked to rate a series of nine social concerns on a four-point scale ranging from 1="Not a problem" to 4="Very serious problem".

Photo: **One concern reported by trail users is people target shooting** in areas near trails and OHV routes. Without appropriate supervision and safety barriers, this can become a serious safety issue. In heavily used areas, agencies are beginning to prohibit target shooting. In photo, volunteer is installing a gate to a congested area.

The Random Household respondents ranked *vandalism* as the top concern followed with an almost exact rating by *urban development limiting trail access or use,* coming in third was *lack of trail ethics by other users*.

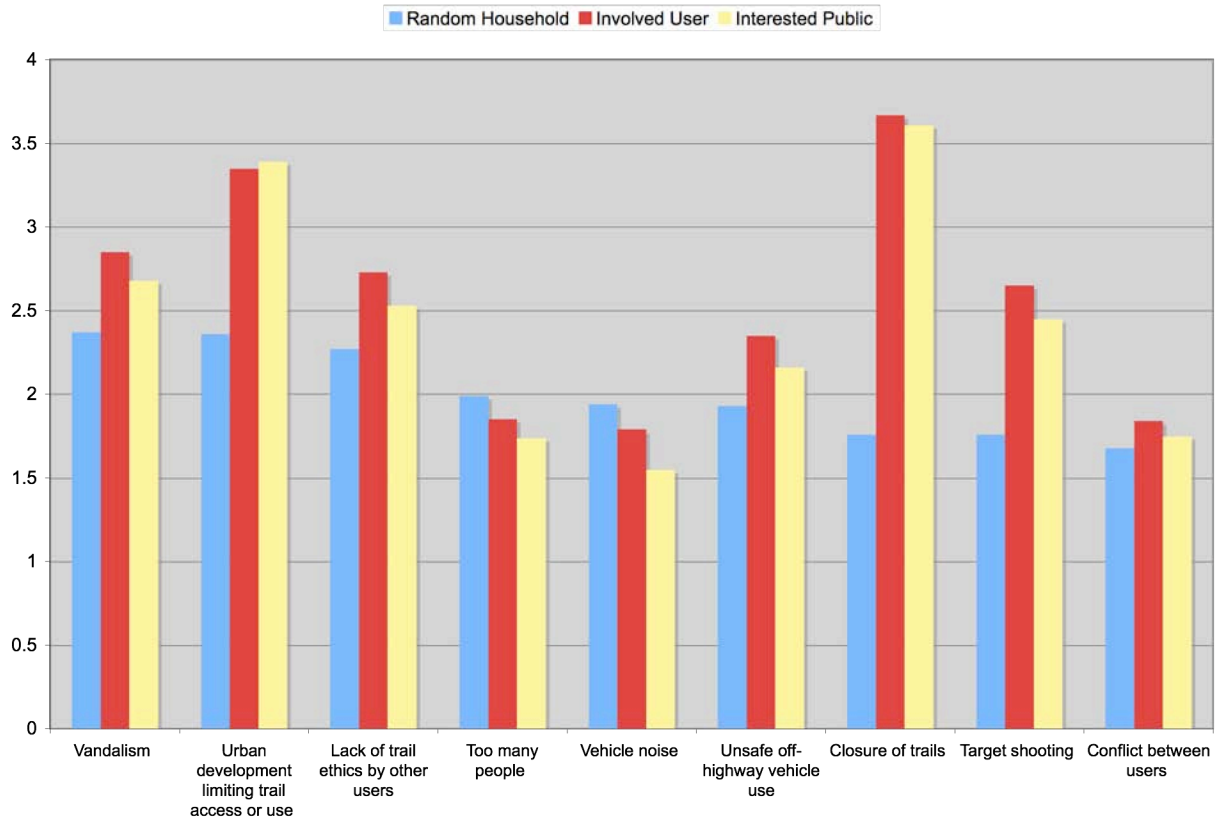
Both Involved User and Interested Public non-motorized users ranked *closure of trails* as the highest concern followed by *urban development limiting trail access or use,* with *vandalism* coming in third. These responses are in line with those heard at the Regional Workshops held throughout the state. At each of these regional workshops, access and keeping trails open was the predominant theme.

Table 40. ***How much of a problem do you think each of the following social conditions is on trails you use most?***

Social Conditions—Mean	Non-Motorized Trail User—Mean		
	Random Household	Involved User	Interested Public
Vandalism	**2.37**	2.85	2.68
Urban development limiting trail access or use	2.36	3.35	3.39
Lack of trail ethics by other users	2.27	2.73	2.53
Too many people	1.99	1.85	1.74
Vehicle noise	1.94	1.79	1.55
Unsafe off-highway vehicle use	1.93	2.35	2.16
Closure of trails	1.76	**3.67**	**3.61**
Target shooting	1.76	2.65	2.45
Conflict between users	1.68	1.84	1.75

Note. Ranked by the mean scores for Random Household non-motorized responses; *highest* score is most important; highest importance for each group is highlighted. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

Figure 17. Rating by non-motorized users regarding level of severity of social conditions
Highest mean score is most severe.



Trail User Opinions on Trail Planning and Management Priorities

Trail managers have limited resources to develop and maintain trails. To inform management decisions regarding resource allocation and issue prioritization, one section of the survey included a series of nine questions that allowed respondents to rate the importance of various trail issues, management priorities, and support facilities.

Based upon mean scores on a scale of 1=Very important to 4=Not important at all, the top three issues for Random Household non-motorized trail users were *keeping existing trails in good condition* (1.42), *mitigating damage to environment surrounding trails* (1.51), and *enforcing existing rules and regulations in trail areas* (1.69).

Both Involved User and Interested Public non-motorized users ranked *acquiring land for trails and trail access* as the highest priority.

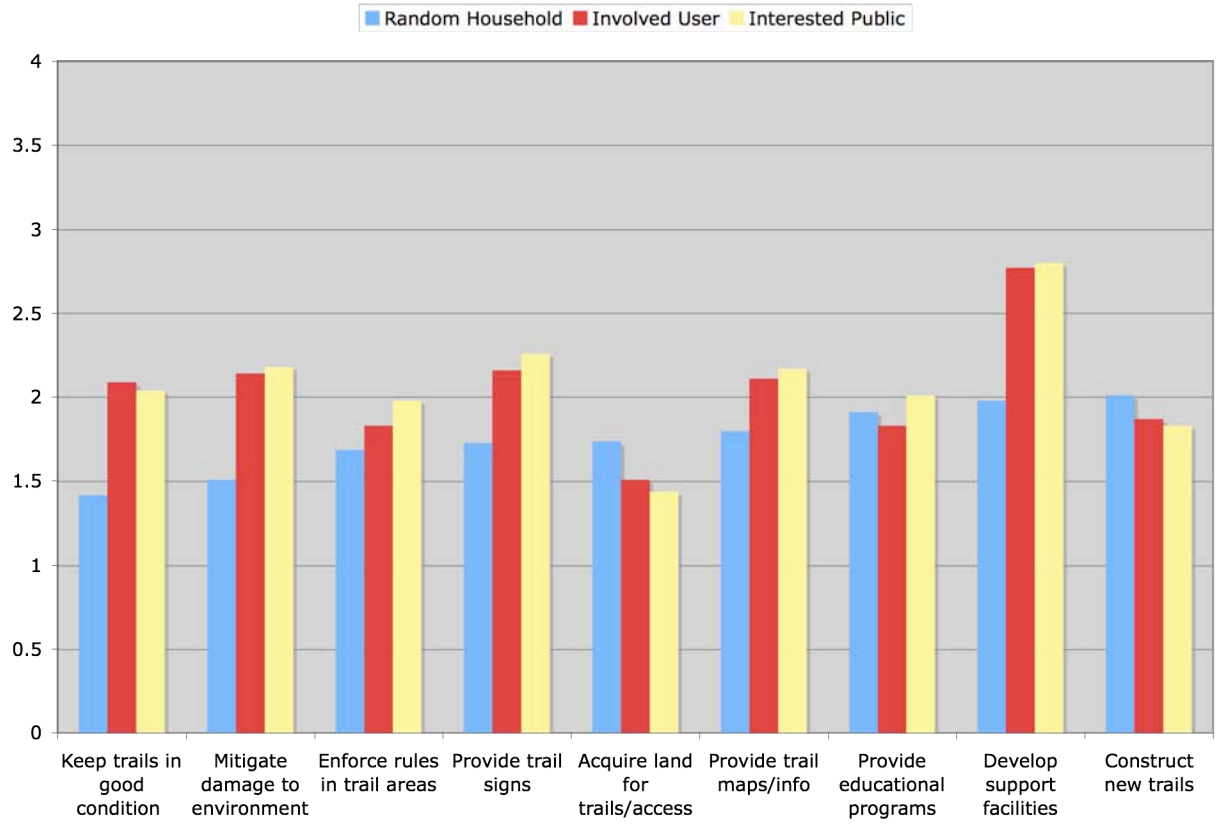
Photo: Arizona State Parks provides Recreational Trails Program funds and well trained crews to agencies requesting maintenance of recreation trails. Photo courtesy of Coconino Rural Environment Corps.

Table 41. ***Trail managers have limited resources to develop and maintain trails, and must focus their money and time on the most serious needs first. How important is each item is to you?***

Non-Motorized Trail Priorities by Mean Management and Funding Need	Non-motorized User—Mean		
	Random	Involved	Interested
Keeping existing trails in good condition	**1.42**	2.09	2.04
Mitigating damage to environment surrounding trails	1.51	2.14	2.18
Enforcing existing rules and regulations in trail areas	1.69	1.83	1.98
Providing trail signs	1.73	2.16	2.26
Acquiring land for trails and trail access	1.74	**1.51**	**1.44**
Providing trail maps and information	1.80	2.11	2.17
Providing educational programs that promote safe and responsible recreation	1.91	1.83	2.01
Developing support facilities (restrooms, parking, campsites)	1.98	2.77	2.80
Constructing new trails	2.01	1.87	1.83

Note. Ranked by the mean scores for Random Household non-motorized responses; *lowest* score is most important; highest importance for each group is highlighted. Mean scores are values on a four-point scale ranging from 1=Very Important to 4=Not important at all.

Figure 18. Rating by non-motorized users regarding level of importance of trail management and funding need—*Lowest* mean score is most important



Volunteerism

An item that was brought up in all Public Workshops was **volunteerism on trail projects**. Trail users see their favorite and most used areas impacted by declining agency budgets, overuse, uneducated users and other factors. The majority of trail users are willing to volunteer their time to assist in trail projects. Land managers recognize the value of volunteer labor but often do not have adequate staff time or resources to properly manage volunteer projects.

In order for agencies to use volunteer labor more frequently and effectively, a volunteer or other outside entity needs to take a stronger role in coordinating work events and training volunteers. The coordination of a work event contains more work and logistical details than someone showing up to work at an event might understand and is one of the major obstacles in holding more volunteer events.

Table 42. Willingness to Volunteer on a Trail Project—2008 Surveys

	Willingness to Volunteer on a Trail Project in the Next 12 Months		
	Random Household Non-Motorized User	Involved User Non-Motorized User	Interested Public Non-Motorized User
% Yes	39.3%	80.7%	69.8%
% No	44.4%	6.8%	10.1%

Key points regarding volunteerism from the **Land Manager Survey**:

- 83% of land managers agree that volunteers provide high quality trail work
- 65% of land managers view volunteers as a "very" to "extremely effective" source of labor
- 70% of land managers believe they do not have adequate staff to manage a volunteer program
- 71% of land managers report they do not have adequate time to supervise and train volunteers

Photo: 83% of land managers agree that volunteers provide high quality trail work. Photo courtesy of BLM.

Land Manager Survey Results

For the *Trails 2010 Plan*, Arizona land managers were given a separate web survey to collect their unique expertise and opinions on trail funding, management priorities, environmental concerns, social concerns, safety concerns and the Arizona State Parks grant administration process, among other topics.

While reviewing the survey data, it became apparent that State Agencies, Federal Agencies and Cities and Counties have different non-motorized trail concerns and needs for the lands they manage. The results of the survey have been separated for each of these groups.

Non-Motorized Trail Environmental Impacts for Arizona Land Managers
Managers were asked to rate seven environmental issues that might be impacted by trail use.

The three most problematic environmental conditions on non-motorized trails are: *soil erosion, increase in invasive species,* and *damage to vegetation*.

These top three are followed by *habitat fragmentation* and *decrease in wildlife sightings*; the last two environmental impacts were rated lowest — *air quality* and *water quality*.

Table 43. Non-motorized Trail Environmental Impacts for Arizona Land Managers
Regarding trails, how much of a problem is each of the following environmental issues to you?

Environmental Impacts	#1 issue (mean)	#2 issue (mean)	#3 issue (mean)	#4 issue (mean)	#5 issue (mean)
State Agencies	Soil erosion	Increase in invasive species	Damage to vegetation	Habitat fragmentation	Decrease in wildlife sightings
Federal Agencies	Increase in invasive species	Soil erosion	Damage to vegetation	Habitat fragmentation	Decrease in wildlife sightings
Cities & Counties	Soil erosion	Increase in invasive species	Damage to vegetation	Habitat fragmentation	Decrease in wildlife sightings

Ranking is based on the mean of a four-point scale where 1=not a problem to 4=a serious problem; *highest* score is most important.

Photo: The encroachment of invasive species has increased dramatically in Arizona the past few years, creating a significant threat to the economic and ecologic health of Arizona's natural heritage. Trails are corridors for invasive species and trail users can unintentionally contribute to their spread. See Chapter 5. Pictured are Buffelgrass, Star Thistle and Russian Thistle (tumbleweed).

Non-Motorized Trail Social Conditions for Arizona Land Managers
Managers were asked to rate eleven social conditions that might be impacted by trail use. The five most problematic social conditions on non-motorized trails are: *users not staying on designated trails or routes, unsafe or unprepared trail users, vandalism, destruction/removal of signs*, and *inappropriate user behavior*.

Other social conditions that rated lower were *fence cutting*, *trail braiding, trail widening, conflicts between local residents and trail users, too many conflicts between trail users*, and *too many people on trails*.

Table 44. Non-motorized Trail Social Conditions for Arizona Land Managers
Regarding trails, how much of a problem is each of the following social conditions to you?

Social Conditions	#1 issue (mean)	#2 issue (mean)	#3 issue (mean)	#4 issue (mean)	#5 issue (mean)
State Agencies	Users not staying on designated trails	Unsafe or unprepared trail users	Destruction/ removal of signs	Inappropriate user behavior	Vandalism
Federal Agencies	Users not staying on designated trails	Unsafe or unprepared trail users	Vandalism	Trail braiding	Destruction/ removal of signs
Cities/Counties	Vandalism	Users not staying on designated trails	Destruction/ removal of signs	Inappropriate user behavior	Fence cutting

Ranking is based on the mean of a four-point scale where 1=not a problem to 4=a serious problem; *highest* score is most important.

Photos: Destruction and removal of trail signs, vandalism, and fence cutting were all singled out as top concerns by land managers. Trail users also listed vandalism along trails as a top concern. Trail and OHV volunteers frequently donate their time helping agency staff and ranchers repair cut fences and replace damaged signs and kiosks.

Non-Motorized Trail Funding Priorities for Arizona Land Managers
Managers were asked to rate twelve funding issues that relate to the management of non-motorized trails. The top three priority funding issues for non-motorized trails for state agencies are: *prevention, restoration and mitigation of damage to areas surrounding trails*, *enforcement of laws and regulations*, and *routine maintenance of existing trails*.

The top three priority funding issues for non-motorized trails for federal agencies are: *routine maintenance of trails*, *providing on the ground ranger presence,* and *purchase and installation of trail signs*.

The top three priority funding issues for non-motorized trails for city and county agencies are: *construction of new trails, acquisition of land for new trails and trail access*, and *development of new trail support facilities*.

Table 45. Non-motorized Trail Funding Priorities for Arizona Land Managers
Thinking about non-motorized trails, how important is each of the following funding issues to you?

Trail Funding	#1 issue (mean)	#2 issue (mean)	#3 issue (mean)	#4 issue (mean)	#5 issue (mean)
State Agencies	Prevention/ Mitigation of damage	Enforcement of laws	Routine maintenance	Renovation of existing trails	Provide on the ground ranger presence
Federal Agencies	Routine maintenance	Provide on the ground ranger presence	Installation of Trail Signs	Environmental/ cultural clearance and compliance	Renovation of existing trails
Cities & Counties	Construction of new trails	Acquisition of land for trails/access	Development of trail support facilities	Routine maintenance	Enforcement of laws

Ranking is based on the mean of a four-point scale where 1=not at all important to 4=extremely important; *highest* score is most important.

Photo: All levels of agencies report that funding for routine trail maintenance is a high priority. Monies for trail maintenance crews and having the staff time to coordinate needed projects is hard to find. Photo courtesy of Coconino Rural Environment Corps.

Non-Motorized Trail Priority Recommendations — Issues and Actions

Photo: Trails are important to our quality of life. Keeping these trails in good condition takes time, money and dedication. South Fork, Chiricahua Wilderness Area. Arizona State Parks Photo Contest Winner, Pamela Bosch.

The priority issues for non-motorized trail recreation are derived from a comparative analysis of the findings from the *Arizona Trails 2010 Plan* public involvement process, including cumulative results of the Random Household Survey, the Involved User Survey, Interested Public Survey, Land Manager Survey, regional public workshops and land manager workshops.

This section takes these priority issues and presents them as recommendations for managers and trail users. The first and second level priority recommendations are from those issues that consistently ranked the highest. Also included are third level recommendations that did not rank as high. These recommendations reflect statewide priorities; local and regional priorities may differ. Recommendations within each level are in no particular order. Arizona State Parks acknowledges that all eleven recommendations are important for effective management of trail resources and many are inter-related.

A summary listing of the recommendations is followed by a more detailed explanation of each issue with recommended actions.

The priority recommendations for non-motorized trail use will be used to guide distribution of funds administered by Arizona State Parks from the trails component of the Arizona Heritage Fund and the Federal Recreational Trails Program until the next plan, as well as serve as overall direction for Arizona State Parks, land managers and trail users in their efforts to improve the State of Arizona's non-motorized trail opportunities.

Arizona legislation A.R.S. §41-511.22 directs the Arizona State Parks Board to "prepare a trail systems plan that…assesses usage of trails…and recommends to federal, state, regional, local and tribal agencies and to the private sector actions which will enhance the trail systems," and that "five percent of monies received pursuant to Section § 5-522 (Arizona Heritage Fund) shall be spent on local, regional and state trails" (A.R.S. §41-503).

The federal Recreational Trails Program (RTP) was authorized in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005 (23 U.S.C. 206). The RTP is a Federal-aid assistance program to help states provide and maintain recreational trails for both motorized and non-motorized recreational trail use. The Act authorizes funds to be distributed to each state. The Governor of Arizona designated the Arizona State Parks Board as the administrator of Arizona's portion of the RTP monies. The RTP Act defines a recreational trail as a "thoroughfare or track across land or snow, used for recreational purposes such as: pedestrian activities, including wheelchair use; skating or skateboarding; equestrian activities, including carriage driving; non-motorized snow trail activities, including skiing; bicycling or use of other human-powered vehicles; aquatic or water activities; and motorized vehicular activities, including all-terrain vehicle riding, motorcycling, snowmobiling, use of off-road light trucks or use of other off-road motorized vehicles."

Table 46. Priority Non-Motorized Trail Recommendations

First Level Priority Non-Motorized Trail Recommendations
Maintain Existing Trails, Keep Trails in Good Condition
Protect Access to Trails/Acquire Land for Public Access
Second Level Priority Non-Motorized Trail Recommendations
Mitigate and Restore Damage to Areas Surrounding Trails
Enforce Existing Rules and Regulations
Provide and Install Trail Signs
Develop Support Facilities
Construct New Trails
Promote Coordinated Volunteerism
Third Level Non-Motorized Trail Recommendations
Provide Educational Programs
Provide Maps and Trail Information
Promote Regional Planning and Interagency Coordination

Managers of non-motorized recreational trails are encouraged to concentrate on the following actions. Trail users and partners should assist with many of these recommended actions.

First Level Priority Recommendations for Non-motorized Trails

Renovation and Maintenance of Existing Trails

Issue: Non-motorized trails in the State are often eroded and deteriorated. This can be due to natural causes, overuse, improper design or lack of regular maintenance. Often badly eroded trails cause users to develop unauthorized alternate routes. Other trails are in need of tread maintenance and brush clearing. Trash and litter was identified as one of the public's biggest concerns. On the other side, land managers are facing a severe lack of financial resources and drastic cut backs on agency-funded crews.

Actions:

- Identify and prioritize reconstruction and maintenance needs of trails.
- Incorporate sustainable trail design when reconstructing/maintaining trails.
- Actively seek out grants, partnerships and volunteers to supplement trail budgets.
- Provide education about the litter problem (emphasize Pack it in—Pack it out); provide trash bags (or receptacles where appropriate, only recommended for areas where it is

feasible to empty trash cans regularly) or other litter control means; partner with volunteer groups such as trail clubs and Keep Arizona Beautiful.

Protect Access to Trails/Acquire Land for Public Access
Issue: Access refers to the ability of the user to get to the trailhead or area where the recreational opportunities exist. The continued development of Arizona's land encroaches on access to trails and can completely eliminate access if trails and access points are not incorporated into a city's or county's general plans. This is also an issue of trail connectivity between jurisdictions.

Actions:
- Implement more comprehensive planning with projections into the future to identify access needs, unprotected access points for trails, and acquire land for existing and proposed trails and trail access, easements and right-of-ways, as well as connector trails linking different jurisdictions.
- Coordinate trail access needs with users/stakeholders, involving them throughout the planning process.
- Have ASCOT and/or other groups host conferences that educate the trails and planning communities on how to address access issues.
- Permanently secure access to public trails, trailheads and other access points.
- Enact city and county ordinances and codes to preserve public access to recreation.
- Provide incentives to developers to preserve public access to trails.
- Ensure that trails are accessible for individuals with physical disabilities.

Second Level Priority Recommendations for Non-Motorized Trail Use

Mitigation and Restoration of Damage to Areas Surrounding Trails
Issue: Protection of Arizona's natural and cultural resources is important to both the public and land managers. Areas surrounding trails become damaged for a host of reasons; improper trail design causing erosion, users moving off the trail, overuse, and creation of unauthorized trails. Managers need to prevent and also work to restore and mitigate damage to areas surrounding trails. The public perceives decreased wildlife sightings and damage to vegetation and cultural sites near trails as moderate problems. Land managers perceive damage to vegetation and increased invasive species along trails as moderate to serious problems, and habitat fragmentation and decreased wildlife sightings along trails as slight to moderate problems.

Actions:
- Rectify or reduce existing damage caused by trail use to natural or cultural resources along trails. This may include revegetation, invasive species treatment, trail realignments, or temporary closures.
- Incorporate sustainable trail design when reconstructing/maintaining trails.
- Seek innovative ways to provide educational signage on vegetation and wildlife habitat in the area and the human impacts. Emphasize the need for users to stay on trails.
- Install unobtrusive barriers around sensitive areas along trails, such as wetlands or archaeological sites, or consider rerouting trails, if appropriate. The use of wildlife blinds and viewing platforms help reduce impacts to wildlife and habitats.
- Maintain viable wildlife habitats and linkages through identification and protection of sensitive areas and important wildlife corridors.

Enforcement of Existing Rules and Regulations/Monitoring

Issue: Trail rules and regulations are often unknown or ignored by users. People not following existing rules and laws create conflicts with other users and adjacent landowners. Different jurisdictions may have conflicting rules and as trails cross lands the management boundaries are not always clearly marked. Land managers do not have the staff or time to constantly monitor trails or manage a vast number of trails over large areas and cannot effectively patrol all trails. The enforcement of existing laws and regulations gives weight and importance to the rules.

Actions:

- Promote volunteer programs with clubs and individuals to patrol and monitor trail use and educate users about the regulations.
- Request assistance from enforcement entities within the area.
- Install complaint registers or provide enforcement contacts (phone numbers) for trail users to report information.
- Impose heavier fines for repeat offenders.
- Install regulatory signs and rules of conduct where appropriate.

Provide and Install Trails Signage

Issue: In addition to the trail itself, users require a number of different kinds of signage to safely and enjoyably pursue their trail experience. Locator signs that lead people to trailheads and parking areas, directional signs along the trail, destination signs to let people know they have reached end points, interpretive signs that describe the natural or cultural history of the area, and regulatory signs that explain the do's and don'ts of the area are important trail components.

Photo: Trail signs provide users with important information, such as trail length and if it is a loop trail. Lost Dutchman State Park near the Superstition Wilderness Area.

Actions:

- Develop signage that includes route marking and access signage; include both trailhead kiosks and individual trail signs.
- Develop consistent inter-agency universal standards for signage.
- Provide bilingual signage.
- Provide interpretive signage that helps users understand and appreciate the need for protection of natural areas and cultural sites, and why regulations should be followed.
- Consider providing signs and information that allow users to determine if the trail is accessible for their individual capabilities (e.g., length, width, tread, slope).

Develop Support Facilities

Issue: In addition to the actual trail corridor, users often require support facilities to aid in the area's use and activities. Well-designed support facilities, accessible to all users, increase the user's experience and satisfaction along with protecting the natural resources, and keeping areas clean and free of litter and waste. Support facilities include structures such as restrooms, water faucets, trash bins, parking areas, kiosks, picnic sites, camp sites, wildlife blinds, viewing platforms and shelters.

Actions:

- Develop trailheads with adequate parking, restrooms, drinking water and litter control (such as providing individual litter bags or trash cans where appropriate).
- Develop picnic sites or camp sites in conjunction with the trailhead, where appropriate.
- Develop individual overnight camp sites or shelters along long trails frequented by backpackers.
- Support facilities should be accessible to all users; comply with ADA guidelines.

Develop/Construct New Trails

Issue: There is demand for new trail opportunities in areas experiencing high growth rates. Also, as the types of activities change and new ones emerge, trails that provide for a specific type of activity may be needed. Development of new trails should include accessibility issues for the physically challenged wherever possible. The other "new" trail that is in demand in many areas is the "connecting" trail or link between two existing trails.

Actions:

- Develop trail opportunities for specific activities (i.e., single-track trails for mountain bikes, competitive events, geo-caching) where appropriate.
- Encourage cities, counties and towns to adopt planning and zoning ordinances to protect access to trails.
- Develop more close-to-home trail opportunities.
- Develop new trails, emphasizing sustainable design, in areas experiencing high population growth to meet demand.
- Plan for "connector" trails to expand the trail opportunities in established trail areas.

Photo: Trails can be built and maintained using hand tools or mechanized equipment. YRU Contracting repaired a remote segment of the Arizona Trail in White Canyon near Superior.

Promote Coordinated Volunteerism

Issue: Volunteers are a valuable supplement to an agency's labor force. Trail users are often willing volunteers to help build and maintain trails along with monitoring or educating users. Land managers desire increased use of volunteers but lack the time to effectively coordinate, manage, and train volunteers to use them to their potential.

Actions:

- Provide volunteer trainings for trail design and maintenance techniques.
- Enlist a volunteer to take a leadership role or be the liaison between the agency and volunteers and to coordinate trail projects.
- Recognize and support the need to allocate staff time to volunteer coordination.
- Seek grants and partnerships to support volunteers.
- Considering using trail volunteers to accomplish multiple goals such as controlling invasive species while maintaining trails.

Third Level Priority Recommendations for Non-Motorized Trail Use

Education and Trail Etiquette
Issue: Trail users who lack proper trail etiquette and environmental ethics can deter from other trail users' recreation experience and negatively impact the environment. Littering, excessive speed, not staying on trails, vandalism and an inability of managers to enforce regulations leads to continued user conflicts and increasing environmental impacts.

Actions:
- Increase education resources for trail etiquette and environmental education.
- Work with educators to incorporate trail etiquette and environmental ethics material into existing school and youth programs.
- Collaborate with other agencies on education materials and programs to provide consistent messages .
- Emphasize educational messages that promote self-responsible behaviors, such as Pack It In—Pack it Out, Tread Lightly! and Leave No Trace.
- Have rules and regulations posted at trailheads for users .
- Promote "share the trail" and emphasize cooperation, tolerance and respect for other trail users.
- Make allowable trail uses known to users through trail signage, maps and brochures.
- Educational messages should be repeated year after year to reach visitors and new residents and trail users.

Provide Trails Information and Maps
Issue: Trail users need information and accurate maps that inform them where trails exist and include key trail facts. In most cases, comprehensive maps do not exist and when they do the information is hard to find. Much of the information available is out-of-date, covers a small area or single trail or is too general.

Actions:
- Use the Internet to post maps and information so it is widely accessible.
- Have maps cover regional areas .
- Have accurate information on how to get to trailheads and the condition of trails.
- Provide GPS coordinates and other location information.

Photo: Kiosks and trailheads are excellent places to post maps and other trail information desired by trail users.

Promote Regional Planning/Interagency Coordination
Issue: Interagency cooperation and consistency was a common theme throughout the public input process. Better communication between agencies is important to ensure a clear

understanding of agency plans and policies. Interagency coordination would allow for shared resources and interconnecting of trails and systems. There is a need to standardize trail rules, regulations and enforcement such as signage.

Actions:

- Collaborate with neighboring agencies to interconnect trail systems and share resources.
- Develop regional trail system plans and involve relevant agencies, organizations, and users in all planning efforts.
- Make the effort to hold regular meetings with jurisdictions surrounding your area to plan for trail connections and consistent signage between systems.
- Continue implementation of programs such as the Wildlife Linkages Assessment, Invasive Species task force, and Watchable Wildlife programs; get involved.
- Involve the recreational users in planning efforts and keep them informed of new policies and changes in management. They may be able to provide assistance and resources.

Program Accomplishments

Arizona State Committee on Trails (ASCOT)

The Arizona State Committee on Trails (ASCOT) is a 15 member committee. ASCOT is appointed by and serves in an advisory capacity to the Arizona State Parks Board. The overall mission of the State Trails Program is to promote, develop, and preserve non-motorized trail opportunities throughout the state for mountain bikers, hikers, equestrians, and water trail users.

ASCOT assists the State Trails Program through:

- Review and recommend the State Trails System nominations. *Annually*
- Serve as a liaison to the Arizona Heritage Fund Trails Grant rating process. *Annually*
- Assist with the Statewide Trails Plan. *Every 5 years*
- Use priorities identified in the Statewide Trails Plan to make recommendations towards the expenditure of Arizona State Parks administered trail funds (review and make recommendations for Heritage Fund criteria and direct the Recreational Trails Program (RTP) monies). *Every 5 years or as Committee sees need for change.*

ASCOT has a long history of going far beyond the mandate of State Parks. State Parks is proud and supportive of these activities. Some past accomplishments:

- Hosting numerous trail conferences and workshops including the 1998 National Trails Symposium.
- Sponsored an Arizona Trails Photo Contest.
- 1992 Public Trail Access Manual: A Guide to the Protection of Arizona's Trails. Arizona was the first state to prepare a manual on saving public trail access and others have modeled their manuals after ours.
- Developed the “In Their Shoes” video about differing users groups understanding each other and sharing the trail.
- Developed the “Historic Trails In Arizona” brochure about the major historic trails that were used to explore and settle Arizona, includes a map and write-ups about each trail.

Photo: ASCOT members on field trip to the first segment of the Arizona Trail along the U.S.–Mexico border at Coronado National Memorial.

Photo: Sonia Overholser and Babs Sanders from the Black Canyon Trails Association present a skit about mountain bikers and equestrians sharing the trail (Arizona Trails Conference, 2007).

2007 State Trails Conference: *Opportunities, Issues and Strategies for the Future*

The State Trails Program has hosted eight trails conferences that have been open to trail users and managers of all kinds. In 2007, a State Trails Conference was planned by a joint effort of the motorized and non-motorized committees to bring the trail and OHV communities together to share issues and develop strategies for the future. The conference was very successful. Attendance reached nearly 200 people from every corner and numerous agencies across Arizona as well as two attendees who traveled all the way from American Samoa.

The three-day event, held at a camp facility outside Prescott, covered a wide range of topics and most importantly brought the Arizona trails and OHV communities together to learn and network. Powerpoints from the conference sessions and photos are available on the Arizona State Parks webpage at http://azstateparks.com/trails/trail_workshops_2007_2.html

The State Trails Program Hosts Trail Trainings

One of the focuses of the State Trails Program is to host trainings for both land managers and volunteers who work on trails. Trail trainings exist on a national level but having the time and funds to send someone to out-of-state trainings is not readily available. Keeping trainings low cost, local trainings are the most effective way of spreading knowledge and increasing skills. The State Trails Program has partnered with differing entities and utilized the Federal Recreational Trails Program (RTP) Education Fund to host trainings in Arizona.

Trainings Provided:

- **Trails Preservation Workshop – March 2008**. The Oregon-California Trails Association (OCTA), Arizona State Parks, Arizona State Parks Foundation, Bureau of Land Management and National Park Service partnered to provide this Trails Preservation Workshop. This two-day training focused on three main components of trails preservation: monitoring, mapping, and marking trails.

- **Trail Crew Leader Training – October 2008**. The Trail Crew Leadership Workshop is designed to provide individuals with the training and information required to lead groups of volunteers on important trail projects. The training is 16 hours in length (2 days) and includes a mix of classroom lecture, hands-on experience and field work instruction. This class was a

partnership between Arizona State Parks, the Arizona State Parks Foundation and the Outdoor Stewardship Institute.

- **'Train the Trainer' Crew Leader Class – October 2008**. This class gives the participant the experience to teach a Trail Crew Leader Training. Instructors are taught how to use the curricula and lesson plans to teach basic trail construction and maintenance, safety, tool use and crew leadership principles. Participants are expected to host a Trail Crew Leader Training for an agency or association they are involved with in the near future. This class was a partnership between Arizona State Parks, the Arizona State Parks Foundation and the Outdoor Stewardship Institute.

- **Mechanized Trail Building Workshop –November 2008**. This workshop introduced mechanized equipment used in building non-motorized single-track trails to trail managers and builders in Arizona. The workshop presented slides and hosted a discussion about equipment and techniques used to build trails. After the presentation, participants went to Thunderbird Conservation Park and examined an active construction site with trails in progress on a rocky site. This class was a partnership between Arizona State Parks and YRU Contracting, Inc.

Photo: Workshop participants receive instructions and hands on experience on trail construction techniques.

- **Perfect Trails: How to Design Trails That Last – March 2009**. This class covers aspects of sustainable trail design and layout. Proper design minimizes maintenance costs, aids in resource protection and provides a better experience for trail users.

The class combines classroom instruction, a tour of trails built using state-of-the-art design and construction techniques, and an exercise in which participants use what they've learned to design a section of trail. This class was a partnership between Arizona State Parks, the Arizona State Parks Foundation and Pima County Natural Resources.

- **Rigging for Trail Work: Working Smarter, Not Stronger – March/April 2009.** This three-day workshop is divided between classroom presentations and outside demonstrations of equipment and techniques. Safe practices in the use of wire rope and rigging equipment is presented. A variety of winches and specialty tools is available to apply in different situations. Applications ranging from simple pulling/dragging situations to overhead skyline systems hundreds of feet long is described or demonstrated. This class was a partnership between Arizona State Parks, the Arizona State Parks Foundation, Trail Services, LLC and City of Prescott.

The Arizona State Trails Program Website Wins National Award
The Arizona State Trails Program won the 2008 American Trails Website Contest for the category of "State Agency Site" (for state trails program or trails in state parks). Arizona State Parks was selected among an overwhelming number of applicants in this annual contest.

The new and updated Trails section of the agency website launched November 11, 2008. Besides comprehensive information on the State Trail System, Historic Trails of Arizona, Trail Grants, Sharing the Trail, the Arizona State Committee on Trails, along with information on Trail Planning and more. Visit the site at http://azstateparks.com/trails/index.html

The American Trails contest seeks and recognizes the best websites in the cyberworld of trails and greenways. American Trails looks for sites that really make trails come alive, and provide effective information delivery, support volunteers, and engage the public. In short, American Trails wants to showcase ways that agencies are making a difference for trails.

AmericanTrails.org
WINNING WEBSITE

American Trails is the only national, nonprofit organization working on behalf of all trail interests, including hiking, bicycling, mountain biking, horseback riding, water trails, snowshoeing, cross-country skiing, trail motorcycling, ATVs, snowmobiling and four-wheeling. American Trails members want to create and protect America's network of interconnected trails.

State Trail System
Vision Statement: *Arizona's State Trails System is an invaluable resource, offering a diversity of quality non-motorized trails that inspire people to experience the State's magnificent outdoor environment and cultural history*.

Arizona State Parks manages the Arizona State Trails System as mandated by legislation A.R.S. § 41-511.23. The State Trails System:

"1. Identifies on a statewide basis the general location and extent of significant trail routes, areas and complimentary facilities," and

"2. *Assesses the physical condition of the systems."* The statute also states *"…trail systems means coordinated systems of trails for this state."*

Rather than identify trails and assess their condition once every five years (in conjunction with the state trails plan), Arizona State Parks, with the help of the Arizona State Committee on Trails and other volunteers, regularly updates the State Trails System.

The State Trails System was established to recognize and promote non-motorized trails of special interest or significance to Arizona's residents and visitors. This system consists of non-motorized trails that are managed mostly by partners of Arizona State Parks.

When the Heritage Fund was established in 1990, it included language requiring trails to be in the State Trails System to be eligible for Trails Heritage Grant Funds. A.R.S. § 41-501. Definitions; Heritage Fund: In this Article: . . . 2. "Trails" are those trails for non-motorized use nominated for inclusion in the state trails system, including urban, cross-state, recreation, interpretive or historic trails.

Trails include both land and water (canoe/kayak) trails. Partners include all agencies that manage public lands in Arizona such as the U.S. Forest Service, Bureau of Land Management, National Park Service, state, tribes, cities, towns and counties.

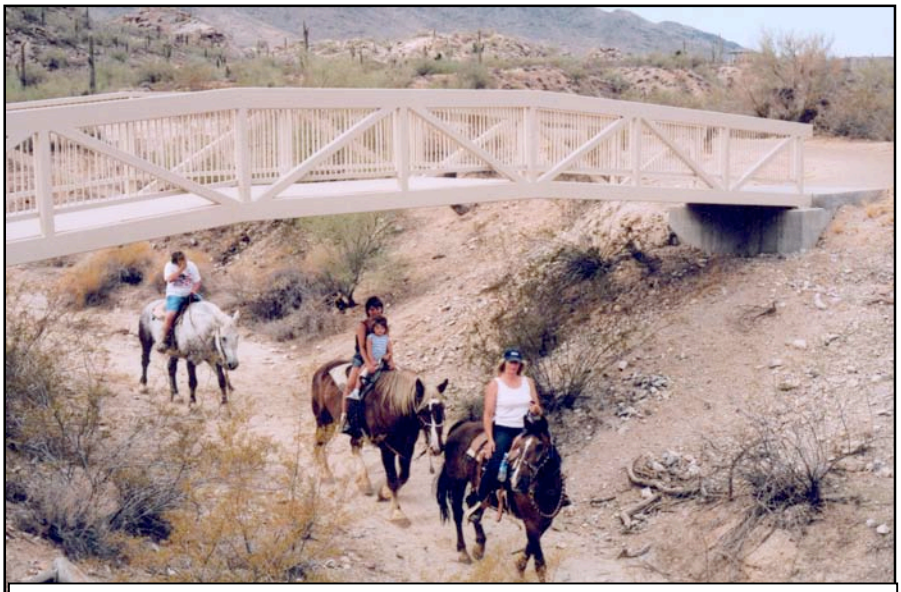


Photo: The City of Phoenix Parks & Recreation Department has nominated all their trails to the State Trails System. This designation provides prestige and makes trails eligible for Trails Heritage grant funds.

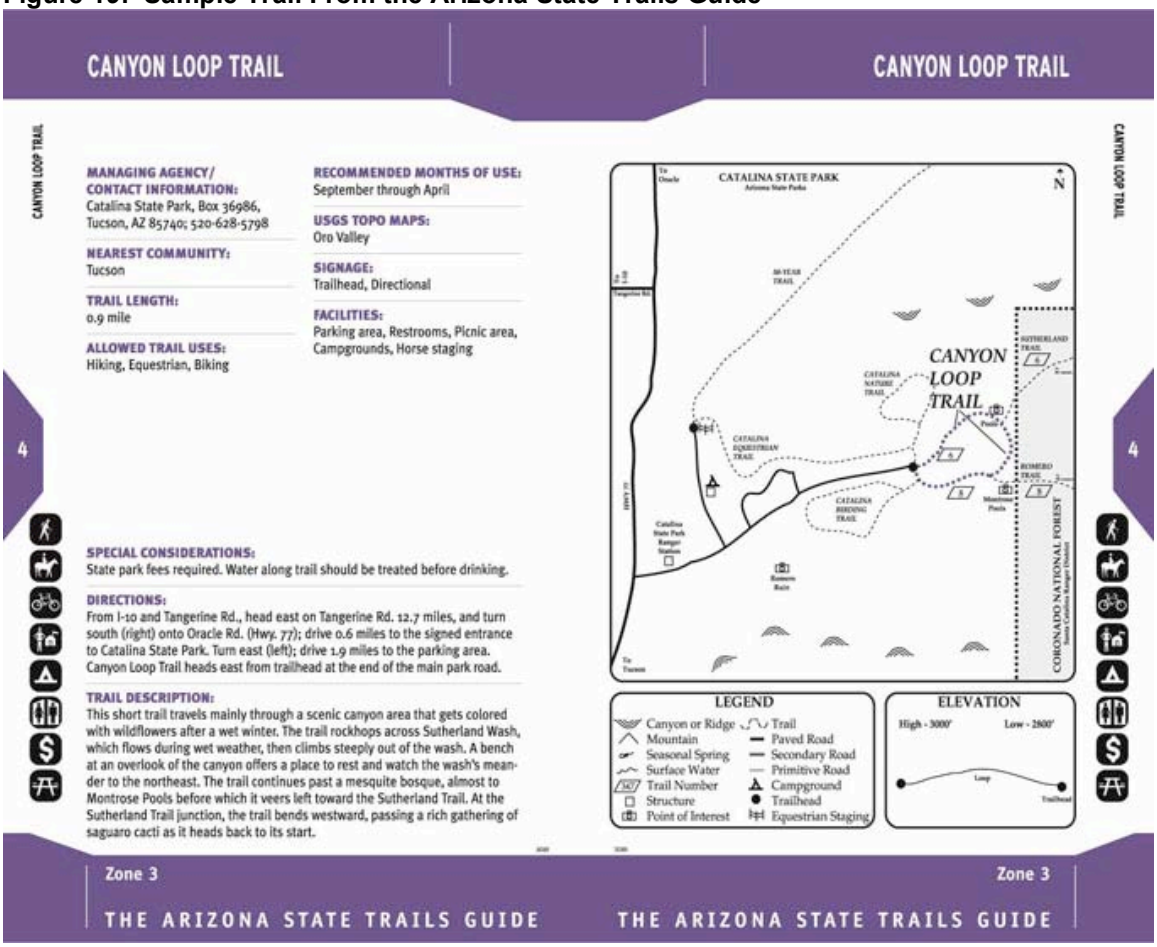
Trails within the State Trails System are classified as Urban, Recreation, Interpretive, Cross State and/or Historic. For trails, both existing and proposed, to be included in the State Trails System, they must go through the nomination process.

This process begins when the trail landowner submits trail nominations for review by Arizona State Parks staff and the State Trails System subcommittee of the Arizona State Committee on Trails. Recommendations are forwarded to the Arizona State Parks Board for review and final approval. Upon approval, trails become part of the State Trails System. These trails are then eligible to receive Arizona Heritage Fund trail grants.

The System currently has 728 trails totaling approximately 4,000 miles. Arizona State Parks and ASCOT monitor these trails' conditions and promote the trails in various ways. It should be noted that this is by no means a comprehensive inventory of trails found in Arizona; it only includes those trails nominated and accepted into the State Trails System.

One example of promotion was the printing of the Arizona State Trails Guide. New technologies are being researched to provide State Trails System information online in the future.

Figure 19. Sample Trail From the Arizona State Trails Guide



CANYON LOOP TRAIL

CANYON LOOP TRAIL

MANAGING AGENCY/ CONTACT INFORMATION: Catalina State Park, Box 36986, Tucson, AZ 85740; 520-628-5798

NEAREST COMMUNITY: Tucson

TRAIL LENGTH: 0.9 mile

ALLOWED TRAIL USES: Hiking, Equestrian, Biking

RECOMMENDED MONTHS OF USE: September through April

USGS TOPO MAPS: Oro Valley

SIGNAGE: Trailhead, Directional

FACILITIES: Parking area, Restrooms, Picnic area, Campgrounds, Horse staging

4

SPECIAL CONSIDERATIONS: State park fees required. Water along trail should be treated before drinking.

DIRECTIONS: From I-10 and Tangerine Rd., head east on Tangerine Rd. 12.7 miles, and turn south (right) onto Oracle Rd. (Hwy. 77); drive 0.6 miles to the signed entrance to Catalina State Park. Turn east (left); drive 1.9 miles to the parking area. Canyon Loop Trail heads east from trailhead at the end of the main park road.

TRAIL DESCRIPTION: This short trail travels mainly through a scenic canyon area that gets colored with wildflowers after a wet winter. The trail rockhops across Sutherland Wash, which flows during wet weather, then climbs steeply out of the wash. A bench at an overlook of the canyon offers a place to rest and watch the wash's meander to the northeast. The trail continues past a mesquite bosque, almost to Montrose Pools before which it veers left toward the Sutherland Trail. At the Sutherland Trail junction, the trail bends westward, passing a rich gathering of saguaro cacti as it heads back to its start.

Zone 3

THE ARIZONA STATE TRAILS GUIDE

The Arizona Trail nears completion and has received National Scenic Trail designation
The Arizona Trail is an 800-mile non-motorized trail that traverses the State from Mexico to Utah. The Arizona Trail is intended to be a primitive, long distance trail that highlights the State's topographic, biologic, historic and cultural diversity. The cross-state trail now has less than 50 miles to acquire and build and expects to be complete by Arizona's Centennial in 2012.

The vision of a continuous border-to-border trail traversing Arizona's unique landscapes and historic areas has been on the minds of trail users through the years. One individual, however, took the dream one step further. Dale Shewalter, a hiking enthusiast and schoolteacher from Flagstaff, visualized a long-distance trail while hiking in the Santa Rita Mountains in the 1970s. During the summer of 1985, he completed a scouting of such a trail.

While walking from Nogales to the Utah border, he visualized and tentatively mapped an interlocking route of trail systems traversing the state from south to north. Beginning at the Mexican border, he projected a 750-mile route through desert and mountain corridors all the way to the Utah state line.

The concept of the Arizona Trail was born, offering opportunities for hikers, equestrians, mountain bicyclists (where appropriate), and cross-country skiers to experience the rich diversity Arizona has to offer. During the next few years, Shewalter began promoting his vision of a border-to-border trail to key state and federal agencies, service groups, corporations, and individuals. Much interest was evident. He proposed the Arizona Trail concept to the Arizona State Parks Board in 1985, gaining the support and enthusiasm of Larry Mutter, then State Trails Coordinator. The Arizona Hiking and Equestrian Trails Committee (now known as Arizona State Committee on Trails or "ASCOT"), the citizen advisory committee to the Arizona State Parks Board, also endorsed the trail concept early on and have since been helping to coordinate the project. Since then, the development of the Arizona Trail has been a partnership of staggering magnitude and success.

In 1994 the Arizona Trail Association (ATA) was founded to promote the Arizona Trail as a unique and outstanding recreational and educational resource, and provide opportunities for citizens to become involved in the development, maintenance, use and enjoyment of the Arizona Trail. The ATA is primarily a volunteer group that helps guide the construction and maintenance of the trail. Volunteer labor, membership and donations help us build, maintain and promote the Arizona Trail.

Table 47. The Arizona Trail Partners — Land Managers along the Arizona Trail

Breakdown of the Percentage of the Arizona Trail Managed by Landowners or Agencies *The Arizona Trail is a reality because of this long list of partners and their dedicated employees:*	
U.S. Forest Service: Coronado National Forest, Tonto National Forest, Coconino National Forest, Kaibab National Forest	73.1%
Arizona State Land Department	11.6%
National Park Service: Coronado National Memorial, Saguaro National Park, Walnut Canyon National Monument Grand Canyon National Park, and The Rivers, Trails and Conservation Assistance Program (RTCA)	7.4%
Bureau of Land Management: Tucson Field Office and Arizona Strip Field Office	4.2%
County/City/Town/Community: Cochise, Santa Cruz, Pima, Pinal, Maricopa, Gila, Yavapai, and Coconino Counties; Patagonia, Vail, Tucson, Summerhaven, Oracle, Kelvin/Riverside, Superior, Roosevelt, Pine, Mormon Lake, Flagstaff, Tusayan, Grand Canyon Village and Jacob's Lake	2.1%
Private	1.1%
Arizona State Parks: Oracle State Park; Arizona State Committee on Trails (ASCOT) State Trails Program and its many trail coordinators	0.5%
Volunteers: The volunteers of the Arizona Trail Association are truly the heart and soul and the trail would not exist without them	-

Table 48. Characteristics along the Arizona Trail

Life Zone	Elevation	Plants	Geographic Region
Sonoran Desertscrub - Lower Colorado	100–3000'	creosote, bursage, saltbush, mesquite, acacia	Tortilla Mts. to Superstition Mts.
Sonoran Desertscrub - Arizona Upland	500–4500'	paloverde, mesquite, bursage, jojoba, creosote, saguaro, ocotillo, cholla	Oracle to Roosevelt Lake
Chihuahan Desertscrub	3200–5000'	creosote, tarbush, acacia, ocotillo	Cienega Creek to Rincon Valley
Great Basin Desertscrub	3000–6500'	sagebrush, blackbrush, shadscale, mormon-tea	Buckskin Mts. at Utah border
Mountain Meadow Grassland	7500–10,000'	grasses, wildflowers	Kaibab Plateau
Desert Grassland	5000–7000'	grama grasses, yucca, sotol, beargrass, mesquite, cholla	Empire-Cienega, Redington Pass, Black Hills
Chaparral	4000–6000'	oak, manzanita	Superstition Mts. to Mazatzal Mts.
Oak-Pine Woodland	4000–7000'	oak, pine, juniper, cypress	Huachuca Mts. to Santa Rita Mts., Rincon & Catalina Mts.
Juniper-Pinyon Woodland	5500–7500'	juniper, pinyon, sagebrush, cliffrose	Hardscrabble Mesa, Coconino Rim, North Kaibab Plateau
Montane Conifer Forest	6000–9500'	pine, fir, oak, aspen	Huachuca Mts., Catalina Mts., Highline Passage to Flagstaff, South Rim Grand Canyon, Central Kaibab Plateau
Spruce-Alpine Fir Forest	8500–11,500'	spruce, fir, pine, aspen	Kaibab Plateau, San Francisco Peaks
Alpine Tundra	< 11,000'	grasses, lichen, mosses	San Francisco Peaks summit
Riparian Deciduous Woodland		cottonwood, willow, ash, sycamore, walnut	Along streams, rivers, and washes

The Arizona Trail is the first trail in 26 years to become a National Scenic Trail. Congress passed legislation designating the Arizona Trail with this prestigious classification, and President Obama signed the bill March 30, 2009.

> SEC. 5201. ARIZONA NATIONAL SCENIC TRAIL
> Section 5(a) of the National Trails System Act (16 U.S.C. 1244(a)) is amended by adding at the end the following:
> **The Arizona National Scenic Trail,** extending approximately 807 miles across the State of Arizona from the U.S.-Mexico international border to the Arizona-Utah border, as generally depicted on the map entitled `Arizona National Scenic Trail' and date December 5, 2007, to be administered by the Secretary of Agriculture, in consultation with the Secretary of the Interior and appropriate State, tribal, and local governmental agencies. The map shall be on file and available for public inspection in appropriate offices of the Forest Service and Bureau of Land Management.

Volunteers for Outdoor Arizona Launches Website

OutdoorVolunteer.org, launched by Volunteers for Outdoor Arizona (VOAz) in 2008, is a searchable, on-line database of volunteer opportunities presented by VOAz and other Arizona conservation organizations. The website is designed to assist land managers in advertising scheduled volunteer events, and to assist volunteers in finding the right project.

The goal is to have most outdoor volunteer opportunities in Arizona listed on the OutdoorVolunteer.org/VOAz Events Calendar, events calendar, allowing volunteers to find the opportunities that match their skills, interests and availability.

Building on the software architecture implemented by VOAz to promote and manage its own projects, they added the capacity for any conservation organization (including, public, non-profit, and informal groups) to list their projects and scheduled events through OutdoorVolunteer.org. In addition, participating organizations can register and manage their volunteers conveniently on line.

As more agencies use OutdoorVolunteer.org to promote their projects, more volunteers will also come to OutdoorVolunteer.org and use it as their primary source of information about stewardship opportunities in Arizona. The pool of prospective volunteers will continue to grow and we can do a better job of caring for Arizona's precious outdoor resources.

National Recreation, Historic and Scenic Trail in Arizona

The National Trail System Act of 1968 (Public Law 90-543) authorized creation of a national trail system comprised of National Recreation Trails, National Scenic Trails and National Historic Trails. Through designation, these trails are recognized as part of America's national system of trails.

> **National scenic trails** are 100 miles or longer, continuous, primarily non-motorized routes of outstanding recreation opportunity. Such trails are established by Act of Congress.
>
> **National historic trails** commemorate historic (and prehistoric) routes of travel that are of significance to the entire Nation. They must meet all three criteria listed in Section 5(b)(11) of the National Trails System Act. Such trails are established by Act of Congress.
>
> **National recreation trails**, also authorized in the National Trails System Act, are existing regional and local trails recognized by either the Secretary of Agriculture or the Secretary of the Interior upon application.

Photo: The Black Canyon Trail was once the old sheep driveway used to move sheep from the desert to higher elevations for the summer. It is now a long-distance trail used by hikers, equestrians and mountain bikers.

Table 49. National Recreation Trails in Arizona

Trail Name	Managing Agency	Trail Type	Mileage
Arcadia Trail	Coronado National Forest	Not listed	6
Arivaca Cienega Trail	U.S. Fish and Wildlife Service	Other	1.25
Arivaca Creek Trail	U.S. Fish and Wildlife Service	Backcountry	1
Aspen Spring Trail	Mohave County Parks	Backcountry	10
Benham Trail	Kaibab National Forest	Backcountry	4
Betty's Kitchen Interpretative Trail	Bureau of Land Management	Not listed	0.5
Bill Williams Mountain Trail	Kaibab National Forest	Backcountry	4
Black Canyon Trail	Bureau of Land Management	Back country/Urban trail/bikeway	62
Blue Ridge Trail	Apache-Sitgreaves National Forest	Not listed	8.7
Bright Angel Trail	Grand Canyon National Park	Not listed	7.8
Central Arizona Project (CAP)Trail	Pima County Natural Resources, Parks & Recreation Dept.	Urban trail/bikeway Other	8
Coronado Peak Trail	Coronado National Memorial	Not listed	0.4
Desert Ecology Trail	Saguaro National Monument	Not listed	0.3
Eagle Trail	Apache-Sitgreaves National Forest	Not listed	28.5
Escudilla Trail	Apache-Sitgreaves National Forest	Not listed	3.3
General George Crook Trail	Coconino-Apache Sitgreaves National Forests	Not listed	138
Granite Mountain Trail	Prescott National Forest	Not listed	4
Highline Trail	Tonto National Forest	Not listed	50.2
Hunter Taril	Arizona State Parks	Not listed	3.5
Joe's Canyon Trail	Coronado National Memorial	Not listed	3.1
North Kaibab Trail	Grand Canyon National Park		14.2
North Mountain Trail	Phoenix Parks and Recreation Department	Not listed	0.9
Old Baldy Super Loop Trail	Coronado National Forest	Not listed	12.9
Painted Desert Trail	U.S. Fish and Wildlife Service	Other	1.3
Palm Canyon	U.S. Fish and Wildlife Service	Other	0.5
Parks Rest Area	Kaibab National Forest	Not listed	0.5
Prescott Peavine Trail	City of Prescott	Rail trail Backcountry	5.5
River Trail	Grand Canyon National Park	Not listed	1.7
Sixshooter Canyon	Tonto National Forest	Not listed	6
South Kaibab Trail	Grand Canyon National Park	Not listed	7
National Trail	City of Phoenix Parks and Recreation Dept	Not listed	14
Summit Trail	City of Phoenix Parks and Recreation Dept	Not listed	1.2
Sun Circle Trail	Maricopa County Parks	Not listed	68
Wilson Mountain	Coconino National Forest	Not listed	5

* Information provided by the National Recreation Trails Online Database

Photo: A segment of the Prescott Peavine Trail was once part of an old railroad bed: a rails-to-trails conversion.

Table 50. National Scenic and Historic Trails in Arizona

Trail Name	Authorized Miles
Juan Bautistia de Anza National Historic Trail	1,200
Old Spanish National Historic Trail	2,700
Arizona National Scenic Trail	807

The Juan Bautista de Anza National Historic Trail commemorates the 1,800 mile route followed by Spanish commander in 1775-1776 when he lead a contingent of thirty soldiers and their families across vast stretches of desert to colonize northern California for Spain, founding a presidio and mission near San Francisco Bay

The Old Spanish National Historic Trail was pack mule trail linking New Mexico with coastal California. Mexican trader Antonio Armijo led the first commercial caravan from Abiqui, New Mexico to Los Angeles late in 1829. Over the next 20 years, Mexican and American traders traveled variants of the route, frequently trading with Indian tribes along the way.

The Arizona National Scenic Trail is a 800+ mile trail traversing Arizona from the Mexico border to Utah. The Arizona Trail is a primitive, long distance trail that highlights the state's biologic, historic and cultural resources, and offers opportunities for hikers, mountain bicyclists, equestrians and cross-country skiers to experience and reflect upon Arizona's diverse cultural and natural heritage along the trail corridor. There are only 10 other trails in the country with this designation.

CHAPTER 5

Planning for Trails and OHV Recreation

"We abuse the land because we regard it as a commodity belonging to us. When we see the land as a community to which we belong, we may begin to use it with love and respect." Aldo Leopold, A Sand County Almanac, 1949

Impacts from recreational trail use–both motorized and non-motorized–has not been a high priority concern for many managers over the past few decades, as use was relatively low and spread out. In 1940, Arizona's population reached one half million people (approximately 4 people per square mile). In 1970, there were 1.8 million people living in Arizona (approximately 16 people per square mile) compared with 6.6 million people in 2008 (approximately 58 people per square mile), a 273% change. Today, with this rapid and continual increase in population growth, more people are 'hitting' the trails on a regular basis and both managers and the public have expressed concern about the impacts to trails and OHV routes such as increased litter and trash, vandalism, ruts, mud holes, trampled vegetation, disturbed wildlife, invasive species and a proliferation of "social" trails.

Most parks and natural resource agencies are charged with a dual mission: to protect natural resources for future generations, and to provide for appropriate public enjoyment of these resources. Managers evaluate and define standards of quality that both safeguard the natural resources and provide a positive visitor experience—a daunting task in most cases.

There have been a number of studies completed that document or analyze trail impacts, how severe the impacts are, and which trail activity has the greater impact. Some studies counter the findings of previous studies, causing confusion and distrust of either result. The clear conclusion is, like any human outdoor recreation activity, building and using recreational trails and motorized routes result in some type of environmental impact.

Photo: Whether building a trail with hand tools or mechanized equipment, a certain amount of impact is unavoidable. The key is to plan for minimal impact and sustainability.

A certain amount of impact from any trail building or recreational use is to be expected; the degree and extent of *acceptable* impact is a site specific issue.

There are also social issues to consider in this debate. What a person prefers in their outdoor recreation experience, the environment they choose to be in, and the impacts they notice within this experience, are based on visitor perception.

A factor that is becoming increasingly important in trail and route management, is acknowledgement that a significant segment of motorized recreation users need specialized areas that allow them to do jumps, banked turns, race over rough terrain and crawl over huge boulders.

Without designated areas managed for these activities, motorized recreation users continue to recreate in unplanned, unsustainable route systems with no active management, resulting in environmental and social impacts.

Potential Impacts of Trails and Routes

Trails are generally regarded as an essential facility in recreation areas, providing access to remote areas, offering recreational opportunities, and protecting resources by concentrating visitor use impacts on resistant tread surfaces. Much ecological change assessed on trails is associated with their initial construction and is considered unavoidable by many (Birchard & Proudman 2000). Site planning that incorporates environmental and cultural concerns and implemention of proper, sustainable trail design can reduce construction impacts.

The type and extent of trail impacts are influenced by use-related and environmental factors, both of which may be modified through management actions. Use-related factors include type of use, amount of use and user behavior; environmental factors include attributes such as vegetation and soil type, topography and climate.

The principal challenge for trail providers is to prevent post-construction degradation from both recreational use and natural processes such as rainfall and water runoff. (Aust, Marion, & Kyle 2005)

Unsurfaced trail treads are susceptible to a variety of trail impacts. Common impacts include vegetation loss and compositional changes, soil compaction, erosion, and muddiness, exposure of plant roots, trail widening, and the proliferation of visitor-created side trails (Hammitt & Cole 1998; Leung & Marion 1996; Tyser & Worley 1992).

Photo: Soil erosion and damage to vegetation are major trail use problems in the Southwest.

One element that is often overlooked when planning for and managing trail use is protection of *biological soil crusts*. These crusts are living communities of cyanobacteria (dominated by blue-green algae), micro-fungi, lichens, mosses, liverworts, and microorganisms that colonize the surface of bare soil (concentrated in the top 1/8" of soil) and hold the soil in place, protecting the underlying sediments from erosion. Living crusts are found all over the world, from deserts to tundra. These mats of living material cover virtually all spaces not occupied by green plants.

In Arizona the soils of our desert ecosystems are especially fragile and play an important role in the dynamics of desert plant communities. Soil disturbance does not 'disappear' with the next rain. The soil damage caused by breaking the "desert crust", known as cryptobiotic crust, can remain for centuries in low rainfall environments. Crusts retain water and increase soil fertility, and enable the land to recover more quickly after a fire. They are extremely susceptible to destruction by crushing or trampling.

Areas stripped of these crusts are vulnerable to erosion, flooding, deflation, dust storms, invasive species that thrive on disturbed soil, and/or chemical impoverishment due to loss of organic material and precipitation of minerals. Hikers, horseback riders, mountain bikers and OHVers who venture off established trails, whether in a desert, a woodland, or tundra environment, can damage these living crusts. (Moore 2007)

Soil erosion exposes rocks and plant roots, creating a rutted and uneven tread surface. Erosion can also be self-perpetuating when treads erode below the surrounding soil level, preventing the diversion of water from the tread. Eroded soils may find their way into water bodies, increasing water turbidity and sedimentation impacts to aquatic organisms (Fritz 1993).

Photo: Shoring up the hill side of a trail can reduce soil erosion and water runoff onto the trail.

Similarly, excessive muddiness renders trails less usable and aggravates tread widening and associated vegetation loss as visitors seek to circumvent mud-holes and wet soils (Marion 1994).

Trail widening and creation of parallel treads and side-trails unnecessarily increase the area of land disturbed by trails (Liddle & Greig-Smith 1975).

Table 51. Different forms of trail resource impact and their ecological and social effects

Form of Impact	Ecological Effects	Social Effects
Soil Erosion	Soil and nutrient loss, water turbidity and sedimentation, alteration of water runoff	Increased travel difficulty, degraded aesthetics, safety
Exposed Roots	Root damage, reduced tree health, intolerance to drought	Degraded aesthetics, safety
Secondary Treads	Vegetation loss, exposed soil	Degraded aesthetics
Wet Soil	Prone to soil puddling, increased water runoff	Increased travel difficulty, degraded aesthetics
Running Water	Accelerated erosion rates	Increased travel difficulty
Widening	Vegetation loss, soil exposure	Degraded aesthetics
Visitor-Created Trails	Vegetation loss, wildlife habitat fragmentation	Evidence of human disturbance, degraded aesthetics

Source: (Aust, Marion, & Kyle, 2005; pg. 8)

Trails, and the presence of visitors, can also impact wildlife, fragment wildlife habitat, and cause avoidance behavior in some animals and attraction behavior in others seeking to obtain human food (Hellmund 1998; Knight & Cole 1991). While most impacts are limited to a linear disturbance corridor, some impacts, such as alterations in surface water flow, introduction of invasive plants, and disturbance of wildlife, can extend considerably further into natural landscapes (Kasworm & Monley 1990; Tyser & Worley 1992). Even localized disturbance can harm rare or endangered species or damage sensitive resources, particularly in environments with slow recovery rates, such as deserts.

Impacts such as severe soil erosion and exposed roots are visually offensive and can degrade the aesthetics and functional value of recreational settings. Recent studies have found that resource impacts are noticed by visitors and that they can degrade the quality of recreation experiences (Roggenbuck *et al.* 1993; Vaske *et al.* 1993).

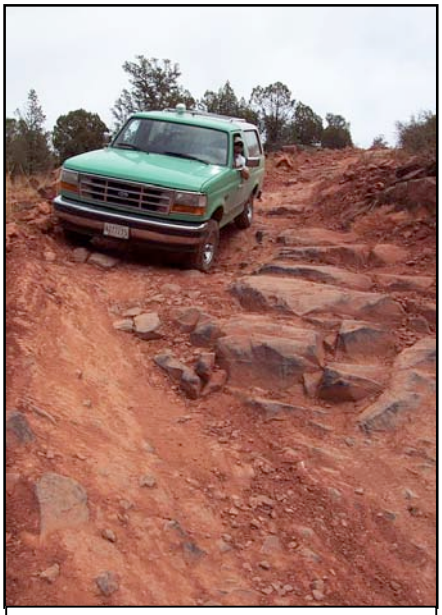


Photo: Erosion can cause deep ruts that may limit use.

Deep ruts and excessive muddiness on trails and routes increase the difficulty of travel and threaten visitor safety. From a managerial perspective, excessive trail-related impacts to vegetation, soil, wildlife or water quality can represent an unacceptable departure from natural conditions and processes. Impacts also result in substantial costs for the maintenance and rehabilitation of trails and operation of visitor management programs. (Aust, Marion, & Kyle 2005)

Photo: Proper trail design can help keep water off and people on the trails.

Sustainable Trails

Trail design and management are much larger factors in environmental degradation than the type or amount of use. Many studies have demonstrated that poorly designed or located trails are the biggest cause of trail impacts. A sustainable trail that is properly designed, constructed, and maintained can support trail uses with minimal maintenance or degradation. Well-designed and managed trails encourage the public to get out and enjoy natural settings without harming ecosystems.

The most effective way to minimize the environmental effects of trail recreation is to build environmentally sustainable trails. The goal of sustainable trail building is get the water off the trail and keep users on it. (IMBA 2006; Abell 2008)

A Sustainable Trail:

- Protects the environment
- Meets the needs of its users
- Requires little maintenance
- Minimizes conflict between different user groups

Essential Elements of Sustainable Trails:

1. Trail location: Sidehill trails are best
2. Sustainable trail alignment: Avoid the fall line
3. Half rule: Guides trail alignment; keep the grade of the trail less than half the grade of the sideslope, to keep water from diverting down the tread
4. Sustainable grade: Follow the ten percent average guideline
5. Maximum sustainable trail grade: trail alignment, half rule soil type, annual rainfall, vegetation, grade reversals, type of users, number of users, difficulty level
6. Grade reversals: Unbeatable drainage
7. Outslope: Ensuring sheet flow
8. Adapt trail design to soil texture
9. Minimize user-caused soil displacement
10. Prevent user-created trails
11. Maintenance and monitoring

(IMBA 2006; Abell 2008)

General Design Guidelines: Ideally, a site assessment should be completed before major investments in improvements are made. At a minimum, an initial site assessment should include a broad survey to obtain basic information on geology, geomorphology, watershed condition, wildlife habitats, cultural sites, and fluvial geomorphology. This should be followed by a detailed soil survey to provide a framework for developing logical trail systems. Knowledge of soil types is important in sustainable trail design, especially in desert settings. Finally, site-specific information should be collected on the current condition of the area, particularly surface soil condition and vegetative cover. The compaction of soils decreases soil pore space and water infiltration, which in turn increases water runoff and soil erosion, and plant germination and growth (Cole 1982; Cole 1991). Vegetation can be trampled affecting plant health, abundance, and composition, as well as habitats of smaller species of animals.

After trail development, adopt and implement a monitoring plan that helps detect problems with the design or use of the trails. Monitoring need not be expensive or time-consuming, but should be consistent. Monitoring should be used as an active management tool to determine if the long-term goals for the area are being achieved, and if not, changes should be made in management parameters.

Good trail design incorporates sustainable design and best management practices. Assess the need and demand for trail resources in a given area. Consider placing emphasis on developing sustainable recreation opportunities for those trail activities that are under served.

For more ideas about minimizing impacts on the environment or on other visitors, review *Leave No Trace* www.lnt.org or Tread Lightly! www.treadlightly.org principles.

Invasive Species—What are they, How do they get around, and Trail Use

By Joanne Roberts, Resource Ecologist, Arizona State Parks

Background: In today's modern society, transport, trade, and travel are global in nature, rapid, and massive in volume. Along with the international connectivity comes a growing threat of invasive species. The problems associated with non-native plants and animals, or invasive species, are a serious issue for Arizona. In recent years the introduction of invasive species has increased dramatically, representing a significant threat to both the economic and ecologic health of Arizona's natural heritage.

Photos: Buffelgrass is an invasive species that aggressively dominates desert ecosystems and carpets the ground, providing a continuous source of fuel for wildfires. Unlike Buffelgrass, native species are not adapted to fire and many are killed off.

Maintaining natural systems are important for ecologic and economic reasons. These natural areas filter ground water, cleanse the air and provide habitat for wildlife. They also increase property values for residents, improve sales at local businesses, lower health costs, and result in increased tax revenues for government.

Defining an Invasive Species and Pathways: Though many definitions for invasive species and pathways exist, these terms are defined as they relate to Arizona's Invasive Species Management Plan (AISMP 2008) and the National Invasive Species Council (NISC). It is recognized that not all non-native species are invasive and that some native species can act in an invasive manner. The NISC ensures Federal cooperation and coordination and the ASIMP sets State guidelines for a coordinated, multi-stakeholder approach to invasive species management.

> *"An invasive species is a non-native plant, animal, or other organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human health."*

Although many non-native species were introduced intentionally for a variety of reasons ranging from social demands for new or different pet species, erosion control, landscaping, crops for food, and management of pests; other species have hitchhiked on commercial transports, on pets, humans, livestock, automobiles and boats. These are all pathways and are defined as, *"the means by which species are transported from one location to another"*. There are natural pathways that include wind, currents, and other forms of dispersal in which a specific species has developed morphological and behavioral characteristics to employ. Man-made pathways are those pathways that are enhanced or created by human activity.

More simply stated, invasive species have and continue to be intentionally and/or unintentionally introduced and can cause harm to Arizona's native species and humans.

Trails as a Pathway for Invasive Species:
Regardless of type of trail use (e.g. equestrian, hiking, biking, motorized, boating), trails are corridors, or pathways, for invasive species. Concerns about spreading invasive species should be recognized when developing, maintaining or using trails. Moving soil from one location to another, non-native seed deposited by horses and livestock, seeds embedded in bike or ATV tires, snail, mussel and plant hitchhikers from waterway to waterway, bait dumping, and many other pathways play a tremendous role in invasive species movement and are tied to use of aquatic and terrestrial trails.

Photo: Trails are pathways for invasive species, such as non-native seed deposited by horses and packstock, seeds embedded in boots or bike and ATV tires. Sonoita Creek State Natural Area.

Being aware that you, as a trail user, are a potential vector is the first step in assisting resource managers in combating invasive species in Arizona. Link to the Governor's website for Arizona Invasive Species, http://www.governor.state.az.us/ais/ or http://hermes.freac.fsu.edu/imi/az/ for more information.

Table 52. Land Managers Perceptions of Non-motorized and Motorized Trail Use Increasing Invasive Species

Invasive Species	% Not a Problem		% Slight Problem		% Moderate Problem		% Serious Problem	
	Non Motor	Motor	Non Motor	Motor	Non Motor	Motor	Non Motor	Motor
State Agencies	24.1	14.3	41.4	33.3	24.1	38.1	10.3	14.3
Federal Agencies	22.1	8.9	32.4	23.2	29.4	37.5	16.2	30.4
Cities/Counties	38.8	25.0	36.7	35.0	12.2	10.0	12.2	30.0

Planning Trails and Routes with Wildlife in Mind

This section introduces a few of the key wildlife related factors and questions to consider when planning a trail or OHV route. How can trails best be planned and managed to recognize the needs and sensitivities of wildlife and the environment? What impacts do trail development and use have on wildlife and watersheds? What can we do to minimize these impacts? Trail planners and builders should balance the benefits of creating trails and being stewards of nature, especially wildlife. The Arizona Game and Fish Department produced a user friendly 2009 guide to community planning with wildlife in mind, *Wildlife Friendly Guidelines: Community and Project Planning* (www.azgfd.gov/pdfs/w_c/WildlifeFriendlyDevelopment.pdf). The section on trails is excerpted here.

Nature Hiking/Biking Trails within Development and Connection with Regional Trails
There are many benefits of trails and greenways. They make our communities more livable, replace greenhouse-gas emitting modes of transportation, improve the economy through tourism and civic improvement, preserve and restore open space, and provide opportunities for physical

activity to improve fitness and mental health. They can also provide wildlife-viewing opportunities and reduce pressure on expanding vehicular transportation systems that have impacts to wildlife and their habitats.

Economic and Community Values
Trail systems help preserve a distinctive and slower paced or "rural" atmosphere. Trails and open spaces can offer developers and property owners higher property values. Some communities report that their trails attract recreational tourist dollars and become opportunities for business development such as outdoor stores, equestrian centers, and bed and breakfast places along extended routes. Around shopping areas or business parks, trails can enhance the way that space is used, integrating recreation and respite opportunities, inviting moments of pause and renewal amid the hectic pace of such urban places.

Recreational trails can be a useful feature incorporated into the urban-wildland interface. A recreational trail along an urban boundary provides public access to open space while minimizing the adverse effects of this access on sensitive biological resources that might occur nearby.

Recreational trails can easily be combined with other interface elements such as wildlife exclusion fencing, drainage controls, and firebreaks. Interpretive signs placed along recreational trails can inform the public about the adjacent preserve or natural area and create a sense of ownership and stewardship among local residents. These residents can then serve as informal patrols for the project developer or Homeowner's Association to help ensure that resources are protected. Trails through particularly sensitive areas can be designed to minimize impacts through the use of boardwalks, bridges or raised platforms.

Buffering vegetation can be effectively used adjacent to trails to serve as a physical and visual barrier between the trail and the preserve or natural area. For example, native drought-tolerant and fire-resistant shrubs could be planted between a trail and a low barrier fence to discourage entry into sensitive areas alongside trails.

Trails provide convenient access for people to enjoy viewing wildlife, experience local wildlife habitats, and encourage stewardship for the local environment that might otherwise be lost. Good trails reduce environmental degradation, promoting care and appreciation instead. Urban trails are increasingly convenient and provide for a much larger base of community participation than trails located in wildlands. Through signage and educational interpretation, trails are a device for expanding awareness of environmental values, wildlife, and geologic features. Urban trails are linear parks - taking parks to people in ways that enhance a sense of community participation and real connection to nature.

Arizona Wildlife Linkages Assessment
Recognition of the importance of wildlife connectivity as a response to habitat fragmentation from roads, developments, and other factors within Arizona has been increasing thanks to the efforts of the Arizona Wildlife Linkages Workgroup and their development of the "Arizona Wildlife Linkages Assessment" in 2006 (http://www.azdot.gov/Highways/OES/AZ–Wildlife_Linkages/index.asp). This effort identified 152 potential wildlife linkage zones across the state. Sixteen of these zones have been further refined by Dr. Paul Beier and his Corridor Design Team from Northern Arizona University and are referred to as "Arizona Missing

Linkages" – http://www.corridordesign.org/arizona/. (See Appendix F for more information regarding Arizona's Wildlife Linkages Assessment & Arizona Missing Linkages). Efforts are currently underway to further refine the 2006 Assessment report with identification and refinement of additional wildlife corridors at the county level, with Maricopa and Coconino stakeholder workshops already completed.

As with other development projects, trail systems (both motorized and non-motorized) can create challenges for maintaining wildlife connectivity. When new trails or maintenance to existing trails are proposed, land managers should consider their impact on wildlife within and around the project area by preserving habitat requirements (i.e., food resources, breeding areas, cover, travel corridors, etc.) as much as possible and thereby enable wildlife connectivity. For more information on wildlife corridors or Arizona's wildlife, please contact the Arizona Game and Fish Department at 602-942-3000.

Colorado State Parks also has an excellent 1998 publication: *Planning Trails with Wildlife in Mind (*http://atfiles.org/files/pdf/Primer.PDF). A few excerpts can be found here.

Some overall observations regarding trails and wildlife

- When planned with wildlife in mind, trails can be effective management tools that help reduce the impacts of people on wildlife.
- A trail is more than a thin line traversing the landscape. To respect wildlife, a trail must be planned in conjunction with its zone of influence.
- In building a trail, we may choose to impact wildlife and habitats, but we should do so with an understanding of the implications.
- In many cases, scientific knowledge alone can't determine whether wildlife impacts are great enough to preclude a trail. The decision also should be based on community values, including the benefits the trail will offer the public.
- Wildlife don't necessarily see the landscape the way we do. What may appear to a person to be a minor change may be perceived quite differently by wildlife.
- If we learn to see the landscape more as wildlife do, we can find trail alignments that will have less impact on their surroundings.
- Understanding both the existing and potential impacts of a trail to wildlife can help set more realistic goals for a trail project.
- Native biological diversity is much more than a count of the species found in an area. Instead, it is a broader concept that includes all facets of our natural living heritage.

- The best strategy in planning trails is always to avoid impacts to wildlife. The next best is to minimize the impacts. The last resort is to mitigate for impacts.
- Plan and manage a trail in ways that help make users more predictable to wildlife so they can acclimate to people. (Colorado State Parks and Hellmund Associates 1998)

Regional Trail Planning In Arizona

Arizona has shown active involvement in trail planning in both local and regional levels for several decades. Communities throughout Arizona have worked at both independent and partnership related trail planning. As much as we celebrate the work that has been completed, there is more to be done to meet future needs and reduce development impacts to trails.

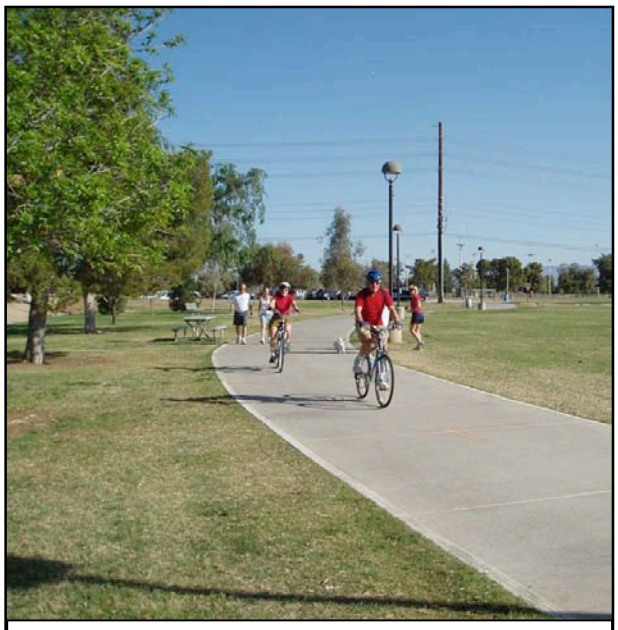


Photo: Connections between urban and rural trails and pathways need to be considered when planning regionally. Photo courtesy of ADOT Transportation Enhancement Program.

A new aspect in trail planning came in 1998, when the Arizona Legislature passed the Growing Smarter Act. This Act clarified and strengthened planning elements in the required plans of municipalities and counties and added four new elements, namely: Open Space, Growth Areas, Environmental Planning, and Cost of Development. In 2000, the Legislature passed Growing Smarter Plus to further enhance land use planning statutes in Arizona. Many cities and counties have now included trails in the Open Space element of their plans.

Planning is only part of the process. The *implementation* of plans such as acquiring land and access easements, and building and maintaining trails is the next critical step. Many existing trail plans have challenges of staffing and funding levels that may prohibit their implementation.

Table 53. Sample Listing of Trail Plans in Arizona

Sample Listing of Trail Plans in Arizona *for full listing and links to the trails plans visit http://azstateparks.com/trails/trail_construction.html*	
City and Town Trail Plans	
Cave Creek Trails Plan	Gilbert Trails Plan
Payson Area Trails System	Phoenix Trails Plan
Scottsdale Trails Plan	Show Low Trails Plan
Queen Creek Trails Plan	
County Trail Plans	
Maricopa County Trails Plan	Pima County Trails Plan
Pinal County Trails Plan	Yavapai County Trails Plan
Parks Trail Plans	
San Tan Park Trails Plan	Saguaro National Park Trails Plan
County General Plans with Recreation or Trail Language	
Coconino County: General Plan: Parks and Recreation Portion	Mohave County General Plan
Navajo County General Plan	Yuma County General Plan

City and Town Master Plans with Trails Components	
Buckeye General Plan	Peoria General Plan
Safford General Plan	Tucson General Plan
Regional Master Plans with Trails Components	
Desert Hills Plan Resource	Sonoran Desert Plan-Pima County
Verde Valley Regional Land Use Plan	West Valley River Recreation Corridor Plan
Prescott Circle Trail	Flagstaff Urban Trails System

Trails plans can vary greatly depending on the overall goal of the plan but there are common components of most trail plans. Below are two sample Table of Contents for either a basic trail plan or a more comprehensive trails plan.

A. BASIC TRAILS PLAN
- Table of Contents
- Introduction
  - Vision and goals
- Trail System (could be a map only)
  - Key existing trail system and trails
  - Potential Trails
- Implementation Strategies (construction and maintenance)
  - Funding Sources
  - Potential volunteers
- Trail Standards and Guidelines

B. COMPREHENSIVE TRAILS PLAN
- Potential Table of Contents
- Executive Summary
- Introduction
  - Purpose
  - Scope
  - Goals and Benefits
- Planning Process
  - Advisory Committees
  - Community Involvement
  - Related Planning with Other Management Plans
- Background and Overview
  - General description of area
  - Cultural and Natural Resource Analysis
    - (Historic, vegetation, wildlife, special status)
  - Land Ownership
- Trail System
  - Key existing trail system and trails (Motorized and/or Non-motorized)
  - Trail Usage
  - Potential Trails
    - Roadways
    - Washes
    - Waterways
    - Railways
    - Utility Lines
  - Proposed Trails
    - Proposed Trailheads
  - Regional/State Trail Linkage

- Signage and Interpretation
- Implementation Strategies
  - Funding Sources
    - Federal, state, local and other
  - Partnerships and Fundraising
  - Developers/businesses, landowners, other municipalities
- Management
  - Volunteers
  - Staffing
  - Enforcement
  - Emergency services
- Marketing and Education
  - User education
  - Attracting new users
  - Educational materials
  - Maps
- Guidelines, Policies, Ordinances
  - Trail Guidelines
    - Building standards, trail materials and structures
    - ADA
    - Maintenance standards
    - Safety/liability issues
  - Policies
    - Private access to public trails
    - Trail monitoring and maintenance
    - Trail patrol
    - Access to park and recreation facilities
    - Prioritizing facility development
    - Acquisition and development program
    - Protection, operation and maintenance
    - Use of volunteer programs
    - Trail system coordination
    - Role of federal, state and local government
    - Role of the private sector
    - Cooperative agreement policy
    - Emergency procedures
    - Law enforcement
    - Waiver of liability
    - Records and documentation
  - Sample Ordinances

Off-Highway Vehicle Planning

OHV use can be a safe, enjoyable, low impact activity when approached within the confines of the law, on established routes, trails, or use areas, and with proper management, and common sense. The opposite is true when OHV recreation is approached with disregard for the environment, and a lack of respect for other recreationists or personal safety. To help promote responsible OHV use and to deter unsafe OHV use, laws and guidelines have been created which outline safe, legal, and common sense approaches to OHV activities.

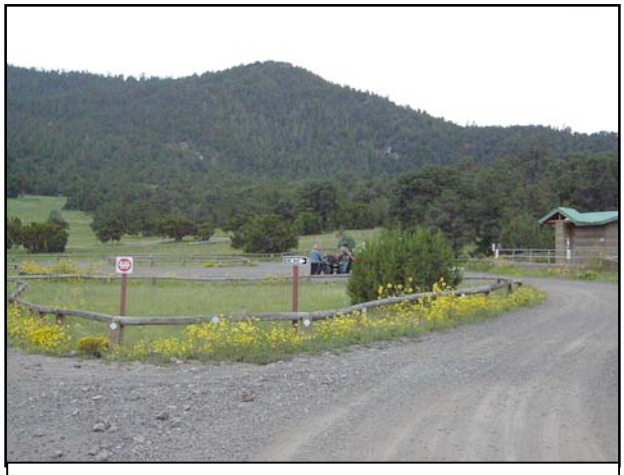


Photo: Saffel Canyon OHV Area in northeast Arizona is managed by the Apache-Sitgreaves National Forest.

The cornerstone of OHV management is the four Es: Engineering, Enforcement, Education, and Evaluation. Each of these elements is essential to being able to provide sustainable OHV use in the state of Arizona. Provided here is a focus on the "engineering" aspect of motorized trails–excerpts included in this section are courtesy of the National Off-Highway Vehicle Conservation Council (NOHVCC) and Tom M. Crimmins from the 2006 publication *Management Guidelines for OHV Recreation*.

<u>The Case for Management</u>: The first real focus on management of OHV use on public lands in the U.S. began in 1972 and again in 1977 when executive orders were signed by the President requiring agencies to identify "specific areas on public lands where use of off-road vehicles may be permitted and areas in which the use of off-road vehicles may not be permitted". Three classifications are applied:

- Open—areas that are open to cross-country travel
- Limited—Areas that have some restrictions or limitations on motorized vehicle use
- Closed—areas where motorized vehicle use is prohibited

In Arizona, many federal public lands were open or limited to "existing routes". Today, things are changing. There are too many people, too many machines, and too many traditional riding areas being closed to continue to ignore the fact that OHV activities, like all other recreational activities, must be managed. It is clear that OHV recreation is not a passing fad that will slowly lose its allure. We have areas where the resources are being impacted and most of these impacts can be traced to a lack of management.

Photo: Dozens of people turn out for an ATV event in the White Mountains. Photo courtesy of Mike Sipes.

The Bureau of Land Management is moving to a concept of "managed open areas". Cross country travel will still be allowed, but in much smaller areas.

In areas where active management is being applied, experience clearly shows that OHV use can be managed, resources protected, and the OHV enthusiast can have a satisfying recreational experience. What does it take to manage OHV use?

User Needs and Desires: Before any decision is made or action taken to provide OHV recreation opportunities, it is important to understand the full range of activities that may be desired.

- **Recreational trail riding** is best served by a series of interconnected loop trails that range in difficulty levels.
- **Non-competitive organized trail riding** can include both trail and road segments and can cover a variable course length.
- **Competitive Activities** may be in the form of an organized, sanctioned, insured and paid event where competitors are required to traverse a predetermined course with specific time constraints. These events may occur on the same trails available for recreational trail riding but can be in a more controlled environment.
- **Observed trials** are events where riders attempt to ride over logs, boulders, or other obstacles in a slow, controlled manner without the rider putting his foot down on the ground. These events require areas other than designated recreational trails.
- **Motocross tracks** for practice and competition is a race held on a tight, turning, one-way course with a variety of natural terrain, man-made obstacles or jumps.

Photo: Desert racing is especially popular with the younger crowd. Photo by Laurie Watts.

- **Hill climbs** for practice and competition where challengers start at the bottom of a long, steep hill and try to reach the top without crashing. This activity requires very specific terrain.
- **Mud bogs** for practice and competition is where a participant traverses through an area of water and mud. This activity can occur in natural terrain where runoff and impacts can be controlled or in a man-made area specifically designed to contain water and mud. Users need to be informed why this activity is acceptable under managed conditions but not acceptable in a general trail environment.
- **Obstacle courses** are usually held in a small area of natural or man-made features to test and enhance the participants' skills. Obstacles can be designed to replicate features encountered on trails or they may focus on specific riding skills.
- **Open areas** such as sand dunes, gravel pits, and other sites lend themselves to open cross-country riding. In addition, smaller areas may be incorporated into larger trail riding areas to meet the needs of some riders. Play areas are smaller, confined areas where use is not limited to trails.
- **Other areas** may include the use of an OHV to access hunting and fishing sites, big game retrieval, antler collecting, and wood gathering.

Photo: Hot Well Dunes, managed by BLM, attracts large numbers of sand dune enthusiasts.

OHV Engineering or Facility Design
The following are examples of problems and solutions identified in OHV management.

- Off-route use occurs: Determine why people are leaving trails. Is it because the trail is not challenging, too short, doesn't include a desired destination point, or the route is unclear or confusing? Add lengths of trail, barriers or signage that address the specific problem.

Photo: Route proliferation is a major problem in Arizona. Planning routes tailored for the user's desires can reduce off-route use. Talk to your users.

- Route proliferation: See off-route use above. Examine trail designation standards (open areas vs limited use) and make changes if needed.

- Speed: People travel too fast on the trails creating safety and resource problems. Keep trails narrow. Shorten sight distances with twists and turns or by using existing landscape and terrain. Avoid identifying one-way trails.

- Visitors create problems as they search for challenges: Provide opportunities for people to find a challenge in an appropriate manner. Maintain trails to provide challenges by leaving obstacles in trails or by building trails with higher levels of exposure. Play areas with challenging terrain may be one way to help satisfy this need.

Photo: Routes with challenging terrain are a high priority for OHV users. Consider this when planning maintenance or other repairs to routes.

- Sound: Vehicle noise disturbs neighbors, wildlife and other trail users. Locate routes in a manner that reduces sound transmission. Move trails from tops of ridges down the slope. When possible, locate trails away from interface areas where housing development is encroaching on recreation areas.

- Wildlife disturbance: Where wildlife security is an issue, trails and routes can be located in a manner that provides increased screening, or realigned to divert use away from key wildlife areas. Trails could be located closer to existing road corridors to increase habitat effectiveness. Apply seasonal closures if trails are close to breeding, calving or nesting areas.

- Water quality: Construct or reconstruct routes with rolling dips, undulating trail design, or trail grade breaks. Avoid installing multiple waterbars. Locate trails to reduce stream crossings and harden where appropriate to reduce sediment delivery.

OHV Education

Most people want to do what is "right" but they may not know what is right for different situations. Education is a critical part of OHV management. Use websites, maps, brochures, trailhead kiosks, signs, on the ground ranger presence, and volunteer peer patrols to get your message across.

A basic premise is that educated riders are responsible riders, and responsible riders keep riding opportunities open and reduce impacts. Education should be stressed over citations. For those riders who know what is right and still violate rules and regulations, strict enforcement of the law is necessary, both in the field and in the courts.

Visitors need to know:

- What to expect during their visit, such as types of opportunities that exist, available trail experiences, other users they may encounter.
- What types of restrictions are in place such as vehicle types limited, seasonal closures, invasive species controls.
- What is unique about the area such as special features, species, cultural sites.
- What behaviors are appropriate.
- Where to go for specific information; contacts information.
- Why the rules exist—compliance will increase when riders understand the issues and rationale behind rules and restrictions.

Photo: While providing a source of trail maps and information, steel kiosks have also reduced vandalism.

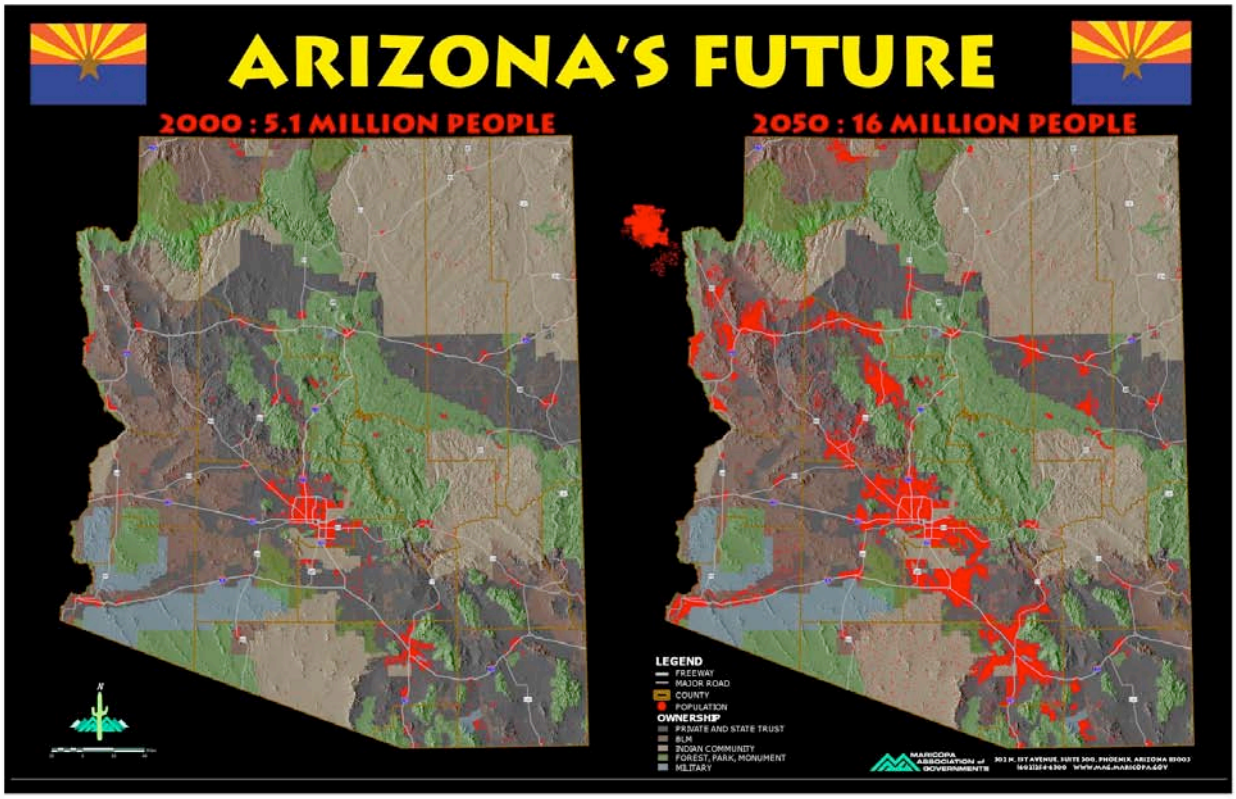
Photo: Holding "meet & greet" events at OHV staging areas are a good way to reach users.

Arizona Open Space and Recreation Inventory

By Genevieve Johnson, Open Space Program Manager, and Laura Burnett, GIS Analyst, Arizona State Parks

Growth projections generated by the Maricopa Association of Governments (MAG) show areas expected to be developed by the year 2050 as "red dots." This scenario depicts Phoenix and Tucson merging together into one large megapolitan area named the Sun Corridor.

Figure 20. Growth Projections for Arizona from the Maricopa Association of Governments



Note: The red areas are expected to be developed. The population projections have decreased since these maps were created, but revised estimates by DES still predict that Arizona's population will more than double by 2050, reaching 12.8 million people. Most growth will come from births, not in-migration.

In response to the MAG projections, Arizona State Parks began preliminary work in 2006 on open space data collection, modeling, and visualization. During the process of data collection and integration, staff found that data on open space, as well as natural, cultural, and recreation resources is scattered, difficult to find and interpret, and difficult to compile. The data is subject to a myriad of different data use agreements, accuracies, scales, and the processes by which they were created. Often it has to be digitized or created from tabular information and is lacking documentation about who, what, when, where, why, and how the data was created. While these assessments and existing data sets can provide a useful starting point for open space and recreational planning, collecting, compiling and dealing with data use agreements and compatibility issues between data sources are extremely time consuming.

It was further determined that additional data was needed at the statewide level to effectively plan for open spaces and recreational amenities as Arizona's population grows. Governor Janet

Napolitano's Growth Cabinet recommended that the State, "commission a comprehensive inventory of the natural (including wildlife habitat), cultural, historic, and recreational assets of Arizona to serve as a blueprint for promoting the valued resources that define Arizona." In response, a partnership (inventory team) was formed in 2006 between the Arizona Office of Tourism, Arizona Game and Fish Department, Arizona State Museum, and Arizona State Parks to complete these inventories, with the idea that the combination of the wildlife, cultural, and recreation inventories, together with existing assessments could enable planners at all levels to more easily identify opportunities for collaboration in planning and working to sustainably preserve a network of open spaces, parks, and wildlife corridors as Arizona continues to grow.

Recreation and Open Space Inventory

At the start of this project, comprehensive statewide spatial data on open space and recreational resources was virtually non-existent. Few multi-jurisdictional efforts have worked to create recreational resource data, with exception of efforts in Maricopa, Pima, and Yavapai counties. GIS data on parks, open spaces, trails and trailheads is often extremely difficult to find. For example, Arizona State Parks maintains a database of trails that have been accepted into the State Trail System, but up until this point, the database was not linked to spatial information. For trail users, finding information can be a challenge.

Inventory Overview

For the recreation and open space inventory, Arizona State Parks requested GIS data, maps, and/or any available information on existing or proposed parks, open space, trails, trailheads, and other recreational resources from every county and municipality in Arizona. We have also worked with other state and federal land management agencies to include these areas in the inventory.

Data compilation began with the Sun Corridor in FY 2008, and is currently ongoing for the remainder of the State. For this project, the Sun Corridor is defined as encompassing Yavapai, Maricopa, Pinal, Pima, Santa Cruz, and Cochise counties in their entirety (see Figure 21).

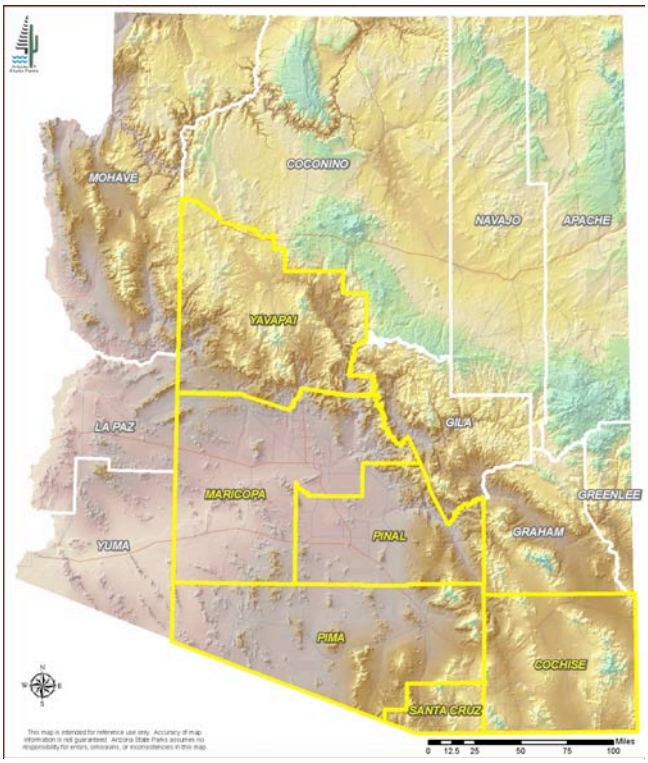


Figure 21. The Sun Corridor, as defined for this project, is outlined in yellow.

To date, 56 of 63 municipalities and counties within the Sun Corridor (88.9% response rate) and 29 of 42 municipalities and counties in the remainder of the state (69% response rate) have participated in this data collection process. Data from municipalities, counties, and federal agencies are shown in the following maps. Both existing and potential future non-motorized trails by type are depicted for the state.

Figure 22. Existing Non-motorized Trails in Arizona

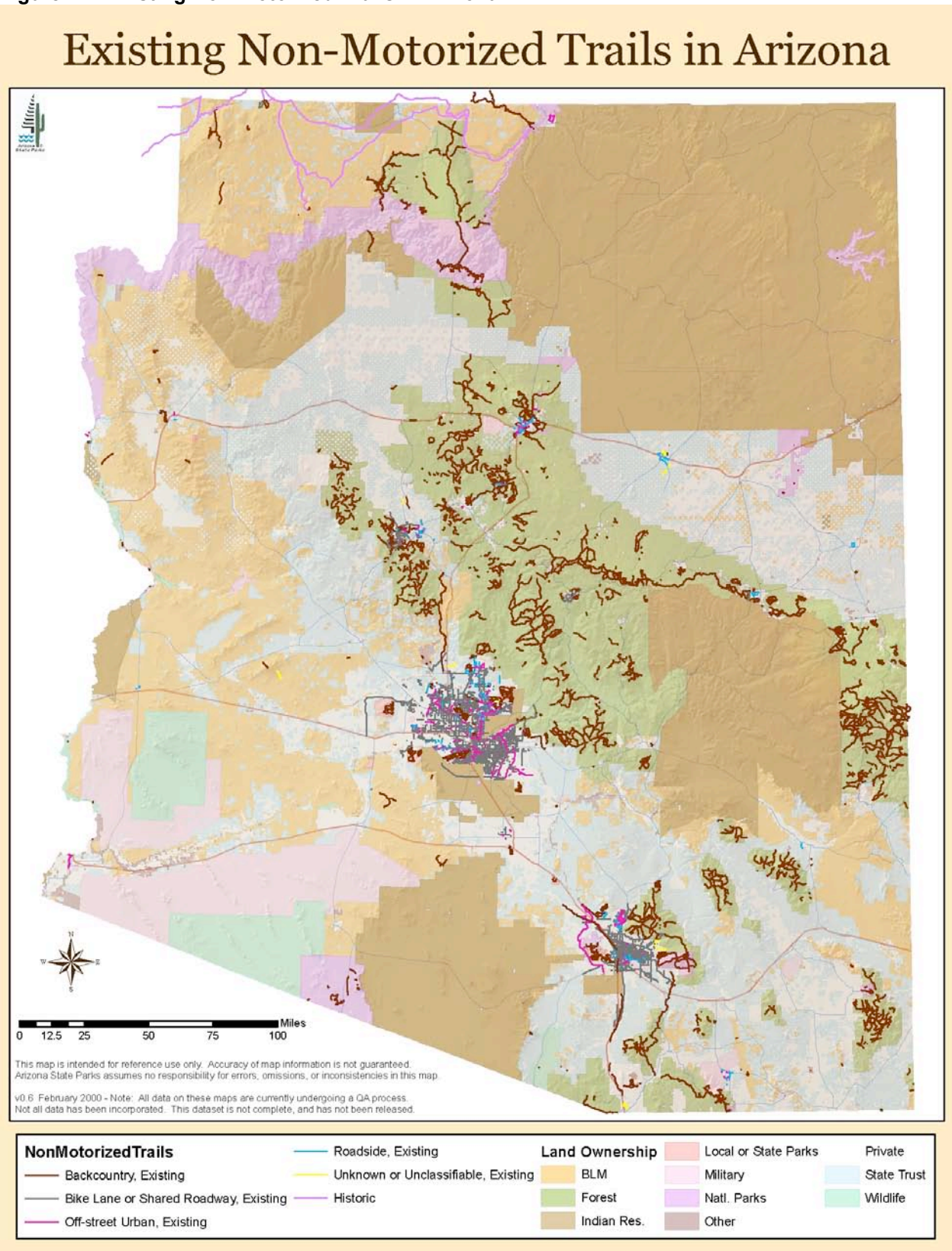
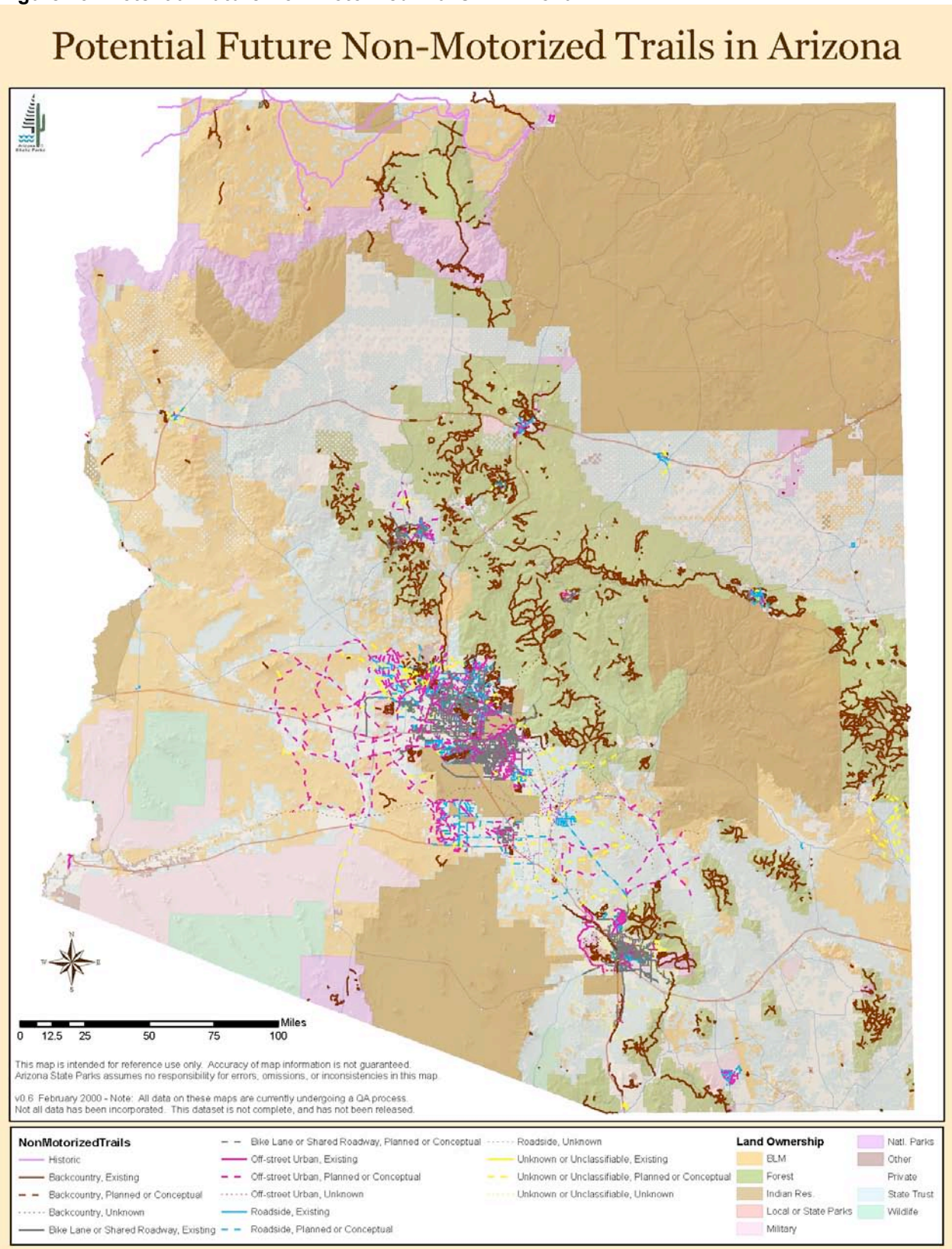


Figure 23. Potential Future Non-motorized Trails in Arizona



The data provided by the jurisdictions was compiled into a standardized geodatabase. For version 1.0 of the inventory, the inventory team focused on seven feature classes: existing parks, existing open space, proposed parks, proposed open space, golf courses, non-motorized trails, and trail access points (trailheads). Examples of the geodatabase structure (shown in Tables 54 and 55) list the attributes collected for the non-motorized trails and trail access point feature classes and provide a good starting point for municipalities beginning to collect geospatial data on trails and trailheads, as well as on parks and open spaces within their jurisdictions.

Table 54. Fields comprising the non-motorized trails feature class

Attributes	Field Name	Domain
Trail ID	TrailID	
Trail Name	TrailName	
Trail Number	TrailNum	
Segment Name	SegName	
Trail System	TrailSys	
Status	Status	Existing Planned Conceptual Unknown
Surface	Surface	Natural Pavement Both Unknown
Hiking	Hiking	Yes, No, Unknown, Portions
Equestrian	Equest	Yes, No, Unknown, Portions
Biking	Biking	Yes, No, Unknown, Portions
Skiing	Skiing	Yes, No, Unknown, Portions
OHV	OHV	Yes, No, Unknown, Portions
ADA	ADA	Yes, No, Unknown, Portions
Pets Allowed	Pets	Yes, No, Unknown, Portions
State Trail System	StateTrail	Yes, No, Unknown, Portions
Management Agency	MngAgency	
Management Unit	MngUnit	
Data Source	DataSource	
Maximum Elevation (Ft)	MaxElevFt	
Minimum Elevation (Ft)	MinElevFt	
Elevation Change (Ft)	ElevChngFt	
Length (miles)	LengthMi	
TrailType	TrailType	Backcountry Canal Roadside Urban Wash Flood Control Off-street Urban Utility Corridor Unknown Unclassifiable Bike Lane Shared Roadway
Website	Website	

Table 55. Fields comprising the access points feature class

Attributes	Field Name	Domain
Access ID	AccessID	
Access Name	AccessName	
Status	Status	Existing Planned Conceptual Unknown
Parking	Parking	Parking Lot Limited None Unknown
Drinking Water	DrnkWater	Yes, No, Unknown
Restrooms	Restrooms	Yes, No, Unknown
Horse Staging	HorseStage	Yes, No, Unknown
Visitor Center or Ranger Station	VCorRanger	Yes, No, Unknown
Campground	Campground	Yes, No, Unknown
Fees	Fees	Yes, No, Unknown
Management Agency	MngAgency	
Management Unit	MngUnit	
Data Source	DataSource	
Elevation (Ft)	ElevFt	
Website	Website	

For the non-motorized trails and trail access points/trailheads the inventory team chose attributes based in part on the data that has been collected in the past for trails within the State Trail System. The inventory team consulted with the State Trails Coordinator, and tried to keep the data dictionary short enough to be manageable. The team also reviewed the Federal Interagency Data Standards for trails, and tried to incorporate as many of the concepts as possible.

After discussions with various municipal, county, and federal staff, the team concluded that "trails" include backcountry trails, off-street urban trails, roadside trails, and also bike lanes and shared roadways. The team defined backcountry trails as including trails in a predominantly natural setting, such as within the National Forests, on BLM land, or within large parks. The off-street urban category includes trails that are located predominantly within urban areas, and includes trails along canals, washes, powerlines, in small parks, and in other non-roadside locations.

The roadside category includes trails that are located along the side of roads. For this inventory, in order to qualify as a roadside trail, the trail should be physically separated from the surface on which cars drive. A bike lane is defined by the American Association of State Highway and Transportation Officials (AASHTO), as "a portion of a roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists". Shared roadway is defined by AASHTO as "a roadway, which is open to both bicyclists and motor vehicle travel". This may be an existing roadway, street with wide curb lanes, or road with paved shoulders. Shared roadways may also be used by pedestrians and others. The shared

roadway category includes the "bike route" category used by Maricopa Association of Governments. A status field in the non-motorized trails and access points feature classes denotes whether the features are existing, planned, or conceptual.

The trails access points feature class includes developed trailheads, as well as some undeveloped trail access points. Very few organizations from which we received trails data provided trailhead or trail access point data. Any trailhead information provided was included if possible. For trails within the State Trail System, information from the Arizona State Trails Guide was used. Additionally, trails categorized as backcountry were not included unless at least one trailhead or access point could be identified.

Many of the access points were digitized based on aerial photos, trail maps, topographic maps, site visits, and/or information from agency websites. The team did not digitize access points for off-street urban trails, roadside trails, bike lanes, or share roadway. It was assumed that trails within these categories are generally more easily accessible along their entire length. This assumption is flawed, but was necessary due to time, staffing and budget constraints. The inventories will need to be continually maintained. Arizona State Parks is the logical agency to continue maintenance of statewide information on parks, trails, and open space.

Potential Uses of the Open Space and Recreation Inventory

"Understanding the proximity of people's homes to parks is an important aspect of recreation planning. While people may travel considerable distances to their "favorite" area, most people spend the majority of their leisure time, such as the start or end of a work day or a few hours on the weekend, at sites close to home. Distance becomes a key factor for these 'quick' trips on whether or not to visit a local park, trail or recreation area." (ASP SCORP 2007)

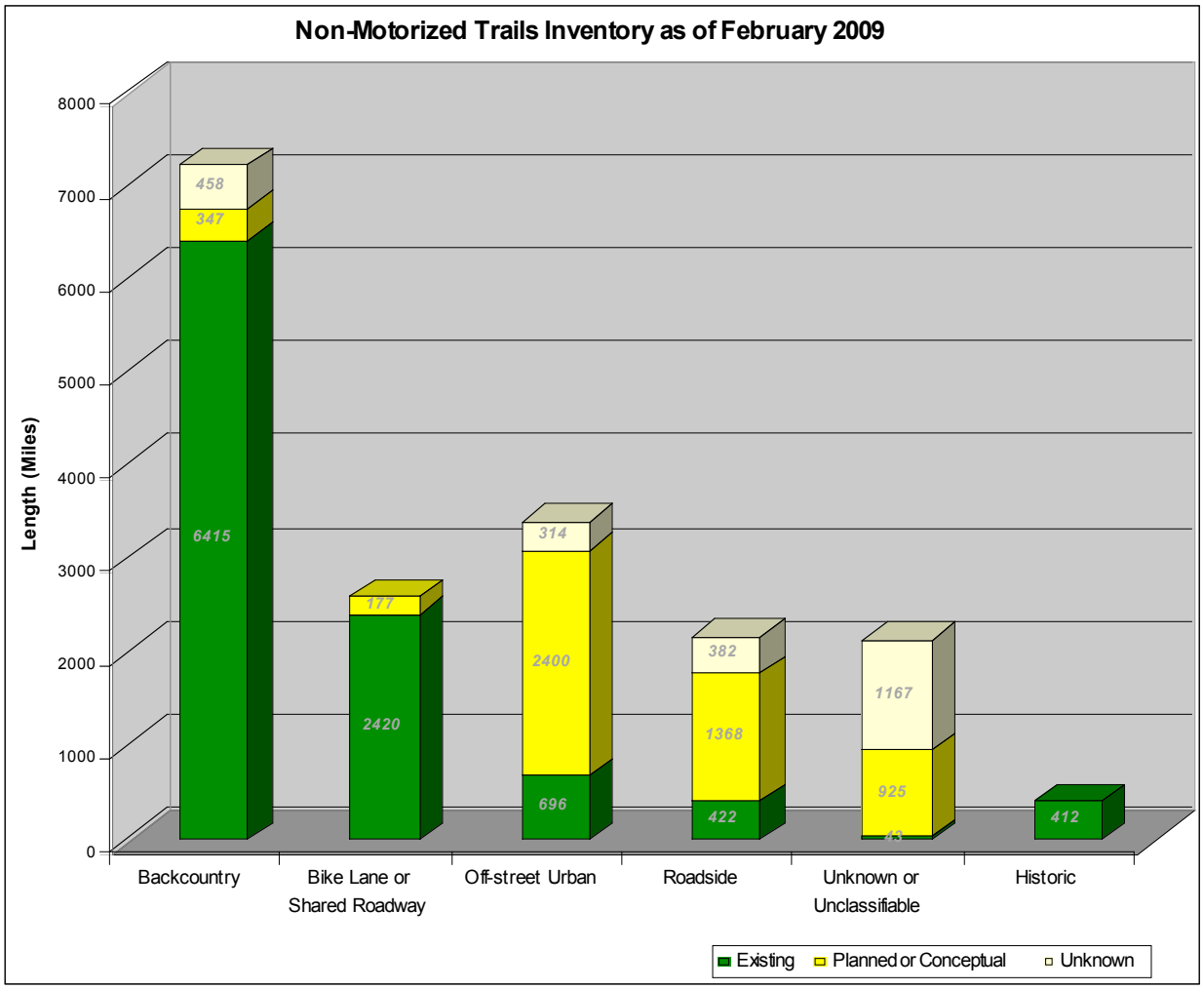
The Statewide Open Space and Recreation Inventory can be a useful tool in helping regional trail planning efforts. One potential use of the inventory is to conduct a "gap" analysis to determine where areas exist that might have less access to trails and other recreational amenities. Assessing access to such amenities can provide communities with a comprehensive, quantitative approach to planning for additional trail and recreational needs and opportunities.

Trails Inventory

The inventory also allows one to look at the miles of trail types that currently exist or are planned for the future. Figure 22 shows that the majority of the state's existing trails are categorized as backcountry, but in response to growing urban populations, many communities are also planning for future off-street urban trails. This information can be further broken down by county or city and provides a benchmark of the state's planning status for non-motorized trails.

As the data is updated, we can track the mileage of trails actually built, as well as assess the need for additional trails over time. This process is made easier for municipalities and other trail planning and building organizations because spatial trails data is now compiled into one standardized, comprehensive database.

Figure 24. Non-motorized Trails Inventory

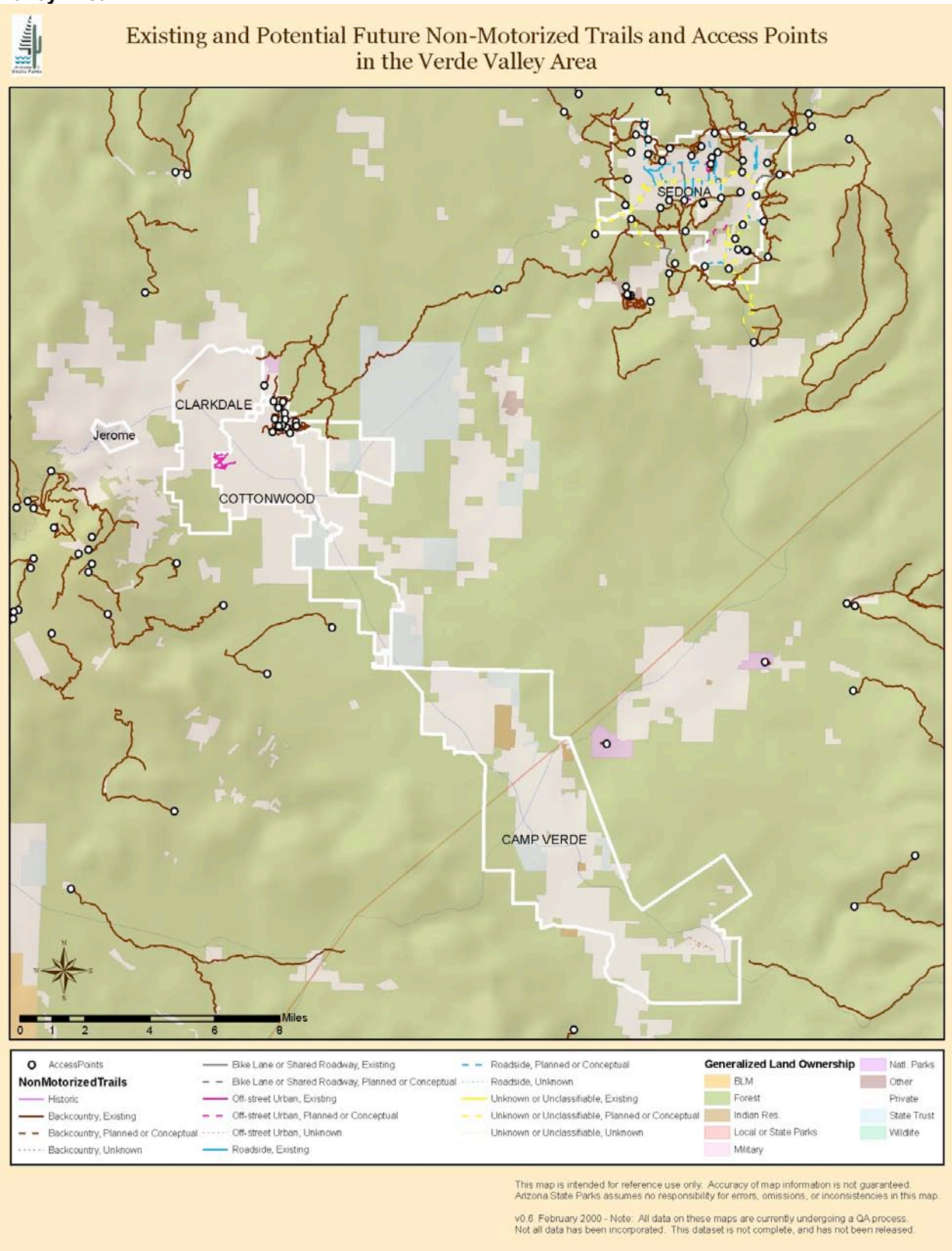


Trails Connect Communities to Each Other and to Public Lands

Another example of how to use the database is shown in Figure 25. This map shows that access to U.S. Forest Service trails from Sedona is relatively high and evenly spaced throughout the community. In contrast, access to Forest Service trails from Cottonwood is concentrated in the northern part of the city. To the southwest of Cottonwood, the U.S. Forest Service provides a good number of trails and trailheads, but few trails are connected despite their close proximity. Further, access to the trails is not provided through neighboring cities that, if completed, could potentially increase the recreational benefits of the residents as well as tourists.

This inventory can aid communities in planning for trail interconnectivity, especially in connecting towns and cities to existing amenities on Federal lands (in this case, the Prescott and Coconino National Forests). Additionally, the inventory can be used to help communities prioritize acquisition and trail construction while creating partnerships to leverage limited funds.

Figure 25. Existing and Potential Future Non-motorized Trails and Access Points in the Verde Valley Area



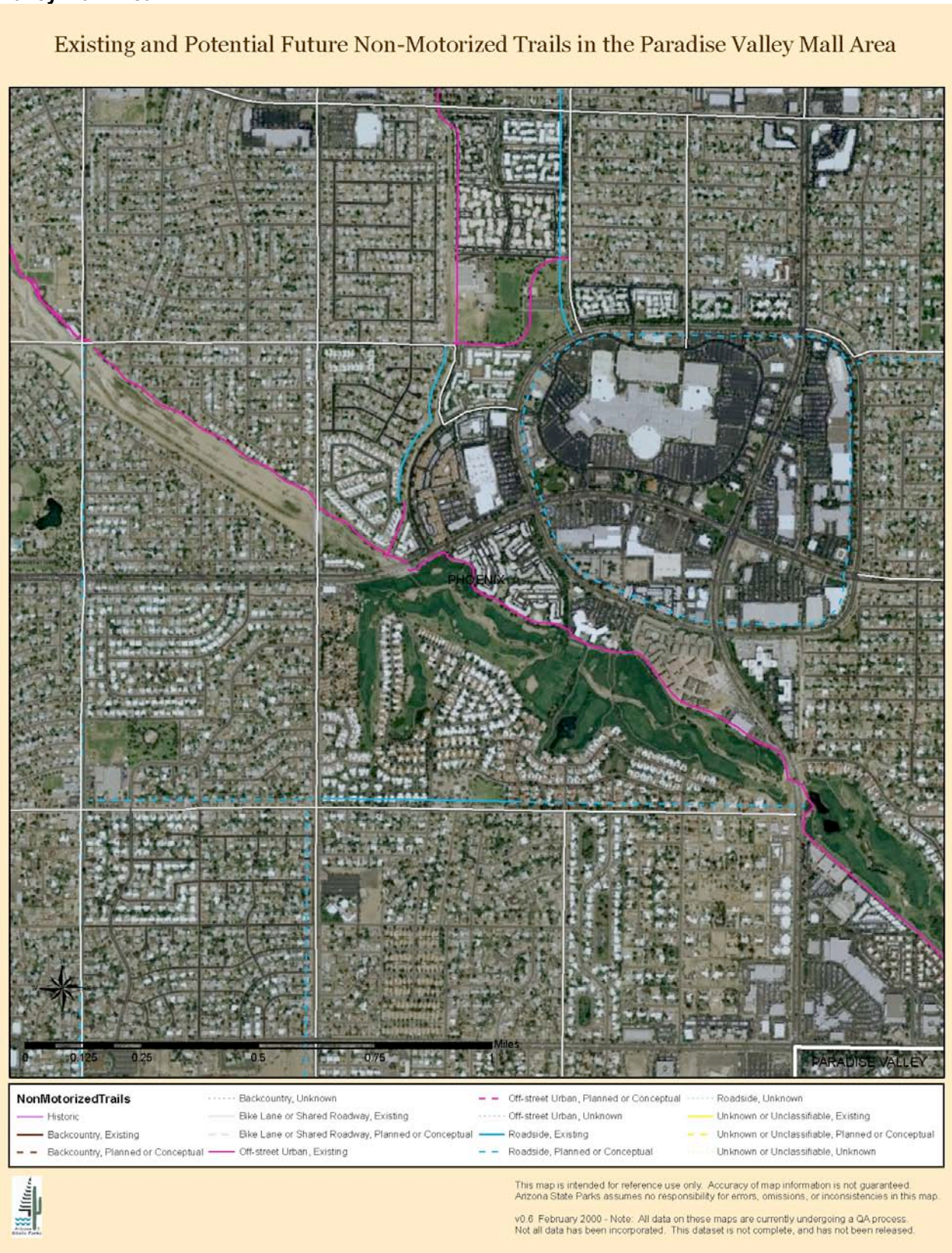
Urban Amenities as Trail Destinations

A similar example can be seen in urban areas, such as Phoenix. As communities promote smart growth practices such as creating sense of place and providing for pedestrian movement to and from neighborhood amenities, they need to analyze what trail connections are missing to provide safe and enjoyable access to a "pedestrian freeway".

Figure 26 shows urban trails in the vicinity of Cactus Road and Tatum Boulevard. Here, the mall may be considered a neighborhood amenity and is located near many homes. Yet pedestrian access by designated trails south of the mall is limited because no trails provide access across the golf course or link the existing off-street urban trail (in solid pink on the map) to the planned roadside trail (in dotted blue) that encircles the mall.

While it may be possible to walk along existing sidewalks not designated as trails in urban areas, promoting designated and connected trails can increase their use by residents and promote concepts of smart growth. Further, urban trails can help create a sense of place for local neighborhoods (for example, the Murphy Bridle Path along Central Avenue in Phoenix).

Figure 26. Existing and Potential Future Non-motorized Trails and Access Points in the Paradise Valley Mall Area



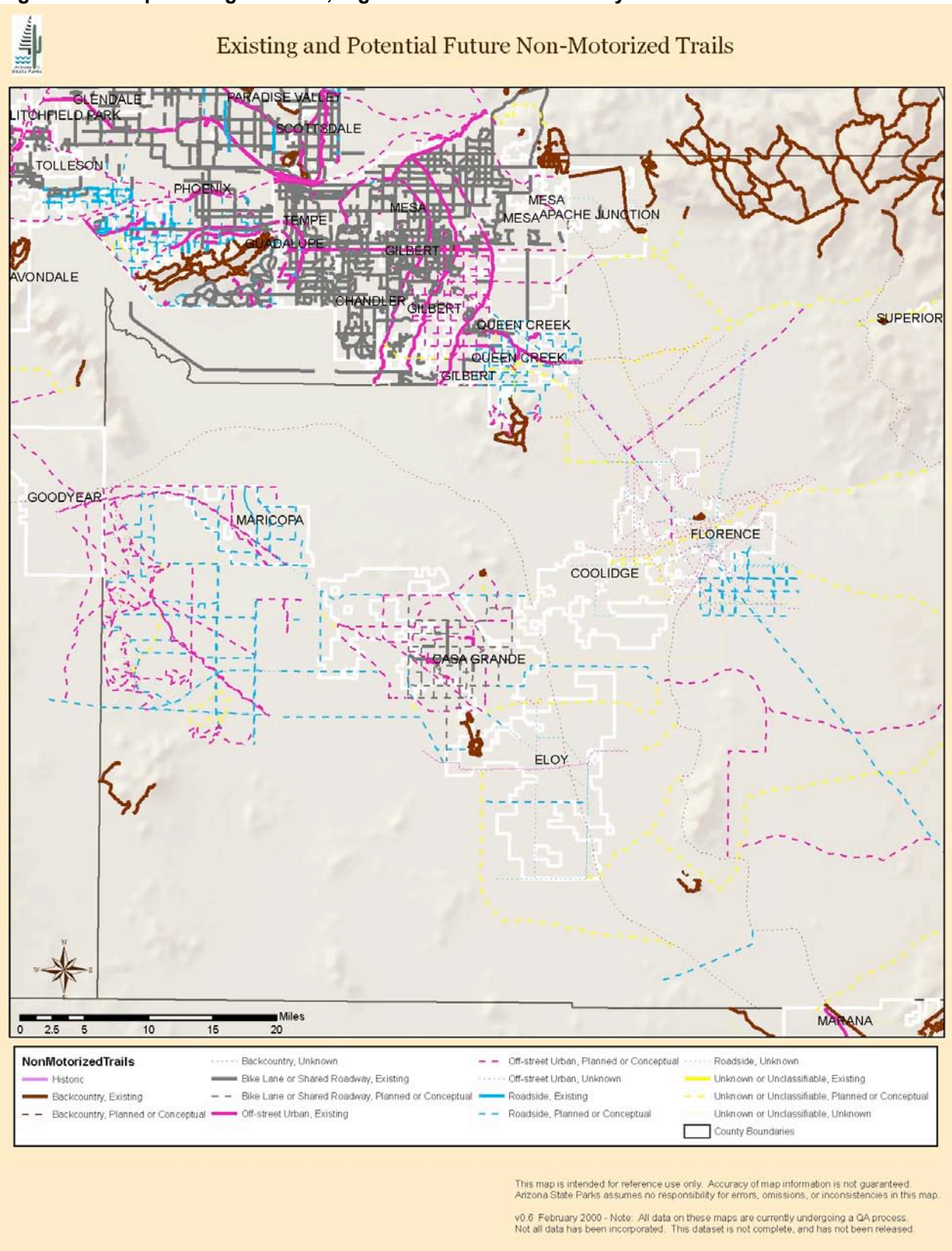
Hot Spots for Future Trail Development

The Open Space and Recreation Inventory can also be used to look at "hot spots" of future trail development. For example, the Central Arizona Association of Governments estimates that Pinal County's population increased 77% from 2000 to 2007 with the most growth occurring in unincorporated communities such as San Tan, followed by Casa Grande, Apache Junction, and Maricopa. While many types of trails currently exist in Maricopa and Pima Counties, few trails exist in Pinal County, the growing center of the Sun Corridor (see Figure 27).

The database illustrates the relatively few miles of existing trails and highlights the importance of planned trails to accommodate the area's future population growth. In light of slow economic times and limited available funding for acquiring and building trails, local jurisdictions could potentially work together on prioritizing routes for development. The trails database could be overlain with Pinal County Planned Area Development layers to better understand how development patterns impact trails and access and plan for improved amenities as development occurs in the future.

Additionally, because the database now allows a more regional view of trail locations and access points, communities could broaden partnerships to include jurisdictions beyond their immediate borders. This is especially important due to the increasing population in large unincorporated developments.

Figure 27. Sample of High Growth, High Need Area: Pinal County



It has been said "the best data won't make any difference unless you can communicate it well to a large audience". The open space and recreation inventory will be made available in geodatabase and shapefile format through the Arizona Geographic Council's Geodata Portal. Additionally, future work includes coordination with national efforts such as the U.S. Protected Areas Database.

In order to make the data available to an even wider audience, including trail users, the inventory team has also begun development of an online map application that will allow users to view and query the inventories, and download data in a variety of formats, including Google Earth kml. By making the open space and recreation inventory publicly available, it enables other researchers to use the data as well. Although the data has not been publicly released yet, researchers from Arizona State University are already using the parks inventory in a project that will evaluate the economic value of parkland. Other researchers from Arizona State University are using the trails inventory for a multi-modal transportation study. Valley Forward is also using the trails inventory in their Pedestrian Freeway plan. The team expects use of the data to continue to increase, once it is publicly released.

Alternative Transportation

Portions contributed by Michael Sanders, Senior Planner, Arizona Department of Transportation

Alternative transportation promotes and encourages the use of alternative modes of transportation (e.g. bicycling, walking, vanpooling, carpooling, riding transit) to get to, from, and around a community instead of a single occupancy vehicle. While both alternative transportation routes and recreational trails utilize linear pathways, their goals are different which affects their design and location. Alternative transportation routes are utilitarian in design and can carry large amounts of pedestrians or bicyclists quickly and to specific destinations; these pathways are frequently adjacent to streets and roadways. Recreational trails are designed for leisurely, and sometimes challenging, travel through natural areas and other scenic locations away from streets and highways.

Photo: Pathways separated but adjacent to streets provide both alternative transportation and recreation opportunities. Photo courtesy of ADOT Transportation Enhancement Program.

Some alternative transportation systems are also used for recreational purposes and sometimes, recreational trails are used as transportation routes. Typically, transportation use is a function of need, where recreational use is a function of leisure.

When initially developed, these systems oftentimes are used primarily for recreation because they may be isolated, do not link to other routes or facilities, or do not provide access to destinations. As connections are made and urbanization and development occur along or near an alternative transportation route, the system may take on a new role – less recreation, more transportation.

Benefits of Alternative Transportation Systems

The benefits of alternative transportation are numerous: they enhance connectivity of people and places, healthier lifestyles, economics, tourism, local heritage. The U.S. Department of Transportation, Federal Highway Administration is an advocate and promoter of alternative transportation and its related benefits (Transportation Enhancement Grant Program, Chapter 6).

Alternative transportation serves as a critical link throughout the overall transportation network, providing pedestrian and bicycle access to home, work, education, commerce, transit, and recreation. Because alternative transportation systems provide such fundamental services to the public, they should be designed to meet the needs of the maximum number of potential user groups. People with disabilities who live in areas without accessible alternative transportation networks and do not have access to automobiles face a greater risk of becoming isolated from the community and unnecessarily dependent upon others to perform routine activities such as grocery shopping. An all inclusive approach to alternative transportation facility design will ensure that the needs of all potential users are addressed, including people with disabilities.

Alternative transportation systems can enrich the livability of a community; they provide opportunity for a population that does not have, or chooses not to have, access to a vehicle. Commercial districts with alternative transportation access will have a larger customer base.

In addition, all people will be able to participate more easily in the community if a system is available because they can reach their desired destinations more easily.

Photo: Paved pathways and pedestrian overpasses facilitate using and crossing busy streets for people of all abilities.

Neighborhoods that incorporate and are connected to an alternative transportation system, that encourage walking, biking or horseback riding, become safer because there are more people on the street. By including a range of opportunities such as bike lanes, separated walkways and bridle paths, and designating canal right of ways for trail use, transportation planners can enhance a community's image. A broader range of consumer, social, and recreational opportunities is available in areas that connect to an alternative transportation network.

Use of inclusive transportation systems is a Smart Growth strategy. The concept encourages creativity, interest, and variety and builds upon local heritage and character to create efficient, sustainable and livable places. These systems encourage less dependence on the personal automobile and allow a community to grow in an economically, environmentally, and socially responsible way, where reliance on non-renewable resources is limited. Progressive communities are realizing the way to alleviate congestion and gridlock is not to build more roads, but to reduce the number of vehicles on the street by using alternative forms of transportation, in particular for short trips.

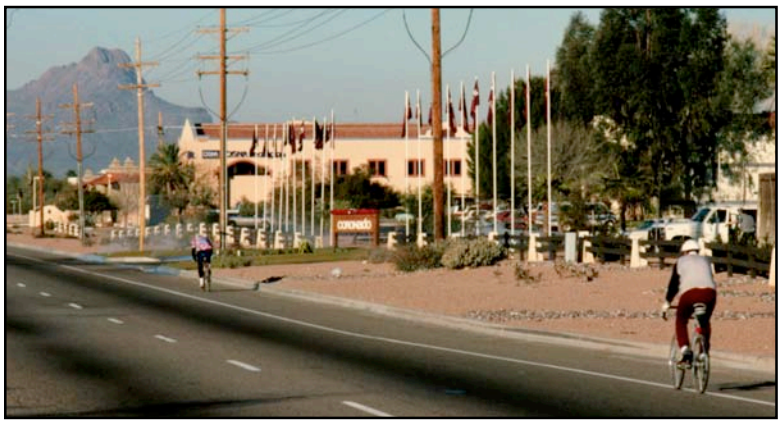
Greenways can be considered key components in any alternative transportation system. Greenways are linear open space not associated with a vehicular roadway used to create a network that connects parks and natural areas. Typically greenways are located along creeks, streams, river, or utility corridors and are managed as natural environments. Both recreation and transportation uses can be accommodated within greenway corridors. As the network becomes more complete, recreational uses often transition to transportation uses.

Photo: Greenways and river parks not only add beauty and open space to a city, they offer trails for transportation and recreation (Tucson).

(*www.co.monroe.in.us/planning/documents/MCATGSP-SystemPlan.pdf)*

The Arizona Department of Transportation oversees the state's efforts concerning alternative transportation. The Department is guided the Arizona State Transportation Board.

Arizona State Transportation Board Policy: Bicycle and Pedestrian Facilities
It is the policy of the Arizona State Transportation Board (http://www.dot.state.az.us/Board/PDF/Board_Policies_081503.pdf) to encourage bicycling and walking as viable transportation modes, and actively work toward improving the transportation network so that these modes are accommodated, by:



- Promoting increased use of bicycling and walking, and accommodating bicycle and pedestrian needs in the planning, design and construction of transportation facilities alongside state highways.
- Developing design guidelines and measures that give the roadway designer flexibility in accommodating the needs of all users of the transportation facility.
- Developing design guideline implementation policies that balance the needs of motorists, bicyclists and pedestrians.
- Pursuing the use of Federal funds that are available for alternative modes.

Arizona Department of Transportation (ADOT): Statewide Bicycle and Pedestrian Plan
Bicycling and walking are basic, fundamental modes of transportation that, in today's motorized world of travel, are commonly overlooked as an option to help manage our circulation issues and concerns. One of the underlying principles in planning for bicycling and walking is to provide a system that allows users significant mode choices and that creates a reasonable balance in accommodating those choices, without favoring one mode at the expense of all others. To achieve a balance within the current transportation network, bicycling and walking need to be made more attractive and truly be a viable option for transportation. This includes creating a non-motorized network comprised of on-street facilities, off-street facilities, and end-of-trip facilities. Education and enforcement programs enhance alternative forms of transportation.

Arizona Bicycle Network
The Arizona Bicycle Network is comprised of roadways within the State Highway System and it includes regionally significant non-ADOT bicycle facilities. The combination of non-ADOT bicycle and pedestrian facilities with the State Highway System creates a network that complements itself. The network has bikeways on highways that connect the communities and then bikeways on streets and roads within the communities. The existing Arizona Bicycle Network is displayed on the *Cycle Arizona Bicycle User Map*. The map provides information on shoulder width, grade, and traffic volume designation for state highways so that users can make a

decision regarding the suitability of the route for their use (http://www.azbikeped.org/images/map%20side%201%20(3-03-06).pdf). The map also provides the local bicycle routes with regional significance (http://www.azbikeped.org/images/map%20side%202%20(3-03-06).pdf), points of public interest, monthly statewide average temperature, annual bicycle events, safety tips, Arizona bicycle safety laws, and other bicycle resources. Inset maps are provided for Flagstaff, Phoenix, Prescott, Tucson, and Yuma.

Photo: The AZ Bicycle Network includes roadways within the State Highway System. ADOT publishes a Cycle AZ Bicycle User Map. Photo from Dan Cameli and www.pactour.com

Pedestrian Action Plan

Sidewalks should be provided along State Highways where there are origins and destinations in close proximity. Within close proximity is defined as an origin and a destination within 1.5 miles walking distance from one another and the subject facility is between the origin and destination. A transit stop is considered a destination.

The minimum clear width for comfortable walking is five feet. Sidewalks should almost always be placed on both sides of a highway. Exceptions could include commercial strips entirely on one side with absolutely no destinations on the other side (e.g. railroad tracks). In most instances, placing a sidewalk on one side only leads to pedestrians walking on the roadway without a sidewalk, or crossing the highway twice to access the sidewalks.

It is the policy of the State of Arizona to comply with pedestrian and accessibility requirements set forth within the 1990 Americans with Disabilities Act (ADA). These scoping and technical requirements are to be applied during the design, construction, and alteration of transportation facilities covered by Titles II and III of the ADA to the extent required by regulations issued by Federal agencies, including the Department of Justice and the Department of Transportation, under the ADA.

Action 1: Make walkways an integral part of the circulation pattern within communities to promote safe interactions between motor vehicles and pedestrians and bicyclists, using techniques such as:

Strategy 1A. Integrate pedestrian facility accommodation into all planning, design and major construction activities of ADOT where there are origins and destinations within close proximity of the subject facility.

Strategy 1B. Retrofit existing roadways with sidewalks and retrofit crossings to accommodate pedestrians as a component of major reconstruction where there are origins and destinations within close proximity
Strategy 1C. Provide financial and technical assistance to local governments for construction of walkway projects.

Action 2: Develop education programs that improve pedestrian safety.
Strategy 2A. Monitor and analyze pedestrian crash data to formulate ways to improve pedestrian safety.
Strategy 2B. Assist with the publication of walking maps and guides that inform the public of pedestrian facilities and services.
Strategy 2C. Develop walking safety education programs to improve skills and observance of traffic laws, and promote overall safety for pedestrians.
Strategy 2D. Develop safety education programs aimed at motor vehicle drivers to improve awareness of the needs and rights of pedestrians.
Strategy 2E. Develop a promotional program and materials to encourage increased walking.

Implementation

1. Accommodation of bicyclists and pedestrians on major ADOT roadway projects:
   - Provide bicycle and pedestrian facilities as an integral component of all future projects, with the exception of projects that have no relation to bicyclists or pedestrians
   - Develop a tracking system that provides the State Bicycle and Pedestrian Coordinator, and bicycle and pedestrian advocates throughout the state, with a listing of all major roadway projects including a summary of the bicycle and pedestrian issues and how these issues are being addressed
   - Review, and update as necessary, existing ADOT policies so that bicyclists and pedestrians will be better accommodated on ADOT facilities

2. Development of programs to improve bicycling and walking:
   - Provide planning and design training of bicycle and pedestrian accommodations to other ADOT staff, MPOs, and local governments staff
   - Assist in the development of state, regional, and local bicycle maps
   - Develop pedestrian and bicycle education programs for communities and schools
   - Develop enforcement strategies and programs aimed at bicyclist and pedestrian law violations that are most likely to result in serious crashes
   - Develop enforcement strategies aimed at motorist errors and aggressive behaviors
   - Consider additions to driver's education products that emphasize safe motorist driving when encountering bicyclists and pedestrians on the road
   - Assist in promoting bike-to-work days and safe routes to school programs, and
   - Promote the link between land use and transportation by encouraging smart growth initiatives.
3. Construction of non-ADOT bicycle facilities to fill gaps between the State Highway System and between neighboring jurisdictions:

- Provide a bicycle route into Phoenix that connects SR 88 and SR 79 to the east of Phoenix with other non-ADOT bicycle facilities
- Local government agencies in the metro areas should put a high priority on implementing the regionally significant proposed bicycle facilities
- Bicycle route continuity between adjacent local jurisdictions should be improved

Photo: Digital highways signs can be used to provide up to date information to motorists when sharing the road with groups of cyclists. Photo courtesy of Richard C. Moeur.

4. Development of bicycle and pedestrian specific projects:

- Construction of off-road shared-use paths:
    - At crossings of ADOT State Highways
    - As access through grade-separated interchanges
- Retrofit of through roadway cattle guards that have gaps greater than one quarter-inch by four inches parallel to the direction of travel; and
- Widening of shoulders that have an effective width of two feet or less with priority being placed on those facilities that can be implemented at a minor or moderate expense and that are adjacent to an urban areas.

United States—Mexico Border Issues

The 377 mile Arizona-Sonora border is a portion of one of the world's busiest international boundaries, and as such, an overwhelming number of cross-border illegal and legal activities occur there daily. The border region includes 100 kilometers north and south of the geopolitical divide between the United States and Mexico. The border region has a population of approximately three million people and it continues to grow exponentially as compared to the national average of both the U.S. and Mexico. (HSA 2008)

Arizona contains remote and isolated lands along the Mexican border that have become major arteries for smuggling humans and controlled substances into the United States. As a result, direct and indirect impacts caused by this large amount of illegal traffic have caused a significant adverse impact to fish and wildlife resources and their habitats. (AZGFD 2005)

It is estimated that thousands of new trails have been created on federal lands in southeastern Arizona by undocumented alien crossings. The proliferation of trails and roads damages and destroys sensitive vegetation, disrupts or prohibits re-vegetation, disturbs wildlife and their travel corridors, causes soil compaction and erosion, and impacts stream bank stability. (AZGFD 2005)

Illegal border activities, including alien border crossings and drug smuggling, on federal and tribal lands in Arizona have been increasing since the mid to late 1990s, creating law enforcement challenges for land and resource management agencies. In some cases, smugglers are escorted across federal lands by heavily armed scouts who are equipped with automatic assault weapons, encrypted radios, and night vision optics. This situation poses dangers to law enforcement officers, visitors and employees, and damages fragile natural resources. Due to potential dangers, land management agencies require their law enforcement officers to wear bulletproof vests and carry assault weapons while on duty (GAO 2004).

Incidents reported on federal borderlands in Arizona include break-ins at employees' homes, visitor carjacking, assaults and robberies. Employees and visitors have been forced off the road by smugglers traveling at high rates of speed. Certain federal lands can no longer be used safely by the public or federal employees, according to a 2002 report on the impacts of undocumented aliens crossing federal lands in Arizona, due to the significance of smuggling illegal aliens and controlled substances in the U.S. (GAO 2004)

For example, a portion of the San Pedro River National Conservation Area was closed to overnight camping due to border safety issues and intensive law enforcement activity. The San Rafael Ranch State Natural Area, acquired in 1999 by Arizona State Parks, is not open to the public and one of the main reasons is concern for public safety due to illegal border crossings through the park by human and drug smugglers. Federal agencies managing lands along the border are hesitant to build new trails or officially designate OHV routes because of safety concerns.

The damage is obvious in terms of residual litter, abandoned vehicles and violence associated with alien and narcotic smuggling. In the last five years, Yuma sector agents have arrested over 420,000 illegal aliens. In 2006, Yuma sector agents apprehended over 98,000. Anytime such large numbers of people transit an area of this size, whether it be on foot, by vehicle across the

open deserts or by crossing the Colorado River, there will be a significant impact on the natural resources of the area, the ability of citizens to recreate, and the overall safety of the area. (AZGFD 2005)

Apprehensions data is a fairly unreliable gauge of how many people are attempting to enter the country illegally. The data is valuable, however, in that it provides a glimpse at the trends on the ground along the border. Overall, Arizona accounted for 51% of all apprehensions along the southwest border in FY04 and for 76% of the overall national increase in apprehensions between FY03 and FY04. (CRS 2005)

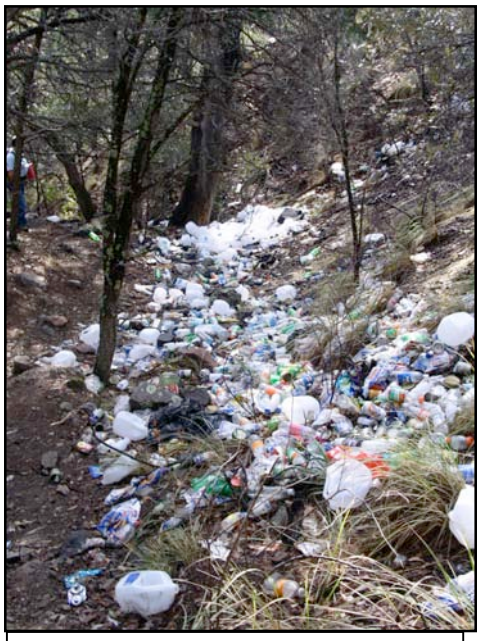


Photo: Trash left by illegal immigrants, Scotia Canyon, Coronado National Forest. Photo courtesy of John E. Roberts (this area was once identified as one of AZ's top 75 natural areas)

Illegal border activity is affecting federal lands beyond those immediately along the border and creating law enforcement challenges there. For example, Ironwood Forest National Monument sits more than 60 miles north of the Mexican border, yet BLM officials indicated it shares many of the border related problems of federal lands right on the border. BLM indicated that as a result of one officer being nearly run over by illegal aliens in vehicles, as well as assaults on officers, the Bureau requires that officers travel in patrol teams to help ensure their safety. The Ironwood's vulnerable ecosystem, with over 600 animal and plant species – some of them endangered – have been damaged by illegal border traffic. According to Bureau officials, smugglers and other illegal aliens have established more than 50 illegal roads through the monument that damage plants. In addition, illegal aliens and smugglers abandon about 600 vehicles each year and leave behind tons of waste that creates biohazards (GAO 2004).

Border Patrol enforcement activities also create environmental impacts when large swaths of land are bladed smooth to facilitate tracking of illegal crossings into the state or from rescues of illegal immigrants who have lost their way or run out of food and water.

Table 56. Land Managers' Perception of Border Impacts
(from human and drug smuggling activities such as trespass, safety/security, litter and resource damage along trails)

Perceptions of Border Impacts	% Not a Problem		% Slight Problem		% Moderate Problem		% Serious Problem	
	Non Motor	Motor	Non Motor	Motor	Non Motor	Motor	Non Motor	Motor
State Agencies	40.0	21.1	20.0	21.1	12.0	15.8	28.0	42.1
Federal Agencies	26.2	24.0	18.0	14.0	24.6	24.0	31.1	38.0
Cities/Counties	52.2	40.0	28.3	15.0	10.9	25.0	8.7	20.0

CHAPTER 6

Grants and Funding

Grants and Partnerships

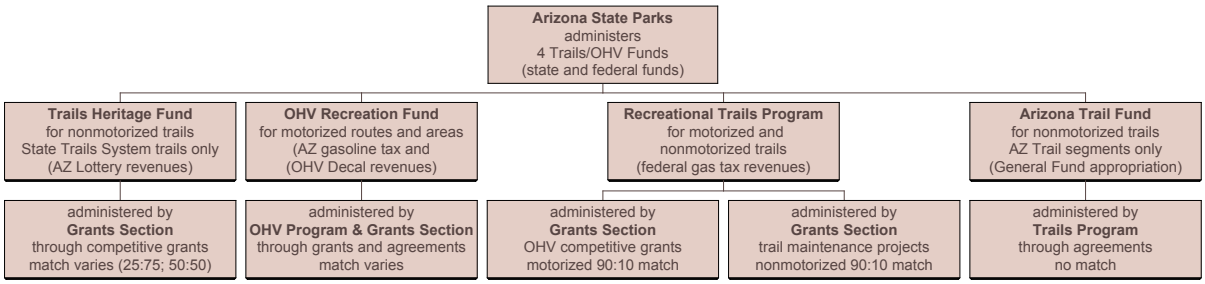
As budgets become tighter and Arizona's growing population demands more outdoor recreation opportunities, parks and recreation departments and other land managing agencies seek partnerships with volunteers, businesses and other agencies to share resources and improve trails and routes. They also look for sources of additional funding through cost share and grant programs. Arizona State Parks participates in these partnerships by supporting trail and OHV planning efforts with the statewide data found in this Plan, and by awarding grants and other funded services to eligible applicants.

Photo: Trail Heritage grant funds used to enhance a hiking trail in the White Tanks Regional Park near the city of Litchfield Park.

NOTE: Most grant funds can be used to build new or modify existing trails and support facilities to accommodate those with physical disabilities.

The Arizona State Parks Board currently administers four trail and OHV fund sources.

Figure 28. Arizona State Parks' Administered Trails and OHV Funds



•The **Arizona OHV Recreation Fund** (A.R.S. § 28-1176) comes from a fixed percentage (0.55%) of total license taxes on motor vehicle fuel, and the new OHV Decal starting January 2009. The Arizona State Parks Board determines the allocations of the funds based upon recommendations of the Off-Highway Vehicle Advisory Group (OHVAG) and the 5-year OHV

recreation plan, now combined into the *Arizona Trails Plan*. The purpose of these monies are to develop an OHV program and grants based on the priorities of the *Plan*, including: acquisition, construction, and maintenance of OHV routes and trails; enforcement of OHV laws; information and educational programs; signage and maps; mitigation of damages to land, and prevention and restoration of damages to natural and cultural resources; and environmental and cultural clearances and compliance activities. **For discussion of the Fund changes, see page 163.**

•The federal **Recreational Trails Program** (RTP) (23 U.S.C. 206) comes from the Federal Highway Administration. The Arizona State Parks Board administers the RTP funds for Arizona, which are used to develop and enhance both motorized and non-motorized trail opportunities. The Arizona Department of Transportation receives the remainder of the funds from the federal transportation act and oversees projects from the RTP funds. The RTP is included in the federal transportation bill (Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users 'SAFETEA-LU' 2005-2009). The new bill, which would either continue or stop the RTP program as part of the Transportation Act, had not been submitted to Congress at the time this plan was finalized.

Photo: Motorized trail funds used to install a cattleguard on the Saffel Canyon ATV route, Apache Sitgreaves National Forest.

Arizona State Parks, through agreement of the RTP Advisory Committee, divides the fund equally between motorized and non-motorized trail projects throughout the state.

The RTP Advisory Committee is a joint committee of two of Arizona State Parks Board's advisory committees: the Off-Highway Vehicle Advisory Group (OHVAG), and the Arizona State Committee on Trails (ASCOT). This larger joint committee meets at least once a year for the purpose of reviewing past expenditures and advising staff regarding future expenditures from the RTP funds.

•The **Arizona Trail Heritage Fund** (A.R.S. § 41-503) is a component of the larger Arizona Heritage Fund and comes from Arizona Lottery revenues. The Heritage Fund provides up to $10 million annually to Arizona State Parks to provide opportunities for the public to enjoy outdoor recreation, to help preserve natural areas and cultural resources, and to promote environmental education.

Five percent of the monies received from the Heritage Fund are spent on local, regional and state non-motorized trails that have been nominated into the State Trails System, and includes urban, cross-state, recreation, interpretive or historic trails.

Photo: Trails Heritage Funds used to construct rock stairs for Waterfall Trail in White Tanks Regional Park.

•The **Arizona Trail Fund** (A.R.S. § 41.511.15) is an annual legislative appropriation with the sole purpose of maintaining and preserving the long-distance Arizona Trail. The Arizona Trail extends approximately 800 miles between the southern and northern borders of the state. Arizona State Parks works with the Arizona Trail Association and other partners to approve funding for projects that best meet the needs of the Arizona Trail and comply with the statutory intent of the legislation.

Grant and Agreement Awards

The following tables show how the State administered funds have been used over the past years.

Table 57. Arizona OHV Recreation Fund and Recreational Trails Program (Motorized Portion) FYs 1993-2008 awards and since the 2005 Trails Plan was approved

OHV Recreation Fund and Federal RTP (Motorized Portion) Competitive Grant Awards FYs 1993-2008			OHV Recreation Fund and Federal RTP (Motorized Portion) Competitive Grant Awards and Partnership Agreements FYs 2004-2008 (Since the 2005 Trails Plan was approved)	
Project Sponsor	# of Grants	$ Awarded	# of Grants or Agreements	$ Awarded
Cities/towns	4	$674,455	1	$228,846
Counties	8	$2,519,985	2	$324,900
State	3	$590,681	5	$56,300
Federal	74	$10,350,041	79	$4,002,736
Nonprofits	3	$595,781	2	$575,781
Totals	**92**	**$14,730,943***	**20**	**$5,188,563****

*$6 million of the OHV Recreation Fund was redirected to the State General Fund in FYs 2002, 2003 and 2004 due to the state budget deficit. This forced the suspension of grants already awarded to recipients across the State. Some projects were abandoned and some were completed once funds became available in FY 2006.
**$3.8 million of the OHV Recreation Fund (portions of Arizona State Parks and Arizona Game and Fish allocations) were redirected to the State General Fund for FYs 2007, 2008 and 2009 due to the state budget deficit.

The Arizona State Parks Board awards competitive grants to eligible entities to support motorized trail projects across the State. The Off-Highway Vehicle Advisory Group (OHVAG) reviews and evaluates proposed grants and makes funding recommendations to the Arizona State Parks Board for final approval. After each five-year trails plan is approved a task force representing all land management agencies and trail user types is formed to develop grant criteria based on the needs identified in that plan for rating the Recreational Trails Program Motorized Portion grant applications for the next five years.

Photo: Motorized trail grant funds were used to establish the White Mountain ATV Trail near Pinetop-Lakeside.

Prior to 2003 the Arizona State Parks Board only allowed nonprofit organizations to apply for Heritage Fund Historic Preservation grants. Since the Recreational Trails Program guidance considers both for-profit and non-profit organizations eligible for project funding, the Board agreed to allow non-profit organizations to apply for competitive RTP Motorized Portion grants. Two non-profits have been awarded grants since 2003.

Table 58. Competitive Non-motorized Grants Awards - Arizona Trails Heritage Fund FYs 1994-2003 and since the 2005 Trails Plan was approved

Trails Heritage Fund* Competitive Grants Awarded FYs 1994-2008 Project Sponsor	# of Grants	$ Awarded	Trails Heritage Fund* Competitive Grants Awarded FYs 2004 – 2008*** # of Grants	$ Awarded
Cities/towns	44	$2,137,573	13	$1,380,861
Counties	21	$934,706	5	$299,457
Federal/tribes	65	$2,075,878	16	$1,228,768
Total**	**130**	**$5,148,157**	**34**	**$2,909,086**

*Arizona Heritage Fund Source: Arizona Lottery Revenues
** Since 1994, Arizona State Parks has received 5% of the Trails Heritage Fund annually for non-motorized trail projects within the State Parks system; State Parks did not compete for Heritage trails grants in FYs 1994-2008.
*** All projects awarded in 2008 and any 2007 projects that have not started were terminated by the Arizona State Parks Board due to fund sweeps by the Arizona Legislature. All other projects that could not be completed by March 2009 were suspended.

Table 59. Arizona Trail Maintenance Program – funded by the federal Recreational Trails Program (Non-motorized Portion) FYs 2002-2008* and since the 2005 Trails Plan was approved

Federal RTP * (Non-motorized Portion) Arizona Trail Maintenance Program FYs 2002-2008 Project Sponsors	# of Projects	RTP Project Amount (estimated**)	Federal Recreational Trails Program * (Non-motorized Portion) Arizona Trail Maintenance Program FYs 2004-2008 # of Projects	RTP Project Amount (estimated**)
Cities/towns	16	$667,322	6	$311,394
Counties	7	$357,354	2	$75,000
State	6	$256,253	3	$172,000
Federal	73	$3,753,106	50	$2,393,482
Tribal	2	$50,038	0	$0
Totals	**104**	**$5,084,073**	**61**	**$2,951,876**

* Federal Recreational Trails Program Source: Transportation Efficiency Act for the 21st Century (TEA-21; 1999-2004) and Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU; 2005-2009) from the Federal Highway Administration.
** Amounts represent funds allocated to project sponsors and may not be actual amounts expended for projects.

Grant and Agreement Projects by Criteria

The following two tables reflect the criterion developed by the task force for the two most recent plans and the number of projects funded that include elements that address that criterion.

Table 60. OHV Recreation Fund and RTP Motorized Portion Grant Project Summary Based on Criterion Developed from the 2000 and 2005 Trails Plans–FYs 1999-2003

OHV Recreation Fund and RTP Motorized Portion Grant Projects Summary FY 1999-2003 MOTORIZED TRAIL PROJECTS	
GRANT RATING CRITERION (from 2000 Trails Plan)	**# OF PROJECTS***
Preserve existing motorized trails/areas	9
Renovate trails/areas	9
Protect access (acquisition)	1
Promote trail etiquette and environmental ethics	10
Develop new trails/areas	6
Partnership/Donations	5
Reduce environmental/cultural impacts	12
Provide information/maps	14
Enhance support facilities	14
*15 projects with multiple elements were funded from FY1999 to FY2003 for $3,856,800.	

Table 61. OHV Recreation Fund and RTP Motorized Portion Grant Project Summary Based on Criterion Developed from the 2000 and 2005 Trails Plans–FYs 2004-2008

OHV Recreation Fund Partnership Agreements and RTP Motorized Portion Grant Project Summary Summary FY 2004-2008 MOTORIZED TRAIL PROJECTS		
GRANT RATING CRITERION (from 2005 Trails Plan)	**RTP Competitive Grants**	**OHV Recreation Fund Partnership Agreements**
	# OF PROJECTS*	**# OF PROJECTS****
New Trails or Opportunities	12	3
Access/Inventory/Evaluation	7	12
Renovate/Maintenance OHV Trails/Areas	9	20
Provide Information/Maps	10	8
Provide Signage	16	20
Provide/Renovate Support Facilities	6	4
Reduce Resource Impacts	19	19
Increase Accessibility	4	4
Encourage Volunteers	17	51
Law Enforcement	0	6
Interagency Coordination	4	3
Seek Additional Funding	3	0
Trail Etiquette/Environmental Protection/Education Programs	16	9

*RTP Motorized Portion Grants: 20 RTP motorized portion grant projects with multiple elements were funded from FY2004 to FY2008 for $3,787,754.

**OHV Recreation Fund Project Agreements: In FY 2003, the Legislature swept the OHV Recreation Fund of all unexpended monies from FY 2002 and all revenues in FY 2003 and FY 2004 (including monies obligated to projects) from the Fund, resulting in the suspension of active grant and agreement projects throughout the State. In FY 2005-2006, the State Legislature once again appropriated monies to the OHV Recreation Fund. State Parks' reinstated approximately $1 million in OHV grants that were suspended when monies were swept in FYs 2003-2004. From FY2006 to FY2009 OHV Recreation Funds were no longer used for competitive grants but rather for partnership agreements. Sixty-nine (69) OHV Recreation Fund projects with multiple elements were funded from FY2006 to FY2008 for $1,400,509. Each element of the 69 projects is listed in the right column of the table above.
19 of the 69 projects were suspended in February 2009 due to legislative sweeps of the fund. Additional funding is used for administration, education programs, and statewide planning/research.

Arizona Trails Maintenance Program—Non-motorized Trails

The non-motorized portion of the Recreational Trails Program monies was dedicated solely to maintenance of existing trails starting in 2001. The need for maintenance on existing trails in Arizona encompassed the top two priority recommendations of the ARIZONA TRAILS 2000 PLAN and that sentiment was echoed in the 2005 and 2010 plans. Land managing agency budgets have been shrinking and money for trail maintenance has been difficult to find. The Arizona Trail Maintenance Program has continued to meet the needs of trail managers and has been refined to be easily accessible. Arizona State Parks contracts directly with trail maintenance crews, such as youth conservation corps and other trail maintenance providers, to remove the need for individual contracts or agreements with trail managers. In 2008 the trail maintenance contract was expanded to include mechanized trail building.

Table 62. Arizona Trail Maintenance Program – funded by the federal Recreational Trails Program (Non-motorized Portion) FY 2001-2008 and since the 2005 Trails Plan was approved

Federal RTP* (Non-motorized Portion) Arizona Trail Maintenance Program FY 2002-2008 Project Sponsors	# of Projects	RTP Project Amount (estimated**)	Federal RTP* (Non-motorized Portion) Arizona Trail Maintenance Program FY 2004-2008 # of Projects	RTP Project Amount (estimated**)
Cities/towns	16	$667,322	6	$311,394
Counties	7	$357,354	2	$75,000
State	6	$256,253	3	$172,000
Federal	73	$3,753,106	50	$2,393,482
Tribal	2	$50,038	0	$0
Totals	**104**	**$5,084,073**	**61**	**$2,951,876**

* Federal Recreational Trails Program Source: Transportation Efficiency Act for the 21st Century (TEA-21; 1999-2004) and Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU; 2005-2009) from the Federal Highway Administration.

** Amounts represent funds allocated to project sponsors and may not be actual amounts expended for projects.

Photos: Trail maintenance crews can be youth corps, professional contractors, or volunteers. The work is hard, usually in remote places, and leaves a lasting contribution in the form of a well-built or maintained trail for users to enjoy for years to come. Courtesy of Coconino Rural Environment Corps.

Arizona Trails Heritage Fund

The Arizona Heritage Fund comes from Arizona Lottery revenues. Arizona State Parks receives $10 million annually and the Trails Heritage component is 5% of the Fund, or $500,000 per year. These monies are used to fund non-motorized trail grant projects throughout the state. After each 5-year trails plan is approved by the Arizona State Parks Board, a task force representing all land management agencies and trail user types is formed to develop criteria based on the needs identified in that plan for rating Trails Heritage Fund grant applications for the next five years.

The following tables reflect the criterion developed by the task force for the two most recent plans and the number of projects funded that include elements that address that criterion.

Table 63A & 63B. Trails Heritage Fund Grant Project Summary Based on Criterion Developed from the 2000 and 2005 Trails Plans

Trails Heritage Fund Grant Project Summary FY 1999-2003 NON-MOTORIZED TRAIL PROJECTS	
GRANT RATING CRITERION (from 2000 Trails Plan)	**# OF PROJECT ELEMENTS***
Renovate trails	27
Keep trails clean/clear	48
Promote trail etiquette/environmental ethics	25
Protect access (acquisition)	7
Promote partnership/volunteerism	9
Develop new trail opportunities	24
Reduce environmental/cultural impacts	34
Provide information/maps	37
Enhance support facilities	35
*48 projects with multiple elements were funded from FY1999 to FY2004 for $2,489,747	

Trails Heritage Fund Grant Project Summary FY 2004-2008 NON-MOTORIZED TRAIL PROJECTS	
GRANT RATING CRITERION (from 2005 Trails Plan)	**# OF PROJECT ELEMENTS***
Renovate Trails (Bridges)	18 (5)
Provide Signage	24
Provide Support Facilities (Trailheads)	21 (6)
Protect Access / Acquisition	3
New Trails / Opportunities	18
Trail Information / Maps	7
Reduce Resource Impacts	16
Increase Accessibility	12
Encourage Volunteers	13
Interagency Coordination	10
Seek Additional Funding	9
Trail Etiquette/Environmental Protection	12
*34 projects with multiple elements were funded from FY2004 to FY2008 for $2,909,086	

Photos: Trails Heritage Funds were used to build the City of Glendale's Sunnyside Bridge and ADA access ramp for pedestrian and bicycle access over the Arizona Canal and link to the Thunderbird Park Paseo Trail and Sun Circle Trail along the canal bank.

Arizona Trail Fund

In Spring 2006, the Arizona Trail Association was successful in introducing and passing legislation that designated the Arizona Trail as a state scenic trail and established the Arizona Trail Fund (§41-511.15). Arizona State Parks was designated as the administrator of the fund. Arizona State Parks and the Arizona Trail Association work closely together to determine priority expenditures of the fund.

For FYs 2007-2009, the main priority for the Arizona Trail Fund was the completion of the trail. Key areas to completing the entire 800 mile trail are: the Las Colinas Passage on the Coronado National Forest south of Tucson, the White Canyon Passage (BLM) and Alamo Canyon (Tonto National Forest) between Picket Post Mountain south to the Gila River and the San Francisco Peaks Passage (Coconino National Forest). The completion of the trail consists of cultural and environmental clearances in areas to be constructed and the actual trail construction. A second priority was maintenance of the existing Arizona Trail in areas that are, 1) severely eroded and overgrown, and 2) the remote nature of the area makes it impractical to be maintained by volunteers.

Photos: Before and After maintenance on remote segment of the White Canyon Passage of the Arizona Trail.

Table 64. FY2007* Arizona Trail Fund Expenditures

Partners/Project Description		Amount
Coronado National Forest/ATA/ASP		**$47,686.16**
Environmental studies and clearances for the Las Colinas Passage		
White Canyon Passage (BLM – Tucson Field Office)		
	BLM/Logan Simpson/ATA/ASP -	**$31,607.45**
	Archaeological survey	
	BLM/ATA/ASP -	**$50,000.00**
	Construction and planning of the White Canyon Passage	
	Southwest Conservation Corps/ATA/ASP	**$6,200.00**
	Construction of the White Canyon Passage	
Alamo Canyon Passage (Tonto National Forest)		
	Tonto NF/Coconino Rural Environment Corps/ATA/ASP	**$38,400.00**
	Construction of the Alamo Canyon	
	Tonto NF/ATA/ASP	**$3,000.00**
	Camp/support facilities to house crews on Arizona Trail projects until completion of the Alamo Canyon Passage	
Coconino National Forest/ATA/ASP		**$24,971.00**
Cultural clearances and construction: San Francisco Peaks and nearby passages		
Saguaro National Park/ATA/ASP		**$10,000.00**
Trail maintenance and improvements		
General Maintenance/Other (ATA/ASP)		
	Training for Segment Stewards and volunteers - crew leader, first aid, wilderness first responder	**$3,000.00**
	Maintenance and equipment materials (tools, trailer etc)	**$7,213.85**
	Total FY2007	$223,028.46

**$250,000 was allocated to the Arizona Trail Fund in FY 2007.*

Table 65. FY2008* Arizona Trail Fund Expenditures

Partners/Project Description	Amount
ATA/Grand Canyon National Park/Kaibab N.F. /ASP	**$6,115.83**
Purchase of sign panel kiosk, posts and signage items) to be installed at the Grand Canyon National Park/Kaibab National Forest and trail sign decals	
Coronado National Forest/ATA/ASP	**$42,633.00**
Construction of segment from Oak Creek Canyon to northern border of Forest.	
CREC/Tonto National Forest /ATA/ASP - Alamo Canyon Segment	**$34,000.00**
Construction of trail south of Picket Post through Alamo Canyon	
Pinal County /ATA/ASP	**$14,470.41**
Archeological survey for three proposed trailheads between Oracle and the Gila River	
Tonto NF/ATA/ASP	**$6,500.00**
Trail Maintenance in the Boulder Creek and Four Peaks areas	
Tonto NF/ATA/ASP	**$10,000.00**
Trail maintenance in the Mazatzals Mountains	
Coronado NF/ATA/ASP	**$5,238.00**
Trail maintenance in the Santa Catalina Mountains	
Total FY2008	$143,757.24

**$125,000 was allocated to the Arizona Trail Fund in FY 2008.*

Table 66. FY2009* Arizona Trail Fund Expenditures

Partners/Project Description	Amount
Pima County Natural Resources/SAGE Landscape/ Arizona Trail Association (ATA)/Arizona State Parks (ASP)	**$4,288.88**
Outside professional services for cultural resource survey of 2 miles of state trust land.	
Coronado NF/Las Colinas Passage/Southwest Conservation Corps/ATA/ASP	**$12,400.00**
Two weeks of crew labor for trail construction on the Las Colinas Passage.	
Coconino N.F. - Peaks Ranger District/American Conservation Experience/ATA/ASP	**$16,749.90**
Four weeks of crew time & FS Crew Supervisor for trail construction in the San Francisco Peaks Passage.	
BLM - Tucson Field Office/YRU Contracting, Inc./ATA/ASP	**$18,365.00**
Mechanized crew to construct 4+ miles of trail in the White Canyon Passage.	
Tonto N.F./Coconino Rural Environment Corps/ATA/ASP	**$5,500.00**
One week of crew time for maintenance in the Mazatzals area.	
Tonto N.F./ Coconino Rural Environment Corps/ATA/ASP	**$5,500.00**
One week of crew time for maintenance in the Four Peaks area.	
Total FY 2009	$62,803.78

*$125,000 was allocated to the Arizona Trail Fund in FY 2009***

**Midyear in FY 2009 the Arizona Trail Fund became unavailable due to the Arizona State budget deficit.

Photos: The Arizona Trail Fund has funded numerous projects including trail construction, maintenance, signage, and environmental and cultural surveys.

New Legislation affects Arizona State Parks' Expenditures from the Off-Highway Vehicle Recreation Fund

Arizona Legislation (SB1167) passed in FY 2008 made significant changes in the Off-Highway Vehicle Recreation Fund regarding eligibility requirements, allowable projects or purposes, preferences for the types of projects or purposes the monies are allocated, and specified reporting requirements regarding fund expenditures. Revenues generated from the new OHV Decal user fee bolstered existing gasoline tax revenues that make up the Fund (see page 165 for summary chart and Appendix B for actual legislation).

Based on the State statutes paraphrased below, Arizona State Parks has prepared this Plan that included considerable public involvement and established priority recommendations for motorized trail use, which guides expenditures from the OHV Recreation Fund.

Upon Plan approval, staff will coordinate with the Arizona State Parks Board OHV Ad Hoc Subcommittee, Arizona Outdoor Recreation Coordinating Commission, Off-Highway Vehicle Advisory Group and partner agencies to establish grant criteria and policies for fund distribution, with final approval by the Arizona State Parks Board, as stated in A.R.S. § 41-511.04, 41-511.25, and 28-1176.

Eligible Purposes

The Fund can be used for purposes such as:

- maintenance, renovation, designation, construction, or connection of OHV routes and trails;
- acquisition, designation, and management of lands for access roads, OHV facilities and use areas;
- OHV law enforcement;
- OHV related information, environmental education, and responsible use programs;
- signage, maps and OHV related informational materials;
- mitigation and prevention of OHV damages to land, including revegetation and closures;
- necessary environmental and cultural clearance or compliance activities; and
- establishment of an Arizona State Parks' OHV Program based on the priorities in the OHV recreational plan.

The Plan and Fund Preferences and Limitations

The new legislation specified some preferences and limitations regarding fund expenditures:

- The allocation of monies and the percentages allocated to each of the stated purposes shall be based on an OHV recreational plan maintained by the Arizona State Parks Board (ASPB).
- The plan shall be updated at least every five years, be open to public input, include the priority recommendations for allocating available monies, and be used by all participating agencies to guide distribution and expenditure of monies.
- ASPB shall give preference to applications for projects with mitigation efforts and for projects that encompass a large number of allowable purposes.
- ASPB shall not spend more than 35% of project monies for construction of new off-highway vehicle trails. Project monies are those funds remaining after ASPB sets aside no more than 12% of the 60% ASP allocation for Fund administration and staff to support the plan.

- Monies in the Fund shall not be used to construct new off-highway vehicle trails or routes on environmentally or culturally sensitive land unless the appropriate land management agency determines that certain new trail construction would benefit or protect cultural or sensitive sites. "Environmentally or culturally sensitive land" means areas of lands that are either:
    1. Administratively or legislatively designated by the federal government as any of the following:
        (a) a national monument
        (b) an area of critical environmental concern
        (c) a conservation area
        (d) an inventoried roadless area
    2. Determined by the applicable land management agency to contain significant natural or cultural resources or values.

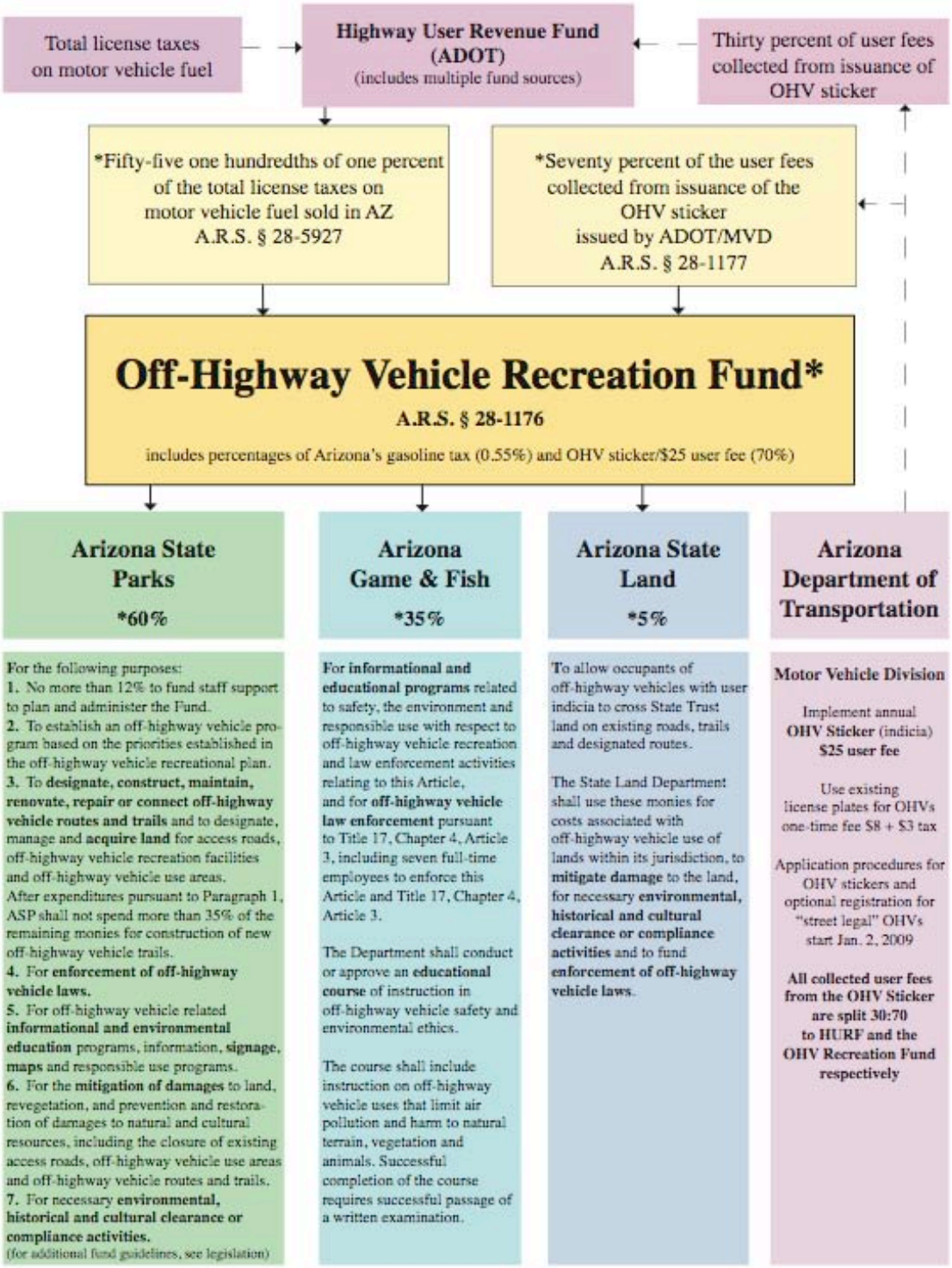
Project Awards

- The Arizona Outdoor Recreation Coordinating Commission, an advisory committee of the ASPB, shall establish criteria and policies for the equitable distribution of funding, review applications for eligible projects and determine the amount of funding, if any, for each project to be funded from the … Off-Highway Vehicle Recreation Fund.
- The ASPB shall examine applications for eligible projects and determine the amount of funding, if any, for each project. The ASPB is the final decision-maker regarding any Fund expenditures.

Annual Fund Report to Legislature

- Beginning September 1, 2011, and on or before September 1 of each subsequent year, each agency that receives monies from the Off-Highway Vehicle Recreation Fund shall submit an off-highway vehicle report to the President of the Senate, the Speaker of the House of Representatives, the chairperson of the Senate Natural Resources and Rural Affairs Committee, or its successor committee, and the chairperson of the House of Representatives Natural Resources and Public Safety Committee, or its successor committee.
- The report shall be made available to the public. The report shall include information on all of the following if applicable:
    1. The amount of monies spent or encumbered in the Fund during the preceding fiscal year for the purposes of off-highway vehicle law enforcement activities.
    2. The amount of monies spent from the Off-Highway Vehicle Recreation Fund during the preceding fiscal year for employee services.
    3. The number of full-time employees employed in the preceding fiscal year in connection with off-highway vehicle law enforcement activities.
    4. The amount of monies spent from the Off-Highway Vehicle Recreation Fund during the preceding fiscal year for information and education.
    5. The number and specific location of verbal warnings, written warnings and citations given or issued during the preceding fiscal year.
    6. A specific and detailed accounting for all monies spent for construction of new off-highway vehicle trails, mitigation of damages to lands, revegetation, the prevention and restoration of damages to natural and cultural resources, signage, maps and necessary environmental, historical and cultural clearance or compliance activities.

Figure 29. Off-Highway Vehicle Recreation Fund Flow Chart



TRANSPORTATION ENHANCEMENT PROGRAM—ADOT

The Transportation Enhancement (TE) program was developed to enhance surface transportation activities by developing projects that go above and beyond what transportation departments typically do. The estimated annual TE funds available to Arizona are currently about $15 million per year. The Arizona Department of Transportation (ADOT) Transportation Enhancement and Scenic Roads Section administers this federally funded program through the Federal Highway Administration (FHWA). The TE program was made possible by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), reauthorized in 1998 under the Transportation Equity Act for the 21st Century (TEA-21), and in 2005 under the SAFETEA-LU re-authorization by the current U.S. congressional session.

Program Purpose: To strengthen the cultural, aesthetic, and environmental aspects of the Nation's intermodal transportation system.
Statutory References: SAFETEA-LU Section(s): 1113, 1122, 6003
Funding: A State's TE funding is derived from a set-aside from its annual Surface Transportation Program apportionment. The TE set-aside will be 10% or the amount set aside for TE in the State in 2005, whichever is greater. [1113(c)]
Eligible Use of Funds [1122]: All previous TE eligibilities continue and are restated in SAFETEA-LU. The term "transportation enhancement activity" means, with respect to any project or the area to be served by the project, any of the following activities as the activities relate to surface transportation:

1. Provision of facilities for pedestrians and bicycles.
2. Provision of safety and educational activities for pedestrians and bicyclists.
3. Acquisition of scenic easements and scenic or historic sites (including historic battlefields).
4. Scenic or historic highway programs (including the provision of tourist and welcome center facilities).
5. Landscaping and other scenic beautification.
6. Historic preservation.
7. Rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals).
8. Preservation of abandoned railway corridors (including the conversion and use of the corridors for pedestrian or bicycle trails).
9. Inventory, control, and removal of outdoor advertising.
10. Archaeological planning and research.
11. Environmental mitigation--
    a. to address water pollution due to highway runoff; or,
    b. reduce vehicle-caused wildlife mortality while maintaining habitat connectivity.
12. Establishment of transportation museums.

Other Provisions

SAFETEA-LU establishes a pilot program for States to assume the responsibilities of the Secretary relating to environmental review and decision-making, including activities related to transportation enhancements (see environmental review process fact sheet). [6003]
Federal Share: Generally, the Federal share is 80 percent, subject to the sliding scale adjustment, but this may be achieved on an aggregate, rather than project-by-project, basis. Funds from other Federal agencies and the value of other contributions may be credited toward

the non-Federal share of a transportation enhancement project or group of such projects, but the aggregate effect may not exceed an 80 percent, or the sliding scale, Federal share. [23 USC 133(e)(5)]
http://www.azdot.gov/highways/SWProjMgmt/enhancement/
http://www.fhwa.dot.gov/environment/te/guidance.htm

Additional Trail and OHV Project Resources

In addition to governmental grants, many industry and advocacy groups offer project funds and/or volunteer support. Following is a starter list that might provide some ideas on where to go for help.

ATV Manufacturers
Arctic Cat
www.Arctic-Cat.com

Bombardier ATV
www.Bombardier-ATV.com

Honda ATVs
www,PowerSports.Honda.com
http://www.yamaha-motor.com/outdoor/OHV_Grants/OHV_Grants_Home.aspx

Kawasaki ATVs
www.Kawasaki.com

Polaris ATVs
www.PolarisIndustries.com
http://www.polarisindustries.com/en-us/OurCompany/AboutPolaris/Pages/PolarisFoundation.aspx

Suzuki ATVs
www.SuzukiCycles.com

Yamaha Motor
www.Yamaha-Motor.com

Consumer Advocacy Groups
The Motorcycle Industry Council (MIC) is a not-for-profit, national trade association representing manufacturers and distributors of motorcycles, scooters, motorcycle/ATV parts and accessories and members of allied trades, located in Irvine, California.
http://www.mic.org/

American Motorcyclist Association
13515 Yarmouth Dr.
Pickerington, Ohio 43147
http://www.amadirectlink.com/index.asp

Backcountry Horsemen of America
email Peg@backcountryhorse.com, call 1-888-893-5161, FAX 360-832-2471 or write PO Box 1367, Graham WA 98338-1367
http://www.backcountryhorse.com/

American Hiking Society
1422 Fenwick Lane • Silver Spring, MD 20910 •
1-800-972-8608 phone • 301-565-6714 fax •
info@AmericanHiking.org
www.AmericanHiking.org

Related Merchandise Suppliers
Recreational Equipment, Inc. (REI), the Outdoor retailer is the nation's largest consumer cooperative,
http://www.rei.com/aboutrei/gives02.html

CamelBak Products, LLC
2000 South McDowell Blvd, Suite 200
Petaluma, CA 94954
800/767-8725
webmaster@camelbak.com
http://www.camelbak.com/index.cfm

Summit Hut Ltd.
5045 E. Speedway Blvd. Tucson, AZ 85712
1-800-499-8696
http://www.summithut.com/

Other
The National 4-H Headquarters, in a collaboration between National 4-H Council and the ATV Safety Institute (ASI), offer ATV Safety grants. www.atv-youth.org.

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APPENDIX A

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APPENDIX B

Relevant Trails and Off-Highway Vehicle Legislation

ARIZONA REVISED STATUTES
As amended July 1, 2008.

TITLE 28 - TRANSPORTATION
Chapter 1. Definitions, Penalties and General Provisions
Article 1. Definitions

§ 28-101. Definitions
In this Title, unless the context otherwise requires:
…15. "Department" means the Department of Transportation acting directly or through its duly authorized officers and agents.

Title 28, Chapter 3. Traffic and Vehicle Regulation
Article 2. Obedience to and Effect of Traffic Laws

§ 28-627. Powers of local authorities
A. This Chapter and Chapters 4 and 5 of this Title do not prohibit a local authority, with respect to streets and highways under its jurisdiction and within the reasonable exercise of the police power, from:
13. Designating routes on certain streets and highways for the purpose of allowing off-highway vehicle operators to gain access to or from a designated off-highway recreation facility as defined in Section 28-1171, off-highway vehicle trail as defined in Section 28-1171 or off-highway vehicle special event as defined in Section 28-1171.

Title 28, Chapter 3. Traffic and Vehicle Regulation
Article 20. Off-Highway Vehicles

§ 28-1171. Definitions
In this Article, unless the context otherwise requires:
1. "Access road" means a multiple use corridor that meets all of the following criteria:
   (a) Is maintained for travel by two-wheel vehicles.
   (b) Allows entry to staging areas, recreational facilities, trailheads and parking.
   (c) Is determined to be an access road by the appropriate land managing authority.
2. "Closed course" means a maintained facility that uses Department approved dust abatement and fire abatement measures.
3. "Highway" means the entire width between the boundary lines of every way publicly maintained by the federal government, the Department, a city, a town or a county if any part of the way is generally open to the use of the public for purposes of conventional two-wheel drive vehicular travel. Highway does not include routes designated for off-highway vehicle use.
4. "Mitigation" means the rectification or reduction of existing damage to natural resources, including flora, fauna and land or cultural resources, including prehistoric or historic archaeological sites, if the damage is caused by off-highway vehicles.
5. "Off-highway recreation facility" includes off-highway vehicle use areas and trails designated for use by off-highway vehicles.
6. "Off-highway vehicle":
   (a) Means a motorized vehicle when operated primarily off of highways on land,

water, snow, ice or other natural terrain or on a combination of land, water, snow, ice or other natural terrain.

(b) Includes a two-wheel, three-wheel or four-wheel vehicle, motorcycle, four-wheel drive vehicle, dune buggy, amphibious vehicle, ground effects or air cushion vehicle and any other means of land transportation deriving motive power from a source other than muscle or wind.

(c) Does not include a vehicle that is either:

(i) Designed primarily for travel on, over or in the water.

(ii) Used in installation, inspection, maintenance, repair or related activities involving facilities for the provision of utility or railroad service.

7. "Off-highway vehicle special event" means an event that is endorsed, authorized, permitted or sponsored by a federal, state, county or municipal agency and in which the event participants operate off-highway vehicles on specific routes or areas designated by a local authority pursuant to Section 28-627.

8. "Off-highway vehicle trail" means a multiple use corridor that is both of the following:

(a) Open to recreational travel by an off-highway vehicle.

(b) Designated or managed by or for the managing authority of the property that the trail traverses for off-highway vehicle use.

9. "Off-highway vehicle use area" means the entire area of a parcel of land, except for approved buffer areas, that is managed or designated for off-highway vehicle use.

§ 28-1172. Applicability; private and Indian lands

This Article applies to all lands in this state except private land and Indian land.

§ 28-1173. Enforcement

All peace officers of this state and counties, cities or towns and other duly authorized state and federal employees shall enforce this Article.

§ 28-1174. Operation restrictions; violation; classification

A. A person shall not drive an off-highway vehicle:

1. With reckless disregard for the safety of persons or property.

2. Off of an existing road, trail or route in a manner that causes damage to wildlife habitat, riparian areas, cultural or natural resources or property or improvements.

3. On roads, trails, routes or areas closed as indicated in rules or regulations of a federal agency, this state, a county or a municipality or by proper posting if the land is private land.

4. Over unimproved roads, trails, routes or areas unless driving on roads, trails, routes or areas where such driving is allowed by rule or regulation.

B. A person shall drive an off-highway vehicle only on roads, trails, routes or areas that are opened as indicated in rules or regulations of a federal agency, this state, a county or a municipality.

C. A person shall not operate an off-highway vehicle in a manner that damages the environment, including excessive pollution of air, water or land, abuse of the watershed or cultural or natural resources or impairment of plant or animal life, where it is prohibited by rule, regulation, ordinance or code.

D. A person shall not place or remove a regulatory sign governing off-highway vehicle use on any public or state land. This Subsection does not apply to an agent of an appropriate federal, state, county, town or city agency operating within that agency's authority.

E. A person who violates Subsection A. Paragraph 1 is guilty of a Class 2 misdemeanor.

F. A person who violates any other provision of this Section is guilty of a Class 3 misdemeanor.

G. In addition to or in lieu of a fine pursuant to this Section, a judge may order the person to perform at least eight but not more than twenty-four hours of community restitution or to complete an approved safety course related to the off-highway operation of motor vehicles, or both.
H. Subsections A and B do not prohibit a private landowner or lessee from performing normal agricultural or ranching practices while operating an all-terrain vehicle or an off-highway vehicle on the private or leased land.

§ 28-1175. Instruction course; fee
A. The Arizona Game and Fish Department shall conduct or approve an educational course of instruction in off-highway vehicle safety and environmental ethics. The course shall include instruction on off-highway vehicle uses that limit air pollution and harm to natural terrain, vegetation and animals. Successful completion of the course requires successful passage of a written examination.
B. Any governmental agency, corporation or other individual that conducts a training or educational course, or both, that is approved by the Arizona Game and Fish Department, the United States Bureau of Land Management or the United States Forest Service or that is approved or accepted by the All-Terrain Vehicle Safety Institute or the National Off-Highway Vehicle Conservation Council may collect a fee from the participant that is reasonable and commensurate for the training and that is determined by the director of the Arizona Game and Fish Department by rule.

§ 28-1176. Off-highway vehicle recreation fund
A. An Off-Highway Vehicle Recreation Fund is established. The Fund consists of:
1. Monies appropriated by the legislature.
2. Monies deposited pursuant to Sections 28-1177 and 28-5927.
3. Federal grants and private gifts.

B. Monies in the Off-Highway Vehicle Recreation Fund are appropriated to the Arizona State Parks Board solely for the purposes provided in this Article. Interest earned on monies in the Fund shall be credited to the Fund. Monies in the Off-Highway Vehicle Recreation Fund are exempt from the provisions of Section 35-190 relating to lapsing of appropriations.
C. The Arizona Game and Fish Department shall spend thirty-five per cent of the monies in the Off-Highway Vehicle Recreation Fund for informational and educational programs related to safety, the environment and responsible use with respect to off-highway vehicle recreation and law enforcement activities relating to this Article and for off-highway vehicle law enforcement pursuant to Title 17, Chapter 4, Article 3, including seven full-time employees to enforce this Article and Title 17, Chapter 4, Article 3.
D. The State Land Department shall spend five per cent of the monies in the Off-Highway Vehicle Recreation Fund to allow occupants of off-highway vehicles with user indicia to cross State Trust land on existing roads, trails and designated routes. The State Land Department shall use these monies for costs associated with off-highway vehicle use of lands within its jurisdiction, to mitigate damage to the land, for necessary environmental, historical and cultural clearance or compliance activities and to fund enforcement of off-highway vehicle laws.
E. The Arizona State Parks Board shall spend sixty per cent of the monies in the Off-Highway Vehicle Recreation Fund for the following purposes:
1. No more than twelve per cent to fund staff support to plan and administer the Off-Highway Vehicle Recreation Fund.
2. To establish an off-highway vehicle program based on the priorities established in the off-highway vehicle recreational plan.
3. To designate, construct, maintain, renovate, repair or connect off-highway vehicle routes and trails and to designate, manage and acquire land for access roads, off-highway vehicle recreation facilities and off-highway vehicle use areas. After expenditures pursuant

to Paragraph 1 of this Subsection, the Arizona State Parks Board shall not spend more than thirty-five per cent of the remaining monies received pursuant to this Subsection for construction of new off-highway vehicle trails.

4. For enforcement of off-highway vehicle laws.

5. For off-highway vehicle related informational and environmental education programs, information, signage, maps and responsible use programs.

6. For the mitigation of damages to land, revegetation and the prevention and restoration of damages to natural and cultural resources, including the closure of existing access roads, off-highway vehicle use areas and off-highway vehicle routes and trails.

7. For necessary environmental, historical and cultural clearance or compliance activities.

F. The allocation of the monies in Subsection E, Paragraphs 3 through 7 of this Section and the percentages allocated to each of the purposes prescribed in Subsection E. Paragraphs 3 through 7 of this Section shall be based on an off-highway vehicle recreational plan.

G. Monies in the Off-Highway Vehicle Recreation Fund shall not be used to construct new off-highway vehicle trails or routes on environmentally or culturally sensitive land unless the appropriate land management agency determines that certain new trail construction would benefit or protect cultural or sensitive sites. For the purposes of this Subsection, "environmentally or culturally sensitive land" means areas of lands that are either:

1. Administratively or legislatively designated by the federal government as any of the following:

(a) a national monument.

(b) an area of critical environmental concern.

(c) a conservation area.

(d) an inventoried roadless area.

2. Determined by the applicable land management agency to contain significant natural or cultural resources or values.

H. The Arizona State Parks Board shall examine applications for eligible projects and determine the amount of funding, if any, for each project. In determining the amount of monies for eligible projects, the Arizona State Parks Board shall give preference to applications for projects with mitigation efforts and for projects that encompass a large number of purposes described in Subsection E, Paragraphs 3 through 7 of this Section.

I. Beginning September 1, 2011, and on or before September 1 of each subsequent year, each agency that receives monies from the Off-Highway Vehicle Recreation Fund shall submit an off-highway vehicle report to the President of the Senate, the Speaker of the House of Representatives, the chairperson of the Senate Natural Resources and Rural Affairs Committee, or its successor committee, and the chairperson of the House of Representatives Natural Resources and Public Safety Committee, or its successor committee. The report shall be made available to the public. The report shall include information on all of the following if applicable:

1. The amount of monies spent or encumbered in the Fund during the preceding fiscal year for the purposes of off-highway vehicle law enforcement activities.

2. The amount of monies spent from the Off-Highway Vehicle Recreation Fund during the preceding fiscal year for employee services.

3. The number of full-time employees employed in the preceding fiscal year in connection with off-highway vehicle law enforcement activities.

4. The amount of monies spent from the Off-Highway Vehicle Recreation Fund during the preceding fiscal year for information and education.

5. The number and specific location of verbal warnings, written warnings and citations given or issued during the preceding fiscal year.

6. A specific and detailed accounting for all monies spent in accordance with this section for construction of new off-highway vehicle trails, mitigation of damages to lands, revegetation, the prevention and restoration of damages to natural and cultural resources,

signage, maps and necessary environmental, historical and cultural clearance or compliance activities.
J. For the purposes of this Section, "off-highway vehicle recreational plan" means a plan that is maintained by the Arizona State Parks Board pursuant to Section 41-511.04.

§ 28-1177. Off-highway vehicle user fee; indicia; registration; state trust land recreational permit; exception
A. A person shall not operate an all-terrain vehicle or an off-highway vehicle in this state without an off-highway vehicle user indicia issued by the Department if the all-terrain vehicle or off-highway vehicle meets both of the following criteria:
1. Is designed by the manufacturer primarily for travel over unimproved terrain.
2. Has an unladen weight of eighteen hundred pounds or less.
B. A person shall apply to the Department of Transportation for the off-highway vehicle user indicia by submitting an application prescribed by the Department of Transportation and a user fee for the indicia in an amount to be determined by the director of the Department of Transportation in cooperation with the director of the Arizona Game and Fish Department and the Arizona State Parks Board. The user indicia is valid for one year from the date of issuance and may be renewed. The Department shall prescribe by rule the design and placement of the indicia.
C. When a person pays for an off-highway vehicle user indicia pursuant to this Section, the person may request a motor vehicle registration if the vehicle meets all equipment requirements to be operated on a highway pursuant to Article 16 of this Chapter. If a person submits a signed affidavit to the Department affirming that the vehicle meets all of the equipment require for highway use and that the vehicle will be operated primarily off of highways, the Department shall register the vehicle for highway use and the vehicle owner is not required to pay the registration fee prescribed in Section 28-2003. This Subsection does not apply to vehicles that as produced by the manufacturer meet the equipment requirements to be operated on a highway pursuant to Article 16 of this Chapter.
D. The director shall deposit, pursuant to Sections 35-146 and 35-147, seventy per cent of the user fees collected pursuant to this Section in the Off-Highway Vehicle Recreation Fund established by Section 28-1176 and thirty per cent of the user fees collected pursuant to this Section in the Arizona Highway User Revenue Fund.
E. An occupant of an off-highway vehicle with a user indicia issued pursuant to this Section who crosses State Trust lands must comply with all of the rules and requirements under a State Trust land recreational permit. All occupants of an off-highway vehicle with a user indicia shall obtain a State Trust land recreational permit from the State Land Department for all other authorized recreational activities on State Trust land.
F. This section does not apply to off-highway vehicles, all-terrain vehicles or off-road recreational motor vehicles that are used off-highway exclusively for agricultural, ranching, construction, mining or building trade purposes.

§ 28-1178. Operation of off-highway vehicles; exceptions
A person may operate an all-terrain vehicle or an off-highway vehicle in this state without an off-highway vehicle user indicia issued pursuant to Section 28-1177 if any of the following applies:
1. The person is participating in an off-highway special event.
2. The person is operating an all-terrain vehicle or an off-highway vehicle on private land.
3. The person is loading or unloading an all-terrain vehicle or an off-highway vehicle from a vehicle.
4. During a period of emergency or if the operation is directed by a peace officer or other public authority.
5. All of the following apply:

(a) the person is not a resident of this state.
(b) the person owns the vehicle.
(c) the vehicle displays a current off-highway vehicle user indicia or registration from the person's state of residency.
(d) the vehicle is not in this state for more than thirty consecutive days.

§ 28-1179. Off-highway vehicle equipment requirements; rule making
A. An off-highway vehicle in operation in this state shall be equipped with all of the following:
1. Brakes adequate to control the movement of the vehicle and to stop and hold the vehicle under normal operating conditions.
2. Lighted headlights and taillights that meet or exceed original equipment manufacturer guidelines if operated between one-half hour after sunset and one-half hour before sunrise.
3. Except when operating on a closed course, either a muffler or other noise dissipative device that prevents sound above ninety-six decibels. The Director shall adopt the current sound measurement standard of the society of automotive engineers for all-terrain vehicles and motorcycles and the current sound measurement standard of the international organization for standardization for all other off-highway vehicles.
4. A spark arrestor device that is approved by the United States Department of Agriculture and that is in constant operation except if operating on a closed course.
5. A safety flag that is at least six by twelve inches and that is attached to the off-highway vehicle at least eight feet above the surface of level ground, if operated on sand dunes or areas designated by the managing agency.
B. A person who is under eighteen years of age may not operate or ride on an off-highway vehicle on public or state land unless the person is wearing protective headgear that is properly fitted and fastened, that is designed for motorized vehicle use and that has a minimum United States Department of Transportation safety rating.
C. In consultation with the Department of Transportation, the Arizona Game and Fish Commission may:
1. Adopt rules necessary to implement this Section.
2. Prescribe additional equipment requirements not in conflict with federal laws.
D. This Section does not apply to a private landowner or lessee performing normal agricultural or ranching practices while operating an all-terrain vehicle or an off-highway vehicle on the private or leased land in accordance with the landowner's or lessee's lease.

§ 28-1180. Race or organized event; authorization required
No person may organize, promote or hold an off-highway vehicle race or other organized event on any land or highway in this state, except as authorized by the appropriate agency that has jurisdiction over the land or highway or the landowner.

§ 28-1181. Civil traffic violation
Unless otherwise specified in this Article, a violation of this Article is a civil traffic violation.

Title 28., Chapter 7. Certificate of Title and Registration
Article 1. General Provisions

§ 28-2003. Fees; vehicle title and registration; identification plate; definition
A. The following fees are required:
1. For each certificate of title, salvage certificate of title, restored salvage certificate of title or nonrepairable vehicle certificate of title, four dollars.
2. For each certificate of title for a mobile home, seven dollars. The Director shall deposit three dollars of each fee imposed by this paragraph in the State Highway Fund

established by Section 28-6991.

3. Except as provided in Section 28-1177, for the registration of a motor vehicle, eight dollars, except that the fee for motorcycles is nine dollars.

4. For a duplicate registration card or any duplicate permit, four dollars.

5. For each special ninety day nonresident registration issued under Section 28-2154, fifteen dollars.

6. Except as provided in Paragraph 7 of this Subsection, for the registration of a trailer or semi trailer that is ten thousand pounds or less gross vehicle weight, eight dollars, and for the registration of a trailer or semi trailer that exceeds ten thousand pounds gross vehicle weight:

(a) On initial registration, a one-time fee of two hundred forty-five dollars.

(b) On renewal of registration or if previously registered in another state, a one-time fee of:

(i) If the trailer's or semi trailer's model year is less than six years old, one hundred forty-five dollars.

(ii) If the trailer's or semi trailer's model year is at least six years old, ninety-five dollars.

7. For the registration of a noncommercial trailer that is not a travel trailer and that is less than six thousand pounds gross vehicle weight:

(a) On initial registration, a one-time fee of twenty dollars.

(b) On renewal of registration, a one-time fee of five dollars.

8. For a transfer of a noncommercial trailer that is not a travel trailer and that is less than six thousand pounds gross vehicle weight, twelve dollars.

9. For each special ninety day resident registration issued under Section 28-2154, fifteen dollars.

10. For each one trip registration permit issued under Section 28-2155, one dollar.

11. For each temporary general use registration issued under Section 28-2156, fifteen dollars.

12. For each identification plate bearing a serial or identification number to be affixed to any vehicle, five dollars.

B. For the purposes of this Section, "travel trailer" means a trailer that is:

1. Mounted on wheels.
2. Designed to provide temporary living quarters for recreational, camping or travel use.
3. Less than eight feet in width and less than forty feet in length.

Title 28., Chapter 7. Certificate of Title and Registration
Article 2. Certificate of Title and Registration

§ 28-2061. New off-road recreational motor vehicle; certificate of title; exemption

A. On the retail sale of a new all-terrain vehicle, off-highway vehicle as defined in Section 28-1171 or off-road recreational motor vehicle, the dealer or person first receiving the motor vehicle from the manufacturer shall apply, on behalf of the purchaser, to the Department for a certificate of title to the motor vehicle in the name of the purchaser. If satisfied that the application is genuine and regular and that the applicant is entitled to a certificate, the Department shall issue a certificate of title to the motor vehicle without requiring registration for the motor vehicle.

B. A person who owns an all-terrain vehicle, off-highway vehicle as defined in Section 28-1171 or off-road recreational motor vehicle shall apply for and obtain a certificate of title required by this Section in the manner prescribed in this Chapter on or before July 1, 2009. On the transfer of ownership of an all-terrain vehicle, off-highway vehicle as defined in Section 28-1171 or off-road recreational motor vehicle for which a certificate of title is required by this Section, a person shall apply for and obtain a new certificate in the manner

prescribed in this Chapter.
C. A person participating in an off-highway vehicle special event as defined in Section 28-1171 is exempt from the requirements of this Section.

Title 28., Chapter 7. Certificate of Title and Registration
Article 5. Registration Requirements Generally

§ 28-2153. Registration requirement; exceptions; assessment; violation; classification
A. A person shall not operate, move or leave standing on a highway a motor vehicle, trailer or semi trailer unless the motor vehicle, trailer or semi trailer has been registered with the Department for the current registration year or is properly registered for the current registration year by the state or country of which the owner or lessee is a resident.
B. A resident shall not operate, move or leave standing on a highway a motor vehicle, trailer or semi trailer that is:
1. Owned by a nonresident and that is primarily under the control of a resident of this state for more than seven months unless the motor vehicle, trailer or semi trailer has been registered with the Department for the current registration year.
2. Leased by the resident for more than twenty-nine days unless the motor vehicle, trailer or semi trailer has been registered with the Department for the current registration year.
C. This section applies to a trailer or semi trailer without motive power unless the vehicle is disabled or is being towed as an abandoned vehicle at the direction of a law enforcement agency.
D. This section does not apply to:
1. A farm tractor.
2. A trailer used solely in the operation of a farm for transporting the unprocessed fiber or forage products of a farm or any implement of husbandry designed primarily for or used in agricultural operations and only incidentally operated or moved on a highway.
3. A road roller or road machinery, including a power sweeper, that is temporarily operating or moved on the highway.
4. An owner permitted to operate a vehicle under special provisions relating to lienholders, manufacturers, dealers and nonresidents.
5. Motorized or nonmotorized equipment designed primarily for and used in mining operations and only incidentally operated or moved on a highway.
6. A motor vehicle that is being towed by a tow truck that has been registered and for which a permit has been obtained pursuant to Section 28-1108.
7. A golf cart used in the operation of a golf course or only incidentally operated or moved on a highway.
8. Wheeled equipment. For the purposes of this Paragraph, "wheeled equipment" means:
(a) A compressor.
(b) A forklift.
(c) A portable cement mixer.
(d) A single axle tow dolly as defined in Section 28-1095.
(e) A tar pot.
(f) A water trailer used for watering livestock or for agricultural or domestic purposes.
(g) A welder.
(h) Any other similar item designed and used primarily for construction or building trade purposes.
9. An all-terrain vehicle or an off-road recreational motor vehicle operating on a dirt road that is located in an unincorporated area of this state. For the purposes of this

Paragraph, "dirt road" means an unpaved or ungraveled road that is not maintained by this state or a city, town or county of this state.

10. A person operating an off-highway vehicle who is participating in an off-highway vehicle special event as defined in Section 28-1171.

11. An all-terrain vehicle, off-highway vehicle as defined in Section 28-1171 that is only incidentally operated or moved on a highway.

E. A person who owns or operates a trailer that is exempt from registration pursuant to Subsection D, Paragraph 2 of this Section shall notify the county assessor of the exemption, and the assessor shall assess the trailer.

F. A person who violates Subsection E of this Section is guilty of a Class 2 misdemeanor.

Title 28., Chapter 7. Certificate of Title and Registration
Article 15. Distinctive Vehicles

§ 28-2512. Off-road recreational motor vehicle license plate; fee

A. Every owner of an all-terrain vehicle, off-highway vehicle as defined in Section 28-1171 or off-road recreational motor vehicle shall apply to the Department for a license plate.

B. The Department shall furnish to an owner of an all-terrain vehicle, off-highway vehicle as defined in Section 28-1171 or off-road recreational motor vehicle one license plate for each vehicle.

C. The fee for a plate issued pursuant to this Section is eight dollars.

D. The license plate assigned to a motor vehicle pursuant to this Section shall be:

1. Attached to the rear of the vehicle.
2. Securely fastened to the vehicle in a clearly visible position.

E. An owner of an off-highway vehicle as defined in Section 28-1171 participating in an off-highway vehicle special event as defined in Section 28-1171 is exempt from the requirements of this Section.

F. On or before July 1, 2009, the Director shall establish procedures to systematically replace license plates issued for all-terrain vehicles, off-highway vehicles and off-road recreational motor vehicles before January 1, 2009 with the license plate prescribed in this Section.

G. In consultation with the Arizona Game and Fish Department and the Arizona State Parks Board, the director shall design the license plate prescribed by this Section.

Title 28., Chapter 16. Taxes
Article 3. Vehicle License Tax

§ 28-5801. Vehicle license tax rate

A. At the time of application for and before registration each year of a vehicle, the registering officer shall collect the vehicle license tax imposed by Article IX, Section 11, Constitution of Arizona. On the taxpayer's vehicle license tax bill, the registering officer shall provide the taxpayer with the following:

1. Information showing the amount of the vehicle license tax that each category of recipient will receive and the amount that is owed by the taxpayer.
2. The amount of vehicle license tax the taxpayer would pay pursuant to Section 28-5805 if the taxpayer's motor vehicle was powered by alternative fuel.

B. Except as provided in Subsections C, D and E of this Section:

1. During the first twelve months of the life of a vehicle as determined by its initial registration, the vehicle license tax is based on each one hundred dollars in value, the value of the vehicle is sixty per cent of the manufacturer's base retail price of the vehicle and the vehicle license tax rate for each of the recipients is as follows:

(a) The rate for the Arizona Highway User Revenue Fund is one dollar twenty-six cents.

(b) The rate for the county general fund is sixty-nine cents.
(c) The rate for counties for the same use as Highway User Revenue Fund monies is sixteen cents.
(d) The rate for incorporated cities and towns is sixty-nine cents.

2. During each succeeding twelve month period, the vehicle license tax is based on each one hundred dollars in value, the value of the vehicle is 16.25 per cent less than the value for the preceding twelve month period and the vehicle license tax rate for each of the recipients is as follows:
(a) The rate for the Arizona Highway User Revenue Fund is one dollar thirty cents.
(b) The rate for the county general fund is seventy-one cents.
(c) The rate for counties for the same use as Highway User Revenue Fund monies is seventeen cents.
(d) The rate for incorporated cities and towns is seventy-one cents.

3. The minimum amount of the vehicle license tax computed under this Section is ten dollars per year for each vehicle that is subject to the tax. If the product of all of the rates prescribed in Paragraph 1 or 2 of this Subsection is less than ten dollars, the vehicle license tax is ten dollars. The vehicle license tax collected pursuant to this Paragraph shall be distributed to the recipients prescribed in this Subsection based on the percentage of each recipient's rate to the sum of all of the rates.

C. The vehicle license tax is as follows for noncommercial trailers that are not travel trailers and that are less than six thousand pounds gross vehicle weight:
1. On initial registration, a one-time vehicle license tax of one hundred five dollars.
2. On renewal of registration, a one-time vehicle license tax of seventy dollars.

D. The vehicle license tax is as follows for a trailer or semi trailer that exceeds ten thousand pounds gross vehicle weight:
1. On initial registration, a one-time vehicle license tax of five hundred fifty-five dollars.
2. On renewal of registration or if previously registered in another state, a one-time vehicle license tax of:
(a) If the trailer's or semi trailer's model year is less than six years old, three hundred fifty-five dollars.
(b) If the trailer's or semi trailer's model year is at least six years old, one hundred dollars.

E. The vehicle license tax for an all-terrain vehicle or off-highway vehicle as defined in Section 28-1171 is three dollars if the all-terrain vehicle or off-highway vehicle meets both of the following criteria:
1. Is designed by the manufacturer primarily for travel over unimproved terrain.
2. Has an unladen weight of eighteen hundred pounds or less.

F. The vehicle license tax collected pursuant to Subsection C, D or E of this Section shall be distributed to the recipients prescribed in Subsection B of this Section based on the percentage of each recipient's rate to the sum of all of the rates.

G. For the purposes of Subsection C of this Section, "travel trailer" has the same meaning prescribed in Section 28-2003.

Title 28., Chapter 16. Taxes
Article 5. Tax Administration

§ 28-5927. Transfer; off-highway vehicle recreation fund

Fifty-five one hundredths of one per cent of the total taxes on motor vehicle fuel shall be transferred from the monies collected pursuant to Section 28-5606 to the Off-Highway Vehicle Recreation Fund established by Section 28-1176 on a monthly basis.

Title 28., Chapter 18. Distribution of Highway User Revenues
Article 1. General Provisions

§ 28-6501. Definition of highway user revenues
In this Article, unless the context otherwise requires or except as otherwise provided by statute, "highway user revenues" means all monies received in this state from licenses, taxes, penalties, interest and fees authorized by the following:

1. Chapters 2, 7, 8 and 15 of this Title, except for:
   (a) The special plate administration fees prescribed in Sections 28-2404, 28-2412 through 28-2428 and 28-2514.
   (b) The donations prescribed in Sections 28-2404, 28-2412 through 28-2415, 28-2417 through 28-2428, 28-2453, 28-2454 and 28-2455.
2. Section 28-1177.
3. Chapters 10 and 11 of this Title.
4. Chapter 16, Articles 1, 2 and 4 of this Title, except as provided in Sections 28-5926 and 28-5927.

Title 28., Chapter 20. State Highways and Routes
Article 4. State Highway Fund and Budget

§ 28-6991. State highway fund; sources
A state highway fund is established that consists of:

12. Except as provided in Section 28-5101, the following monies:
    (b) One dollar of each registration fee and one dollar of each title fee collected pursuant to Section 28-2003 (Fees; vehicle title and registration; identification plate; definition).

TITLE 41 – STATE GOVERNMENT
Chapter 3. Administrative Boards and Commissions
Article 1. Arizona State Parks Board Heritage Fund
Article 1 was added by initiative measure approved by electors at the November 6, 1990 general election, as proclaimed by the Governor on November 26, 1990.

§ 41-501. Definitions; Heritage Fund
In this Article:
. . . 4. "Trails" means those trails for nonmotorized use nominated for inclusion in the state trails system, including urban, cross-state, recreation, interpretive or historic trails.

§ 41-502. Establishment of fund
A. The Arizona State Parks Board Heritage Fund is established consisting of monies deposited from the State Lottery Fund pursuant to Section 5-522 and interest earned on those monies.
B. The Fund shall be administered by the Arizona State Parks Board and is not subject to appropriation. Expenditures from the Fund are not subject to additional approval notwithstanding any provision of Section 41-511.05 or 41-511.11 or any other statutory provision to the contrary. Monies received pursuant to Section 5-522 shall be deposited directly with the Arizona State Parks Board Heritage Fund. On notice from the Arizona State Parks Board, the state treasurer shall invest and divest monies in the Fund as provided by Section 35-313, and monies earned from investment shall be credited to the Fund.
C. The Board shall not use its rights of eminent domain under Section 41-511.06 to acquire property to be paid for with monies from the Arizona State Parks Board Heritage Fund.
D. All monies in the Arizona State Parks Board Heritage Fund shall be spent by the Arizona State Parks Board only for the purposes and in the percentages set forth in this Article. In no event shall any monies in the Fund revert to the State General Fund and monies in the

fund are exempt from the provisions of Section 35-190, relating to lapsing of appropriations.

§ 41-503. Expenditures from fund; purpose and amounts

A. Monies in the Fund for local, regional and state trails, parks, outdoor recreation and open space shall consist of:

1. Five per cent of monies received pursuant to Section 5-522 shall be spent on local, regional and state trails.
2. Thirty-five per cent of monies received pursuant to Section 5-522 shall be spent on local, regional or state parks, for outdoor recreation and open space.

B. Arizona State Parks Board Heritage Fund monies allocated pursuant to Subsection A, Paragraphs 1 and 2 of this Section shall be spent in accordance with Section 41-511.25 and shall be available as matching funds.

C. No entity receiving Funds under Subsections A and B of this Section shall receive more than twenty per cent of the monies available in any fiscal year.

D. Monies received pursuant to Section 5-522 shall be spent as follows:

1. Seventeen per cent on acquisition of natural areas.
2. Four per cent on maintenance, operation and management of natural areas administered by the Arizona State Parks Board.
3. Seventeen per cent on local, regional and state historic preservation projects. Monies provided under this Paragraph shall be administered by the Arizona State Parks Board through the state historic preservation officer.
4. Seventeen per cent on state park acquisition or development.
5. Five per cent on environmental education.

E. All monies earned as interest on monies received pursuant to Section 5-522 shall be spent only in the percentages and for the purposes described in Subsections A through D of this Section or for costs of administering the Arizona State Parks Board Heritage Fund in such amounts as determined by the Arizona State Parks Board.

F. On or before December 31 each year the Board shall submit its annual report to the president of the Senate, the speaker of the House of Representatives and the chairmen of the Senate and House of Representatives committees on Natural Resources and Agriculture, or their successor committees. The annual report shall include information on:

1. The amount of monies spent or encumbered in the Fund during the preceding fiscal year and a summary of the projects, activities and expenditures relating to:
   (a) Local, regional and state trails.
   (b) Local, regional or state parks for outdoor recreation and open space.
   (c) Natural areas, including acquisition and maintenance, operation and management of natural areas.
   (d) Local, regional and state historic preservation projects.
   (e) State park acquisition and development.
   (f) Environmental education.
2. The number and location of parcels of property acquired during the preceding fiscal year.
3. For personal and real properties acquired with Fund monies during the preceding fiscal year, the amount of property tax revenue paid to each taxing jurisdiction during the last full tax year prior to acquisition.
4. The amount of money spent from the Fund during the preceding fiscal year for employee personal services.
5. The number of full-time employees employed in the preceding fiscal year in connection with property acquisition, including survey, appraisal and other related activities.

§ 41-504. Performance audit
The Auditor General shall conduct a performance audit, as defined in Section 41-1278, of the programs and expenditures of the Arizona State Parks Board Heritage Fund pursuant to this Article at the same time any agency performance audit of the Arizona State Parks Board is conducted. The Auditor General shall submit copies of the performance audit to the president of the Senate, the speaker of the House of Representatives and the chairpersons of the Senate Committee on Commerce, Agriculture and Natural Resources and the House of Representatives Committee on Natural Resources and Agriculture, or their successor committees.

Arizona Heritage Fund—Historical and Statutory Notes
Proposition 200, based on an initiative measure, providing for annual funding from State Lottery revenues for the State Parks Board and the Arizona Game and Fish Commission Heritage Fund, was approved by the electors at the November 6, 1990 general election, as proclaimed by the Governor on November 26, 1990.
Section 1 of Proposition 200 (1990) provided: Declaration of policy
A. The people of Arizona believe it is in the best interest of the general economy and welfare of Arizona and its citizens to set aside adequate state funds on an annual basis to preserve, protect and enhance Arizona's natural and cultural heritage, wildlife, biological diversity, scenic wonder and environment and provide new opportunities for outdoor recreation in Arizona.
B. It is the intention and desire of the people of Arizona in enacting this statute by initiative that the funds provided hereby are in addition to and separate from other funds that are now and shall be annually appropriated by the Legislature.

Title 41., Chapter 3. Administrative Boards and Commissions
Article 1.1 Arizona State Parks Board

§ 41-511.04. Duties; board; partnership fund; state historic preservation officer
A. The Board shall:
1. Select areas of scenic beauty, natural features and historical properties now owned by the state, except properties in the care and custody of other agencies by virtue of agreement with the state or as established by law, for management, operation and further development as state parks and historical monuments.
2. Manage, develop and operate state parks, monuments or trails established or acquired pursuant to law, or previously granted to the state for park or recreation purposes, except those falling under the jurisdiction of other state agencies as established by law.
3. Investigate lands owned by the state to determine in cooperation with the agency that manages the land which tracts should be set aside and dedicated for use as state parks, monuments or trails.
4. Investigate federally owned lands to determine their desirability for use as state parks, monuments or trails and negotiate with the federal agency having jurisdiction over such lands for the transfer of title to the Arizona State Parks Board.
5. Investigate privately owned lands to determine their desirability as state parks, monuments or trails and negotiate with private owners for the transfer of title to the Arizona State Parks Board.
6. Enter into agreements with the United States, other states or local governmental units, private societies or persons for the development and protection of state parks, monuments and trails.
7. Plan, coordinate and administer a state historic preservation program including the program established pursuant to the National Historic Preservation Act of 1966, as amended.
8. Advise, assist and cooperate with federal and state agencies, political subdivisions of

this state and other persons in identifying and preserving properties of historic or prehistoric significance.

9. Keep and administer an Arizona register of historic places composed of districts, sites, buildings, structures and objects significant in this state's history, architecture, archaeology, engineering and culture which meet criteria which the Board establishes or which are listed on the national register of historic places. Entry on the register requires nomination by the state historic preservation officer and owner notification in accordance with rules which the Board adopts.

10. Accept, on behalf of the state historic preservation officer, applications for classification as historic property received from the county assessor.

11. Adopt rules with regard to classification of historic property including:

(a) Minimum maintenance standards for the property.

(b) Requirements for documentation.

12. Monitor the performance of state agencies in the management of historic properties as provided in Chapter 4.2 of this Title.

13. Advise the governor on historic preservation matters.

14. Plan and administer a statewide parks and recreation program including the programs established pursuant to the Land and Water Conservation Fund Act of 1965 (P.L. 88-578; 78 Stat. 897).

15. Prepare, maintain and update a comprehensive plan for the development of the outdoor recreation resources of this state.

16. Initiate and carry out studies to determine the recreational needs of this state and the counties, cities and towns.

17. Coordinate recreational plans and developments of federal, state, county, city, town and private agencies.

18. Receive applications for projects to be funded through the Land and Water Conservation Fund, the State Lake Improvement Fund and the Law Enforcement and Boating Safety Fund on behalf of the Arizona Outdoor Recreation Coordinating Commission.

19. Provide staff support to the Arizona Outdoor Recreation Coordinating Commission.

20. Maintain a statewide off-highway vehicle recreational plan. The plan shall be updated at least once every five years and shall be used by all participating agencies to guide distribution and expenditure of monies under Section 28-1176. The plan shall be open to public input and shall include the priority recommendations for allocating available monies in the Off-Highway Vehicle Recreation Fund established by Section 28-1176.

21. Collaborate with the state forester in presentations to legislative committees on issues associated with forest management and wildfire prevention and suppression as provided by Section 37-622, Subsection B.

B. Notwithstanding Section 41-511.11, the Board may annually collect and expend monies to plan and administer the Land and Water Conservation Fund program, in conjunction with other administrative tasks and recreation plans, as a surcharge to subgrantees in a proportionate amount, not to exceed ten per cent, of the cost of each project. The surcharge monies shall be set aside to fund staff support for the Land and Water Conservation Fund program.

C. A Partnership Fund is established consisting of monies received pursuant to Subsection B of this Section, monies received from intergovernmental agreements pursuant to Title 11, Chapter 7, Article 3 and monies received pursuant to Section 35-148. The Board shall administer the fund monies as a continuing appropriation for the purposes provided in these Sections.

D. The state historic preservation officer shall:

1. In cooperation with federal and state agencies, political subdivisions of this state and other persons direct and conduct a comprehensive statewide survey of historic properties and maintain inventories of historic properties.

2. Identify and nominate eligible properties to the national register of historic places and the Arizona register of historic places and otherwise administer applications for listing historic properties on the national and state registers.
3. Administer grants-in-aid for historic preservation projects within this state.
4. Advise, assist and monitor, as appropriate, federal and state agencies and political subdivisions of this state in carrying out their historic preservation responsibilities and cooperate with federal and state agencies, political subdivisions of this state and other persons to ensure that historic properties are taken into consideration at all levels of planning and development.
5. Develop and make available information concerning professional methods and techniques for the preservation of historic properties.
6. Make recommendations on the certification, classification and eligibility of historic properties for property tax and investment tax incentives.

Title 41., Chapter 3. Administrative Boards and Commissions
Article 1.1 Arizona State Parks Board

§ 41-511.15. Arizona trail; fund; definition
A. The Arizona Trail is designated as a state scenic trail to memorialize former United States congressman Bob Stump for his significant contributions to the trails and people of this state.
B. The Arizona State Parks Board shall:
1. Participate in planning, establishing, developing, maintaining and preserving the trail.
2. Provide information to any person involved in planning, establishing, developing or maintaining the trail regarding the design, corridors, signs, interpretive markers highlighting special areas and historic uses and any other aspect of the trail to promote uniformity of development, maintenance and preservation.
3. Encourage counties, cities and towns to adapt their general and comprehensive plans to preserve the trail right-of-way and to acquire property or legal interests in property to ensure the trail's continued existence in a permanent location.
4. In cooperation with federal and state land management agencies, prepare a trail management plan and a plan for interpretive markers for the trail.
5. Coordinate the Board's trail plan with federal, state and local activities and land uses that may affect the trail and with private nonprofit support organizations to assist in planning, developing, promoting and preserving the trail.
6. Accept gifts and grants of private and public monies for the purposes of this Section. Monies received pursuant to this Paragraph shall be deposited in the Arizona Trail Fund.
C. The trail shall be planned and designed for all nonmotorized recreational uses, including hiking, biking, horseback and pack stock use, cross country skiing, snowshoeing and camping.
D. An agency of this state or of a county, city or town may not refuse to permit construction of the trail on property or rights-of-way owned or managed by the agency if the trail does not conflict with existing or proposed uses of the property. Each such agency shall:
1. Support the construction of the trail in the agency's long-term plans for its property.
2. Support the designation of the trail as a part of the National Trail system.
3. Accommodate facilities for the safe trail crossing of highway rights-of-way.
4. Not infringe on existing land uses, such as cattle grazing or mineral development, that are near to or adjoin the trail. This Paragraph does not authorize any person using public lands under a permit or lease to interfere with the use, maintenance or operation of the Arizona Trail.
E. The Arizona Trail Fund is established consisting of legislative appropriations and

donations to the Fund. The Arizona State Parks Board shall administer the Fund. The monies in the Fund are continuously appropriated for the sole purpose of maintaining and preserving the Arizona Trail.
F. For the purposes of this Section, "Arizona Trail" means a state scenic trail that extends approximately eight hundred miles between the southern border and the northern border of this state.

§ 41-511.22. Trail systems plan; deposit of monies; definition
A. The Board shall prepare a trail systems plan that:
1. Identifies on a statewide basis the general location and extent of significant trail routes, areas and complementary facilities.
2. Assesses the physical condition of the systems.
3. Assesses usage of trails.
4. Describes specific policies, standards and criteria to be followed in adopting, developing, operating and maintaining trails in the systems.
5. Recommends to federal, state, regional, local and tribal agencies and to the private sector actions which will enhance the trail systems.
B. The plan shall be revised at least once every five years.
C. Monies from gifts, grants and other donations received by the Board for the trail systems plan shall be deposited in a separate account of the State Parks Fund established by Section 41-511.11 and may be allocated by the Board for special trail project priorities established annually by the Board.
D. Monies deposited in the State Parks Fund account shall be used for providing state monies up to an amount equal to the amount of cash, materials and labor from any other source for the planning, acquisition, maintenance or operation of the trails and for administrative expenses of not more than twenty per cent of total account monies.
E. For purposes of this Section, "trail systems" means coordinated systems of trails in this state.

Title 41., Chapter 3. Administrative Boards and Commissions
Article 1.2 Arizona Outdoor Recreation Coordinating Commission

§ 41-511.25. Arizona outdoor recreation coordinating commission; members; powers and duties
A. The Arizona Outdoor Recreation Coordinating Commission is established. The Commission shall be composed of seven members consisting of the director of the Arizona Game and Fish Department, the director of the Arizona State Parks Board and five members appointed by the governor. The ex officio members may not serve as officers of the Commission. Of the members appointed by the governor three shall be professional full-time parks and recreation department directors of a county, city, or town and no two shall reside in the same county. Two members appointed by the governor shall be from the general public and each shall have broad experience in outdoor recreation. Of the five appointed members, no more than two shall reside in the same county. Each appointed member shall be appointed for a term of three years. Appointed members shall be reimbursed for expenses incurred while attending meetings called by the Commission as prescribed by Section 38-624.
B. The Commission shall:
1. Review statewide outdoor recreation and lake improvement plans and provide comments to the Arizona State Parks Board.
2. Review budget proposals for the use of Land and Water Conservation Fund surcharges and the State Lake Improvement Fund for planning and administration and provide recommendations to the Arizona State Parks Board.

3. Establish criteria and policies for the equitable distribution of funding, review applications for eligible projects and determine the amount of funding, if any, for each project to be funded from the Land and Water Conservation Fund, the State Lake Improvement Fund, the Law Enforcement and Boating Safety Fund and the Off-Highway Vehicle Recreation Fund.

§ 41-511.26. Authorization for participation in federal land and water conservation fund

The state of Arizona, its agencies, counties, cities and towns are granted authority to participate in the "Land and Water Conservation Fund Act of 1965" as enacted by Public Law 88-578, Eighty-Eighth Congress.

RECREATIONAL LIABILITY STATUTE

TITLE 33 – PROPERTY
Chapter 12. Liabilities and Duties on Property Used for Education and Recreation
Article. 1 General Provisions

§ 33-1551. Duty of Owner, lessee or occupant of premises to recreational or educational users; liability; definitions

A. A public or private owner, easement holder, lessee or occupant of premises is not liable to a recreational or educational user except upon a showing that the owner, easement holder, lessee or occupant was guilty of wilful, malicious or grossly negligent conduct which was a direct cause of the injury to the recreational or educational user.

B. This Section does not limit the liability which otherwise exists for maintaining an attractive nuisance, except with respect to dams, channels, canals and lateral ditches used for flood control, agricultural, industrial, metallurgical or municipal purposes.

C. As used in this Section:

1. "Educational user" means a person to whom permission has been granted or implied without the payment of an admission fee or any other consideration to enter upon premises to participate in an educational program, including but not limited to, the viewing of historical, natural, archaeological or scientific sights. A nominal fee that is charged by a public entity or a nonprofit corporation to offset the cost of providing the educational or recreational premises and associated services does not constitute an admission fee or any other consideration as prescribed by this Section.

2. "Grossly negligent" means a knowing or reckless indifference to the health and safety of others.

3. "Premises" means agricultural, range, open space, park, flood control, mining, forest or railroad lands, and any other similar lands, wherever located, which are available to a recreational or educational user, including, but not limited to, paved or unpaved multi-use trails and special purpose roads or trails not open to automotive use by the public and any building, improvement, fixture, water conveyance system, body of water, channel, canal or lateral, road, trail or structure on such lands.

4. "Recreational user" means a person to whom permission has been granted or implied without the payment of an admission fee or any other consideration to travel across or to enter upon premises to hunt, fish, trap, camp, hike, ride, exercise, swim or engage in similar pursuits. The purchase of a state hunting, trapping or fishing license is not the payment of an admission fee or any other consideration as provided in this Section. A nominal fee that is charged by a public entity or a nonprofit corporation to offset the cost of providing the educational or recreational premises and associated services does not constitute an admission fee or any other consideration as prescribed by this Section.

AIR QUALITY

TITLE 9 – Cities and Towns
Chapter 4. General Powers
Article 8. Miscellaneous

§ 9-500.27. Off-road vehicle ordinance; applicability; violation; classification
A. No later than March 31, 2008, in Area A, as defined in Section 49-541, a city or town shall adopt, implement and enforce an ordinance that prohibits the operation of any vehicle, including an off-highway vehicle, an all-terrain vehicle or an off-road recreational motor vehicle, on an unpaved surface that is not a public or private road, street or lawful easement and that is closed by the landowner by rule or regulation of a federal agency, this state, a county or a municipality or by proper posting if the land is private land.
B. This Section does not apply to the operation of vehicles used in the normal course of business or the normal course of government operations.
C. This Section does not prohibit or preempt the enforcement of any similar ordinance that is adopted by a city or town in Area A, as defined in Section 49-541, before March 31, 2008 for purposes of dust abatement.
D. A person who violates an ordinance adopted pursuant to Subsection A of this Section is guilty of a class 3 misdemeanor.
E. In addition to or in lieu of a fine pursuant to this Section, a judge may order the person to perform at least eight but not more than twenty-four hours of community restitution or to complete an approved safety course related to the off-highway operation of motor vehicles, or both.

TITLE 49 – The Environment
Chapter 3. Air Quallity
Article 2. State Air Pollution Control

§ 49-457.03. Off-road vehicles; pollution advisory days; applicability; penalties
A. In Area A, as defined in Section 49-541, a person shall not operate an off-highway vehicle, an all-terrain vehicle or an off-road recreational motor vehicle on an unpaved surface that is not a public or private road, street or lawful easement during any high pollution advisory day forecast for particulate matter by the Department.
B. This Section does not apply to:
1. An event that is intended for off-highway vehicles, all-terrain vehicles or off-road recreational motor vehicles and that is endorsed, authorized, permitted or sponsored by a public agency, that occurs on a designated route or area and that includes dust abatement measures at all staging areas, parking areas and entrances.
2. An event that occurs at a facility for which an admission or user fee is charged and that includes dust abatement measures.
3. A closed course that is maintained with dust abatement measures.
4. An off-highway vehicle, all-terrain vehicle or off-road recreational motor vehicle used in the normal course of business or the normal course of government operations.
5. Golf carts that are used as part of a private or public golf course operation.
C. A person who violates this section is subject to:
1. A warning for the first violation.
2. The imposition of a civil penalty of fifty dollars for the second violation.
3. The imposition of a civil penalty of one hundred dollars for the third violation.
4. The imposition of a civil penalty of two hundred fifty dollars for the fourth or any subsequent violation.
D. For violations of this section, the control officer or other enforcement officer shall use a uniform civil ticket and complaint substantially similar to a uniform traffic ticket and

complaint prescribed by the rules of procedure in civil traffic cases adopted by the Supreme Court. The control officer or other enforcement officer may issue citations to persons in violation of this Section.

§ 49-457.04. Off-highway vehicle and all-terrain vehicle dealers; informational material; outreach; applicability

A. Any person who rents or sells in the normal course of business off-highway vehicles, all-terrain vehicles or off-road recreational motor vehicles, other than golf carts sold to public or private golf courses, shall provide to the buyer or renter of the vehicle printed materials that are approved by the department pursuant to this Section.

B. The Department shall produce printed materials and distribute those materials to persons who sell or rent off-highway vehicles, all-terrain vehicles or off-road recreational motor vehicles. The printed materials shall be designed to educate and inform the user of the vehicle on methods for reducing the generation of dust and shall include information regarding dust control ordinances and restrictions that may be applicable. The Department shall make available on the Department's website the printed materials in a format that is accessible to the public.

C. This Section applies in a county with a population of two million or more persons or any portion of a county in an area designated by the environmental protection agency as a serious PM-10 nonattainment area or a maintenance area that was designated as a serious PM-10 nonattainment area.

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APPENDIX C

Timeline of Pertinent Arizona OHV Legislation and Policy Decisions, 1989-2009

May 1989	**Governor Rose Mofford signed Senate Bill 1280 into law establishing an off-highway vehicle (OHV) program in Arizona.** The legislation established the OHV Recreation Fund, which was comprised of a percentage of state license fuel taxes. It required the development of a statewide OHV Recreation Plan at least once every six years and also the completion of a survey to assess the correct allocation of Arizona motor vehicle fuel tax to be transferred to the OHV Recreation Fund. Part of this new OHV law was A.R.S. §28-2807, which established a governor-appointed, seven-member Off-Highway Vehicle Advisory Group (OHVAG). Of the seven members, five were required to be members of organized OHV groups or clubs. The State Parks Board solicited nominations for members of the advisory group and submitted qualified names to the Governor for each vacancy. The original members were appointed to staggered three-year terms. The law became effective in September 1989.
January 1991	**The required 1990 Arizona OHV Survey Final Report was presented to the legislature.** The results of the survey indicated that 1.747 percent of all motor fuel consumed in the state was consumed for OHV use. Since state fuel tax at the time was $0.17 per gallon (1990), the total amount of fuel tax revenues that were generated from these sources were estimated at $5,977,546. The magnitude of a nearly $6 million OHV Recreation Fund ran into considerable political opposition. Further progress on the Arizona OHV Program was halted until the funding issue could be resolved.
June 1991	**Governor Mofford signed House Bill 2093 into law which amended the OHV statutes established through Senate Bill 1280 which allowed for the transfer of monies to the OHV Recreation Fund.** Among the changes to the law was a set percentage of 0.55 percent of the annual state motor-fuel tax revenues to the OHV fund, the addition of two members to the OHVAG, and earmarking 30% of the funds for the Arizona Game and Fish Department for information, education, and law enforcement activities.
October 1993	**Completion of the first Arizona OHV Recreation Plan.**

April 1996	**Senate Bill 1271 is signed into law by Governor Symington which repealed several councils and boards, including OHVAG.** With the repeal of A.R.S. § 28.2807 (Off-Highway Vehicle Advisory Group); duties, OHVAG members were no longer appointed by the Governor.
May 1996	**The Arizona State Parks Board (ASPB) established the OHVAG as an advisory committee to the Board** and reappointed the standing members of the OHVAG to the remainder of their respective terms. The ASPB-appointed OHVAG consists of seven members; five must be OHV recreationists affiliated with an organized OHV group and two members must represent the general public or casual OHV recreationists.
May 1998	**The ASPB approved a recommendation to amend the OHVAG Policy statement** to include term limits not to exceed two consecutive three-year terms.
November 1999	**The ASPB approved the Arizona Trails Plan 2000.** This is the completion of the second OHV plan. It is combined with the State non-motorized Trails Plan.
March 2003	**HB 2002, Chapter 2 E passed. By (special) session law, the ASPB may spend up to spend $692,100 from the OHV Recreation Fund in FY 2002-2003 for ASPB operating expenses.**
March 2003	**HB 2001, Chapter 1 passed. By (special) session law, $4,000,000 from the OHV Recreation Fund is transferred to the State general fund** on or before June 30, 2003 for the purposes of providing adequate support and maintenance for agencies of Arizona. Legislative sweeps of FY 2002-2003 revenues and the current balance of the OHV Recreation Fund (including monies obligated to projects), totaling $4,000,000, brought the Fund balance to $0.
June 2003	**HB 2533, Chapter 263 passed. By session law, the ASPB may spend up to spend $692,100 from the Game and Fish Department allocation of the OHV Recreation Fund in FY 2003-2004 for ASPB operating expenses.**

June 2003	**HB 2531, Chapter 262 passed. By session law, $2,000,000 from the OHV Recreation Fund is transferred to the State general fund** on or before June 30, 2004 for the purposes of providing adequate support and maintenance for agencies of Arizona. Legislative sweeps eliminate all funding for the OHV program in FY 2004. In FY 2004, ASP honored the outstanding grant requests received by April 10, 2003. ASP honored the remaining $1,075,235 in grant commitments in 2005.
May 2004	**SB 1411, Chapter 280 passed. By session law, ASPB may spend up to $692,100 from the ASPB portion of the OHV Recreation Fund in FY 2004-2005 for ASPB operating expenses.**
November 2004	**ASPB approved the Arizona Trails Plan 2005, which supersedes the previous state plan.**
May 2005	**SB 1522, Chapter 332 passed. By session law, the ASPB may spend up to $692,100 from the ASPB portion of the OHV Recreation Fund in fiscal years 2005-2006 and 2006-2007 for ASPB operating expenses.**
2006-2007	**Multiple off-highway vehicle bills were established in the House and Senate including a new off-highway vehicle fee, often referred to as the Copper Sticker OHV Program** (H.B. 2686, SB1508, HB2622, and many others).
June 2007	**HB 2788, Chapter 262 passed. By session law, the ASPB may spend up to $692,100 from the Arizona state parks board portion of the off-highway vehicle recreation fund in fiscal years 2007-2008 and 2008-2009 for parks board operating expenses.**
June 2007	**Governor Napolitano signed SB1552 which includes air quality control measures for OHVs.** The law is a result of Maricopa County region (Area A) failing to reach attainment of the federal particulate matter under 10 microns (PM10 or dust) health standards. Cities and towns within Area A must adopt ordinances that prohibit OHVs on unpaved surfaces that are not a public or private road and is closed by the landowner. An OHV cannot operate on an unpaved surface during High Pollution Advisory. This new law also requires ADEQ to produce and distribute OHV materials business that rent and sell OHVs to educate and inform the OHV user on methods for reducing the generation of dust and dust control ordinances.

April 2008	**HB 2620 passed. $1,500,000 from the Arizona State Parks Board portion of the OHV Recreation Fund and $395,000 from the Arizona Game and Fish Department portion of the OHV Recreation Fund** is reduced from the state general fund from appropriations made to state agencies in fiscal year 2007-2008.
June 2008	**Governor Napolitano signed Senate Bill 1167 which includes new OHV equipment requirements; safe, ethical, responsible operation laws; and requires an annual purchase of an Off-Highway Vehicle Decal for the operation of any ATV or OHV in Arizona.** Revenues generated from the new OHV Decal user fee bolstering funding that pay for trail maintenance, signage, maps, facility development, habitat damage mitigation, education, enforcement, and other OHV management activities.
June 2008	**HB 2209 passed. $1,086,000 from the Arizona State Parks Board portion of the OHV Recreation Fund and $200,000 from the Arizona Game and Fish Department portion of the OHV Recreation Fund, is transferred to the State general fund** on or before June 30, 2009, for the purposes of providing adequate support and maintenance for agencies of the State.
April 2008	**The ASPB approved a recommendation to amend the OHVAG Policy statement to substitute one general public OHVAG member position to a sportsperson position.** This recommendation was initiated by considerable opposition to the make-up of OHVAG by environmental and conservation groups.
January 2009	SB 1001 passed. By (special) session law, $436,300 from the OHV Recreation Fund (Arizona State Parks administered portion) is transferred to the State general fund on or before June 30, 2009 for the purposes of providing adequate support and maintenance for agencies of Arizona. Additionally, Arizona State Parks and the Arizona Game and Fish Department must reduce expenditures and transfer OHV Recreation Funds to the state general fund by $118,400 (Arizona State Parks) and $37,100 (Arizona Game and Fish). Pursuant to SB 1167, ADOT's Motor Vehicle Department initiated the OHV Decal Program, issuing OHV decals to eligible off-highway vehicle owners, collecting $25 annually for each decal, and depositing 70% of the revenues into the OHV Recreation Fund.
June 2009	**Pending…**

APPENDIX D

Arizona Trails 2010 Survey Results and Questionnaire

Statewide "Random Household" Phone and Web Survey
and "Involved Trail User" and "Interested Public" Web Surveys
As part of the public participation effort to provide citizen input into the Arizona Trails 2010 Plan, Arizona State Parks partnered with Arizona State University (ASU) in 2008 to conduct five trail related surveys. Three of the surveys asked the same questions (See page 256):

1) a statewide telephone and web survey of randomly selected Arizonans over the age of 18 (completed surveys n=2856) referred to as the "Random Household" survey,

2) an online web survey of targeted Arizona trail users who belong to a trail or OHV organization (completed surveys n=384) referred to as the Target Group or "Involved User" survey and,

3) an open online survey reached by link through the ASP website of people who expressed an interest or concern with recreational motorized or non-motorized trails (completed surveys n=1904) referred to as the "Interested Public" survey.

There was also a Land Manager Survey and a field interview survey of OHV users at eight selected OHV sites scattered throughout Arizona. **See Chapter 2 for a more detailed reporting of survey methodology or see the technical and supplemental reports from ASU, *Trails 2010: A Study of Arizona's Motorized and Non-motorized Trail Users* (White & Meyers 2009a, b, c).**

Research Methods—Random Household Survey
The "Random Household" Survey employed a cross sectional survey design to gather data from a stratified random sample of Arizona households. A total of 2856 interviews were completed as part of the survey of Arizona residents. The overall response rate for the study was 33.65% and the overall cooperation rate was 62.82%. The margin of sampling error for the short version telephone survey was +/- 1.8% at the 95% confidence interval. The margin of sampling error for the full version of the telephone and web survey was 2.3% at the 95% confidence interval.

Respondent households were selected using random digit dialing. Data were collected by the Arizona State University Institute for Social Science Research (ISSR) using computer-assisted-telephone interviewing (CATI) and a self-administered web survey. A total of 2856 interviews were completed and the response rate for the study was 34%. Once data had been collected, the sample sizes were statistically adjusted, or weighted, to accurately represent the state's population distribution.

Survey research has certain limitations that should be noted and taken into account when interpreting the results. Survey research can be affected several sources of error or bias, including sampling error, non-coverage error, non-response error, and measurement error. In this study, sampling error is limited by the stratified random sampling design and large sample size. Non-coverage error refers to the fact that sampling frames may not include all eligible

members of a population. For instance, "cell phone only" households are becoming more common and these households are not included in this study's sampling frame. Non-response error occurs when the final completed sample does not accurately reflect the sampling frame due to systematic bias. For instance, certain group of respondents may be less likely to participate in the survey. To reduce non-response bias, several techniques were used to increase response rates, including multiple follow-up contacts for non-respondents. Finally, measurement error results from mistakes made by respondents and/or poorly designed questionnaire instruments. For instance, this study relies on self-reported behavior and perceptions and thus it is not possible to know if responses accurately reflect actual behavior. To limit measurement error the questionnaires were thoroughly reviewed by the research team and pre-tested to ensure respondents could understand and accurately respond to the questions.

Sampling—Random Household Survey

The studied is based on a stratified random sampling strategy. The survey population included all adult Arizona residents. The sample frame used to represent the population included all adult Arizona residents living in households with working land-line telephones. To draw a stratified random sample, the state was divided into eight subgroups or strata.

1. Maricopa County
2. Pinal County
3. Coconino County
4. Yavapai County
5. Pima County
6. Yuma, La Paz, Mohave Counties
7. Cochise, Graham, Greenlee, Santa Cruz Counties
8. Apache, Gila, Navajo Counties

The goal of this sampling plan was to allow each resident household with a telephone in each stratum an equal chance of being represented in the study. Using a database of telephone area codes and exchanges, the ISSR staff generated a separate sample for each county using random-digit-dialing to select individual telephone numbers. The RDD sample design gives every telephone household a chance of being selected to be interviewed whether or not it is listed in the telephone directory or has been recently assigned. The size of the telephone survey sample was designed to provide final results with sampling error of approximately plus or minus 5% at the 95% confidence interval. The telephone survey was designed to result in approximately 300 completed interviews for each stratum for a total of 2400 completed surveys. This sampling strategy is similar to the scheme used in the research for 2005 trails plans but the current study used eight strata instead of fifteen.

When considering response rates, it is relevant to distinguish between different types of response rates as defined by the American Academy of Public Opinion Research (2006). The overall response rate or "Response Rate 1 (RR1)" refers to the total number of complete interviews divided by the total number of complete interviews plus the total number of non-interviews plus all cases of unknown eligibility. The cooperation rate or "Cooperation Rate 1 (COOP1)" refers to the total number of completed interviews divided by total number of complete interviews plus total number of non-interviews where an eligible respondent was reached.

The first goal of the telephone survey was to obtain population estimates for motorized recreation trail users, non-motorized recreation trail users, and non-users. The second purpose of the telephone survey was to recruit participants to complete a longer in-depth questionnaire via the telephone or online. Each individual was asked a series of questions to determine whether the person was a non-user, a motorized user, or a non-motorized user. Each person was asked whether, during his or her time in Arizona, he or she ever used trails for motorized recreation. This was followed by a question asking if the person ever used trails for non-motorized recreation. Those people answering 'no' to both questions were categorized as nonusers. Those that answered 'yes' to only one of the questions were classified as that specific user type. Those that answered 'yes' to both were asked to determine what percentage of their trail use was allocated to motorized versus non-motorized use. The respondent was then categorized into his or her predominate use-type category (greater than 50% of trail use). A small number of respondents claimed to use trails equally for motorized and non-motorized recreation activities and were excluded from further analysis.

Eligible respondents (trail users) were then offered the opportunity to complete a longer questionnaire to determine more detailed information. This instrument was designed by staff from ASP and ASU. The respondent was offered the opportunity to continue with the longer survey on the phone or complete the survey online. If the respondent chose to complete the survey online, he or she was asked to provide an email address and ISSR sent an email with a link to the online survey and unique identification number.

A total of 40.5% completed the initial and follow-up survey on the phone and 59.5% of respondents completed the initial survey on the phone and the follow-up survey online.

Percent of Random Household Survey Participants taking follow-up survey online or by phone				
	Primary Use Type	Motorized	Non-Motorized	Total
Chose to take the Follow–up Survey online or by phone	Took follow-up survey ONLINE	67.6%	58.1%	59.5%
	Continued follow-up survey on PHONE	32.4%	41.9%	40.5%
	Total	100.0%	100.0%	100.0%

Data Weighting

Once data had been collected, the sample sizes were statistically adjusted, or weighted, to accurately represent the state's population distribution. That is, the responses from each stratum were multiplied by a number so that the responses from that stratum were proportional to the population from that stratum. Sample weights were devised following procedures set forth in Sampling: Design and Analysis (Lohr, 1999). Lohr explains that this procedure is appropriate to recalibrate data that was collected using a stratified sampling design, as is the case in the current study. Through this procedure, the responses from each stratum are weighted so that the final sample size reflects the population proportion from each stratum and corrects for over-sampling bias toward rural residents that would be present without weighting.

Data Analysis

The data were analyzed using Statistical Package for the Social Sciences (SPSS) Version 16.02. This report presents summary statistics, including frequency distributions and descriptive statistics as well as cross-tabulations.

Research Methods—Involved User and Interested Public Surveys
ASU prepared a supplemental report describes two additional data collection efforts. First, an online survey was conducted with involved users that have expressed prior interest in trail management. Second, an open online survey was conducted with Arizona State Parks website visitors. To facilitate comparisons between involved citizens, website visitors, and the representative sample of Arizona households, the same survey questionnaire was administered to all groups.

The Involved User respondents were randomly selected from a State Parks' list of non-motorized trail and off-highway vehicle (OHV) enthusiasts. A database of 517 of email addresses was provided by Arizona State Parks for the involved citizen survey. There were 384 respondents, resulting in a final adjusted survey response rate of 74%.

Interested Public respondents included anyone who wished to take the survey on the Arizona State Parks' website; email notices of the survey's availability were sent to thousands of people who expressed interest in anything State Parks is doing, as well as email notices to a wide range of individuals, clubs, organizations and other stakeholders representing trail and OHV users, and sportsmen, conservationists and environmentalists. A banner and link to the survey was placed on the ASP website inviting participation in the study and a total of 1904 respondents completed the questionnaire.

For the Involved User and Interested Public web surveys, a non-probability sampling strategy was used; therefore, conclusions drawn regarding these groups are representative only of those individuals who participated and cannot be generalized to any larger population or group.

Percentages of Trail Users in Arizona
The following information is from the Random Household Phone and Web Surveys. Trail user percentages and numbers are based on number of Arizonans over age 18. For reference, the 2008 Arizona estimated population is 6,500,180, of which 4,777,632 are adults over age 18 (U.S. Census Bureau 2009).

Total Trail Users: **69%** of adult Arizona residents use recreational trails; this means that 3,227,455 Arizonans age 18 and over consider themselves recreational trail users. 31% say they are non-users of trails.

Motorized Trail Users: **22%** of adult Arizona residents (1,027,191 adults) said they have used a trail for motorized trail recreation; **11%** (511,207 adults) reported that motorized trail use accounts for the majority of their recreational trail time and are considered **"core" users**.

Non-motorized Trail Users: **64%** of adult Arizona residents (3,043,352 adults) said they have used a trail for non-motorized trail recreation; **58%** (2,766,249 adults) reported that non-motorized trail use accounts for the majority of their recreational trail time and are considered **"core" users**.

Equal Users of both Motorized and Non-motorized Trails: 4% of adult Arizona residents (210,219 adults) said they use motorized and non-motorized trails equally.

% and # Trail Users in Arizona (18 yrs >)	Motorized Trail Users		Non-motorized Trail Users		Equal Motorized/ Non-motorized Trail Users	TOTAL Trail Users	Non-users of trails
	Used any Mot. Trail	Motorized Core User	Used any NM. Trail	NonMot Core User			
2010 Plan (2008 survey)*	**21.5%**	**10.7%**	**63.7%**	**57.9%**	**4.4%**	**68.6%**	**31.4%**
2008 AZ Population age 18 and over	1,027,191	511,207	3,043,352	2,766,249	210,219	3,227,455	1,500,176
2005 Plan (2003 survey)**	**24.5%**	**7.0%**	**62.7%**	**56.5%**	**2.9%**	**66.4%**	**33.6%**
2003 AZ Population age 18 and over	995,067	284,305	2,546,560	2,294,747	117,783	2,696,835	1,364,664

2003 AZ Population=5,585,512; age 18 and over=4,061,499. Source: AZ Dept. of Economic Security website, 2009.

The Random Household "all trail user" survey responses to the various questions are from the 69% of adult Arizonans who said they use recreational trails. The motorized and non-motorized trail user responses are from the respective "core" users—11% and 58%. Percentages in the following charts represent the Random Household participant responses. In addition to the responses of the trail users from the Random Household survey, the responses from the Involved Users and Interested Public web surveys are included for comparison purposes. Where applicable, responses from the 2003 Trail Surveys, both Random Household and Target Groups, are also included for trend comparison purposes. Consider the numbers listed in the following tables as the 'percent' of respondents who answered affirmatively to the questions unless otherwise noted, such as when reporting the 'mean' or average response.

- **Random Household all trail users**=69% of adult Arizonans who consider themselves motorized, non-motorized or equally motorized/non-motorized trail users
- **Random Household motorized trail users**=11% of adult Arizonans who consider themselves primarily motorized trail users or core users [also abbreviated as motorized, motor, mot]
- **Random Household non-motorized trail users**=58% of adult Arizonans who consider themselves primarily non-motorized trail users or core users [also abbreviated as non-motorized, non-mot, nm]

- **Involved Users motorized**=active trail users who consider themselves primarily motorized trail users randomly selected from Arizona State Parks's mailing list of recreational OHV users, clubs and organizations
- **Involved Users non-motorized**=active trail users who consider themselves primarily non-motorized trail users randomly selected from Arizona State Parks's mailing list of recreational trail users, clubs and organizations

- **Interested Public motorized**=interested public who took the trails web survey linked through the Arizona State Parks's website; respondents could be OHV users or those interested in or concerned with OHVs or motorized recreation management.
- **Interested Public non-motorized**=interested public who took the trails web survey linked through the Arizona State Parks's website; respondents could be trail users or those interested in or concerned with non-motorized trails or trail management.

SURVEY QUESTIONS

During your time in Arizona, have you ever used any trail for motorized recreation?

Used a trail for motorized recreation	Motorized core users	Non-motorized core users	Non-user	total
Yes Random Household	100%	18.5%	0	21.5%
No Random Household	0	81.5%	100%	78.5%
total	**100%**	**100%**	**100%**	**100%**
Yes Involved Users	100%	52.2%		78.7%
Yes Interested Public	100%	42.1%		77.0%

During your time in Arizona, have you ever used any trail for non-motorized recreation?

Used a trail for non-motorized recreation	Motorized core users	Non-motorized core users	Non-user	total
Yes Random Household	52.6%	100%	0	63.7%
No Random Household	47.4%	0	100%	36.3%
total	**100%**	**100%**	**100%**	**100%**
Yes Involved Users	85.6%	100%		92.0%
Yes Interested Public	81.1%	100%		88.6%

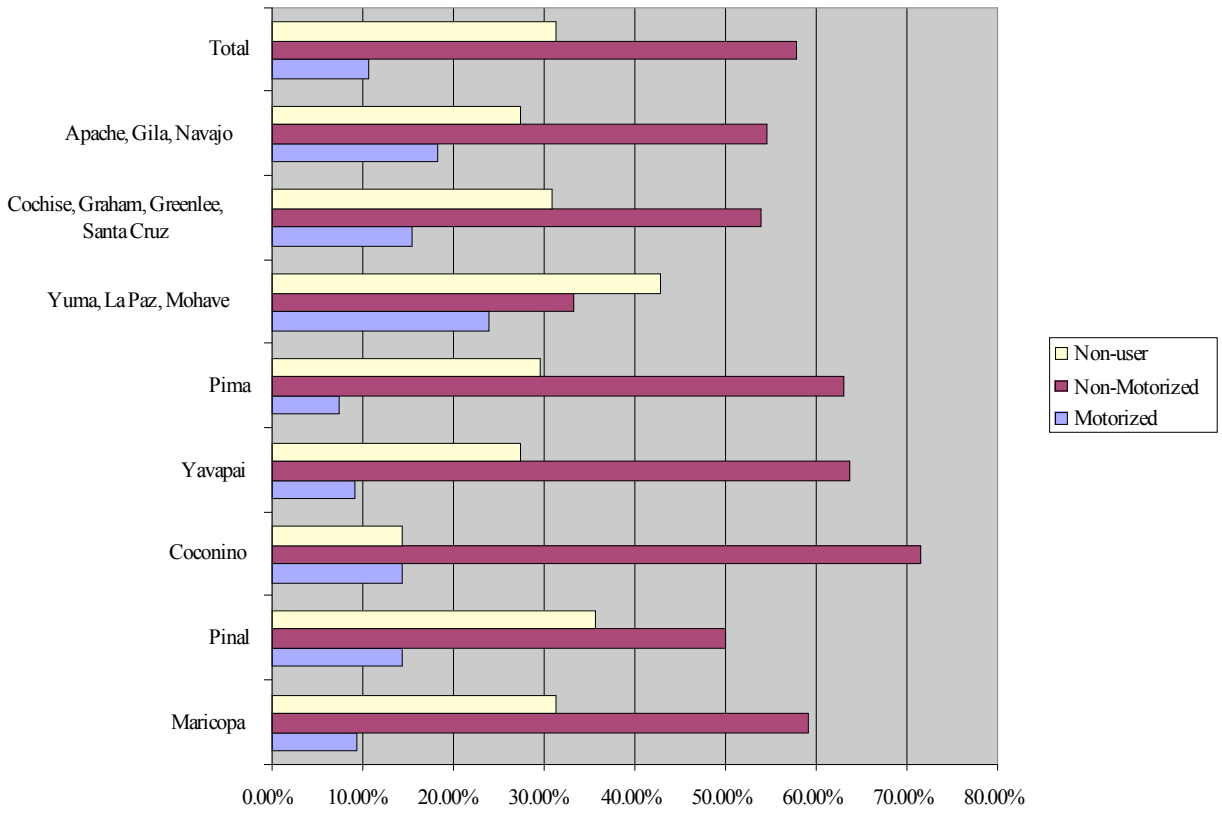
About what percent of your time on recreation trails in Arizona is spent as a motorized or non-motorized trail user?

Mean percent of time spent as a motorized or non-motorized trail user	Random Survey—mean %		Involved Survey—mean %	
	As a Motorized User	As a Non-Motorized User	As a Motorized User	As a Non-Motorized User
Primary use type is motorized	68.18%	18.11%	87.13%	11.92%
Primary use type is non-motorized	7.99%	74.34 %	10.61%	88.61%

2008 Random Household Survey Responses Regarding Trail User Type by Counties

Strata (Counties) % and # of Core Users age 18 and over	Primary Use Motorized User	Primary Use Non-Motorized User	Non-user	Total Population 18 yrs and over
Maricopa	**9.6%**	**59.2%**	**31.2%**	**100%**
	277,944	1,713,986	903,317	2,895,246
Pinal	**13.8%**	**48.3%**	**37.9%**	**100%**
	106,630	373,206	98,583	260,114
Coconino	**12.2%**	**68.3%**	**19.5%**	**100%**
	12,342	69,097	20,555	105,412
Yavapai	**12.1%**	**64.4%**	**23.5%**	**100%**
	22,035	117,276	42,795	182,106
Pima	**7.9%**	**63.5%**	**28.7%**	**100%**
	61,042	490,655	221,760	772,685
Yuma, La Paz, Mohave	**22.2%**	**34.6%**	**43.2%**	**100%**
	71,668	111,699	139,462	322,829
Cochise, Graham, Greenlee, Santa Cruz	**12.8%**	**57.7%**	**29.5%**	**100%**
	22,168	99,929	51,090	173,188
Apache, Gila, Navajo	**19.4%**	**51.4%**	**29.2%**	**100%**
	34,302	90,882	51,629	176,813
Statewide Totals (weighted)	**10.7%**	**57.9%**	**31.4%**	**100%**
	511,207	2,766,249	1,500,176	4,777,632

Source for July 1, 2008 estimated Arizona population numbers: Population Statistics Unit, AZ Dept. of Commerce, Jan. 2009; these numbers may differ slightly from U.S. Census Bureau numbers and should be used only as general estimates.



Comparison of 2003 and 2008 Survey Responses Regarding Trail User Type

Strata (Counties)	Primary Motor 2003	**Primary Motor 2008**	Primary Non-Motor 2003	**Primary Non-Motor 2008**	Non-user 2003	**Non-user 2008**	Total 2003	**Total 2008**
Maricopa	5.6%	**9.6%**	55.1%	**59.2%**	36.2%	**31.2%**	100%	100.0%
Pinal	8.6%	**13.8%**	48.9%	**48.3%**	40.2%	**37.9%**	100%	100.0%
Coconino	11.1%	**12.2%**	69.4%	**68.3%**	15.8%	**19.5%**	100%	100.0%
Yavapai	10.5%	**12.1%**	69.2%	**64.4%**	16.8%	**23.5%**	100%	100.0%
Pima	5.3%	**7.9%**	66.9%	**63.5%**	26.5%	**28.7%**	100%	100.0%
Yuma, La Paz, Mohave	18.2%	**22.2%**	37.9%	**34.6%**	40.6%	**43.2%**	100%	100.0%
Cochise, Graham, Greenlee, Santa Cruz	11.6%	**12.8%**	53.0%	**57.7%**	30.9%	**29.5%**	100%	100.0%
Apache, Gila, Navajo	11.9%	**19.4%**	52.4%	**51.4%**	31.8%	**29.2%**	100%	100.0%
Statewide Totals	7.0%	**10.7%**	56.5%	**57.9%**	33.6%	**31.4%**	100.0%	**100.0%**

"Primary" refers to respondents who reported more of one use than another, i.e., core users. 2003 surveys gathered data by 15 individual counties; the numbers were consolidated into 8 county strata for 2008 comparisons.

SATISFACTION WITH TRAILS

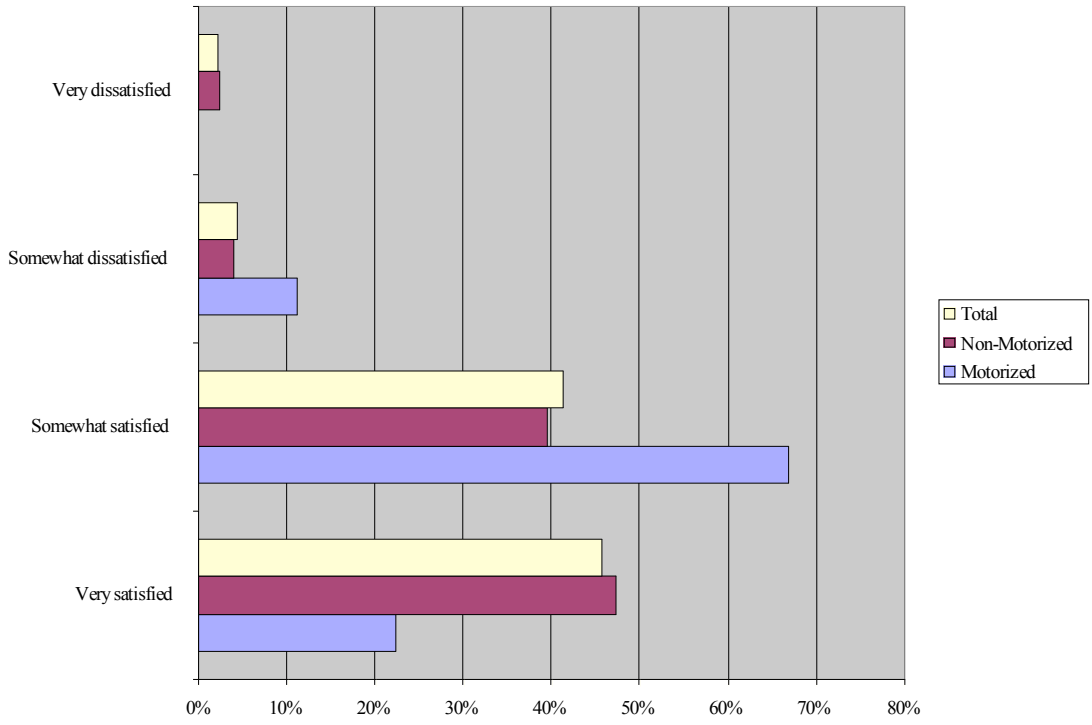
Overall, how satisfied are you with non-motorized trails in Arizona?

Overall, 87% of respondents were either very satisfied or satisfied with non-motorized trails in Arizona and 65% were either very satisfied or satisfied with motorized trails.

(Involved User non-motorized=82.6%; Interested Public non-motorized=88.7%). In 2003, 97.3% of Random Household non-motorized users were satisfied or very or extremely satisfied. (Target/Involved User non-motorized=77.6%)

Satisfaction with NON-MOTORIZED TRAILS	% very satisfied [2003: very & extremely satisfied]		% somewhat satisfied [2003: satisfied]		% somewhat dissatisfied [2003: slightly dissatisfied]		% very dissatisfied [2003 not at all satisfied]	
	2008	2003	2008	2003	2008	2003	2008	2003
Random Household all trail users	45.7	-	41.3	-	4.3	-	2.2	-
Random non-motorized trail users	47.3	38.5	39.5	58.8	3.9	6.2	2.3	.2
Random motorized trail users	22.2	-	66.7	-	11.1	-	0	-
Involved Users all trail users	40.4	-	47.7	-	7.3	-	2.7	-
Involved Users non-motorized	30.4	29.5	52.2	48.1	12.4	21.4	4.3	1.0
Involved Users motorized	50.0	-	43.5	-	2.4	-	1.2	-
Interested Public all trail users	43.8	-	46.5	-	5.6	-	1.4	-
Interested Public non-motorized	36.1	-	52.6	-	8.7	-	2.5	-
Interested Public motorized	50.3	-	41.3	-	3.0	-	.4	-

*In 2003 this question was asked regarding satisfaction with "recreational trails" in general, not separated into motorized or non-motorized as was done in 2008, and 2003 used a 5 point scale while 2008 used a 4 point scale.

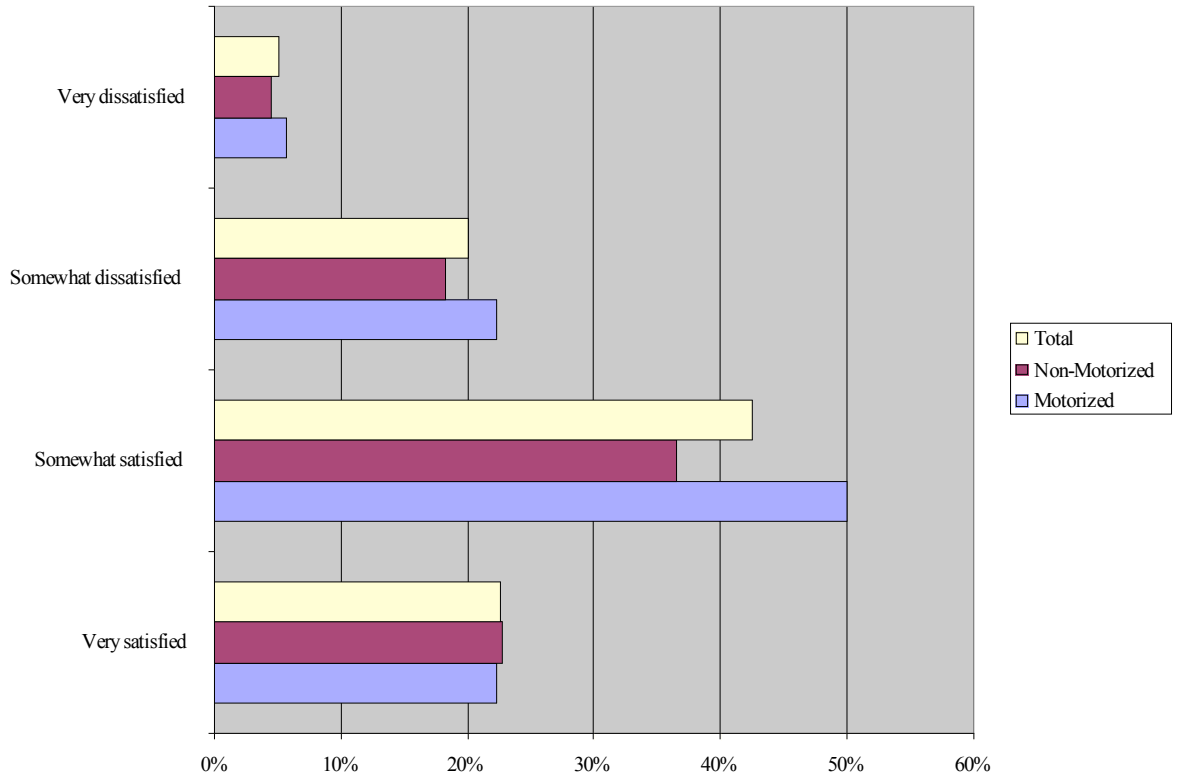


Overall, how satisfied are you with motorized trails in Arizona?

65% of all trail users (Random Household) said they are "somewhat satisfied" or "very satisfied" with motorized trails compared to 72% of Random Household motorized trail users (Involved User motorized=69.2%; Interested Public motorized=69.5%). In 2003, 89.4% of Random Household motorized users were "satisfied" or "very or extremely satisfied" (Involved User motorized=60%).

Satisfaction with MOTORIZED TRAILS	% very satisfied [2003: very & extremely satisfied]		% somewhat satisfied [2003: satisfied]		% somewhat dissatisfied [2003: slightly dissatisfied]		% very dissatisfied [2003 not at all satisfied]	
	2008	2003	2008	2003	2008	2003	2008	2003
Random Household all trail users	22.5	-	42.5	-	20.0	-	5.0	-
Random non-motorized trail users	22.7	-	36.4	-	18.2	-	4.5	-
Random motorized trail users	22.2	16.7	50.0	72.7	22.2	6.0	5.6	4.6
Involved User all trail users	23.0	-	43.3	-	21.3	-	8.9	-
Involved User non-motorized	19.8	-	39.5	-	18.5	-	9.9	-
Involved User motorized	24.4	16.0	44.8	44.0	22.4	36.0	8.5	4.0
Interested Public all trail users	25.5	-	42.9	-	19.7	-	8.5	-
Interested Public non-motorized	31.6	-	33.1	-	14.5	-	6.9	-
Interested Public motorized	23.9	-	45.6	-	21.1	-	8.9	-

*In 2003 this question was asked regarding satisfaction with "recreational trails" in general, not separated into motorized or non-motorized as was done in 2008, and 2003 used a 5 point scale while 2008 used a 4 point scale.



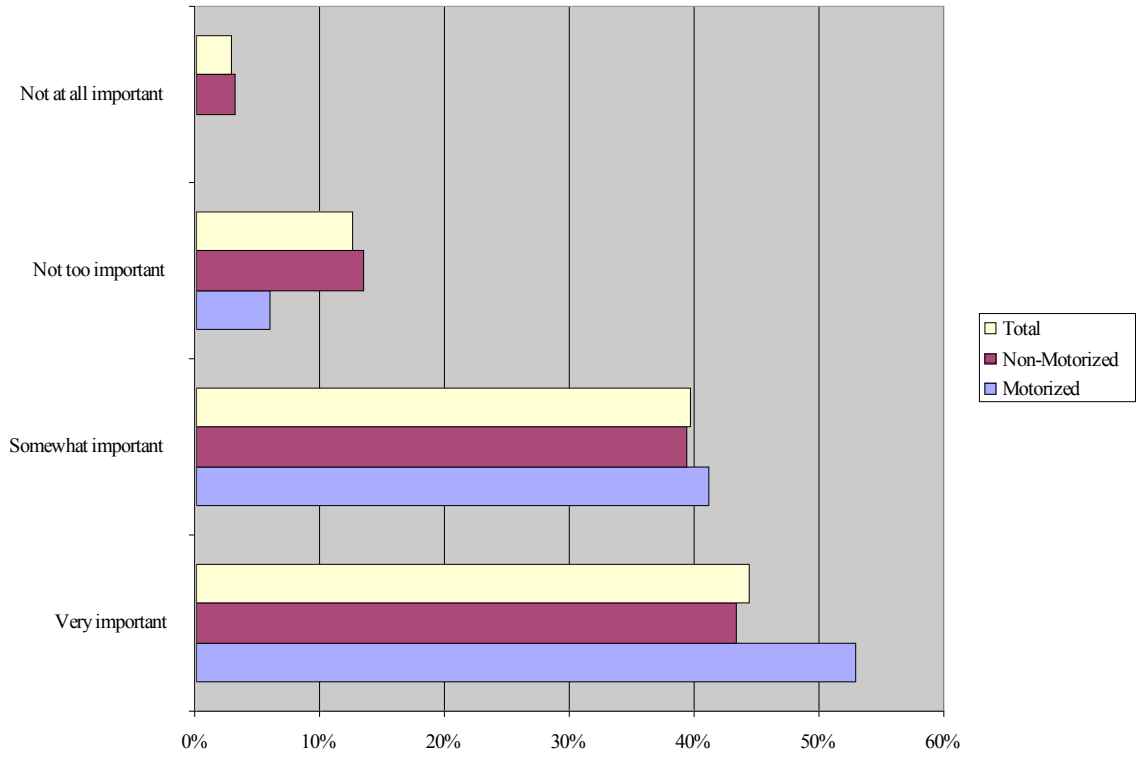
How important are recreational trails to your overall quality of life?

When asked how important recreational trails are to overall quality of life, 94.1% of motorized users and 82.7% of non-motorized users replied very important or somewhat important.

84% of all trail users (Random Household) said trails are "very or somewhat important" to their *quality of life* (Involved User=98.6%; Interested Public=99.4%):
94% of Random Household motorized users said trails were "very or somewhat important" (Involved User=99.5%; Interested Public=99.4%); and
83% of Random Household non-motorized users said trails were "very or somewhat important" (Involved User=98.7%; Interested Public=99.4%).

Importance of Trails to QUALITY OF LIFE	% very important		% somewhat important		% not too important		% not at all important	
	Random	Involved	Random	Involved	Random	Involved	Random	Involved
All trail users	44.4	92.8	39.6	6.4	12.5	.8	2.8	0
Motorized trail users	52.9	92.0	41.2	7.5	5.9	.5	0	0
Non-motorized trail users	43.3	93.8	39.4	5.0	13.4	1.2	3.1	0
	Random	Interested	Random	Interested	Random	Interested	Random	Interested
All trail users	44.4	89.8	39.6	9.6	12.5	.8	2.8	0
Motorized trail users	52.9	90.6	41.2	8.8	5.9	.5	0	.1
Non-motorized trail users	43.3	88.6	39.4	10.8	13.4	.4	3.1	0

*This Question was not asked in 2003.



This question concerning how important trails are to a respondent's *quality of life* demonstrates the clear difference between the Random Household and the Involved Users and Interested Public. The Involved User and Interested Public survey respondents feel that trails are more important to their *quality of life* than Random survey respondents.

MILES TRAVELED

Approximately how many miles do you travel one-way from your home to use the non-motorized trails you enjoy the most?

In 2008, *non-motorized trail users* travel an average of 41.21 miles one-way to reach a non-motorized trail enjoyed most. In the last 5 years *non-motorized trail users* traveled 8.81 miles less to reach a non-motorized trail they enjoy most. Note that in 2003, non-motorized users were asked the same question for trails they use most and enjoy most.

Number of miles traveled for non-motorized trail use 5% trimmed mean	**2008—Mean**		**2003—Mean***	
	Random	Involved	Random	Involved
motorized trail users	44.45	38.5	-	-
non-motorized trail users	41.21	50.2	46.1/23.4	58.7/18.4

*In 2003, respondents were asked how many miles they traveled to use their type of trail that (1) they enjoy the most, and (2) they use the most, shown as 46.1/23.4.

Approximately how many miles do you travel one-way from your home to use the motorized trails you use the most?

In 2008, *motorized trail users* travel an average of 42.19 miles one-way to reach a motorized trail used most often. In the last 5 years *motorized trail users* traveled 4.89 miles less to reach a motorized trail they use most. Note that in 2003, motorized users were asked the same question for trails they use most and enjoy most. Also in 2008, *involved motorized users* travel an average of 27.61 more miles (total mean of 69.8 miles) than *Random motorized trail users* (total mean of 42.19 miles).

Number of miles traveled for motorized trail use 5% trimmed mean	**2008—Mean**		**2003—Mean**	
	Random	Involved	Random	Involved
motorized trail users	42.19	69.8	51.0/62.5	37.8/65.7
non-motorized trail users	95.14	67.5	-	-

*In 2003, respondents were asked how many miles they traveled to use their type of trail that (1) they use the most, and (2) they enjoy the most, shown as 51.0/62.5.

Trail users of tend to travel approximately 40 miles form home for the non-motorized trails they enjoy the most and the motorized trails they use the most.

TRAIL MANAGEMENT — SINGLE or SHARED USE

Do you think recreation trails should be managed for single or multiple trail activities?

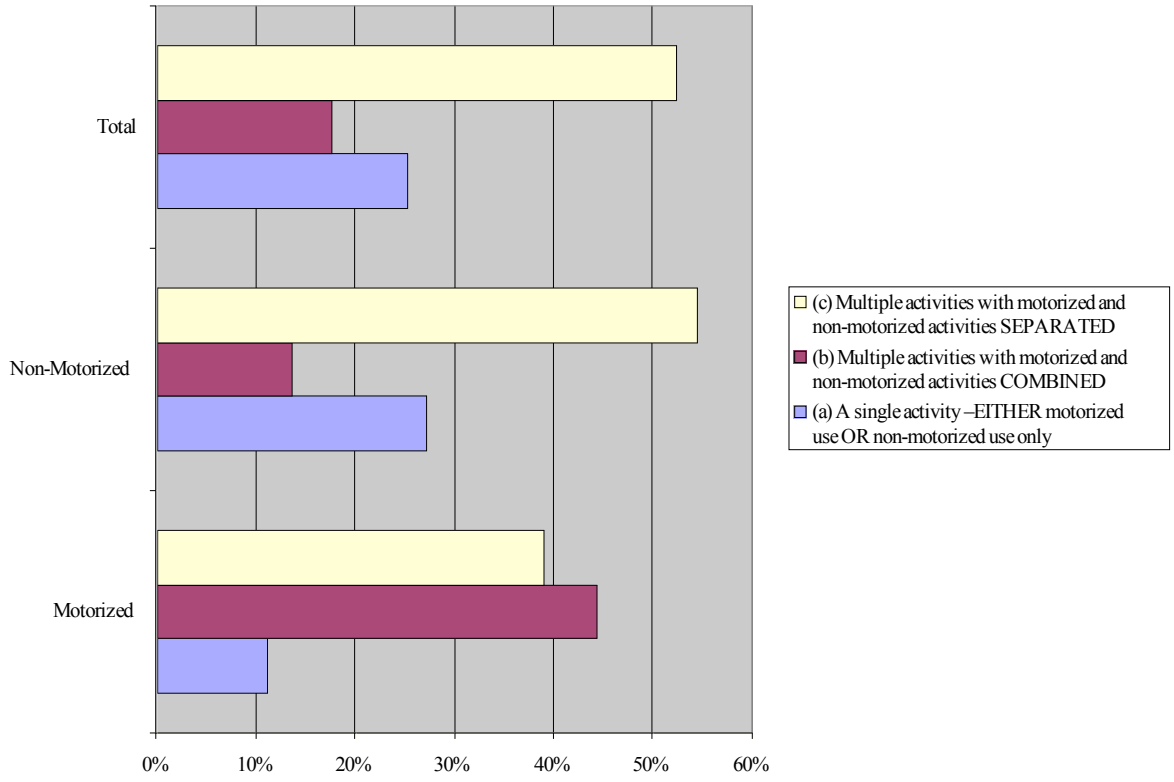
Trails can be designated for single or multiple uses. Most non-motorized trails in Arizona are considered "**shared use**" allowing hikers, mountain bikers and equestrians on the same trail. Some trails restrict use to a single activity based on location, terrain, safety or use considerations.

There is also the issue of allowing both motorized and non-motorized uses on the same trail. Non-motorized trail users are more sensitive to combined uses than motorized users. Non-motorized users were more likely to respond that trails should be designated for multiple activities, but with motorized and non-motorized users separated, or trails should be designated for a single activity. In fact, more than half (54.4%) of non-motorized users would prefer to have motorized and non-motorized uses separated and another 27.2% would prefer trails to be designed for a single use type.

Trails should be managed for:	**2008 Random Survey**		**2008 Involved User Survey**		**2003 Random Survey**		**2003 Involved User Survey**	
	Mot	NM	Mot	NM	Mot	NM	Mot	NM
A single activity–EITHER motorized use OR non-motorized use only	11.1	27.2	7.4	30.2	17.2	30.5	6.0	18.6
Multiple activities with motorized and non-motorized activities COMBINED	44.4	13.6	59.4	10.5	40.4	5.7	52.0	6.7
Multiple activities with motorized and non-motorized activities SEPARATED	38.9	54.4	30.2	56.2	34.8	55.8	36.0	70.0
Trails should be managed for:			**2008 Interested Public Survey**					
			Mot	NM				
A single activity–EITHER motorized use OR non-motorized use only			7.1	42.1				
Multiple activities with motorized and non-motorized activities COMBINED			54.9	8.7				
Multiple activities with motorized and non-motorized activities SEPARATED			34.5	46.5				

40-60% of motorized users (Random, Involved and Interested) consistently respond that motorized and non-motorized activities can be *combined*, while the majority (54-56%) of non-motorized users (Random and Involved) respond that the two categories of activities should be *separated* into distinct trails. More non-motorized users (27-30%) than motorized users (7-11%) feel that trails should be limited to a *single activity*, such as hiking or dirt biking.

Many motorized routes in Arizona are also considered "**shared use**" allowing dirt bikers, ATVers, and full size vehicles on the same route. Usually, non-motorized uses are also allowed on these routes. Single-track trails restrict use to dirt bikes due to the preferred trail width, terrain, safety and use considerations. There are trails constructed specifically for ATVs and quads, but some agency requirements dictate these trails must be less than 50" in width. Land managers must determine if trail/route uses should be combined, such as both motorized and non-motorized uses on one trail, or separated.



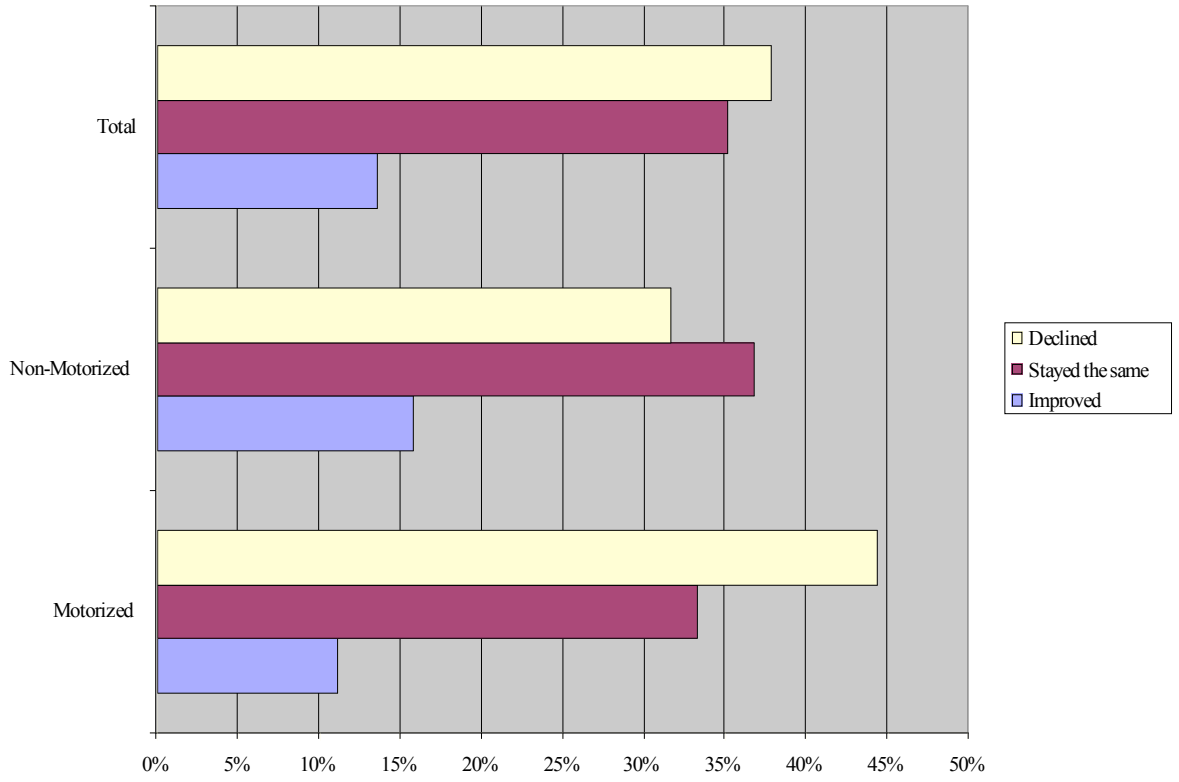
PUBLIC ACCESS TO TRAILS

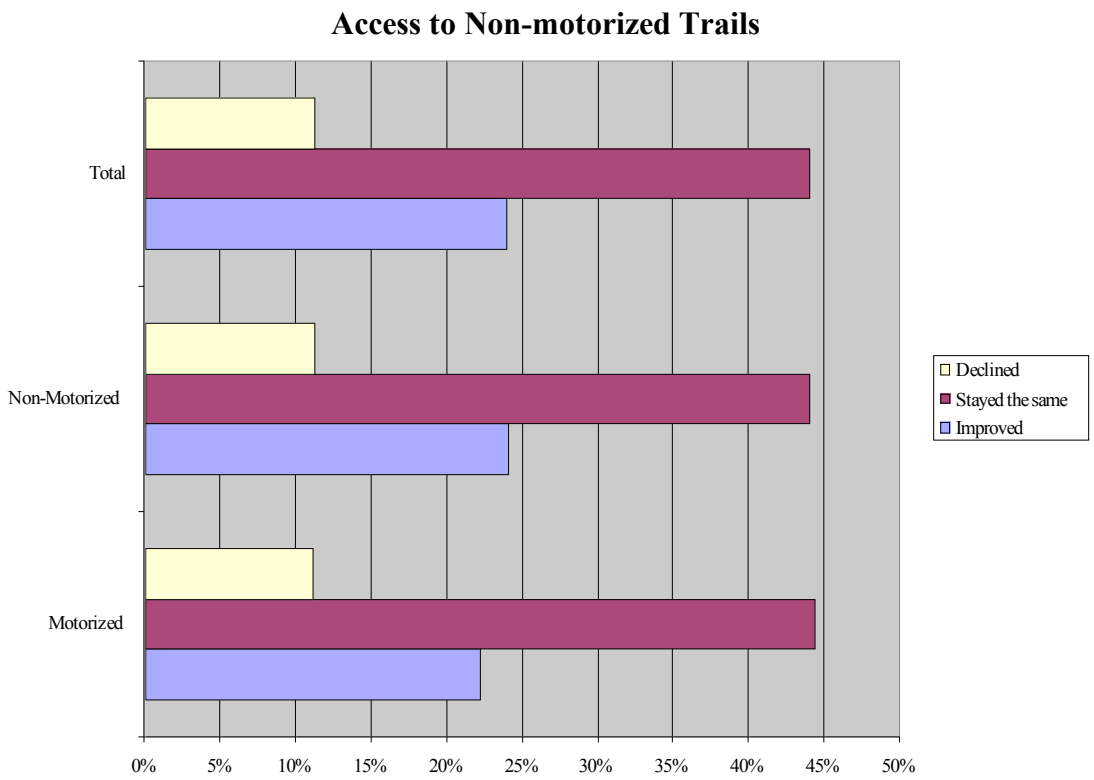
In the past five years, do you think that access to trails has improved, stayed the same or declined?

Access to Trails—*Random Household* Survey Responses	improved		stayed the same		declined	
	2008	2003	2008	2003	2008	2003
Off-highway vehicle roads and trails—all trail users	13.5	-	35.1	-	37.8	-
Off-highway vehicle roads and trails—motorized users	11.1	8.8	33.3	19.5	44.4	48.3
Off-highway vehicle roads and trails—non-motorized	15.8	-	36.8	-	31.6	-
Non-motorized trails—all trail users	23.9	-	44.0	-	11.2	-
Non-motorized trails—motorized users	22.2	-	44.4	-	11.1	-
Non-motorized trails—non-motorized users	24.0	13.0	44.0	34.5	11.2	18.7

Notably, nearly half of motorized users (44.4%) believe that *access to off-highway vehicle roads and trails* has declined compared to less than one-third (31.6%) of non-motorized users. In contrast just 11% of both groups believe that *access to non-motorized trails* has declined.

Access to Off-highway Vehicle Roads and Trails





Access to Trails—*Involved User* Survey Responses	improved		stayed the same		declined	
	2008	2003	2008	2003	2008	2003
Off-highway vehicle roads and trails—all trail users	6.3	-	17.9	-	68.2	-
Off-highway vehicle roads and trails—motorized users	4.5	3.8	12.9	13.5	78.7	82.7
Off-highway vehicle roads/trails—non-motorized users	11.0	-	26.8	-	45.1	-
Non-motorized trails—all trail users	26.6	-	33.8	-	27.8	-
Non-motorized trails—motorized users	26.0	-	42.0	-	16.6	-
Non-motorized trails—non-motorized users	25.9	22.3	24.7	34.5	40.7	30.8

In general, the Involved User respondents think that access to trails has declined significantly more than the Random Household respondents. 44% of Random Household motorized users think that *access has declined regarding OHV routes*, compared to 79% of the Involved User motorized users; 11% of Random Household non-motorized users think that *access has declined regarding non-motorized trails*, compared to 41% of the Involved User motorized users. For the most part, the responses from the 2008 survey participants were similar to the 2003 participants. The exception is the Involved User non-motorized users who show a 10% increase from 2003 regarding the decline of *access to non-motorized trails*.

Access to Trails—*Interested Public* Survey Responses	improved	stayed the same	declined
	2008	2008	2008
Off-highway vehicle roads and trails—all trail users	6.5	19.3	63.5
Off-highway vehicle roads and trails—motorized users	4.0	15.3	73.2
Off-highway vehicle roads/trails—non-motorized users	15.6	34.2	27.3
Non-motorized trails—all trail users	30.2	38.7	15.8
Non-motorized trails—motorized users	31.8	42.2	10.8
Non-motorized trails—non-motorized users	28.3	34.5	21.8

PERCEPTIONS OF RECREATION CONFLICT

Recreation conflict can be defined as goal interference attributed to another's behavior. Conflict is a special application of expectancy-discrepancy theory where dissatisfaction is attributed to another individual's or group's behavior. An important finding from conflict research is the "asymmetric" or "one-way" nature of most conflict. Participants in one activity may object to the presence or behavior of participants in another activity, but the reverse is not true, at least not to the same degree.

This survey question asked respondents to report how often they experience conflict with other users. The results indicate that, by and large, respondents do not experience much recreation conflict with other trail users, although there are some areas of potential concern. For instance, 13.7% of non-motorized users reported experiencing conflict with mountain bikers somewhat or very often. Also, 33.4% of motorized trail users experienced conflict with all terrain vehicle or quad riders somewhat or very often. Interestingly, this is significantly higher than the 12.4% of non-motorized users that reported conflict with ATV or quad riders. This finding illustrates that conflict occurs both within groups as well as between groups.

Overall, there appears to be a relatively low percentage of trail users who report conflict with any other types of trail users. Both motorized and non-motorized trail users (Random/ Involved/ Interested) report the greatest conflict with ATVs, (motorized: 17%/13%/11% and non-motorized: 7%/17%/19%) and non-motorized Involved Users with dirt bikers, 12%.

How often do you experience conflict with the following types of recreation users when using trails in Arizona?

Conflict with Recreation Users	Very often		Somewhat often		Not too often		Not often at all	
	Motor	Non-Mot	Motor	Non-Mot	Motor	Non-mot	Motor	Non-mot
ATV or "quad" riders—Random	**16.7**	**7.3**	16.7	12.1	16.7	18.5	50.0	60.5
ATV or "quad" riders—Involved	**12.9**	**17.4**	16.4	28.6	22.4	26.1	47.8	28.0
ATV or "quad" riders—Interested	**10.6**	**18.8**	18.4	21.6	22.9	27.4	47.6	30.5
Hikers—Random	5.6	6.5	11.1	15.4	33.3	14.6	50.0	62.6
Hikers—Involved	2.5	3.7	8.5	6.8	24.9	19.3	64.2	70.2
Hikers—Interested	1.7	5.5	6.4	6.5	29.2	13.8	61.9	73.5
Dirt bikers—Random	5.6	2.4	16.7	11.3	33.3	23.4	44.4	59.7
Dirt bikers—Involved	4.5	12.4	8.0	18.6	20.9	24.8	66.2	42.9
Dirt bikers—Interested	5.6	9.9	9.0	17.6	18.1	31.4	66.5	39.1
Full size vehicles—Random	5.6	2.4	16.7	7.3	16.7	16.1	61.1	70.2
Full size vehicles—Involved	1.5	3.7	8.0	9.3	33.8	26.7	56.7	60.2
Full size vehicles—Interested	2.4	4.0	10.5	12.4	29.9	29.2	56.3	52.3
Mountain bikers—Random	5.9	1.6	5.9	12.1	29.4	22.6	58.8	62.1
Mountain bikers—Involved	1.5	5.6	6.0	15.5	25.4	25.5	66.7	53.4
Mountain bikers—Interested	1.8	4.1	6.5	12.7	29.5	29.5	61.2	53.0
Equestrians/horses—Random	5.9	1.6	5.9	10.5	29.4	19.4	58.8	66.9
Equestrians/horses—Involved	1.0	6.2	5.0	6.2	28.9	24.8	64.7	62.7
Equestrians/horses—Interested	1.1	3.0	7.1	9.2	30.3	28.7	60.2	58.1

PARTICIPATION RATES—MOTORIZED USERS

In the last twelve months, how often have you participated in each of the following recreation activities on trails in Arizona?

One of the primary objectives of this study is to estimate trail use in Arizona with participation broken down into specific types and activities. Respondents were asked to report if they participated in trail activities once a year, a few times a year, once a month, once a week, or more than once a week.

The most common pursuits for **motorized users on a motorized trail** were *quad or all-terrain vehicle driving* (72%), *four wheel driving or other high clearance vehicle driving* (72%), and *motorized trail biking/dirt biking* (61%). Motorized trail users participation in non-motorized trail activities at least once per year is comparable to non-motorized users participation, however motorized users participate in non-motorized activities less often. *Trail hiking* is the most popular activity for motorized users (82% of motorized trail users participate in *trail hiking* at least once per year), which is a similar percentage to non-motorized trail users (85% of non-motorized participate in *trail hiking* at least once per year).

Comparison of Motorized Users: Random Household Survey with Involved User & Interested Public Survey

Motorized Users Participation in Motorized Trail Activity	Not at all	At least once/yr	Once a year	A few times a year	Once a month	Once a week	More than once a week
4WD/other high clearance vehicle—all trail users	43.2	56.8	5.4	24.3	13.5	8.1	5.4
4WD/other high clearance vehicle—motorized	29.4	71.6	5.9	29.4	17.6	11.8	5.9
4WD/other high clearance vehicle—Involved mot	*13.9*	*86.1*	*5.0*	*20.4*	*28.9*	*20.9*	*10.9*
4WD/other high clearance vehicle—Interested mot	*19.1*	*80.7*	*3.6*	*24.2*	*25.9*	*16.6*	*10.4*
Quad or all-terrain vehicle driving—all trail users	39.5	60.5	10.5	23.7	13.2	7.9	5.3
Quad or all-terrain vehicle driving—motor. users	27.8	72.2	.0	27.8	16.7	16.7	11.1
Quad or all-terrain vehicle driving—involved motor	*50.7*	*49.3*	*5.5*	*9.0*	*16.4*	*12.4*	*6.0*
Quad or all-terrain vehicle driving—Interested mot	*46.8*	*53.0*	*4.5*	*16.1*	*14.4*	*11.4*	*6.6*
Motorized trail biking/dirt biking—all trail users	55.3	44.7	7.9	18.4	10.5	5.3	2.6
Motorized trail biking/dirt biking—motorized users	38.9	61.1	11.1	16.7	16.7	11.1	5.6
Motorized trail biking/dirt biking—Involved motor	*55.2*	*44.8*	*3.5*	*9.5*	*5.5*	*15.4*	*10.9*
Motorized trail biking/dirt biking—Interested motor	*48.8*	*50.9*	*2.3*	*8.7*	*11.1*	*16.9*	*11.9*
Rock crawling—all trail users	82.1	17.9	5.1	7.7	2.6	.0	2.6
Rock crawling—motorized trail users	83.3	16.6	.0	5.6	5.6	.0	5.6
Rock crawling—Involved motorized trail users	*49.8*	*50.3*	*3.0*	*17.4*	*18.4*	*9.0*	*2.5*
Rock crawling—Interested motorized trail users	*52.2*	*47.6*	*5.1*	*17.8*	*14.6*	*6.0*	*4.1*
Utility terrain vehicle/modified golf cart—all users	73.7	26.3	5.3	13.2	2.6	2.6	2.6
Utility terrain vehicle/modified golf cart—motorized	66.7	33.3	5.6	11.1	5.6	5.6	5.6
Utility terrain vehicle/mod golf cart—Interested mot	*81.6*	*18.5*	*2.5*	*6.0*	*4.0*	*3.5*	*2.5*
Utility terrain vehicle/mod golf cart—Interested mot	*75.5*	*24.2*	*2.3*	*8.9*	*6.5*	*4.3*	*2.2*
Dune buggy or sand rail driving—all trail users	86.5	13.5	2.7	8.1	2.7	.0	.0
Dune buggy or sand rail driving—motorized users	77.8	22.2	5.6	11.1	5.6	.0	.0
Dune buggy or sand rail driving—Involved motor	*87.1*	*13.0*	*3.5*	*4.5*	*3.0*	*1.0*	*1.0*
Dune buggy or sand rail driving—Interested motor	*79.0*	*20.7*	*3.6*	*9.3*	*4.1*	*2.7*	*1.0*
Snowmobiling—all trail users	97.4	2.6	.0	2.6	.0	.0	.0
Snowmobiling—motorized trail users	94.4	5.6	.0	5.6	.0	0	.0
Snowmobiling—Involved motorized trail users	*95.5*	*4.5*	*2.0*	*2.5*	*.0*	*0*	*0*
Snowmobiling—Interested motorized trail users	*95.4*	*4.4*	*2.3*	*1.5*	*.3*	*.2*	*.1*

*The column (2nd) titled "at least once a year" equals the sum total of the following five columns.

Motorized Users Participation in Non-motorized Trail Activity	**Not at all**	**At least once/yr**	**Once a year**	**A few times a year**	**Once a month**	**Once a week**	**More than once a week**
Trail hiking—Random Household all trail users	15.2	84.8	13.8	34.1	21.0	8.7	7.2
Trail-hiking—Random motorized trail users	18.2	81.8	18.2	27.3	27.3	9.1	.0
Trail-hiking—Involved motorized trail users	*6.5*	*93.6*	*14.3*	*56.0*	*16.7*	*4.8*	*1.8*
Trail-hiking—Interested motorized trail users	*7.3*	*92.5*	*15.7*	*50.6*	*17.7*	*5.2*	*3.3*
Backpacking—all trail users	70.3	29.7	11.6	11.6	4.3	.7	1.4
Backpacking—motorized trail users	60.0	40.0	20.0	10.0	10.0	.0	.0
Backpacking—Involved motorized users	*65.5*	*34.5*	*18.5*	*13.6*	*1.8*	*.0*	*.6*
Backpacking—Interested motorized users	*60.4*	*39.0*	*19.2*	*16.1*	*3.3*	*.1*	*.3*
Mountain biking—all trail users	77.2	22.8	7.4	7.4	4.4	1.5	2.2
Mountain biking—motorized trail users	70.0	30.0	10.0	20.0	.0	.0	.0
Mountain biking—Involved motorized trail users	*63.1*	*37.0*	*10.1*	*17.9*	*5.4*	*1.2*	*2.4*
Mountain biking—Interested motorized trail users	*57.7*	*42.2*	*9.5*	*17.5*	*7.2*	*5.4*	*2.6*
Horseback riding—all trail users	83.1	16.9	8.1	5.9	1.5	.7	.7
Horseback riding—motorized trail users	70.0	30.0	10.0	20.0	.0	.0	.0
Horseback riding—Involved motorized trail users	*83.9*	*16.0*	*7.7*	*8.3*	*.0*	*.0*	*.0*
Horseback riding—Interested motorized trail users	*84.7*	*19.5*	*8.0*	*4.8*	*1.1*	*.8*	*4.8*
Canoeing/kayaking—all trail users	87.6	12.4	5.1	5.8	1.5	.0	.0
Canoeing/kayaking—motorized trail users	80.0	20.0	10.0	10.0	.0	.0	.0
Canoeing/kayaking—Involved motorized users	*82.1*	*17.2*	*7.1*	*9.5*	*.6*	*.0*	*.0*
Canoeing/kayaking—Interested motorized users	*78.1*	*21.1*	*9.0*	*11.2*	*.9*	*.5*	*.0*
Cross-country skiing/snowshoeing—all trail users	92.6	7.4	3.7	2.9	.7	.0	.0
Cross-country skiing/snowshoeing—motor. users	90.0	10.0	10.0	.0	.0	.0	.0
Cross-country skiing/snowshoeing—Involved mot	*91.1*	*9.0*	*4.2*	*4.2*	*.0*	*.6*	*.0*
Cross-country skiing/snowshoeing—Interested mo	*92.0*	*7.8*	*4.4*	*3.4*	*.0*	*.0*	*.0*

*The column (2nd) titled "at least once a year" equals the sum total of the following five columns.

Most common recreation activities that motorized users participated in on a non-motorized trail (at least once per year) is *exercising* (65%), *visiting historic or archaeological sites* (61%), and *wildlife view or bird watching* (58%). This also pertains to Involved User and Interested Public motorized users.

Motorized Users: Used non-motorized trails for these purposes	**Not at all**	**At least once/yr**	**Once a year**	**A few times a year**	**Once a month**	**Once a week**	**More than once a week**
Exercising—all trail users	16.8	83.2	3.5	22.4	16.1	14.7	25.9
Exercising—motorized trail users	35.3	64.7	5.9	11.8	11.8	17.6	17.6
Exercising—Involved motorized trail users	*21.9*	*78.1*	*6.0*	*37.8*	*11.9*	*6.5*	*15.9*
Exercising—Interested motorized trail users	*26.4*	*73.1*	*5.3*	*26.5*	*13.9*	*11.1*	*16.3*
Visiting historic or archaeological sites—all users	34.7	65.3	18.8	36.8.	6.9	2.1	.7
Visiting historic or archaeological sites—motorized	38.9	61.1	16.7	33.3	11.1	.0	.0
Visiting historic/archaeological sites—Involved mot	*23.9*	*76.1*	*14.4*	*50.7*	*8.0*	*3.0*	*0*
Visiting hist/archaeological sites—Interested mot	*29.4*	*70.3*	*15.9*	*42.7*	*9.3*	*1.7*	*.7*
Wildlife viewing or bird watching—all trail users	45.1	54.9	7.6	21.5	11.8	4.9	9.0
Wildlife viewing or bird watching—motorized users	42.1	57.9	15.8	21.1	15.8	.0	5.3
Wildlife viewing/bird watching—Involved motorized	*44.3*	*55.8*	*15.9*	*24.9*	*8.0*	*4.0*	*3.0*
Wildlife viewing/bird watching—Interested motor	*46.5*	*53.3*	*9.4*	*28.5*	*9.1*	*4.3*	*2.0*
Walking as alternative transportation—all trail user	64.6	35.4	4.2	14.6	6.2	5.6	4.9
Walking as alternative transportation—motorized	66.7	33.3	5.6	16.7	5.6	5.6	.0
Walking as alternative transport—Involved mot.	*76.1*	*23.9*	*4.0*	*14.4*	*2.5*	*2.0*	*1.0*
Walking as alternative transport—Interested mot	*55.1*	*44.0*	*3.3*	*16.4*	*8.3*	*6.8*	*9.2*
Bicycling as alternative transportation—all trail use	71.5	28.6	2.8	12.5	5.6	3.5	4.2
Bicycling as alternative transportation—motorized	70.6	29.4	.0	17.6	5.9	5.9	,0
Bicycling as alternative transport—Involved mot.	*71.1*	*28.9*	*6.5*	*15.9*	*4.5*	*.5*	*1.5*
Bicycling as alternative transport—Interested mot.	*75.8*	*24.0*	*4.0*	*11.8*	*4.0*	*2.0*	*2.2*

The column (2nd) titled "at least once a year" equals the sum total of the following five columns.

Motorized users use a motorized vehicle on unpaved roads to access or get to recreational sites (at least once per year) is to *go sightseeing/driving for pleasure* (94%), *access camping or picnicking areas* (83%), *access hunting or fishing areas* (65%), and *visit historic or archaeological sites* (61%). The Involved User and Interested Public motorized users also use a motorized vehicle on unpaved roads to access or get to recreational sites (at least once per year) is to *go sightseeing/driving for pleasure* and *access camping or picnicking areas* (highest two percentages listed).

Motorized Users: **Used motorized vehicle on unpaved roads to access or get to recreational sites***	**Not at all**	**At least once/yr**	**Once a year**	**A few times a year**	**Once a month**	**Once a week**	**More than once a week**
To go sightseeing/driving for pleasure—all users	35.4	64.6	9.0	38.2	11.8	4.2	1.4
To go sightseeing/driving for pleasure—motorized	5.9	94.1	.0	58.8	23.5	11.8	.0
To go sightseeing/driving—Involved motorized	*6.5*	*93.1*	*1.5*	*28.4*	*36.3*	*18.4*	*8.5*
To go sightseeing/driving—Interested motorized	*6.6*	*93.1*	*3.8*	*34.5*	*29.5*	*17.0*	*8.3*
Camping or picnicking areas—all trail users	42.0	58.0	11.2	37.1	7.0	2.1	.7
Camping or picnicking areas—motorized trail user	16.7	83.3	5.6	50.0	11.1	11.1	5.6
Camping or picnicking areas—Involved motorized	*9.0*	*91.2*	*4.0*	*47.3*	*29.4*	*7.0*	*3.5*
Camping/picnicking areas—Interested motorized	*9.6*	*90.4*	*4.4*	*51.4*	*28.5*	*4.7*	*1.4*
Trailheads—all trail users	47.9	50.7	11.3	26.8	7.0	4.2	1.4
Trailheads—motorized trail users	41.2	52.9	17.6	23.5	5.9	5.9	.0
Trailheads—Involved motorized trail users	*21.9*	*76.2*	*9.0*	*36.8*	*15.9*	*9.5*	*5.0*
Trailheads—Interested motorized trail users	*25.4*	*73.8*	*10.8*	*32.3*	*17.7*	*7.9*	*5.1*
Historic or archaeological sites—all trail users	53.5	46.5	13.2	27.8	4.9	.0	.0
Historic or archaeological sites—motorized users	38.9	61.1	16.7	38.9	5.6	.0	.0
Historic/archaeological sites—Involved motorized	*20.4*	*79.6*	*12.4*	*47.3*	*14.9*	*3.0*	*2.0*
Historic/archaeological sites—Interested motor	*23.1*	*76.6*	*16.0*	*44.3*	*12.9*	*2.3*	*1.1*
Wildlife viewing/bird watching area—all trail users	63.2	37.8	8.3	18.8	6.9	1.4	1.4
Wildlife viewing/bird watching area—motorized	44.4	55.6	16.7	22.2	16.7	.0	.0
Wildlife viewing/bird watching area—Involved mot.	*37.3*	*62.6*	*10.4*	*33.8*	*12.9*	*3.0*	*2.5*
Wildlife viewing/bird watch area—Interested mot.	*40.9*	*58.8*	*9.9*	*32.0*	*12.1*	*2.6*	*2.2*
Hunting or fishing area—all trail users	66.3	33.7	6.3	19.0	5.6	.7	.0
Hunting or fishing area—motorized trail users	35.3	64.7	5.9	47.1	11.8	.0	.0
Hunting or fishing area—Involved motorized users	*43.3*	*56.7*	*10.9*	*35.3*	*8.5*	*.5*	*1.5*
Hunting or fishing area—Interested motorized	*44.4*	*55.4*	*8.2*	*32.1*	*11.0*	*2.5*	*1.6*
Other types of recreation areas—all trail users	56.2	41.0	9.7	22.9	4.9	2.1	1.4
Other types of recreation areas—motorized users	38.9	55.6	5.6	33.3	5.6	11.1	.0
Other types of recreation areas—Involved motor	*14.4*	*80.6*	*9.5*	*34.3*	*21.9*	*10.9*	*4.0*
Other types of recreation areas—Interested motor	*21.2*	*74.0*	*8.0*	*36.9*	*17.7*	*7.2*	*4.2*

PARTICIPATION RATES—NON-MOTORIZED USERS

In the last twelve months, how often have you participated in each of the following recreation activities on trails in Arizona?

The most common pursuits for **non-motorized users on a non-motorized trail** were *trail hiking* (85%), *backpacking* (29%), and *mountain biking* (22%). This also pertains to Involved User and Interested Public non-motorized users, only to a greater degree.

Comparison of Non-motorized Users: Random Household Survey with Involved User & Interested Public Survey

Non-motorized Users Participation in Non-motorized Trail Activity	Not at all	At least once/yr	Once a year	A few times a year	Once a month	Once a week	More than once a week
Trail hiking—Random all trail users	15.2	84.8	13.8	34.1	21.0	8.7	7.2
Trail hiking—Random non-motorized trail users	15.0	85.0	13.4	34.6	20.5	8.7	7.9
Trail hiking—Involved non-motorized trail users	*6.2*	*93.8*	*7.5*	*26.7*	*19.9*	*21.1*	*18.6*
Trail hiking—Interested non-motorized trail users	*4.3*	*95.8*	*3.6*	*24.1*	*22.7*	*23.9*	*21.5*
Backpacking—all trail users	70.3	29.7	11.6	11.6	4.3	.7	1.4
Backpacking—non-motorized trail users	71.1	28.9	10.9	11.7	3.9	.8	1.6
Backpacking—Involved non-motorized users	*52.8*	*47.1*	*19.9*	*18.6*	*6.8*	*.6*	*1.2*
Backpacking—Interested non-motorized users	*42.5*	*57.4*	*19.3*	*25.5*	*10.1*	*1.9*	*.6*
Mountain biking—all trail users	77.2	22.8	7.4	7.4	4.4	1.5	2.2
Mountain biking—non-motorized trail users	77.8	22.2	7.1	6.3	4.8	1.6	2.4
Mountain biking—Involved non-motorized users	*62.1*	*37.9*	*6.8*	*9.3*	*5.6*	*2.5*	*13.7*
Mountain biking—Interested non-motorized users	*52.6*	*47.4*	*5.3*	*11.7*	*6.4*	*7.4*	*16.6*
Horseback riding—all trail users	83.1	16.9	8.1	5.9	1.5	.7	.7
Horseback riding—non-motorized trail users	84.1	15.9	7.9	4.8	1.6	.0	.0
Horseback riding—Involved non-motorized users	*47.8*	*52.3*	*1.9*	*5.6*	*5.0*	*14.3*	*25.5*
Horseback riding—Interested non-motorized users	*74.1*	*26.0*	*5.8*	*4.4*	*3.3*	*3.3*	*9.2*
Canoeing/kayaking—all trail users	87.6	12.4	5.1	5.8	1.5	.0	.0
Canoeing/kayaking—non-motorized trail users	88.2	11.8	4.7	5.5	1.6	.1	.1
Canoeing/kayaking—Involved non-motorized	*77.6*	*22.3*	*11.8*	*9.9*	*.0*	*.6*	*0*
Canoeing/kayaking—Interested non-motorized	*69.6*	*29.9*	*13.5*	*13.2*	*2.5*	*.3*	*.4*
Cross-country skiing/snowshoeing—all trail users	92.6	7.4	3.7	2.9	.7	.0	.0
Cross-country skiing/snowshoeing—non-motor.	92.9	7.1	3.7	2.9	.7	.0	.0
Cross-country skiing/snowshoeing—Involved nm	*90.1*	*9.9*	*3.1*	*5.0*	*.0*	*.6*	*1.2*
Cross-country skiing/snowshoeing—Interested nm	*78.5*	*21.1*	*9.9*	*9.3*	*.6*	*.7*	*.7*

*The column (2nd) titled "at least once a year" equals the sum total of the following five columns.

The most common pursuits for **non-motorized users on a motorized trail** were *four wheel driving or other high clearance vehicle driving* (45%), *quad or all-terrain vehicle driving* (50%), and *motorized trail biking/dirt biking* (30%).

Non-motorized Users Participation in Motorized Trail Activity	**Not at all**	**At least once/yr**	**Once a year**	**A few times a year**	**Once a month**	**Once a week**	**More than once a week**
4WD/other high clearance vehicle—all trail users	43.2	56.8	5.4	24.3	13.5	8.1	5.4
4WD/other high clearance vehicle—non-motorized	55.0	45.0	5.0	20.0	10.0	5.0	5.0
4WD/other high clearance vehicle—Involved nm	*18.5*	*81.4*	*12.3*	*38.3*	*22.2*	*8.6*	*.0*
4WD/other high clearance vehicle—Interested nm	*18.5*	*81.4*	*12.7*	*45.1*	*19.6*	*2.9*	*1.1*
Quad or all-terrain vehicle driving—all trail users	39.5	60.6	10.5	23.7	13.2	7.9	5.3
Quad or all-terrain vehicle driving—non-motorized	50.0	50.0	20.0	20.0	10.0	.0	.0
Quad or all-terrain vehicle driving—Involved nm	*69.1*	*30.9*	*6.2*	*17.3*	*3.7*	*3.7*	*.0*
Quad or all-terrain vehicle driving—Interested nm	*72.4*	*27.3*	*9.5*	*10.5*	*4.4*	*2.9*	*.0*
Motorized trail biking/dirt biking—all trail users	55.3	44.7	7.9	18.4	10.5	5.3	2.6
Motorized trail biking/dirt biking—non-motorized	70.0	30.0	5.0	20.0	5.0	.0	.0
Motorized trail biking/dirt biking—Involved non-mot	*80.2*	*19.7*	*7.4*	*7.4*	*3.7*	*.0*	*1.2*
Motorized trail biking/dirt biking—Interested non-m	*80.7*	*19.3*	*4.0*	*6.9*	*4.0*	*2.9*	*1.5*
Rock crawling—all trail users	82.1	17.9	5.1	7.7	2.6	.0	2.6
Rock crawling—non-motorized trail users	81.0	19.0	9.5	9.5	.0	.0	.0
Rock crawling—Involved non-motorized trail users	*90.1*	*9.9*	*4.9*	*2.5*	*2.5*	*0*	*0*
Rock crawling—Interested non-motorized users	*86.2*	*13.8*	*4.7*	*6.2*	*2.5*	*.4*	*.0*
Utility terrain vehicle/modified golf cart—all users	73.7	26.3	5.3	13.2	2.6	2.6	2.6
Utility terrain vehicle/modified golf cart—non-motor	80.0	20.0	5.0	15.0	.0	.0	.0
Utility terrain vehicle/mod. golf cart—Involved nm	*91.4*	*8.5*	*4.9*	*1.2*	*1.2*	*1.2*	*.0*
Utility terrain vehicle/mod. golf cart—Interested nm	*92.4*	*7.6*	*3.3*	*1.8*	*1.8*	*.7*	*.0*
Dune buggy or sand rail driving—all trail users	86.5	13.5	2.7	8.1	2.7	.0	.0
Dune buggy or sand rail driving—non-motorized	94.7	5.3	.0	5.3	.0	.0	0
Dune buggy or sand rail driving—Involved non-m	*100*	*0*	*0*	*0*	*0*	*0*	*0*
Dune buggy or sand rail driving—Interested non-m	*94.9*	*5.1*	*2.9*	*1.5*	*.7*	*.0*	*.0*
Snowmobiling—all trail users	97.4	2.6	.0	2.6	.0	.0	.0
Snowmobiling—non-motorized trail users	100	.0	.0	0	0	.0	0
Snowmobiling—Involved non-motorized trail users	*97.5*	*2.5*	*0*	*2.5*	*0*	*0*	*0*
Snowmobiling—Interested non-motorized users	*97.1*	*2.9*	*2.2*	*.7*	*.0*	*.0*	*.0*

The most common recreation activities that non-motorized users participated in on a non-motorized trail (at least once per year) is *exercising* (85%), *visiting historic or archaeological sites* (66%), and *wildlife view or bird watching* (54%). This also pertains to Involved and Interested non-motorized trail users.

Non-motorized Users: Used non-motorized trails for these purposes*	**Not at all**	**At least once/yr**	**Once a year**	**A few times a year**	**Once a month**	**Once a week**	**More than once a week**
Exercising—all trail users	16.8	83.2	3.5	22.4	16.1	14.7	25.9
Exercising—non-motorized trail users	14.3	85.0	3.2	23.8	16.7	14.3	27.0
Exercising—Involved non-motorized trail users	*6.8*	*93.2*	*1.2*	*16.8*	*10.6*	*14.3*	*50.3*
Exercising—Interested non-motorized trail users	*4.7*	*95.2*	*.6*	*13.2*	*13.6*	*17.6*	*50.2*
Visiting historic or archaeological sites—all users	34.7	65.3	18.8	36.8.	6.9	2.1	.7
Visiting historic or archaeological sites—non-mot	34.1	65.9	19.0	37.3	6.3	2.4	.8
Visiting historic/archaeological sites—Involved nm	*13.7*	*86.4*	*14.3*	*50.9*	*16.8*	*2.5*	*1.9*
Visiting hist/archaeological sites—Interested nm	*15.3*	*84.5*	*13.3*	*49.8*	*15.0*	*3.6*	*2.8*
Wildlife viewing or bird watching—all trail users	45.1	54.9	7.6	21.5	11.8	4.9	9.0
Wildlife viewing or bird watching—non-motorized	45.6	54.4	6.4	21.6	11.2	5.6	9.6
Wildlife viewing/bird watching—Involved non-mot	*22.4*	*77.1*	*5.6*	*23.6*	*19.3*	*11.8*	*16.8*
Wildlife viewing/bird watching—Interested non-mot	*20.6*	*79.0*	*5.8*	*25.8*	*18.2*	*10.8*	*18.4*
Walking as alternative transportation—all trail user	64.6	35.4	4.2	14.6	6.2	5.6	4.9
Walking as alternative transportation—non-motor	64.3	35.7	4.0	14.3	6.3	5.6	5.6
Walking as alternative transport—Involved nm	*65.8*	*34.0*	*3.7*	*15.5*	*6.8*	*3.7*	*4.3*
Walking as alternative transport—Interested nm	*55.1*	*44.0*	*3.3*	*16.4*	*8.3*	*6.8*	*9.2*
Bicycling as alternative transportation—all trail use	71.5	28.6	2.8	12.5	5.6	3.5	4.2
Bicycling as alternative transportation—non-motor	71.7	28.3	3.1	11.8	5.5	3.1	4.7
Bicycling as alternative transport—Involved nm	*67.7*	*32.2*	*2.5*	*9.9*	*6.8*	*3.1*	*9.9*
Bicycling as alternative transport—Interested nm	*55.3*	*44.5*	*3.0*	*15.7*	*7.7*	*7.4*	*10.7*

Non-motorized users use a motorized vehicle on unpaved roads to access or get to recreational sites (at least once per year) is to *go sightseeing/driving for pleasure* (61%), *camping or picnicking areas* (54%), *access trailheads* (51%). Non-motorized users *accessing hunting or fishing areas* on an unpaved road occurred least (27%).

Non-motorized Users: Used motorized vehicle on unpaved roads to access or get to recreational sites*	**Not at all**	**At least once/yr**	**Once a year**	**A few times a year**	**Once a month**	**Once a week**	**More than once a week**
To go sightseeing/driving for pleasure—all users	35.4	64.6	9.0	38.2	11.8	4.2	1.4
To go sightseeing/driving for pleasure—non-motor	39.4	60.6	10.2	35.4	10.2	3.1	1.6
To go sightseeing/driving—Involved non-motor	*25.5*	*74.4*	*13.0*	*39.1*	*18.6*	*1.2*	*2.5*
To go sightseeing/driving—Interested non-motor	*28.9*	*71.0*	*9.8*	*40.7*	*15.0*	*3.6*	*1.9*
Camping or picnicking areas—all trail users	42.0	58.0	11.2	37.1	7.0	2.1	.7
Camping or picnicking areas—non-motorized user	45.6	54.4	12.0	35.2	6.4	.8	.0
Camping or picnicking areas—Involved non-motor	*24.2*	*75.8*	*10.6*	*44.1*	*18.0*	*2.5*	*.6*
Camping/picnicking areas—Interested non-motor	*23.9*	*75.8*	*8.3*	*47.7*	*15.6*	*3.0*	*1.2*
Trailheads—all trail users	47.9	50.7	11.3	26.8	7.0	4.2	1.4
Trailheads—non-motorized trail users	48.8	51.2	10.4	27.2	7.2	4.0	1.6
Trailheads—Involved non-motorized trail users	*11.8*	*88.2*	*6.8*	*32.9*	*25.5*	*14.3*	*8.7*
Trailheads—Interested non-motorized trail users	*12.6*	*87.2*	*5.5*	*38.5*	*23.7*	*10.5*	*9.0*
Historic or archaeological sites—all trail users	53.5	46.5	13.2	27.8	4.9	.0	.0
Historic or archaeological sites—non-motorized	55.6	43.7	12.7	26.2	4.8	.0	.0
Historic/archaeological sites—Involved non-motor	*32.3*	*67.0*	*21.1*	*37.9*	*6.2*	*.6*	*1.2*
Historic/archaeological sites—Interested non-mot	*34.8*	*64.8*	*15.9*	*37.3*	*9.2*	*1.8*	*.6*
Wildlife viewing/bird watching area—all trail users	63.2	37.8	8.3	18.8	6.9	1.4	1.4
Wildlife viewing/bird watching area—non-motor	65.9	34.1	7.1	18.3	5.6	1.6	1.6
Wildlife viewing/bird watching area—Involved nm	*45.3*	*54.6*	*8.7*	*31.7*	*8.7*	*4.3*	*1.2*
Wildlife viewing/bird watching area—Interested nm	*40.6*	*59.0*	*9.6*	*30.1*	*12.9*	*3.6*	*2.8*
Hunting or fishing area—all trail users	66.3	33.7	6.3	19.0	5.6	.7	.0
Hunting or fishing area—non-motorized trail users	72.8	27.2	6.4	15.2	4.8	.8	.0
Hunting or fishing area—Involved non-motorized	*72.0*	*27.9*	*6.2*	*17.4*	*2.5*	*1.2*	*.6*
Hunting or fishing area—Interested non-motorized	*72.6*	*26.9*	*4.4*	*16.0*	*4.4*	*1.8*	*.3*
Other types of recreation areas—all trail users	56.2	41.0	9.7	22.9	4.9	2.1	1.4
Other types of recreation areas—non-motorized	58.7	38.9	10.3	21.4	4.8	.8	1.6
Other types of recreation areas—Involved non-m	*34.2*	*60.2*	*11.8*	*29.8*	*11.8*	*5.6*	*1.2*
Other types of recreation areas—Interested non-m	*37.0*	*54.0*	*8.4*	*30.2*	*9.2*	*3.7*	*2.5*

Comparison between 2008 Random Household Survey and Involved User and Interested Public survey results indicating the percentage of all trail users that said they used a trail in Arizona at least once within the last 12 months for that particular activity.

Random Household Percentages of either Core Motorized or Core Non-motorized trail users by Activity—comparing results from the 2008 to the 2003 study.

Non-motorized Trail Activity	**2008 NM Trail Users**	**2003 NM Trail Users**
Trail hiking	85.0	75.5
Backpacking	28.9	20.7
Mountain biking	22.2	14.3
Horseback riding	15.9	13.5
Canoeing/kayaking	11.8	9.3
Cross-country skiing or snowshoeing	7.1	5.3
Motorized Trail Activity	**2008 Mot Trail Users**	**2003 Mot Trail Users**
Four wheel driving/other high clearance vehicle	71.6	55/10.6
Quad or all-terrain vehicle driving	72.2	42.4
Motorized trail biking/dirt biking	61.1	16.6
Rock crawling	16.6	-
Utility terrain vehicle or modified golf cart driving	33.3	-
Dune buggy or sand rail driving	22.2	5
Snowmobiling	5.6	.5
Used non-motorized trails for these purposes* (question not asked or asked very differently in 2003)	**2008 NM Trail Users**	**2003 NM Trail Users**
Exercising	85.0	-
Visiting historic or archaeological sites	65.9	52.1
Wildlife viewing or bird watching	54.4	40
Walking as a form of alternative transportation*	35.7	67.1
Bicycling as a form of alternative transportation*	28.3	13.7
Used motorized vehicle on unpaved roads to access or get to recreational sites* (question not asked or asked very differently in 2003)	**2008 Mot Trail Users**	**2003 Mot Trail Users**
To go sightseeing or driving for pleasure	94.1	49.8
Camping or picnicking areas	83.3	-
Trailheads	52.9	-
Historic or archaeological sites	61.1	40.1
Wildlife viewing or bird watching area	55.6	49.8
Hunting or fishing area	64.7	-
Other types of recreation areas	55.6	-

All non-motorized trail activities show at least a slight increase in the percent of people who report using trails (up nearly 10% for *hiking* and *backpacking*). All motorized trail activities show a significant increase in the percent of people who report using trails (up 18% for *ATVs* and 28% for *dirt biking*).

Respondents were asked, in the last twelve months, how often they have used non-motorized trails in Arizona for a variety of other purposes. The results show that approximately two thirds of respondents never use trails for *walking or bicycling as a form of alternative transportation*. More than half (51%) of trail users use a motorized vehicle on unpaved roads *to get to trailheads*.
*Since the questions regarding walking and bicycling were asked so differently in 2003 (they were asked as a pure activity, not as a "form of alternative transportation"), the 2003 and 2008 numbers are not comparable.

PARTICIPATION RATES BY USER TYPE AND ACTIVITY—CONDENSED VERSION

To help categorize users by activity type, we combined the percentages of users who said they participated in that activity at least once a week and once a month in the past year compared to at least once in the past year. Numbers are cumulative.

Non-motorized Users Participation in Non-motorized Trail Activity (numbers are cumulative)	**At least once a year**	**At least once a month**	**At least once a week**
Trail hiking—all trail users (motorized and non-motorized)	84.8	36.9	15.9
Trail-hiking—non-motorized trail users	85.0	37.1	16.6
Trail-hiking—Involved non-motorized trail users	*93.8*	59.9	40.1
Trail-hiking—Interested non-motorized trail users	*95.8*	68.1	45.4
Backpacking—all trail users	29.7	6.4	2.1
Backpacking—non-motorized trail users	28.9	5.9	2.4
Backpacking—Involved non-motorized users	*47.1*	8.6	1.8
Backpacking—Interested non-motorized users	*57.4*	12.6	2.5
Mountain biking—all trail users	22.8	8.1	3.7
Mountain biking—non-motorized trail users	22.2	8.8	4.0
Mountain biking—Involved non-motorized trail users	*37.9*	21.7	16.1
Mountain biking—Interested non-motorized trail users	*47.4*	30.4	24.0
Horseback riding—all trail users	16.9	4.0	1.4
Horseback riding—non-motorized trail users	15.9	3.7	0.
Horseback riding—Involved non-motorized trail users	*52.3*	44.4	39.5
Horseback riding—Interested non-motorized users	*26.0*	15.8	12.5
Canoeing/kayaking—all trail users	12.4	1.6	.0
Canoeing/kayaking—non-motorized trail users	11.8	1.7	.2
Canoeing/kayaking—Involved non-motorized users	*22.3*	.6	.6
Canoeing/kayaking—Interested non-motorized users	*29.9*	3.2	.7
Cross-country skiing/snowshoeing—all trail users	7.4	1.0	.0
Cross-country skiing/snowshoeing—non-motorized	7.1	1.0	.0
Cross-country skiing/snowshoeing—Involved non-m	*9.9*	1.8	1.8
Cross-country skiing/snowshoeing—Interested non-m	*21.1*	2.0	1.4

Motorized Users Participation in Motorized Trail Activity (numbers are cumulative)	**At least once a year**	**At least once a month**	**At least once a week**
4WD/other high clearance vehicle—all trail users	56.8	27.0	13.5
4WD/other high clearance vehicle—motorized users	71.6	35.3	17.7
4WD/other high clearance vehicle—Involved motor	*86.1*	60.9	31.7
4WD/other high clearance vehicle—Interested motor	*80.7*	52.9	27.0
Quad or all-terrain vehicle driving—all trail users	60.5	26.7	13.2
Quad or all-terrain vehicle driving—motorized users	72.2	44.9	27.8
Quad or all-terrain vehicle driving—Involved motorized	*49.3*	35.1	18.8
Quad/all-terrain vehicle driving—Interested motorized	*53.0*	32.4	18.0
Motorized trail biking/dirt biking—all trail users	44.7	18.0	7.9
Motorized trail biking/dirt biking—motorized users	61.1	33.2	16.7
Motorized trail biking/dirt biking—Involved motorized	*44.8*	31.8	26.3
Motorized trail biking/dirt biking—Interested motorized	*50.9*	39.9	28.8
Rock crawling—all trail users	17.9	5.7	2.6
Rock crawling—motorized trail users	16.6	11.5	5.6
Rock crawling—Involved motorized trail users	*50.3*	29.7	11.4
Rock crawling—Interested motorized trail users	*47.6*	24.7	10.1
Utility terrain vehicle/modified golf cart—all users	26.3	9.0	5.2
Utility terrain vehicle/modified golf cart—motorized	33.3	17.3	11.2
Utility terrain vehicle/mod. golf cart—Involved motor	*18.5*	10.0	6.0
Utility terrain vehicle/mod. golf cart—Interested motor	*24.2*	13.0	6.5
Dune buggy or sand rail driving—all trail users	13.5	2.7	.0
Dune buggy or sand rail driving—motorized users	22.3	5.6	.0
Dune buggy or sand rail driving—Involved motorized	*13.0*	5.0	2.0
Dune buggy or sand rail driving—Interested motorized	*20.7*	7.8	3.7
Snowmobiling—all trail users	2.6	.0	.0
Snowmobiling—motorized trail users	5.6	0	.0
Snowmobiling—Involved motorized trail users	*4.5*	.0	.0
Snowmobiling—Interested motorized trail users	*4.4*	.6	.3

GROUP SIZE

How many people are typically with you when you use trails in Arizona?

Both motorized and non-motorized users tend to use trails in small groups of 1-5 people, although motorized users were more likely to use recreate in groups of 5 or more.

How many people are typically with you when you use trails in Arizona?	Random Household Survey				Involved User Survey				Interested Public Survey			
	0	1	2-4	5>	0	1	2-4	5>	0	1	2-4	5>
Age 18 and over using non-motorized trails—all trail users	9.7	47.8	38.1	4.5	6.1	45.0	36.8	11.6	9.9	42.3	40.1	7.6
Age 18 and over using non-motorized trails—motorized trail users	10.0	20.0	50.0	20.0	5.4	51.8	33.9	7.7	10.2	46.7	38.2	4.8
Age 18 and over using non-motorized trails—non-motorized users	9.7	50.0	37.1	3.2	6.8	37.9	39.8	15.5	9.5	37.0	42.4	11.0
Age 18 and over using motorized trails —all trail users	7.9	31.6	44.7	15.8	3.2	30.1	35.8	30.5	3.1	27.8	44.6	24.0
Age 18 and over using motorized trails — motorized trail users	5.6	27.8	44.4	22.2	1.0	21.9	36.3	40.8	1.9	22.8	46.4	29.0
Age 18 and over using motorized trails —non-motorized trail users	10.0	35.0	45.0	10.0	8.6	50.6	34.6	4.9	7.6	46.2	38.2	5.5
Under age 18 using non-motorized trails —all trail users	50.4	15.6	29.6	4.4	54.4	20.7	19.5	4.6	53.2	20.5	22.8	2.6
Under age 18 using non-motorized trails —motorized trail users	40.0	20.0	30.0	10.0	52.4	25.0	19.6	1.2	47.1	23.4	26.5	2.0
Under age 18 using non-motorized trails —non-motorized users	51.2	15.2	29.6	4.0	56.5	16.1	19.3	8.1	60.4	17.0	18.5	3.3
Under age 18 using motorized trails —all trail users	35.1	18.9	35.1	8.1	43.3	25.5	20.9	9.2	40.8	20.8	31.0	6.6
Under age 18 using motorized trails —motorized trail users	35.3	17.6	35.3	11.8	36.8	24.9	25.4	11.4	36.5	21.4	33.5	7.9
Under age 18 using motorized trails —non-motorized users	35.0	20.0	35.0	5.0	59.3	27.2	9.9	3.7	56.7	18.5	21.8	1.5

Nearly twice as many non-motorized users (60%) tend to go out on their type of trails alone or with one other adult more than do motorized users (32%). Motorized users (67%) tend to go out on trails with more multiple adult partners (2 or more adults) than do non-motorized users (40%). Twice as many motorized users (66%) go out on trails with one or more children than do non-motorized users (33%).

Comparison of trail group size between 2008 and 2003 Random Household surveys

How many people are typically with you when you use trails in Arizona?	2008 0	2008 1	2008 2-4	2008 5>	2003 0	2003 1	2003 2-3	2003 4-5	2003 6-10>
Age 18 and over using non-motorized trails —non-motorized trail users	9.7	50.0	37.1	3.2	6.2	37.5	38.3	13.2	4.8
Age 18 and over using motorized trails —motorized trail users	5.6	27.8	44.4	22.2	1.6	32.4	50.9	11.6	3.4

In 2008 more non-motorized users report going out alone or with one other person than in 2003; and more motorized users reported going out with groups of 5 or more people more often in 2008 than in 2003.

PREFERENCES REGARDING TYPE OF MOTORIZED TRAILS AND ROUTES

Trail managers have limited resources to provide for all types of motorized trail activities and experiences. ***How important are each of the following to you personally?***

Motorized user responses indicate that *loop trails*, *trails that offer challenge* and *scenic backcountry roads maintained for passenger vehicles* are most important.

PREFERENCES REGARDING TYPE OF MOTORIZED TRAILS	Random Household Mean		Involved Users Mean		Interested Public Mean	
	Mot	Non-Mot	Mot	Non-Mot	Mot	Non-Mot
Loop trails	**1.76**	2.13	**2.20**	1.58	**2.29**	1.56
Trails that offer challenge and technical driving opportunity	2.01	2.45	2.81	**1.38**	2.82	**1.46**
Scenic backcountry roads maintained for passenger vehicle	2.06	**2.06**	2.62	2.77	2.46	2.63
Cross-country travel areas (riding anywhere is permitted)	2.06	2.82	3.30	2.64	3.14	2.33
Off-highway vehicle trails and areas near where people live	2.11	2.32	2.77	1.81	2.69	1.76
Long distance off-highway vehicle trails (> 100 miles)	2.41	2.87	3.05	1.95	2.95	1.92
Children's play areas near staging areas	2.58	2.25	3.57	3.24	3.45	3.17
Single track trails (for dirt bikes)	2.71	2.81	3.14	2.58	3.11	2.25
Competitive desert racing trails and areas	2.79	3.28	3.30	2.53	3.14	2.27

Note. Mean scores are values on a four-point scale where 1=Very important, 2=Somewhat important, 3=Not too important, or 4=Not important at all.

PREFERENCES REGARDING TYPE OF MOTORIZED TRAILS

Motorized Trail Type	% Very important			% Somewhat important			% Not too important			% Not at all important		
	Rand	Involv	Int	Rand	Involv	Int	Rand	Involv	Int	Rand	Involv	Int
Loop trails—all trail users	23.7	46.1	46.1	55.3	35.5	35.5	13.2	14.2	14.2	5.3	3.9	3.9
Loop trails— **motorized trail users**	33.3	54.2	55.0	55.6	33.8	34.3	5.6	11.4	9.2	5.6	.5	.9
Loop trails—non-motorized trail users	15.0	25.9	20.0	55.0	39.5	45.8	20.0	21.0	17.5	5.0	12.3	15.6
Trails that offer challenge and technical driving opportunity—all trail users	24.3	54.6	52.2	45.9	21.6	28.5	13.5	13.5	10.9	16.2	9.9	7.9
Trails that offer challenge and technical driving opportunity—**motorized trail users**	38.9	70.1	63.5	38.9	22.9	28.1	5.6	6.0	6.7	16.7	1.0	1.5
Trails that offer challenge and technical driving opportunity—non-motorized users	10.5	16.0	10.2	52.6	18.5	29.8	21.1	32.1	26.9	15.8	32.1	32.0
Scenic backcountry roads maintained for passenger vehicle—all trail users	38.9	11.7	15.4	33.3	30.5	31.1	11.1	31.6	31.4	13.9	26.2	21.3
Scenic backcountry roads maintained for passenger vehicle—**motorized trail users**	35.3	10.4	14.6	35.3	30.8	30.0	11.8	30.3	32.6	11.8	28.4	22.0
Scenic backcountry roads maintained for passenger vehicle—non-motorized trail users	42.1	14.8	18.5	31.6	29.6	35.3	10.5	34.6	26.9	15.8	21.0	18.5
Cross-country travel areas (riding anywhere is permitted)—all trail users	21.1	17.0	24.8	36.8	20.2	25.5	18.4	23.8	23.1	23.7	37.6	25.6
Cross-country travel areas (riding anywhere is permitted)—**motorized trail users**	33.3	20.4	29.1	44.4	22.4	27.5	11.1	27.9	23.7	11.1	27.9	18.9
Cross-country travel areas (riding anywhere is permitted)—non-motorized trail users	10.0	8.6	9.1	30.0	14.8	18.2	25.0	13.6	21.1	35.0	61.7	50.5
Off-highway vehicle trails and areas near where people live—all trail users	27.0	39.7	43.4	32.4	25.9	27.7	29.7	19.5	16.9	10.8	14.2	10.9
Off-highway vehicle trails and areas near where people live—**motorized trail users**	29.4	48.3	50.6	35.3	28.9	28.3	29.4	16.4	14.1	5.9	6.5	6.2
Off-highway vehicle trails and areas near where people live—non-motorized trail users	25.0	18.5	16.7	30.0	18.5	25.5	30.0	27.2	27.3	15.0	33.3	28.4

Long distance off-highway vehicle trails (> 100 miles)—all trail users	15.8	27.3	31.1	31.6	32.3	34.5	26.3	25.5	22.2	23.7	14.2	11.2
Long distance off-highway vehicle trails (> 100 miles)—**motorized trail users**	22.2	36.3	37.5	38.9	35.8	37.2	22.2	22.9	20.4	16.7	4.5	4.4
Long distance off-highway vehicle trails (> 100 miles)—non-motorized trail users	10.0	4.9	8.4	25.0	23.5	24.7	30.0	32.1	29.1	30.0	38.3	36.4
Children's play areas near staging areas—all trail users	32.4	5.3	7.4	21.6	13.8	13.6	16.2	22.0	27.8	27.0	57.4	49.8
Children's play areas near staging areas—**motorized trail users**	29.4	7.0	8.3	17.6	15.4	13.6	23.5	22.9	28.8	29.4	52.7	47.0
Children's play areas near staging areas—non-motorized users	35.0	1.2	4.0	25.0	9.9	8.7	10.0	19.8	24.0	25.0	69.1	60.4
Single track trails (for dirt bikes)—all trail users	13.2	23.8	31.7	28.9	18.8	19.2	26.3	15.6	20.1	31.6	40.4	27.2
Single track trails (for dirt bikes)—**motorized trail users**	15.8	28.4	37.4	21.1	18.9	19.4	36.8	17.4	20.6	26.3	33.8	20.8
Single track trails (for dirt bikes)—non-motorized trail users	10.5	12.2	10.5	36.8	18.5	18.5	15.8	11.1	18.2	36.8	56.8	50.9
Competitive desert racing trails and areas—all trail users	11.1	21.3	27.1	19.4	18.4	22.0	22.2	21.3	21.4	47.2	37.9	28.4
Competitive desert racing trails and areas—**motorized trail users**	17.6	26.4	33.1	23.5	22.9	24.4	23.5	20.9	22.8	35.3	28.9	18.6
Competitive desert racing trails and areas—non-motorized users	5.3	8.6	5.1	15.8	7.4	13.1	21.1	22.2	16.0	57.9	60.5	64.0

PREFERENCES REGARDING NON-MOTORIZED TRAILS

When you use trails for non-motorized activities in Arizona, what do you most prefer?

A notable finding from this study is the significant difference between management preferences for motorized and non-motorized users. Specifically, more than two-thirds of motorized users (66.7%) prefer *very little management, with few rules, services, or facilities* compared with one-fifth (21.1%) of non-motorized users. Motorized users, on the average prefer *shorter length trails*, while non-motorized users prefer *longer trails*, especially the Involved Users and Interested Public respondents. Both groups tend to prefer *social environments with very few or some other people around*. Both groups seem to have approximately the same percentages when asked about the preferred *level of difficulty* of trails.

PREFERENCES REGARDING NON-MOTORIZED TRAILS

length of trail	**<1 mile**			**1-5 miles**			**6-15 miles**			**>15 miles**		
	Random	Involv	Int.	Random	Involv	Int.	Random	Involv	Int.	Random	Involv	Int
All trail users	7.5	5.5	3.9	67.9	46.8	53.1	17.2	34.7	30.0	3.7	12.2	10.5
Motorized trail users	10.0	10.7	6.7	60.0	67.9	69.2	20.0	14.3	16.1	.0	5.4	4.8
Non-motorized users	7.3	0	.6	68.5	24.8	34.1	16.9	55.9	46.4	4.0	19.3	17.2
level of difficulty	**easy, level, flat**			**moderately varied**			**challenging**					
	Random	Involv	Int.	Random	Involv	Int.	Random	Involv	Int			
All trail users	15.6	6.4	5.8	70.4	67.9	64.4	12.6	25.2	27.7			
Motorized trail users	10.0	10.7	8.9	80.0	67.3	65.5	10.0	20.8	23.1			
Non-motorized users	16.0	1.9	2.2	69.6	67.1	63.3	12.8	29.8	33.2			
social environment	**very few people present**			**some other people present**			**lots of other people present**					
	Random	Involv	Int	Random	Involv	Int.	Random	Involv	Int			
All trail users	43.6	47.7	51.1	52.6	49.5	44.7	2.3	.6	1.3			
Motorized trail users	40.0	44.0	46.7	50.0	50.6	47.5	.0	1.2	1.4			
Non-motorized users	43.9	51.6	56.3	52.8	48.4	41.5	2.4	0	1.2			
level of management	**very little mgt;** few rules, services & facilities			**moderate mgt;** some rules, services & facilities			**high mgt;** many rules, services & facilities					
	Random	Involv	Int	Random	Involv	Int.	Random	Involv	Int			
All trail users	24.2	47.1	47.0	68.9	50.5	50.0	6.1	1.2	.8			
Motorized trail users	66.7	50.0	47.7	33.3	47.0	48.6	.0	1.2	.8			
Non-motorized users	21.1	44.1	46.1	71.5	54.0	51.6	6.5	1.2	.9			

ENVIRONMENTAL CONCERNS

Perceptions of environmental concerns are important as these attitudes can affect both trail users' satisfaction as well as the ecological integrity of the recreation setting. Impacts to the surrounding natural environment from the varied uses of trails need to be considered by both land managers and recreationists, especially as the number of people using Arizona's trails increases.

How much of a problem do you think each of the following environmental conditions is on trails you use most?

Survey respondents were asked to rate a series of seven environmental concerns on a four-point scale ranging from 1 (Not a problem) to 4 (Very serious problem).

Based on the mean scores, Random Household respondents, motorized and non-motorized users, share some concerns, including *litter or trash dumping* (M = 3.18; NM = 2.67), *erosion of trails* (M = 2.34; NM = 2.46), and *decreased wildlife sightings* (M = 2.36; NM = 2.46). Litter and trash dumping are often noticed and negatively evaluated because they are associated with inappropriate human behaviors. Motorized and non-motorized users also find *damage to vegetation* (M = 2.39; NM = 2.40) to be of some concern.

Both Involved User and Interested Public motorized and non-motorized users share the same top concern as the Random respondents, with *litter or trash dumping* ranking the highest, followed by *erosion of trails*.

Perceptions of Environmental Conditions—Mean Scores

ENVIRONMENTAL CONDITIONS	Random Household		Involved User		Interested Public	
	Motorized	Non-Motorized	Motorized	Non-Motorized	Motorized	Non-Motorized
Litter or trash dumping	3.18	2.67	2.98	3.11	2.85	2.95
Erosion of trails	2.34	2.46	2.93	2.16	2.79	2.10
Decreased wildlife sightings	2.36	2.46	2.57	1.75	2.64	1.64
Damage to vegetation	2.39	2.40	2.64	2.00	2.50	1.83
Damage to historical or archaeological sites	2.19	2.27	2.43	2.13	2.36	1.96
Dust in the air	2.20	2.23	2.08	1.81	2.18	1.63
Loss of scenic quality	2.17	2.04	2.44	1.89	2.37	1.71

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

Perceptions of Environmental Conditions—Mean Scores for Motorized Users
(ranked by the mean scores for Random Household motorized responses)

ENVIRONMENTAL CONDITIONS—Mean	MOTORIZED USER		
	Random Household	Involved User	Interested Public
Litter or trash dumping	3.18	2.98	2.85
Erosion of trails	2.34	2.93	2.79
Decreased wildlife sightings	2.36	2.57	2.64
Damage to vegetation	2.39	2.64	2.50
Damage to historical or archaeological sites	2.19	2.43	2.36
Dust in the air	2.20	2.08	2.18
Loss of scenic quality	2.17	2.44	2.37

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

Perceptions of Environmental Conditions—Mean Scores for Non-motorized Users
(ranked by the mean scores for Random Household non-motorized responses)

ENVIRONMENTAL CONDITIONS —Mean	NON-MOTORIZED USER		
	Random Household	Involved User	Interested Public
Litter or trash dumping	2.67	3.11	2.95
Erosion of trails	2.46	2.16	2.10
Decreased wildlife sightings	2.46	1.75	1.64
Damage to vegetation	2.40	2.00	1.83
Damage to historical or archaeological sites	2.27	2.13	1.96
Dust in the air	2.23	1.81	1.63
Loss of scenic quality	2.04	1.89	1.71

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

How much of a problem do you think each of the following environmental conditions is on trails you use most?

2008 Survey **ENVIRONMENTAL CONDITIONS along trails**	**Not a problem**		**A slight problem**		**A moderate problem**		**A serious problem**	
	Mot	NM	Mot	NM	Mot	NM	Mot	NM
Litter or trash dumping—Random survey	5.9	17.1	17.6	24.4	23.5	30.9	**52.9**	**26.0**
Litter or trash dumping—Involved survey	6.0	8.1	23.9	28.0	22.9	22.4	**47.3**	**41.6**
Litter or trash dumping—Interested survey	9.3	9.6	24.6	28.3	27.8	29.0	**38.2**	**32.6**
Decreased wildlife sightings—Random survey	29.4	27.0	11.8	18.0	35.3	30.3	17.6	20.5
Decreased wildlife sightings—Involved survey	55.9	21.7	19.9	20.5	13.4	29.2	9.0	23.0
Decreased wildlife sightings—Interested survey	57.6	19.6	21.8	24.4	12.7	22.8	5.1	28.9
Erosion of trails—Random survey	22.2	16.5	38.9	33.9	22.2	33.9	16.7	13.2
Erosion of trails—Involved survey	26.4	8.1	38.8	21.7	26.9	39.8	8.0	30.4
Erosion of trails—Interested survey	27.1	8.0	42.6	29.0	21.4	37.9	7.8	24.0
Damage to historical/archaeological sites—Random survey	38.9	30.3	11.1	22.1	22.2	17.2	16.7	18.0
Damage to historical/archaeological sites—Involved survey	34.8	23.6	31.3	25.5	15.4	21.7	15.9	20.5
Damage to historical/archaeological sites—Interested survey	44.2	28.3	24.0	23.9	15.1	18.5	12.8	21.5
Damage to vegetation—Random survey	23.5	23.0	29.4	29.5	29.4	29.5	17.6	16.4
Damage to vegetation—Involved survey	36.3	14.3	35.8	35.4	17.9	21.1	9.5	28.6
Damage to vegetation—Interested survey	41.8	21.6	37.9	30.8	17.9	21.1	9.5	28.6
Dust in the air—Random survey	38.9	33.9	16.7	23.1	33.3	25.6	11.1	15.7
Dust in the air—Involved survey	45.3	34.2	33.8	31.1	15.9	24.8	5.0	8.7
Dust in the air—Interested survey	54.8	31.1	29.2	32.9	13.3	21.3	2.2	13.6
Loss of scenic quality—Random survey	35.3	42.6	23.5	20.5	35.3	23.0	5.9	12.3
Loss of scenic quality—Involved survey	48.8	26.1	23.9	25.5	15.9	26.7	10.9	21.7
Loss of scenic quality—Interested survey	56.7	29.5	22.3	24.7	12.8	23.7	7.5	21.2

Random Household Motorized users—53%, said that *litter and trash dumping* is by far the most serious problem, and it is also non-motorized users' top concern, but to a lesser degree—26% said it is a serious problem.

Which one of these environmental conditions do you feel is the most important for managers to address?

ENVIRONMENTAL CONDITIONS along trails	**One Most Important**			
	Involved User Motorized	Involved User Non-motorized	Interested Public Motorized	Interested Public Non-motorized
Litter or trash dumping	67.7	32.3	65.6	33.3
Decreased wildlife sightings	0	5.6	1.1	8.3
Erosion of trails	11.4	38.1	11.7	26.7
Damage to historical or archaeological sites	10.4	5.6	11.6	9.5
Damage to vegetation	3.0	6.2	1.5	9.3
Dust in the air	.5	1.2	1.0	2.8
Loss of scenic quality	2.0	6.8	1.8	5.9

This question was deleted from the Random Household survey due to the need to shorten the phone survey; the above responses are from the Involved User and Interested Public web surveys.

When asked to pick the ONE most important environmental concern for land managers to address along trails, both the Involved User and Interested Public chose *litter and trash dumping* and *erosion of trails* as their top concerns followed closely by *damage to historic or archaeological sites*; except for the Involved User non-motorized respondent who chose *loss of scenic quality* as their third choice.

2003 Question and choices were asked differently: *To what extent do you think each of the following **environmental** concerns is a problem on trails in the region of the state you enjoy the most?*

2003 Survey* **Environmental Conditions along trails**	**Not a problem**		**A slight problem**		**A moderate problem**		**A serious or very serious problem**	
	Mot	NM	Mot	NM	Mot	NM	Mot	NM
•Littering—Random survey	8.4	11.3	25.5	25.6	20.6	33.0	45.5	30.1
•Littering—Involved survey	7.8	6.2	35.3	33.2	25.5	26.2	31.4	34.3
•Trash dumping—Random survey	12.4	23.1	28.1	27.6	23.8	28.6	35.2	20.7
•Trash dumping—Involved survey	7.7	18.1	25.0	31.0	26.9	22.4	40.4	28.5
Vandalism—Random survey*	20.4	27.3	24.8	35.5	35.6	21.0	19.2	16.1
Vandalism—Involved survey*	22.0	17.9	34.0	37.2	18.0	26.6	26.0	18.3
•Erosion of trails—Random survey	12.0	14.1	32.2	34.6	37.3	11.0	18.6	13.5
•Erosion of trails—Involved survey	25.5	9.4	21.6	29.2	41.2	32.5	11.8	28.8
Damage to soils—Random survey	44.8	32.1	35.2	38.8	11.1	18.7	8.9	6.6
Damage to soils—Involved survey	41.2	23.3	37.3	32.5	21.6	24.3	0	19.9
•Damage to historical or archaeological sites—Random survey	28.8	30.2	22.7	29.2	17.9	17.9	30.6	22.7
•Damage to historical or archaeological sites—Involved survey	30.8	15.9	34.6	30.3	25.0	29.9	9.6	26.8
•Trampling of vegetation—Random survey	32.0	23.0	32.9	35.6	24.6	23.9	10.4	17.5
•Trampling of vegetation—Involved survey	32.7	19.1	36.5	29.2	23.1	26.8	7.7	24.8
•Dust in the air—Random survey	24.8	35.1	36.2	30.3	28.8	20.2	11.1	14.4
•Dust in the air—Involved survey	48.1	33.5	44.2	8.3	3.8	18.7	3.8	9.6
Air quality—Random survey	46.6	38.2	36.1	27.6	9.5	21.8	7.8	12.4
Air quality— Involved survey	59.6	35.6	30.8	32.2	5.8	18.3	3.8	14.0
Water Pollution—Random survey	33.4	32.8	36.8	32.9	14.5	15.1	15.3	19.3
Water Pollution—Involved survey	47.1	33.0	35.3	30.5	11.8	20.7	5.9	17.8
Vehicle emissions—Random survey	42.2	28.5	27.0	32.3	18.2	20.6	12.6	18.6
Vehicle emissions—Involved survey	67.3	30.0	26.9	30.4	5.8	19.3	0	20.3
Human Waste—Random survey	48.4	52.9	32.5	29.2	9.5	12.2	9.7	5.6
Human waste—Involved survey	51.9	44.0	34.6	35.3	9.6	12.6	3.8	8.2
Fire rings—Random survey	36.3	44.0	34.5	34.4	21.8	7.0	7.3	7.6
Fire rings—Involved survey	47.1	30.4	33.3	42.0	19.6	17.9	0	9.6

*The 2003 survey used a 5 point scale; to compare with 2008 4 point scale the "serious & very serious" percentages were combined. Some of the 2003 categories were not asked in 2008 or were asked a bit differently (*litter and trash dumping* were combined, *trampling of vegetation* was changed to *damage to vegetation*, *vandalism* is under Social Conditions). Categories asked in both 2003 and 2008 are marked with a •.

SOCIAL CONDITIONS

Respondents rated the degree to which a variety of nine social issues affect the quality of their recreational trail experiences. These social conditions include how other people's behaviors and actions affect the trail user such as rude or potentially dangerous behaviors or residential developments being built too close to a trail that winds through a natural environment.

How much of a problem do you think each of the following social conditions is on trails you use most?

Based on mean scores, Random Household trail users considered *urban development limiting trail access or use* (M = 2.81; NM = 2.36) as a concern. *Closure of trails* (M = 2.82; NM = 1.76) was motorized users top concern. *Vandalism* (M = 2.76; NM = 2.37), and *lack of trail ethics by other users* (M = 2.51; NM = 2.27) were also slight problems.

Looking at the top concerns across all three groups, the top three concerns are *closure of trails*, *urban development limiting trail access or use* and *vandalism*; followed by *lack of trail ethics by other users*.

Perceptions of Social Conditions—Mean Scores

SOCIAL CONDITIONS	Random Household		Involved User		Interested Public	
	Motorized	Non-Motorized	Motorized	Non-Motorized	Motorized	Non-Motorized
Urban development limiting trail access or use	2.81	2.36	**3.30**	3.35	**2.99**	3.39
Vandalism	2.76	**2.37**	2.57	2.85	2.53	2.68
Lack of trail ethics by other users	2.51	2.27	2.65	2.73	2.57	2.53
Closure of trails	**2.82**	1.76	2.55	**3.67**	2.16	**3.61**
Unsafe off-highway vehicle use	2.50	1.93	2.49	2.35	2.55	2.16
Too many people	2.14	1.99	1.88	1.85	1.98	1.74
Target shooting	2.02	1.76	2.41	2.65	2.35	2.45
Conflict between users	2.01	1.68	2.18	1.84	2.11	1.75
Vehicle noise	1.84	1.94	2.45	1.79	2.48	1.55

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

* In 2003, *Closure of trails* was asked under Importance of Trail Issues and it ranked as the #1 issue (3.92 mean) by motorized users and #4 by non-motorized users (3.41 mean) out of fifteen trail issues. *Urban development* was also asked under Importance of Trail Issues and it ranked as the #2 issue (3.80 mean) by motorized users and #2 by non-motorized users (3.76 mean).

Perceptions of Social Conditions—Motorized Mean Scores
(ranked by the mean scores for Random Household motorized responses)

SOCIAL CONDITIONS—Mean	MOTORIZED		
	Random Household	Involved User	Interested Public
Closure of trails	**2.82**	2.55	2.16
Urban development limiting trail access or use	2.81	**3.30**	**2.99**
Vandalism	2.76	2.57	2.53
Lack of trail ethics by other users	2.51	2.65	2.57
Unsafe off-highway vehicle use	2.50	2.49	2.55
Too many people	2.14	1.88	1.98
Target shooting	2.02	2.41	2.35
Conflict between users	2.01	2.18	2.11
Vehicle noise	1.84	2.45	2.48

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

Perceptions of Social Conditions—Non-motorized Mean Scores
(ranked by the mean scores for Random Household non-motorized responses)

SOCIAL CONDITIONS—Mean	NON-MOTORIZED		
	Random Household	Involved User	Interested Public
Vandalism	**2.37**	2.85	2.68
Urban development limiting trail access or use	2.36	3.35	3.39
Lack of trail ethics by other users	2.27	2.73	2.53
Too many people	1.99	1.85	1.74
Vehicle noise	1.94	1.79	1.55
Unsafe off-highway vehicle use	1.93	2.35	2.16
Closure of trails	1.76	**3.67**	**3.61**
Target shooting	1.76	2.65	2.45
Conflict between users	1.68	1.84	1.75

Note. Mean scores are values on a four-point scale ranging from 1=Not a problem to 4=A serious problem.

How much of a problem do you think each of the following social conditions is on trails you use most?

SOCIAL CONDITIONS along trails	Not a problem		A slight problem		A moderate problem		A serious problem	
	Mot	NM	Mot	NM	Mot	NM	Mot	NM
Urban development limiting trail access/ use—Random survey	17.6	32.2	23.5	19.0	23.5	24.8	35.3	20.7
Vandalism—Random survey	18.8	31.1	12.5	19.7	37.5	24.6	31.2	**21.3**
Unsafe off-highway vehicle use—Random survey	17.6	47.1	35.3	22.3	29.4	12.4	17.6	14.0
Lack of trail ethics by other users—Random survey	27.8	29.3	22.2	28.5	16.7	25.2	33.3	15.4
Conflict between users—Random survey	37.5	54.9	37.5	24.6	12.5	12.3	12.5	5.7
Closure of trails—Random survey	17.6	50.0	23.5	26.2	17.6	13.9	**41.2**	6.6
Target shooting—Random survey	47.1	57.4	17.6	10.7	11.8	11.5	17.6	12.3
Too many people—Random survey	35.3	38.0	23.5	29.8	29.4	25.6	11.8	5.0
Vehicle noise—Random survey	41.2	45.5	35.3	24.8	23.5	14.9	.0	12.4

Motorized users—41%, said that *closure of trails* is the most serious problem; *urban development limiting trail access* and *lack of trail ethics by other users* were motorized users' second and third top concern—35% and 33% respectively. Non-motorized users do not have one clear top social concern—21% said *urban development limiting trail access* and *vandalism* were serious concerns; *lack of trail ethics by other users* was the third top concern—15%.

2003 Question: *To what extent do you think each of the following* ***social*** *concerns is a problem on trails in the region of the state you enjoy the most?*

2003 Survey* **Social Conditions along trails**	**Not a problem**		**A slight problem**		**A moderate problem**		**A serious or very serious problem**	
	Mot	NM	Mot	NM	Mot	NM	Mot	NM
•Residential/commercial development—Random survey*	36.3	34.0	6.8	14.0	12.8	24.5	44.1	27.5
•Residential/commercial development—Involved survey	13.5	12.0	23.1	22.5	23.1	26.3	40.4	51.7
•Unregulated OHV use—Random survey*	37.1	32.1	29.3	20.2	12.2	25.4	21.3	22.3
•Unregulated OHV use—Involved survey	42.0	10.9	34.0	14.2	18.0	20.9	6.0	54.1
•Lack of trail ethics—Random survey	23.0	26.3	32.0	31.9	23.4	22.5	21.6	19.3
•Lack of trail ethics—Involved survey	17.3	11.8	26.9	34.4	30.8	35.4	25.0	18.4
•Conflict between users—Random survey	48.9	49.2	38.7	35.9	9.9	11.7	2.5	3.2
•Conflict between users—Involved survey	32.7	23.2	28.8	34.1	32.7	23.7	5.7	18.9
•Target shooting—Random survey	45.5	51.5	27.1	22.8	10.5	13.3	16.9	12.4
•Target shooting—Involved survey	30.8	30.8	28.8	27.5	23.1	19.9	17.3	21.8
•Too many people—Random survey	26.4	33.7	32.9	28.4	33.3	27.9	7.4	10.1
•Too many people—Involved survey	30.8	23.7	25.0	28.4	26.9	28.9	17.4	19.0
•Vehicle noise—Random survey	46.6	40.2	36.1	31.7	8.1	18.0	9.2	10.2
•Vehicle noise—Involved survey	50.0	26.7	38.5	32.9	5.8	18.1	5.8	22.3
Noise disturbance—Random survey	44.9	39.0	39.0	34.3	5.9	18.2	10.2	8.6
Noise disturbance—Involved survey	55.8	28.4	32.7	30.8	7.7	19.2	3.8	21.7
Recreational livestock—Random survey	64.9	60.2	29.5	31.5	4.0	5.5	1.6	2.8
Recreational livestock—Involved survey	68.0	48.1	28.0	33.7	2.0	10.6	2.0	7.7
Uncontrolled dogs—Random survey	44.1	38.4	24.5	33.5	17.9	14.4	13.6	13.7
Uncontrolled dogs—Involved survey	51.0	32.2	33.3	28.4	7.8	22.3	7.9	17.1
Damage to/loss of personal property—Random survey	54.1	64.6	30.2	23.5	14.0	9.6	1.7	2.3
Damage to/loss of personal property—Involved survey	52.9	54.3	35.3	32.2	11.8	12.5	0	1.0
Personal safety—Random survey	45.5	51.5	27.2	34.1	21.2	11.6	6.1	7.5
Personal safety—Involved survey	48.1	39.9	38.5	38.9	7.7	16.8	5.7	4.3
Unskilled people—Random survey	24.0	35.9	51.9	9.2	17.4	20.3	6.7	4.6
Unskilled people—Involved survey	13.5	28.4	44.2	36.0	34.6	25.1	5.7	9.4

*The 2003 survey used a 5 point scale; to compare with 2008 4 point scale the "serious & very serious" percentages were combined. Two categories were asked a bit differently in 2003 (*development* and *OHV use*), and *Vandalism* was asked under Environmental Concerns, while *Closure of trails* was asked under Importance of Trail Issues. Categories asked in both 2003 and 2008 are marked with a •.

Which one of these social conditions do you feel is the most important for managers to address?

SOCIAL CONDITIONS along trails	ONE Most Important			
	Involved User Motorized	Involved User Non-motorized	Interested Public Motorized	Interested Public Non-motorized
Urban development limiting trail access/ use—Random survey	15.4	**36.0**	17.4	**24.0**
Vandalism—Random survey	5.0	5.0	5.5	7.7
Unsafe off-highway vehicle use—Random survey	3.0	12.4	2.0	14.2
Lack of trail ethics by other users—Random survey	14.9	16.1	12.8	15.3
Conflict between users—Random survey	1.0	4.3	1.2	8.9
Closure of trails—Random survey	**45.3**	13.7	**52.4**	10.8
Target shooting—Random survey	10.4	3.7	6.1	7.1
Too many people—Random survey	1.0	3.1	.7	2.8
Vehicle noise—Random survey	3.5	1.9	.7	5.0

*This question was deleted from the Random Household survey due to the need to shorten the phone survey; the above responses are from the Involved User and Interested Public web surveys.

The overwhelming top concern for Motorized Involved User and Motorized Interested Public is *closure of trails* (Inv = 45%; Int = 52%). The top concern for Non-motorized Involved User and Motorized Interested Public is *urban development limiting trail access or use* (Inv = 36%; Int = 24%).

TRAIL PLANNING AND MANAGEMENT PRIORITIES

Land managers, whether they manage a small recreation park or vast tracts of public land, must make tough decisions regarding where to spend the limited dollars they are allocated and to what tasks to assign staff. In most instances, recreational trails are only one of the resources they manage. Balancing all those needs can be a daunting job, especially in these times of dwindling budgets.

Trail managers have limited resources to develop and maintain trails, and must focus their money and time on the most serious needs first. ***How important is each item is to you?***

To assist land managers in making decisions regarding resource allocation and issue prioritization, this section of the survey included a series of questions that allowed respondents to rate the importance of twelve trail issues, management priorities, and support facilities.

Based upon mean scores on a scale of 1=Very important to 4=Not important at all, the top three priorities for Random Household motorized users were *acquiring land for trails and trail access* (1.62), *keeping existing trails in good condition* (1.66), and *mitigating damage to environment surrounding trails* (1.67). The top three issues for Random Household non-motorized users were *keeping existing trails in good condition* (1.42), *mitigating damage to environment surrounding trails* (1.51), and *enforcing existing rules and regulations in trail areas* (1.69).

Funding Priorities —Mean Scores

FUNDING PRIORITIES-Mean	Random Household		Involved User		Interested Public	
	Motorized	Non-Motorized	Motorized	Non-Motorized	Motorized	Non-Motorized
Acquire land for trails and trail access	**1.62**	1.74	**1.31**	**1.51**	**1.44**	**1.42**
Develop support facilities	2.15	1.98	2.67	2.77	2.64	2.80
Provide trail signs	1.85	1.73	2.01	2.16	2.05	2.26
Provide trail maps and information	1.99	1.80	2.06	2.11	2.11	2.17
Enforce existing rules/ regulations in trail areas	1.78	1.69	1.91	1.83	1.86	1.98
Keep existing trails in good condition	1.66	**1.42**	1.59	2.09	1.68	2.04
Mitigate damage to environment surrounding trails	1.67	1.51	1.72	2.14	1.68	2.18
Provide educational programs promoting safe/responsible recreation	1.90	1.91	2.19	1.83	2.10	2.01
Construct new trails (nm)	-	2.01	-	1.87	-	1.83
Routine upkeep of motorized trails, routes	1.71	-	2.30	-	2.40	-
Provide law enforcement/safety for motorized trails/routes	2.02	-	2.15	-	2.22	-
Establish/Designate motorized trails / areas	1.72	-	2.55	-	2.61	-

Note. Mean scores are values on a four-point scale ranging from 1=Very Important to 4=Not Important at all.

Trail managers have limited resources to develop and maintain trails, and must focus their money and time on the most serious needs first. ***How important is each item is to you?***

Funding Need for Trails	Very important		Somewhat important		Not too important		Not at all important	
	Mot	NM	Mot	NM	Mot	NM	Mot	NM
Keeping existing trails in good condition—Random survey	50.0	62.7	33.3	33.1	11.1	2.5	5.6	.8
Keeping existing trails in good condition—Involved survey	27.9	49.1	40.8	42.2	25.4	8.1	6.0	.0
Keeping existing trails in good condition—Interested survey	28.6	44.9	43.4	43.6	22.9	9.8	4.7	1.6
Acquiring land for trails & access—Random survey	52.9	43.2	35.3	42.4	11.8	9.3	.0	4.2
Acquiring land for trails & access —Involved survey	62.7	74.5	25.4	19.9	10.0	3.7	2.0	1.2
Acquiring land for trails & access —Interested survey	67.7	64.7	23.6	26.5	5.8	6.8	2.3	1.3
Enforcing existing rules and regulations in trail areas—Random survey	47.1	45.8	29.4	40.7	17.6	9.3	5.9	3.4
Enforcing existing rules and regulations in trail areas—Involved survey	42.3	35.4	37.3	40.4	15.4	21.1	5.0	2.5
Enforcing existing rules and regulations in trail areas—Interested survey	33.6	40.4	39.9	36.1	21.1	19.3	5.2	3.9
Mitigating damage to environment surrounding trails—Random survey	47.1	57.3	41.2	35.0	5.9	4.3	5.9	2.6
Mitigating damage to environment surrounding trails—Involved survey	21.9	43.5	48.3	41.6	23.4	13.0	6.5	1.2
Mitigating damage to environment surrounding trails—Interested survey	21.1	50.7	45.5	32.9	25.6	12.7	6.6	3.1
Developing support facilities such as restrooms, parking, campsites—Random survey	29.4	30.8	35.3	47.0	23.5	14.5	11.8	6.8
Developing support facilities —Involved survey	7.0	6.8	29.9	34.2	42.3	42.9	20.9	15.6
Developing support facilities —Interested survey	6.5	8.1	26.5	35.3	47.5	40.7	19.4	15.6
Providing educational programs that promote safe and responsible recreation —Random survey	50.0	34.5	25.0	46.9	18.8	12.1	6.2	6.0
Providing educational programs—Involved survey	43.3	24.2	35.3	41.0	16.4	25.5	5.0	8.7
Providing educational programs—Interested survey	31.9	30.1	41.6	37.5	19.9	23.7	6.4	8.0

Providing trail maps and information—Random survey	35.3	41.0	41.2	41.9	11.8	12.0	11.8	4.3
Providing trail maps and information—Involved survey	27.9	27.3	40.8	42.9	23.4	24.8	8.0	4.3
Providing trail maps and information—Interested survey	24.4	23.9	42.5	47.1	25.0	23.4	8.0	5.5
Providing trail signs—Random survey	35.3	45.8	47.1	40.7	11.1.8	7.6	5.9	5.1
Providing trail signs—Involved survey	24.4	30.4	42.3	40.4	26.4	26.1	7.0	2.5
Providing trail signs—Interested survey	20.1	26.4	42.3	47.4	29.3	20.4	8.2	5.5
Constructing new trails nm—Random survey	-	28.2	-	48.7	-	15.4	-	6.9
Constructing new trails—nm Involved survey	-	42.2	-	42.9	-	11.8	-	2.5
Constructing new trails—nm Interested survey	-	33.2	-	38.4	-	21.6	-	6.1
Establish motorized trails and areas—Random survey	52.9	-	29.4	-	11.8	-	5.9	-
Establish motorized trails and areas—Involved survey	60.2	-	27.4	-	8.0	-	4.5	-
Establish motorized trails & areas—Interested survey	65.9	-	23.4	-	7.3	-	2.4	-
Routine upkeep of existing motorized trails, routes and areas—Random survey	50.0	-	37.5	-	6.2	-	6.2	-
Routine upkeep of existing motorized trails, routes and areas—Involved survey	34.3	-	37.3	-	21.9	-	6.5	-
Routine upkeep of existing motorized trails, routes and areas—Interested survey	36.2	-	40.7	-	18.7	-	4.1	-
Provide law enforcement and safety for motorized trails and routes—Random survey	41.2	-	29.4	-	17.6	-	11.8	-
Provide law enforcement and safety for motorized trails and routes—Involved survey	24.9	-	32.3	-	29.9	27.2	12.9	-
Provide law enforcement and safety for motorized trails and routes—Interested survey	20.7	-	30.3	-	33.5	-	15.0	-

Given limited funding, which ONE of these trail management priorities do you feel is the most important?

ONE Most Important Funding Need for Trails	Motorized Trail Users	Non-motorized Trail Users	Total All Trail Users
Keeping existing trails in good condition—Random survey	6.7	**32.2**	**29.3**
Keeping existing trails in good condition—Involved survey	5.5	23.0	13.3
Keeping existing trails in good condition—Interested survey	6.6	17.5	10.9
Acquiring land for trails and trail access—Random survey	**20.0**	13.6	14.3
Acquiring land for trails and trail access—Involved survey	**19.4**	**41.0**	**29.0**
Acquiring land for trails and trail access—Interested survey	**25.0**	**32.3**	**27.9**
Enforcing existing rules and regulations in trail areas—Random survey	13.3	11.9	12.0
Enforcing existing rules and regulations in trail areas—Involved survey	17.9	11.8	15.2
Enforcing existing rules and regulations in trail areas—Interested survey	12.1	13.6	12.7
Developing support facilities such as restrooms, parking, campsites—Random survey	6.7	9.3	9.0
Developing support facilities such as restrooms, parking, campsites—Involved survey	.5	.6	.6
Developing support facilities such as restrooms, parking, campsites—Interested survey	1.0	2.7	1.6
Mitigating damage to environment surrounding trails—Random survey	13.3	5.9	6.8
Mitigating damage to environment surrounding trails—Involved survey	2.0	6.2	3.9
Mitigating damage to environment surrounding trails—Interested survey	2.3	12.0	6.2
Providing trail signs—Random survey	6.7	5.9	6.0
Providing trail signs—Involved survey	3.5	3.7	3.6
Providing trail signs—Interested survey	3.0	4.7	3.7
Providing educational programs that promote safe/responsible recreation—Random survey	.0	5.1	4.5
Providing educational programs that promote safe/responsible recreation— Involved survey	9.0	1.2	5.5
Providing educational programs that promote safe/responsible recreation— Interested survey	8.8	2.7	6.4
Constructing new trails—Random survey	NA	5.1	4.5
Constructing new trails—Involved survey	NA	4.3	3.9
Constructing new trails—Interested survey	NA	6.1	6.1
Providing trail maps and information—Random survey	.0	5.1	4.5
Providing trail maps and information—Involved survey	5.0	1.9	3.6
Providing trail maps and information—Interested survey	4.6	2.4	3.7

Establish motorized trails and areas—Random survey	13.3	NA	2.3
Establish motorized trails and areas—Involved survey	13.4	NA	8.3
Establish motorized trails and areas—Interested survey	16.6	NA	10.5
Routine upkeep of existing motorized trails, routes and areas—Random survey	6.7	NA	1.5
Routine upkeep of existing motorized trails, routes and areas—Involved survey	10.0	NA	5.8
Routine upkeep of existing motorized trails, routes and areas—Interested survey	7.6	NA	5.0
Provide law enforcement and safety for motorized trails and routes—Random survey	6.7	NA	1.5
Provide law enforcement and safety for motorized trails and routes—Involved survey	7.5	NA	5.5
Provide law enforcement and safety for motorized trails and routes—Interested survey	5.0	NA	4.2

When asked, given limited funding, which one management priority is the most important, *acquiring land for trails and trail access* was selected the most important by both motorized and non-motorized respondents in all three survey groups, with the exception of the Random non-motorized users who chose *keeping existing trails in good* condition as their top priority.

Trail Management Funding Priorities
(ranked by the mean scores for Random Household motorized or non-motorized responses)

MOTORIZED Trail Priorities by Mean MANAGEMENT AND FUNDING NEED	Motorized User		
	Random	Involved	Interested
Acquiring land for trails and trail access	1.62	1.31	1.44
Keeping existing trails in good condition	1.66	1.59	1.68
Mitigating damage to environment surrounding trails	1.67	1.72	1.68
Routine upkeep of existing motorized trails, routes and areas	1.71	2.55	2.61
Establish motorized trails and areas	1.72	2.55	2.61
Enforcing existing rules and regulations in trail areas	1.78	1.91	1.86
Providing trail signs	1.85	2.01	2.05
Providing educational programs that promote safe and responsible recreation	1.90	2.19	2.10
Providing trail maps and information	1.99	2.06	2.11
Provide law enforcement and safety for motorized trails/routes	2.02	2.15	2.22
Developing support facilities (restrooms, parking, campsites)	2.15	2.67	2.64

NON-MOTORIZED Trail Priorities by Mean MANAGEMENT AND FUNDING NEED	Non-motorized User		
	Random	Involved	Interested
Keeping existing trails in good condition	1.42	2.09	2.04
Mitigating damage to environment surrounding trails	1.51	2.14	2.18
Enforcing existing rules and regulations in trail areas	1.69	1.83	1.98
Providing trail signs	1.73	2.16	2.26
Acquiring land for trails and trail access	1.74	1.51	1.44
Providing trail maps and information	1.80	2.11	2.17
Providing educational programs that promote safe and responsible recreation	1.91	1.83	2.01
Developing support facilities (restrooms, parking, campsites)	1.98	2.77	2.80
Constructing new trails	2.01	1.87	1.83

2003 Random Survey asked this question differently*: How important is each of the following priorities to you and then indicate your level of satisfaction with the current conditions.* (ranked by "Importance" MEAN based on 5 point scale)

Motorized Trail Users	Motorized		**Non-Motorized Trail Users**	Non-motorized	
2003 Priorities for trails	**Imp**	**Satis**	**2003 Priorities for trails**	**Imp**	**Satis**
Keep area clean of litter/trash	4.37	2.70	Keep area clean of litter/trash	4.21	2.95
Enforce existing rules/regulations	3.95	3.75	Maintain existing trails	4.15	3.25
Maintain existing trails	3.93	3.05	Repair damage to trails	4.05	3.15
Repair damage to trails	3.82	2.90	Enforce existing rules/regulations	3.76	2.99
Develop new trails	3.63	2.74	Develop support facilities	3.52	2.90
Acquire new land for trails	3.53	2.74	Develop new trails	3.33	3.05
Develop support facilities	3.51	2.94	Provide law enforcement/safety	3.32	2.98
Acquire land for trail access	3.49	2.79	Acquire land for trail access	3.30	2.95
Provide law enforcement and safety	3.41	2.61	Acquire new land for trails	3.21	3.03
Provide educational programs	3.22	2.98	Provide educational programs	3.17	3.12
Provide landscaping along trails and in support areas	2.24	3.22	Provide landscaping along trails and in support areas	2.54	3.25

*Not all 2008 categories were asked in 2003 (and vice versa) and some were combined (acquisition of land for trails and access) or asked a bit differently. Trail signs and trail information were asked under different questions in 2003 and aren't a direct comparison to 2008 data. Highest importance level for both motorized and non-motorized users was *Keep area clean of litter and trash*. Lowest satisfaction level for motorized users was *Provide law enforcement* and for non-motorized users was *Develop support facilities*.

VOLUNTEERS

In the next year, would you be willing to volunteer your time to build or maintain trails in Arizona?

More than 50% motorized users and more than 40% of non-motorized users are willing to volunteer their time to build or maintain trails in Arizona. To encourage volunteerism, the most important consideration is providing information about when and where to show up.

Willing to Volunteer	Motorized Trail Users	Non-motorized Trail Users	Total All Trail Users
Yes—Random survey	52.9	39.3	41.0
Yes—Involved survey	89.6	80.7	85.6
Yes—Interested survey	77.6	69.8	74.5
No—Random survey	35.3	44.4	43.3
No—Involved survey	1.5	6.8	3.9
No—Interested survey	5.6	10.1	7.4

Please tell me how important each of the following incentives to encourage people to volunteer their time is to you.

Importance of Volunteer Incentives	**Very important**			**Somewhat important**			**Not too important**			**Not at all important**		
	Mot	NM	total	Mot	NM	total	Mot	NM	total	Mot	NM	total
Information about when/where to show up—Random survey	88.9	88.9	88.9	11.1	8.9	9.3	0	2.2	1.9	0	.0	.0
Information-when/ where—Involved	86.1	86.9	86.5	12.2	12.3	12.3	.6	.8	.6	1.1	0	.6
Information-when/ where—Interested	82.1	87.0	83.9	15.9	11.5	14.2	1.3	1.1	1.2	.4	0	.2
Training—Random	22.2	39.1	36.4	66.7	43.5	47.3	11.1	15.2	14.5	.0	2.2	1.8
Training—Involved	21.7	31.7	25.8	50.0	46.9	48.7	24.3	21.5	22.9	3.9	0	2.3
Training—Interested	22.8	35.5	27.5	47.9	47.1	47.6	24.1	14.0	20.3	4.8	3.0	4.1
Food and water for the event—Random	40.0	33.3	34.5	50.0	44.4	45.5	10.0	11.1	10.9	.0	11.1	9.1
Food/water for event—Involved survey	23.9	22.3	23.2	29.4	36.2	32.3	35.6	31.5	33.9	11.1	10.0	10.6
Food/water for event—Interested survey	24.7	22.1	23.7	32.9	35.5	33.9	31.9	30.8	31.5	10.2	11.3	10.6
Thank you letters—Random survey	11.1	17.4	16.4	33.3	23.9	25.5	22.2	26.1	25.5	33.3	32.6	32.7
Thank you letters—Involved survey	7.2	6.2	6.8	15.0	20.0	17.1	42.2	35.4	39.4	35.0	38.5	36.5
Thank you letters—Interested survey	6.9	4.5	6.0	15.8	12.3	14.5	37.7	41.2	39.0	39.2	41.6	40.1
Hat, bandanna, water bottle, or other token of thanks—Random	22.2	19.6	20.0	33.3	26.1	27.3	22.2	23.9	23.6	22.2	30.4	29.1
Hat, bandanna, water bottle—Involved	8.9	3.8	6.8	13.3	17.7	15.2	40.0	36.9	38.7	37.8	41.5	39.4
Hat, bandanna, water bottle—Interested	6.3	4.9	5.8	18.9	16.6	18.0	39.0	38.0	38.6	35.6	40.1	37.3

WHERE DO YOU USE TRAILS?

What is the closest city or town to the NON-MOTORIZED trails you enjoy the most?

City or Town closest to non-motorized trails enjoyed the most	% Primary Use Type Motorized			% Primary Use Type Non-Motorized			% Total		
	Random	Involved	Interested	Random	Involved	Interested	Random	Involved	Interested
Phoenix	11.1%	13.7	12.6	18.0%	8.7	16.3	17.6%	11.2	14.3
Tucson	11.1%	8.9	4.9	12.3%	14.9	15.9	12.2%	11.9	9.9
Apache Junction	0.0%	6.0	6.4	5.7%	3.7	7.9	5.3%	4.9	7.1
Flagstaff	0.0%	4.8	7.4	4.9%	7.5	8.9	4.6%	6.1	8.1
Scottsdale	-	4.8	5.5	4.9%	9.3	5.2	4.6%	7.0	5.4
Payson	11.1%	5.4	5.8	3.3%	1.9	3.0	3.8%	3.6	4.5
Prescott	0.0%	4.2	7.9	3.3%	3.1	2.5	3.1%	3.6	5.4
Sedona	0.0%	2.4	2.6	3.3%	1.9	3.1	3.1%	2.1	2.9
Mesa	0.0%	2.4	3.3	2.5%	-	1.9	2.3%	1.2	2.7
Peoria	11.1%	1.8	2.4	2.5%	1.2	0.1	3.1%	1.5	1.4
Show Low	0.0%	1.8	1.8	2.5%	1.2	2.7	2.3%	1.5	2.2
Fountain Hills	-	4.2	1.5	1.6%	1.9	0.7	1.5%	3.0	1.2
Sierra Vista	0.0%	1.8	2.0	1.6%	8.7	1.3	1.5%	5.2	1.7
Surprise	-	1.8	1.3	1.6%	0.6	1.2	1.5%	1.2	1.2
Tempe	-	2.5	-	-	2.5	-	-	1.2	-
Yuma	-	4.2	1.8	-	-	0.3	-	2.1	1.1
Kingman	-	3.0	1.0	-	-	1.2	-	1.5	1.1
Lake Havasu City	-	-	2.1	-	-	0.7	-	-	1.5
Catalina	-	-	0.1	-	-	2.2	-	-	1.1
Florence	-	-	1.8	-	-	0.3	-	-	1.1
Buckeye	-	-	1.3	-	-	0.6	-	-	1.0
Glendale	-	-	2.0	-	-	0.6	-	-	1.4
New River	-	2.4	1.9	-	0.6	0.3	-	1.5	1.2
Other (SPECIFY)	22.2%	8.3	9.3	15.6%	22.4	10.8	16.0%	15.2	10.0
Don't Know	11.1%	3.0	2.6	2.5%	-	0.3	3.1%	1.5	0.7

Note: Only those cities or towns with more than 1.0% responses are reported. More than fifty towns were reported.

What is the closest city or town to the MOTORIZED trails you use the most?

City or Town closest to motorized trails used the most	% Primary Use Type Motorized			% Primary Use Type Non-Motorized			% Total		
	Random	Involved	Interested	Random	Involved	Interested	Random	Involved	Interested
Flagstaff	6.2%	4.5	6.8	5.6%	7.4	14.5	5.9%	5.3	8.4
Mesa	12.5%	2.5	2.3	-	-	1.5	5.9%	1.8	1.9
Payson	6.2%	4.5	3.6	5.6%	6.2	5.8	5.9%	5.0	4.1
Phoenix	-	3.5	3.7	11.1%	-	4.0	5.9%	2.5	3.8
Tucson	-	2.5	5.3	11.1%	12.3	6.5	5.9%	5.3	5.6
Catalina	-	2.0	-	-	-	-	-	1.4	-
Marana	-	1.0	-	-	1.2	-	-	1.1	-
Apache Junction	6.2%	2.5	4.0	-	1.2	3.6	2.9%	2.1	3.9
Buckeye	-	-	1.2	-	-	0.4	-	-	1.0
Bullhead City	6.2%	-	-	-	-	-	2.9%	-	-
Lake Havasu City	-	3.5	3.0	-	-	0.7	-	2.5	2.5
Kingman	-	3.0	1.3	-	-	1.8	-	2.1	1.4
Fountain Hills	6.2%	4.0	5.8	-	-	1.5	2.9%	2.8	4.9
Florence	-	13.9	9.3	-	-	4.0	-	9.9	8.2
Glendale	6.2%	-	-	-	-	-	2.9%	-	-
Globe	6.2%	0.5	-	-	2.5	-	2.9%	1.1	-
Goodyear	-	-	-	5.6%	-	-	2.9%	-	-
New River	-	4.0	3.3	-	-	1.5	-	2.8	2.9
Peoria	6.2%	3.0	4.5	-	3.7	0.7	2.9%	3.2	3.7
Prescott	-	3.0	6.4	5.6%	2.5	2.2	2.9%	2.8	5.5
Prescott Valley	6.2%	-	1.1	-	-	1.1	2.9%	-	1.1
Sedona	-	-	1.4	5.6%	-	5.8	2.9%	-	2.3
Show Low	-	2.0	1.1	5.6%	3.7	6.2	2.9%	2.5	2.2
Surprise	-	1.5	1.7	5.6%	-	0.7	2.9%	1.1	1.5
Sierra Vista	-	1.0	-	-	2.5	-	-	1.4	-
Scottsdale	-	7.0	6.1	-	8.6	3.3	-	7.4	5.5
Yuma	-	6.5	3.7	5.6%	1.2	0.7	2.9%	5.0	3.1
Other (SPECIFY)	31.2%	19.4	13.6	16.7%	29.6	16.0	23.5%	22.3	14.1

Note: Only those cities or towns with more than 1.0% responses are reported. More than fifty towns were reported.

DEMOGRAPHICS

The survey included a series of socio-demographic questions to profile non-motorized and motorized trail users in Arizona.

Overall, a slight majority of respondents (53.7%) were male. Motorized trail users were more likely to be male than non-motorized trail users. Regarding ethnic identification, 87.1% of respondents identified themselves as White; 3.0% as American Indian or Alaska Native; 5.4% as of Hispanic or Latino origin; 1.1% as Black or African American; and 0.5% as Native Hawaiian or other Pacific Islander. For comparison purposes, the ethnic breakdown for the state of Arizona from the 2006 U.S. Census population estimate was as follows: White (86.3%), American Indian or Alaska Native (4.8%); Hispanic or Latino origin (29.2%); Black or African American (3.8%); and Native Hawaiian or other Pacific Islander (0.2%).

More than 95% of respondents were full time residents of Arizona and the average length of residency. Motorized users (48 years) were, on average, slightly younger than non-motorized users (52 years). Respondents were highly educated overall, a finding consistent with other studies of outdoor recreation participants. Non-motorized users had attained higher levels of educational achievement – 54.8% of non-motorized users had attained a Bachelor's degree or higher compared to 24.6% of motorized users.

Are you a full-time resident of Arizona?

Full-time Resident	AZ Trails 2010 Random Household Survey			AZ Trails 2010 Involved Users Survey			AZ Trails 2010 Interested Public Survey			AZ Population*
	Motor	Non-mot	total	Motor	Non-mot	total	Motor	Non-mot	total	
Yes	96.5	95.4	95.6	91.5	96.3	93.6	89.0	94.4	91.2	96.5
No	3.5	3.9	3.8	8.0	3.7	6.1	10.8	5.6	8.7	2.5

Which of the following best describes you?

ETHNICITY	Random Household Survey			Involved Users Survey			Interested Public Survey			AZ Pop.*	U.S. Pop.*
	Mot	NM	total	Mot	NM	total	Mot	NM	total		
White, not of Hispanic origin	87.1	84.2	84.7	92.5	93.8	93.1	88.6	88.9	88.7	75.5	75.1
Hispanic	4.1	5.7	5.4	1.0	0	.6	3.2	2.4	2.9	25.3	12.5
Black or African American	1.2	1.1	1.1	.5	0	.3	0	.3	.1	3.1	12.3
American Indian	6.4	2.4	3.0	0	0	0	1.2	.7	1.0	5.0	.9
Asian or Pacific Islander	0	.6	.5	1.0	0	.6	.7	.6	.6	1.9	3.7
Something else	0	3.2	2.6	2.0	3.7	2.8	2.3	2.4	2.4	11.6	5.5

*2000 U.S. Census Data (For Census survey, White % includes Hispanic origin, then asks separate Question re Hispanic)

What is the highest level of education you have attained?

EDUCATION	Random Survey			Involved Survey			Interested Survey		
	Mot	NM	total	Mot	NM	total	Mot	NM	total
Less than high school	4.1	1.5	2.0	0	0	0	.7	0	.4
High school diploma	41.5	21.0	24.4	15.4	16.0	13.3	19.9	9.5	15.7
Technical school or associate's degree	28.1	21.8	22.8	38.8	15.5	28.5	34.4	17.9	27.9
Bachelor's degree	18.7	31.2	29.1	30.8	30.4	30.7	31.6	37.5	33.9
Master's degree	4.7	17.2	15.1	11.4	32.3	20.7	9.9	24.6	15.7
Ph.D., J.D., M.D., or equivalent	1.2	6.4	5.5	2.5	10.6	6.1	2.3	9.2	5.0

Respondents were highly educated overall, a finding consistent with other studies of outdoor recreation participants.

Gender—Male or Female

GENDER	Random Household Survey			Involved Users Survey			Interested Public Survey		
	Motor	Non-motor	total	Motor	Non-motor	total	Motor	Non-motor	total
Male	64.7	52.1	53.7%	90.5	55.3	74.9	90.3	54.8	76.2
Female	35.3	47.9	46.3%	9.0	44.1	24.6	8.5	43.6	22.5

Overall, a slight majority of respondents (53.7%) were male. Motorized trail users were more likely to be male than non-motorized trail users.

How old were you on your last birthday?

AGE	Random Household Survey	Involved Users Survey
Motorized Trail User Mean	48.33	49.3
Non-motorized Trail User Mean	51.96	54.7

Motorized users (48 years) were, on average, slightly younger than non-motorized users (52 years).

How many years have you lived in Arizona?

YEARS LIVED IN AZ	Random Household Survey	Involved Users Survey
Motorized Trail User Mean	26.93	25.6
Non-motorized Trail User Mean	25.00	24.3

If you don't live in Arizona, how many years have you been coming to Arizona?

YEARS COMING TO AZ	Random Household Survey	Involved Users Survey
Motorized Trail User Mean	14.83	12.0
Non-motorized Trail User Mean	14.53	9.3

TRAILS 2010 SURVEY QUESTIONNAIRE

Hello, my name is ____, I'm calling from Arizona State University on behalf of Arizona State Parks. I'd like to ask you some questions about outdoor recreation in Arizona to help determine how state funds are spent to improve trails in Arizona. We are not selling anything. The questions take about 15 minutes and your participation is voluntary and confidential. No information is ever released that would allow anyone to identify you or anyone else in your family.

RANDOM SELECTION CRITERIA: LAST BIRTHDAY MALE/FEMALE.

For the purposes of this survey, a trail is a recreation pathway used either by motorized or non-motorized trail users. Recreation trails do not include sidewalks, city streets, or rural highways.

DEFINING MOTORIZED AND NON-MOTORIZED TRAIL USERS

RANDOMIZE ORDER OF Q1 AND Q2.

Q1. During your time in Arizona, have you ever used any trail for **motorized recreation**?
CLARIFICATION: Motorized recreation includes using trails on any public or private lands for activities such as dirt biking, all terrain vehicles, dune buggies, sand rails, rock crawling, four wheel or other high clearance vehicles (such as jeeps, SUVs, trucks), snowmobiles, or driving unimproved roads to view wildlife, nature, or visit archaeological sites.

1. Yes
2. No
3. Don't Know/Refuse to answer

Q2. During your time in Arizona, have you ever used any trail for **non-motorized recreation**?
CLARIFICATION: Non-motorized recreation includes using trails on any public or private lands for activities such as hiking, jogging, horseback riding, bicycling, mountain biking, cross-country skiing, viewing wildlife, nature, bird watching, or visiting archaeological sites.

1. Yes
2. No
3. Don't Know/Refuse to answer

IF NO TO BOTH, CLASSIFY AS NON-USER AND ASK DEMOGRAPHICS.
IF YES TO Q1 ONLY, CLASSIFY AS "MOTORIZED".
IF YES TO Q2 ONLY, CLASSIFY AS "NON-MOTORIZED".
IF YES TO BOTH Q1 AND Q2, CLASSIFY AS "MIXED" AND GO TO Q3.

OFFER OPTION TO COMPLETE SURVEY ONLINE OR CONTINUE ON PHONE

RANDOMIZE ORDER OF Q3a AND Q3b

Q3a. About what percent of your time on recreation trails in Arizona is spent as a **Motorized trail user**?

RECORD WHOLE NUMBER, RANGE 0-100.
(IF 100%, SKIP Q3b; CLASSIFY AS "MOTORIZED")

Q3b. About what percent of your time on recreation trails in Arizona is spent as a **Non-motorized trail user**?

RECORD WHOLE NUMBER, RANGE 0-100.
(IF 100%, SKIP Q3a; CLASSIFY AS "NON-MOTORIZED")

MIXED AND NON-MOTORIZED ONLY

Q4a. Overall, how satisfied are you with **Non-motorized trails** in Arizona? Would you say that you are Very satisfied, Somewhat satisfied, Somewhat dissatisfied, or Very dissatisfied?

1. Very satisfied
2. Somewhat satisfied
3. Somewhat dissatisfied
4. Very dissatisfied

Don't Know
Refuse to answer

MIXED AND MOTORIZED ONLY

Q4b. Overall, how satisfied are you with **Motorized trails** in Arizona? Would you say that you are very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

1. Very satisfied
2. Somewhat satisfied
3. Somewhat dissatisfied
4. Very dissatisfied

Don't Know
Refuse to answer

Q5. How important are recreational trails to your overall **quality of life**? Would you say very important, somewhat important, not too important, or not at all important?

1. Very important
2. Somewhat important
3. Not too important
4. Not at all important

Don't Know
Refuse to answer

RECREATION ACTIVITY PARTICIPATION

Q6. In the last twelve months, how often have you participated in each of the following recreation activities on trails in Arizona? Would you say: Not at all, Once a year, A few times a year, Once a month, Once a week, or More than once a week?

Q6a. MIXED AND NON-MOTORIZED ONLY

a. Trail hiking
b. Backpacking
c. Mountain biking
d. Horseback riding
e. Canoeing/kayaking
f. Cross-country skiing or snowshoeing

Q6b. MIXED AND MOTORIZED ONLY

g. Motorized trail biking/dirt biking
h. Quad or all-terrain vehicle driving
i. Utility terrain vehicle or modified golf cart driving
j. Dune buggy or sand rail driving
k. Snowmobiling
l. Rock crawling
m. Four wheel driving or other high clearance vehicle

1. Not at all
2. Once a year
3. A few times a year
4. Once a month
5. Once a week
6. More than once a week

Don't Know
Refuse to answer

Q7. In the last twelve months, how often have you used **Non-motorized** trails in Arizona for the following purposes? Would you say: Not at all, Once a year, A few times a year, Once a month, Once a week, or More than once a week?

a. Walking as a form of alternative transportation (to get to work or stores)
b. Bicycling as a form of alternative transportation (to get to work or stores)
c. Exercising
d. Wildlife viewing or bird watching
e. Visiting historic or archaeological sites

1. Not at all
2. Once a year
3. A few times a year
4. Once a month
5. Once a week

6. More than once a week
Don't Know
Refuse to answer

Q8. In the last twelve months, how often have you used your motorized vehicle **on unpaved roads to access or get to** the following types of **recreational sites**? Would you say Not at all, Once a year, A few times a year, Once a month, Once a week, or More than once a week?

a. Camping or picnicking areas
b. Wildlife viewing or bird watching area
c. Historical or archaeological site
d. Hunting or fishing area
e. To go sightseeing or driving for pleasure
f. Trailheads
g. Other types of recreation areas

1. Not at all
2. Once a year
3. A few times a year
4. Once a month
5. Once a week
6. More than once a week
Don't Know
Refuse to answer

MIXED AND NON-MOTORIZED ONLY
Q9a. How many people **age 18 and over** are typically with you when you use trails in Arizona for **Non-motorized trail use**? Would you say None at all, 1 other person, 2-4 others, or 5 or more?

1. None at all
2. 1 other person
3. 2-4 others
4. 5 or more
Don't Know
Refuse to answer

MIXED AND MOTORIZED ONLY
Q9b. How many people **age 18 and over** are typically with you when you use trails in Arizona for **Motorized trail use**? Would you say None at all, 1 other person, 2-4 others, or 5 or more?

1. None at all
2. 1 other person
3. 2-4 others
4. 5 or more
Don't Know
Refuse to answer

MIXED AND NON-MOTORIZED ONLY
Q10a. How many people **under age 18** are typically with you when you use trails in Arizona for **Non-motorized trail use**? Would you say None at all, 1, 2-4, or 5 or more?

1. None at all
2. 1 other person
3. 2-4 others
4. 5 or more
Don't Know
Refuse to answer

MIXED AND MOTORIZED ONLY
Q10b. How many people **under age 18** are typically with you when you use trails in Arizona for **Motorized trail use**? Would you say none at all, 1, 2-4, or 5 or more?

1. None at all
2. 1 other person
3. 2-4 others
4. 5 or more
Don't Know
Refuse to answer

Q11. Do you think recreation trails should be **managed for** (READ OPTIONS):

1. A single activity –EITHER motorized use OR non-motorized use only
2. Multiple activities with motorized and non-motorized activities COMBINED
3. Multiple activities with motorized and non-motorized activities SEPARATED
Don't Know
Refuse to answer

MIXED AND NON-MOTORIZED ONLY
Q12a. Approximately how many **miles** do you typically travel from your home to use the **Non-motorized trail(s) you enjoy the most?**

RECORD WHOLE NUMBER. RANGE 0-1000.

MIXED AND MOTORIZED ONLY
Q12b. Approximately how many **miles** do you typically travel from your home to use the **Motorized trail(s) you use the most?**

RECORD WHOLE NUMBER. RANGE 0-1000.

MIXED AND NON-MOTORIZED ONLY

Q13a. What is the **closest city or town** to the **Non-motorized trail(s) you enjoy the most**?

MIXED AND MOTORIZED ONLY

Q13b. What is the **closest city or town** to the **Motorized trail(s) you use the most?**

Apache Junction	Gila River	San Luis
Avondale	Gilbert	Scottsdale
Bisbee	Glendale	Sedona
Buckeye	Globe	Show Low
Bullhead City	Goodyear	Sierra Vista
Camp Verde	Green Valley	Somerton
Casa Grande	Kingman	Sun City
Casas Adobes	Lake Havasu City	Sun Lakes
Catalina	Marana	Surprise
Catalina Foothills	Mesa	Tanque Verde
Chandler	Mohave Valley	Tempe
Chino Valley	New River	Tuba City
Coolidge	Nogales	Tucson
Cottonwood	Oro Valley	Winslow
Dewey-Humboldt	Page	Yuma
Douglas	Paradise Valley	Other **(SPECIFY)**
El Mirage	Payson	Don't Know
Eloy	Peoria	Refused
Flagstaff	Phoenix	
Florence	Picture Rocks	
Flowing Wells	Prescott	
Fortuna Foothills	Prescott Valley	
Fountain Hills	Safford	

MIXED AND MOTORIZED ONLY

Q14a. In the past five years, do you think that **access** to **Off-highway vehicle roads and trails** has improved, stayed the same, or declined?

1. Improved
2. Stayed the same
3. Declined
4. NA/Have not been here 5 years

Don't Know
Refuse to answer

MIXED AND NON-MOTORIZED ONLY

Q14b. In the past five years, do you think that **access** to **Non-motorized trails** has improved, stayed the same, or declined?

1. Improved
2. Stayed the same
3. Declined
4. NA/Have not been here 5 years

Don't Know
Refuse to answer

PREFERENCES

MIXED AND NON-MOTORIZED ONLY

Q15. When you use trails for **non-motorized activities** in Arizona, what **length** trail do you **most prefer?** Would you say Less than one mile, 1 to 5 miles, 6 to 15 miles, or More than 15 miles?

1. Less than one mile
2. 1 to 5 miles
3. 6 to 15 miles
4. More than 15 miles

Don't Know
Refuse to answer

MIXED AND NON-MOTORIZED ONLY

Q16. When you use trails for **non-motorized activities** in Arizona, what **level of difficulty** do you **most prefer?** Would you say (READ LIST)

1. Easy, level or flat trails
2. Moderately varied trails with some ups and downs
3. Challenging trails with steep elevation gain or uneven terrain

Don't Know
Refuse to answer

MIXED AND NON-MOTORIZED ONLY

Q17. When you use trails for **non-motorized activities**, what type of **social environment** do you **most prefer?** Would you say (READ LIST)

1. Very few other people present
2. Some other people present
3. Lots of other people present

Don't Know
Refuse to answer

MIXED AND NON-MOTORIZED ONLY

Q18. When you use trails for **non-motorized activities**, do you prefer trails with (READ LIST)

1. Very little management, with few rules, services, or facilities
2. Moderate management, with some rules, services, and facilities
3. High management, with many rules, services, and facilities

Don't Know
Refuse to answer

MIXED AND MOTORIZED ONLY

Q19. Trail managers have limited resources to provide for all types of **Motorized trail activities and experiences**. Please tell me how important each of the following are to you personally.

Would you say that (ITEM) is Very important, Somewhat important, Not too important, or Not important at all?

a. Off-highway vehicle trails and areas near where people live
b. Children's play areas near staging areas
c. Scenic backcountry roads maintained for passenger vehicles
d. Trails that offer challenge and technical driving opportunity
e. Long distance off-highway vehicle trails (greater than 100 miles)
f. Loop trails
g. Competitive desert racing trails and areas
h. Single track trails (for dirt bikes)
i. Cross-country travel areas (where riding anywhere is permitted)

1. Very important
2. Somewhat important
3. Not too important
4. Not important at all
Don't Know
Refuse to answer

Q20. How often do you experience **conflict** with the following types of recreation users when using trails in Arizona? Would you say Very often, Somewhat often, Not too often, or Not often at all?

a. Dirt bikers
b. Hikers
c. Mountain bikers
d. All terrain vehicle (ATV) or "quad" riders
e. Horse riders or equestrians
f. Full size vehicle drivers

1. Very often
2. Somewhat often
3. Not too often
4. Not often at all
Don't Know
Refuse to answer

ENVIRONMENTAL/SOCIAL CONDITIONS

Q21. How much of a problem do you think each of the following **environmental conditions** is on trails you use most? Would you say that these conditions are Not a problem, A slight problem, A moderate problem, or A serious problem?

a. Erosion of trails
b. Loss of scenic quality
c. Litter or trash dumping
d. Dust in the air
e. Damage to vegetation
f. Damage to historical or archaeological sites
g. Decreased wildlife sightings

1. Not a problem
2. A slight problem
3. A moderate problem
4. A serious problem

Don't Know
Refuse to answer

Q22. Which **one** of those **environmental conditions** do you feel is the most important for managers to address?

1. Erosion of trails
2. Loss of scenic quality
3. Litter or trash dumping
4. Dust in the air
5. Damage to vegetation
6. Damage to historical or archaeological sites
7. Decreased wildlife sightings

Don't Know
Refuse to answer

Q23. How much of a problem do you think each of the following **social conditions** is on trails you use most? Would you say that these conditions are Not a problem, A slight problem, A moderate problem, or A serious problem?

a. Too many people
b. Lack of trail ethics by other users
c. Conflict between users
d. Closure of trails
e. Target shooting
f. Vandalism
g. Unsafe off-highway vehicle use
h. Vehicle noise
i. Urban development limiting trail access or use

1. Not a problem
2. A slight problem
3. A moderate problem
4. A serious problem

Don't Know
Refuse to answer

Q24. Which **one** of those **social conditions** do you feel is the most important for managers to address?

1. Too many people
2. Lack of trail ethics by other users
3. Conflict between users
4. Closure of trails
5. Target shooting
6. Vandalism
7. Unsafe off-highway vehicle use
8. Vehicle noise
9. Urban development limiting trail access or use

Don't Know
Refuse to answer

TRAIL MANAGEMENT PRIORITIES

Q25. Trail managers have limited resources to develop and maintain trails, and must focus their money and time on the most serious needs first. For each of the following, please tell me how important each item is to you.

Would you say that (ITEM) is Very important, Somewhat important, Not too important, or Not important at all?

a. Acquiring land for trails and trail access
b. Developing support facilities such as restrooms, parking, campsites
c. Providing trail signs
d. Providing trail maps and information
e. Enforcing existing rules and regulations in trail areas
f. Keeping existing trails in good condition
g. Mitigating damage to environment surrounding trails
h. Providing educational programs that promote safe and responsible recreation
i. Constructing new trails (Mixed and non-motor only)
j. Routine upkeep of existing motorized trails, routes, and areas (Mixed and motor only)
k. Provide law enforcement and safety for motorized trails and routes (Mixed and motor only)
l. Establish motorized, trails, and areas (Mixed and motor only)

1. Very important
2. Somewhat important

3. Not too important
4. Not important at all
Don't Know
Refuse to answer

Q26. Given limited funding, which **one** of these **trail management priorities** do you feel is the most important?

1. Acquiring land for trails and trail access
2. Developing support facilities such as restrooms, parking, campsites
3. Providing trail signs
4. Providing trail maps and information
5. Enforcing existing rules and regulations in trail areas
6. Keeping existing trails in good condition
7. Mitigating damage to environment surrounding trails
8. Providing educational programs that promote safe and responsible recreation
9. Constructing new trails (Mixed and non-motor only)
10. Routine upkeep of existing motorized trails, routes, and areas (Mixed and motor only)
11. Provide law enforcement and safety for motorized trails and routes (Mixed and motor only)
12. Establish new motorized, routes, and areas (Mixed and motor only)
Don't Know
Refuse to answer

Q27. What would improve your **satisfaction** with non-motorized trails OR off-highway vehicle trails and routes in Arizona? OPEN ENDED

VOLUNTEERISM
Q28. In the next year, would you be willing to volunteer your time to build or maintain trails in Arizona?

1. Yes
2. No (SKIP TO DEMOGRAPHICS)
Don't Know (SKIP TO DEMOGRAPHICS)
Refuse to answer (SKIP TO DEMOGRAPHICS)

Q29. I am going to read you a list of possible incentives to encourage people to **volunteer** their time. Please tell me how important each of these is to you.

Would you say that (ITEM) is Very important, Somewhat important, Not too important, or Not important at all?

a. Information about when and where to show up
b. Training
c. Food and water for the event

d. Thank you letters
e. Hat, bandanna or water bottle (or other token of thanks)

1. Very important
2. Somewhat important
3. Not too important
4. Not important at all
Don't Know
Refuse to answer

DEMOGRAPHICS
Finally, we need some basic information about you to help us understand trail users and to better provide for their needs. This information will remain strictly confidential and will be used for statistical purposes only.

Q30. Are you a full time resident of Arizona?

1. Yes
2. No
Don't Know
Refuse to answer

IF Q30=YES
Q31a. How many years have you lived in Arizona?
RECORD YEARS AS WHOLE NUMBER.

IF Q33=NO, DON'T KNOW, REFUSED
Q31b. How many years have you been coming to Arizona?
RECORD YEARS AS WHOLE NUMBER.

Q32. How old were you on your last birthday?
RECORD YEARS AS WHOLE NUMBER.

Q33. Which of the following best describes you? READ LIST

1. White, not of Hispanic origin
2. Black/African American
3. Hispanic
4. American Indian or Alaskan Native
5. Asian or Pacific Islander
6. Or something else?
Don't Know
Refuse to answer

Q34. What is your ZIP Code? **IF NEEDED: The ZIP code where you live in Arizona.**
ENTER ZIP AS WHOLE NUMBER (RANGE OF AZ ZIPS IS 85001-86556)

Q35. What is the highest level of education you have attained? READ LIST

1. Less than high school
2. High school diploma
3. Technical school or Associate's Degree
4. Bachelor's Degree
5. Master's Degree
6. Ph.D., J.D., M.D., or equivalent

Don't Know
Refuse to answer

Q36. INTERVIEWER: RECORD GENDER OF RESPONDENT

1. Female
2. Male

Those are all the questions I have for you today. Thank you for your time and assistance.

APPENDIX E

Summary #1
U.S. Environmental Protection Agency's
Testing of Dust Suppressants for Water Quality Impacts
September 2008

Testing conducted by U.S. Environmental Protection Agency Region 9, Environmental Quality Management, Inc., and San Diego State University. The full report is available from the U.S. Environmental Protection Agency or can be downloaded from Arizona State Parks' webpage at http://azstateparks.com/OHV/research.html#OHV10.

Introduction

Fugitive dust accounts for 80% or more of particulate matter less than 10 microns (PM-10) in desert areas such as the Las Vegas Valley (Clark County, Nevada) and the Phoenix Metropolitan Area (Maricopa County, Arizona). USEPA has established a health-based national air quality PM-10 standard of 150 ug/m^3 as a maximum daily concentration. In response to continuing population growth trends in areas such as Clark County and Maricopa County, significant quantities of desert acreage are subject to development, causing soil disturbance and necessitating stringent fugitive dust controls to meet and maintain PM-10 air quality objectives.

Desert soils that tend to resist water have particularly high propensity for creating fugitive dust. These types of soils are prevalent in Clark County, Maricopa County, and other arid areas. The use of dust suppressants other than water[1] can be beneficial, and in some cases necessary, to adequately control fugitive dust at earthmoving/construction sites. They also reduce the quantity of water needed for adequate dust control, thereby contributing to water conservation. Without the use of dust suppressant products, earthmoving of soils with high potential to create fugitive dust in hot temperatures may require constant watering to comply with fugitive dust regulations.

Many dust suppressant products are designed to form a hard crust that can withstand vehicle traffic on unpaved roads or elevated winds on bulk storage piles. Others assist the effectiveness of applying water during active earthmoving, e.g., rough grading, trenching, and digging, so that moisture reaches the depth of cut. Surfactants are non-petroleum based organics which, when added to water, reduce surface tension for better water penetration into subsurface soil layers before or during active earthmoving. Synthetic polymer or organic dust suppressants bind soil particles together. They can be used in lower concentrations to enable soil mobility during earthmoving or in higher concentrations to form a firm, stabilizing crust.

[1] Products added to water or used in lieu of water for dust control.

Purpose of Study

Construction sites may be located in areas draining to storm water channels, in the immediate vicinity of surface waters, and/or above groundwater resources. Given the benefits for both dust suppression and water savings that dust suppressant products offer, the objective of this study is to identify products with minimal to no adverse impacts on water quality or aquatic life relative to use of water alone.[2]

Many dust suppressant products are advertised as environmentally safe, however, research by independent laboratories/contractors is needed to assess the validity of these claims. Results from this study will help fill an existing data gap.

Most dust suppressant water quality studies have been laboratory tests on product samples that have not come into contact with soil[3] or field research of surface runoff from soil stabilizer products and mulches. First, this study involves dust suppressant application to soils as opposed to laboratory tests on product samples. Second, it examines runoff from soils treated with surfactants, which can be used for dust control during active earthmoving. Furthermore, the study: 1) replicates soil and meteorological conditions that exist in desert environments, since these are the conditions most conducive to generating fugitive dust; 2) simulates soil disturbance and product reapplication similar to that which may occur at a typical construction site; 3) evaluates potential impacts to groundwater from sub-surface infiltration of water-dust suppressant product mixtures; and 4) includes tests with multiple soil types to gauge the potential of dust suppressant products to mobilize pre-existing salts and/or metals in soils.

Because a limited number of dust suppressant products are evaluated in this study and discharges to water bodies are heavily influenced by site specific factors, the results should not be used to draw general conclusions about the impacts of dust suppressant product use on water quality. Rather, this study evaluates whether runoff from soils treated with six dust suppressant products could potentially have adverse impacts for water quality and aquatic toxicity *if* dispersed into a water body. The magnitude of any such potential adverse impacts would depend on a variety of factors, such as the amount of acreage on which the dust suppressant product is applied, type and extent of stormwater BMPs implemented, the characteristics of the surface over which runoff travels from a site before reaching a water body, quantity of runoff entering the water body, and the water body's flow dynamics, among others.

[2] We note that construction sites are subject to general permit stormwater control requirements to implement Best Management Practices (BMPs) to prevent runoff of sediment and contaminants into surface waters. Construction site owners/operators may select from a menu of stormwater BMPs with varying effectiveness depending on the type of BMP, site logistics, and the manner in which the BMPs are implemented and maintained.
[3] Such tests do not consider physical, chemical and microbiological reactions in soils.

SUMMARY

The purpose of this research was to identify dust suppressant products with minimal to no adverse impacts on water quality and aquatic life relative to use of water alone. Simulated stormwater runoff from small-scale soil plots treated with six dust suppressant products was evaluated for water quality and aquatic toxicity. The study also evaluated the quality of water leached through soils treated with dust suppressant products.

The study design replicated, to the extent possible, conditions under which dust suppressants are typically applied at construction sites in desert climates. This included use of soils from Arizona and Nevada, a simulated 5-day earthmoving period with soil disturbance and repeated product applications, and heating soils to desert temperatures during the day. Emphasis was placed on dust suppressant applications to control dust during active earthmoving, e.g., rough grading. Surface runoff tests incorporated different combinations of two product application scenarios, three rainfall intensities, and three rainfall time periods (up to 2 months following product application).

Dust suppressant products tested include:

- Chem-Loc 101 (surfactant)
- Enviro RoadMoisture 2.5 (surfactant)
- Durasoil (synthetic organic)
- Jet-Dry (surfactant)
- Haul Road Dust Control (surfactant)
- EnviroKleen (synthetic polymer)

The study analyzed surface runoff and subsurface leaching from soils treated with dust suppressants for nine standard water quality parameters. In addition, surface runoff was tested for toxicity to aquatic life (fish, algae, and invertebrates). Furthermore, pilot tests with soils collected from multiple locations in Arizona and Nevada were conducted to gauge the potential of dust suppressant products to mobilize pre-existing salts and/or metals in soils.

Overall, water quality results for the dust suppressant products were favorable, showing concentrations similar to water-only control tests on untreated soils for the majority of parameters evaluated. For a subset of parameters and dust suppressant products, average results were higher relative to control tests. However, considerable variation among control sample values warrants conservative data interpretation, particularly in cases where average results for dust suppressant products were only marginally higher.

A trend was observed for Total Suspended Solids (TSS) values in surface runoff from soils treated with Durasoil and EnviroKleen. TSS reflects the quantity of sediments suspended in water and resulting water clarity. TSS concentrations corresponding to these two products were significantly higher relative to control samples (on average, five times higher in Durasoil runoff and twice as high in EnviroKleen runoff). The higher TSS values appear to relate to the products' soil binding characteristics and the tendency for larger dirt clumps to form and be released in surface runoff relative to tests involving untreated or surfactant-treated soils. In a real-world setting, overland runoff typically travels some distance, creating opportunity for heavier dirt clumps to settle out prior to reaching a water body. Also, use of an on-site retention pond as a stormwater best management practice would likely prevent off-site runoff.

Results from the subsurface leaching tests show no potential impact from the dust suppressants on groundwater quality for the parameters evaluated. (While subsurface leaching TSS results from a couple of products were higher than control samples, TSS is generally not a concern for groundwater quality.)

In pilot tests on multiple soil types that examined the water quality of a soil/water/product mixture (as opposed to surface runoff), Total Dissolved Solids (TDS) concentrations for two products -- Enviro RoadMoisture 2.5 and Durasoil – were significantly higher than control samples. TDS refers to inorganic solids dissolved in water, such as mineral salts. In contrast to these results, TDS values observed in surface runoff tests involving Enviro RoadMoisture 2.5 and Durasoil were not higher relative to control samples. The high TDS pilot test results may be a facet of experimental design rather than an effect that would occur in surface runoff. Additional research could assess the actual potential of the two products to mobilize salts in surface runoff from multiple soil types.

Aquatic toxicity results were also generally favorable. No toxicity to fish was observed in any dust suppressant product runoff. No significant inhibition of algae growth was observed in the two or more samples per dust suppressant product that were successfully tested. A caveat to this favorable outcome is that the algae test protocol required fine filtration of samples that removed significant quantities of sediment to which the dust suppressant products may have adhered.

Toxic effects to the invertebrate *Daphnia magna* were observed in some samples, however, most runoff samples from the surfactants showed no significant impact. For the limited instances when an adverse effect on daphnia survival was observed in surfactant runoff relative to control test runoff, variability among control test results renders the effect inconclusive.

Runoff from Durasoil and EnviroKleen showed a significant impact to *Daphnia magna* survival rates across all tests. This effect was not a classic toxic response but related to physical entrapment of the daphnia in an insoluble product layer. However, the entrapment observed within small laboratory test containers does not represent an effect likely to occur in an open water body, given various potentially mitigating factors. Furthermore, any such effect would likely be localized to a small area. Pure product tests with Durasoil and EnviroKleen showed that the physical entrapment effect does not extend to a smaller invertebrate also commonly used in toxicity testing, *Ceriodaphnia dubia*.

The results of this study should in no way be construed to support the use of substitute dust suppressant products that have not undergone similar testing and may have other and/or more significant potential impacts to water quality or aquatic life than the limited effects observed in this study.

Summary #2
Arizona Bureau of Land Management's
Dust Suppressant Test in the Hieroglyphic Mountains
northwest of Phoenix, Arizona, June 2008

Testing conducted by Bureau of Land Management Phoenix District with support from U.S. Forest Service Recreation Solutions Enterprise Team, Maricopa County Environmental Quality and Arizona Off-Highway Vehicle Coalition, June, 2008. The full report is available from Bureau of Land Management or can be downloaded from Arizona State Parks' webpage at http://azstateparks.com/OHV/research.html#OHV05.

Abstract:
Two liquid dust palliatives were tested by driving vehicles over treated test plots while a trained observer assessed the amount of dust generated. Observations were made periodically over a six month period. Data analysis was conducted to determine product effectiveness as compared to an untreated surface.

Purpose and need:
An area on Bureau of Land Management (BLM) land popular for off-highway vehicle use is within the air quality boundary for serious non-attainment of particulate matter smaller than ten microns, also known as PM-10. The intent of the PM10 boundary around the metro Phoenix, Arizona area is to improve air quality and overall citizen health. Furthermore, Maricopa County has promulgated rules 310 and 310.01 to manage blowing dust, also known as fugitive dust. To help Maricopa county meet air quality standards, BLM decided to conduct a test to determine if dust from passing vehicles can be reduced by spraying commercially available dust suppressants on dirt roads and trails.

Overall Goals:
1) Find a solution for reducing airborne dust caused by vehicle passage and blowing wind.
2) Comply with Maricopa County's 20% opacity rule for fugitive dust on access roads and parking lots by ensuring vehicles create dust opacity of 20% or less.
3) Improve camping and riding experiences for recreationists.
4) Positively contribute to citizen health.
5) Determine baseline application lifespan and costs for workable solutions.

SUMMARY:
In 2007, a new Arizona state law requiring dust management within Maricopa County caused the county to promulgate new dust rules. To assist the county in achieving air quality goals, BLM conducted a test of two manufactured liquid dust suppressants. The test was funded by the Arizona State Parks Off-Highway Vehicle Recreation Fund. Two liquid dust suppressants were sprayed on an existing dirt road at the Boulders Staging and Camping Area northwest of Phoenix, Arizona. They were tested from December 2007 through May 2008.

The test was simple. BLM and contract staff drove a truck, ATV and motorcycle over the three 450ft test sections at predetermined speeds while a Maricopa County dust inspector judged the

amount of dust created. A control, or untreated section, was used to evaluate the effectiveness of the Durasoil and Soiltac treatments as compared to bare soil.

The amount of dust generated, also measured as opacity, must be lower than a rating of twenty percent to pass county air quality standards. The test revealed that the suppressant named DurasoilTM worked very well, while the other, SoiltacTM did not. Durasoil works well due to its non-drying properties. This inert chemical looks and feels much like baby or mineral oil and can be sprayed like water onto dirt roads and trails.

Periodic tests were conducted over six months. The data was recorded and analyzed. Cost per vehicle pass was determined by extrapolating the expected vehicle counts over the application lifespan and dividing it into material cost. Durasoil was the lowest cost application. It calculates to $0.335 per vehicle trip mile for a truck. The cost goes down by half for an ATV ($0.168), and significantly down again for a motorcycle ($0.028). Soiltac cost is extremely high at $3.29 per vehicle trip mile for a truck, $0.66 for an ATV, and $0.22 for a motorcycle due to poor lifespan and high product cost.

Although these cost calculations are simplistic, the estimates offer a fiscal approach to an engineering solution which permits recreation, including OHV, in air quality sensitive areas. The statistical results from this study confirm that vehicle generated dust can be suppressed without daily watering.

The use of dust suppressants is a principal option in managing all uses within the dust boundary. This test was deemed successful and a follow up test is being scheduled to test other dust suppressants in an effort to find a lower cost solution comparable to Durasoil.

RESULTS:

Product effectiveness:
Having tested two products against an untreated control area, it has been determined that DurasoilTM is an effective application to reduce fugitive dust from vehicles. Both Soiltac and Durasoil initially reduced dust opacity, but only Durasoil performed well throughout the entire test. Durasoil was effective for the six month duration of the test and showed low opacity at the end of the test indicating it would continue to work for another year. SoiltacTM was not effective beyond two months, thus making it unsuitable for widespread vehicle fugitive dust suppression. Analysis shows that reapplication cost and frequency make it cost prohibitive. The Durasoil test section opacity was reduced by at least 10-15% in most tests. It effectively cuts the dust generated in half. While there are many factors in dust generation, the data shows that the truck created the most dust on all test sections including the control, while the motorcycle created the least in all cases. Graphs in the full report's Appendix A show the results in detail.

Data Discussion:
This test occurred in the field where many variables were possible. Attempts were made to avoid unnatural variation by controlling several variables, namely the vehicle types and condition, speed, observers, and operators. Some data points raised question of their validity.

The major data variations are discussed here.

One of the hypotheses was that there is a relationship between elapsed time and effectiveness. By taking data over time, the relationships could be determined by graphing. Opacity was expected to rise over time due to a variety of factors, yet it was never expected to decrease. An opacity decrease across all vehicle types was observed around 110days (in the full report's Appendix A, graph A1). There was no rain around this time, but there was a high wind advisory day which likely removed fine particles from all three test surfaces. Since this was a natural event, the data was retained. The opacity observation data could be deemed somewhat subjective since it is a visual observation except that there were two dust inspectors at most tests, and both inspectors noted similar opacity percentages on all days. Based on this, the observations were deemed reliable. Another notable observation is that the Durasoil section appeared to be increasing in surface compaction over the life of the test. It would appear that the non-drying properties allow for increased compaction and reduced dust generation.
Another hypothesis was that significant rainfall would either diminish or improve the performance of the dust suppressants. Only two days after the products were applied, almost two inches of steady rain fell. Rain continued to fall regularly throughout the first three months of the test, totaling 5.31 inches. Rain data is shown in the full report's Appendix F. When the ground dried out enough to make dust, tests were conducted on the scheduled test days. Since there was a control section, differences in opacity relative to soil moisture could be observed. Soil moisture content was not measured in this test. Product performance without rainfall may have produced different results. The test was originally scheduled for three months during the highest use season, but the data would have been more difficult to evaluate had the test been stopped at three months. Extending the test to six months allowed for more data points and the opportunity to see how Durasoil performed with more vehicle passes and extended dry weather. There was no measurable rainfall for the last three months of the test.

Some equipment and procedure variations are worth noting. During the test, the same equipment was used with relatively low wear showing on tires between tests. The vehicles were used occasionally between tests, so tire / knobby wear was minor, possibly insignificant. Pictures and vehicle specifications are shown in the full report's Appendix E. On one occasion, the Polaris ATV was unavailable so a similar design Honda was used. After reviewing the data from this day, the opacity observations were as comparable to previous tests, so the data was retained. On two occasions, only one dust inspector was available. The inspector making observations was an experienced person. The data appeared to be in line with other days and was retained.

Only one data point was thrown out. During one of the passes in the Soiltac section, the truck was driven onto the untreated road shoulder. The opacity spiked to 45%. Since we were attempting to test the Soiltac performance and not driving skills, this data point was thrown out. There were two other truck Soiltac passes that were retained on this day. Similarly, a Durasoil test using the truck showed high readings around 80 days. This data was retained because it fell under the 20% opacity limit and it was unclear as to the reason for the higher than usual reading. The observed opacity for the Durasoil section was the same as the control section. This was unexpected. One cause could be only one dust inspector was available and the opacity observations are made in 5% increments, making the difference between the data appear to be zero on paper. Rainfall had occurred only two weeks prior and number of vehicles passes only numbered about 4000 at the time.

Vehicle counter data was gathered in an attempt to determine how many passes the test sections were receiving in the highest use period of the year. The LP6 road is the main exit route to trails from the newly constructed Boulders Staging and Camping area northwest of Phoenix, eight miles west of Lake Pleasant on BLM land. It is suspected that sunlight and/or instability in the mounting caused one or both of the counters to have questionable reliability during the first two months of the test. The counters were remounted from trees onto pipes driven into the ground. Sensitivity was also adjusted to more accurately record multiple vehicles in a group. Staff observed the counts on a high use day to confirm the changes positively affected the counting. Data counts after two months were improved, yet memory limitations caused the counters to fill up at approximately 1,800 counts. In some instances, counters were checked and found to be maxed out. They were reset and the count recorded on the data sheets for the upcoming test. Closer observation of counters in the future and using the date stamp capability could improve the quality of data from the counters.

Opacity Data points for the graph datasets were input from the test data sheets. Opacity observations on all but two test days were conducted by two dust inspectors. The method used to achieve a single opacity data point for graphing was to average the two observations per pass. Diagram 1 below shows how the data was condensed down into a usable form for graphing. On the two tests where only one inspector made observations, there was no need to average the two readings. On these two occasions, Step 1 was simply bypassed and the three opacity observations were averaged as in step 2. Having a single inspector reduced the robustness of judging opacity.

The number of data points could have been increased, thus adding accuracy to the test.
Due to rain and moist soil conditions, three of the ten test days were cancelled. Rain initially was a factor in running the tests, yet when the tests were extended from three months to six months, the true nature of the materials could be observed. Furthermore, the rainfall received in the beginning turned out to be an excellent test of solubility, presenting possibly the worst case scenario. In the end, both solubility and performance were observed and evaluated.

<u>Opacity vs. Elapsed Time graphs discussion and results</u>:
These graphs show the three test vehicles and their associated opacity observations as compared to the test duration measured in days. While there was considerable rain during the test period, the control section was evaluated at the same time the Soiltac and Durasoil sections were evaluated. This gives a baseline for whether or not remaining soil moisture was the main mechanism for dust suppression. Relationships between opacity and duration were sought using the standard graphing software in Microsoft Excel. The data points shown on the Durasoil graph A1 could point to an ever decreasing opacity as time increases, yet that seems unlikely.

More data points over time would answer the question of what the slope of the curve should be. A least squares fit line relationship appeared most suitable and is shown in graph A1. Conversely, an exponential relationship was easily shown with the Soiltac test data. Soiltac loses effectiveness quickly at first, and then gradually continues to lose effectiveness as time increases as shown in graph A2. Graph A3 is simply the daily averaged data points from the control section. Since there was significant rainfall during the test, the control section opacity data did

not have a trend. While no trend line was assigned, the data serves as a comparison for use against the other test sections.

Lifespan graphs discussion and results:
The extrapolated lifespan graphs A4 and A5 show a projection of a curve or best fit line of the observed opacity percentage data to a point where all three of the vehicle types pass the 20 percent opacity threshold. The county dust standard is 20% opacity or less, so this was used as the extrapolation limit. The Soiltac graph shows short lifespan for Truck (one month) and ATV (2.5months), but a much longer duration for motorcycle (1.5years). Durasoil, however, shows a very long lifespan for the initial application of 1.5years for both trucks and ATVs and 3.5years for motorcycles.

The Soiltac motorcycle extrapolation might make it look like it could be a good application for motorcycle trails. Considering that the difference in opacity between the control and Soiltac sections for the motorcycle is minimal, the cost is not justified. A single pass by a motorcycle will meet or exceed 20% opacity even in the driest conditions according the observations made in this test. The following conditions were not tested, but likely have a negative effect on application lifespan: multiple vehicles in a group, driving with wheels spinning (or intermittent traction), higher speeds. Further testing could identify product limitations or the need for behavioral changes to meet dust standards. It should be recognized that solving the air quality issue will take equal parts of engineering, education and enforcement.

Opacity Differences graphs discussion and results:
The bar graphs showing a particular vehicle types opacity data for Durasoil or Soiltac vs. the control section offers a visual explanation of amount of dust reduction observed. Since opacity as a percentage is difficult to describe, the bar graphs offer a means of showing visually the true difference in the amount of dust generated during the respective test passes. Each graph shows only one vehicle type and compares Durasoil or Soiltac to the untreated control section.

The Soiltac graphs A9-A11 show the dust suppressing ability of this product as used in this application. For this test's sprayed on method of application, the amount of dust reduction is not very high at only 2-7% opacity. On an instance shown on graphs A9 and A10, the Soiltac plot had a higher opacity than the control. This is an immediate failure since the purpose of applying the product is to reduce dust. Furthermore on graphs A9-A10, the control section had a passing mark of 15% opacity, while Durasoil failed at 20-30%. Perhaps if Soiltac was mixed in to a recently graded road and compacted, its performance would be higher. This could be tested at other sites in the future.

The Durasoil graphs A6-A8 shows the dust suppressing ability of this product as used in this application. Its non drying properties work very well when sprayed onto the unprepared road surface. Average opacity reductions were 6-15%. The opacity observations were commonly half of the untreated control plot. Furthermore, the application maintained this level of performance for the six month duration of the test.

Cost Analysis:
Cost per mile for applying Durasoil is just over $10,000 per mile at the tested application rate.

By the end of the test, over 10,000 vehicle counts were recorded. The extrapolated length of service that might be expected from Durasoil is 1.5 years to 3.5 years, depending upon the type of use. (i.e. mostly truck, ATV or motorcycle). Assuming 20,000 vehicle passes per year based on the observed 10,000+passes over the six month test period and the shorter lifespan of 1.5 years from Graph A5 for truck traffic, treatment cost per vehicle would be $0.335 per vehicle mile traveled. The lowest cost vehicle to manage dust for is the motorcycle at a per vehicle mile traveled cost of $0.028.

Soiltac initial application cost per mile is lower than Durasoil due to a 7:1 dilution with water, yet the reapplication frequency would need to be much higher, thus raising its per trip cost tenfold. Soiltac cost per vehicle mile is extremely high at $3.29 per vehicle trip mile for a truck, $0.66 for ATV and $0.22 for motorcycle due to poor lifespan and high product cost. This makes it an unattractive solution for dust suppression. Soiltac is best used as a "dust cap" for open areas that need to have the surface stabilized or crusted over for dust compliance.

The bigger question of whether or not controlling dust from vehicles was even possible without daily watering has been answered positively. Dust from vehicles can be managed. Further study is warranted to achieve lower costs. Durasoil should be considered the standard at which other products are tested against. Cost calculations can be found in the full report's Appendix B.

Vehicle Counts Results:
Two digital, active infrared vehicle counters were installed. The accumulated counts totaled 11,169 counts over the six month period. Due to counter reliability concerns, a round number of 10,000 counts was used for calculations. The counts were questionable early in the test. Insufficient sensitivity, low mounting rigidity and sensor overloading by afternoon sun blinding were problems believed to have been solved by mounting the counters on steel pipes sticking out of the ground 24inches and re-aiming in a northwesterly direction, away from direct sunlight. A round number of 10,000 counts was used in cost calculations.

Wear Factors and other data:
Durasoil, a soil wetting agent, exhibited excellent durability against water dilution and churning by knobby tires. There was no noticeable loss of effectiveness after receiving over five inches of rain. Rain and knobby tires do appear to be main factors in the early failure of Soiltac. Testing on the Soiltac section was discontinued after only eight weeks. The Soiltac test section actually produced more dust than the control section before being discontinued. Since Durasoil does not evaporate or wash away, its mechanism for dispersal is most likely dilution into the surrounding soil as tires grind it into the soil. The Durasoil remains in the soil where additional applications should have an additive effect. Physical breakdown of the chemicals due to ultraviolet light is not known. This could be an unknown wear factor that needs consideration, especially for summertime use in Arizona. This warrants mentioning since water and knobby tires are suspected to be the mechanisms that caused Soiltac to fail, yet the failure mechanism is not completely understood. This was not the focus of the study.

APPENDIX F

Arizona's Wildlife Linkages Assessment

The Issue: The proliferation of roads, railroads, fences, canals and urban development is fragmenting wildlife habitat and potentially creating barriers that can inhibit animal movement and migration and isolate wildlife populations.

The Challenge: How can we address this situation (and coordinate diverse jurisdictional agencies and interests) in a way that accommodates growth, helps make highways safer and helps conserve our wildlife populations?

One Strategy: The information in Arizona's Wildlife Linkages Assessment can help state/federal agencies, county planners, land conservancies, tribes, private landowners and other organizations work together with a comprehensive, landscape-scale approach toward conservation and highway safety goals, while accommodating the growth of Arizona's population, an expanding economy, and associated infrastructure.

Summary: The phenomenal growth of Arizona's human population, economy, and infrastructure present challenges to maintaining natural ecosystems and wildlife populations that constitute an important part of Arizona's wealth. In particular, roads, urbanization, canals, railways, energy corridors and activities of illegal migrants and border security operations not only destroy habitat, but create barriers that isolate wildlife populations and disrupt ecological functions such as gene flow, predator-prey interactions, and migration. Addressing each of these potential barriers one-at-a-time is expensive and inefficient. In each landscape, we must address all these factors concurrently to successfully maintain or restore linkages between habitats and conserve the wildlife and natural ecosystems that Arizona's residents and visitors rely on and benefit from.

Conspicuous evidence of habitat fragmentation is wildlife road kill – a far too common sight along many Arizona roadways. These often fatal encounters have far-reaching effects. Wildlife-vehicle collisions can result in human deaths and injuries, millions of dollars in property damage, loss of game and non-game animals, and sometimes expose the State to liability. Working together, federal, state, county and private stakeholders can minimize these social costs while enhancing opportunities for movement of wildlife between Arizona's habitat areas.

The Arizona Wildlife Linkages Workgroup (AWLW) has taken the first step in that process. The AWLW is a collaborative effort between public and private sector organizations formed to address habitat fragmentation through a comprehensive, systematic approach. Through this partnership and commitment, a statewide assessment was conducted to identify large blocks of protected habitat, the potential wildlife movement corridors between as well as through them, and the factors threatening to disrupt these linkage zones. After four successful workshops and many hours spent coordinating, meeting, mapping and writing, we present our initial findings, methodology and recommendations – a product that is intended to evolve and ultimately be used as a planning instrument.

The *Arizona's Missing Linkages Workshop* held in April 2004 and the follow-up workshops that ensued are the basis for this report and mapping tool. Attendance at the workshops was well represented with biologists, engineers, planners and land managers from state and federal agencies, universities, consulting firms and private sector conservation organizations. Individuals were divided into groups to address specific geographic regions. They used map transparencies and tailored questionnaires to assist in the identification of habitats, wildlife species, wildlife behavior and needs, *potential linkage zones* as well as present and future threats or opportunities for conservation. One of the many products resulting from this process was a computerized geographic information system (GIS) projection graphically displaying the compiled information.

There are over 150 potential linkage zones included in the Arizona's Wildlife Linkages Map. The potential linkage zones represent areas that are important to Arizona's wildlife and natural ecosystems. If integrated into regional planning frameworks, these areas have the potential to be maintained or preserved during this time of prosperity, growth and development. As such, for each potential linkage zone, the AWLW built on information collected from the workshops to further define existing conditions, recording biotic communities, listing species that depend on particular linkages, identifying land ownership within those linkages, and detailing known and anticipated threats.

For further refinement, potential linkage zones were prioritized based on biological importance threats - existing and anticipated – and opportunities for preservation and/or restoration purposes. Biological importance scores depended on the size and habitat quality of the *habitat blocks* and on the ability of the potential linkage zones to support special status species, aquatic ecosystems, or seasonal migrations. Threat scores reflect the barrier effect of canals, roads, urbanization and railroads. Opportunity scores indicate ongoing and proposed conservation efforts in the areas, and whether impending major road projects provide an opportunity to increase the permeability of roads. As road construction programs are updated and development in the State progresses, this evaluation and resulting prioritization will need revision.

Our intention in this report is to provide a starting point for detailed consultation and coordination among the organizations and agencies that have a major role to play in maintaining habitat connectivity. To offer flexibility in the use of this report, all the maps within this document have been created at the same scale so that the transparency of the Arizona's Wildlife Linkages Map may be used as an overlay. Furthermore, the report was drafted in a manner to allow each individual chapter to be used as a stand-alone tool. For that reason, terminology common throughout the entire document is defined in each section. All technical terms are also collectively defined in the glossary.

Important to taking the next step in preserving or restoring habitat connectivity is the physical design and construction of linkages. To help facilitate these applications, this report outlines the methodology used to create specific linkage designs within potential linkage zones. In the coming years, the AWLW intends to develop linkage designs for each potential linkage zone through a combination of GIS analysis and fieldwork. This analysis coupled with a feasibility study on linkage protection will further define the present potential linkage zones into smaller,

more site-specific delineations and is intended to aid in conservation and planning efforts. Linkages ranking highest in our prioritization will be addressed first. Future assessments will identify additional potential linkage zones.

This report represents the results of the first statewide wildlife linkages assessment. We hope to elevate the current level of awareness of wildlife connectivity areas and issues in Arizona. The tools in this report will allow land managers to incorporate the identified wildlife linkage zones into their management planning processes to address habitat fragmentation due to highways and other human development *(including trails and OHV routes)*. We expect to facilitate the integration of the potential linkage zones presented in this report and those identified in the future into early project planning efforts. We acknowledge that this is only the first step in a continuing process of defining critical habitat connectivity areas.

Now more than ever, decision makers have a responsibility to protect and maintain wildlife linkages to sustain Arizona's diverse wildlife species and wild landscapes. We firmly believe that government agencies and citizens working together with a comprehensive, landscape-scale approach can achieve these conservation goals while accommodating the growth of Arizona's population, an expanding economy, and associated infrastructure.

Arizona's Wildlife Linkages Assessment information, including the Final Report and GIS files, can be downloaded at http://www.adot.gov/Highways/OES/AZ_Wildlife_Linkages/index.asp.

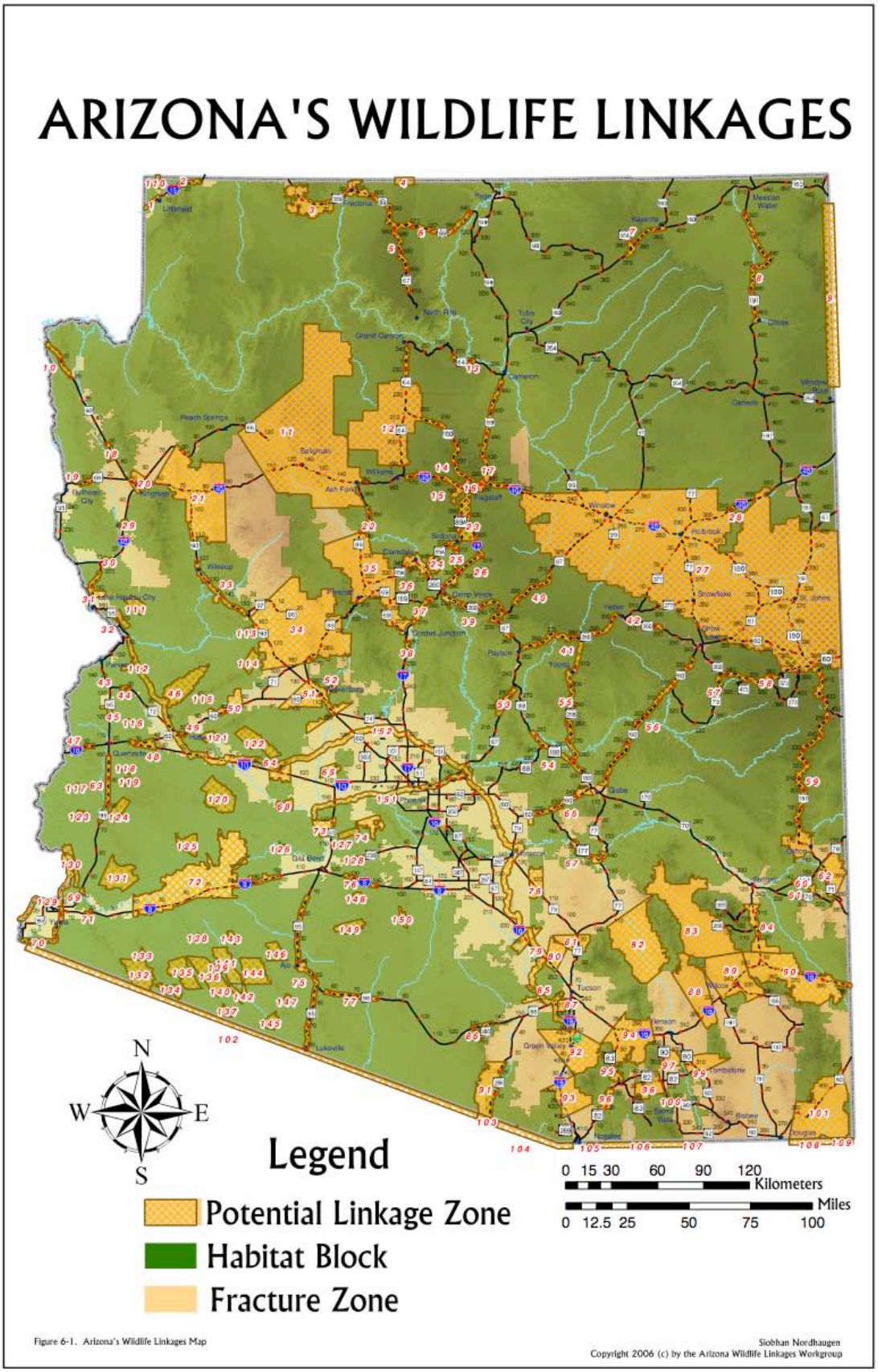


Figure 6-1. Arizona's Wildlife Linkages Map

Siobhan Nordhaugen

APPENDIX G

This Section Will Be Added Soon

APPENDIX H

Eight OHV Destinations

This Appendix showcases eight high-use off-highway vehicle (OHV) destinations that encompass more than 150,000 acres of managed OHV sites in Arizona; some sites are managed specifically for OHV use, while others are public lands that highlight opportunities to drive OHVs on National Forest roads or BLM backcountry routes. Each site narrative includes an overview of the site and management issues/needs. Land managers were asked several questions regarding the site to capture this information. Some of the descriptions include insight from the perspective of the OHV user; these opinions were derived from an on-site visitor questionnaire. Three to fifty questionnaires were collected on-site at each location from November 2008 to February 2009. Conclusions drawn from the OHV user perspective are representative only of those individuals who participated in the questionnaire and cannot be generalized to any larger population or group.

Standard Wash

Location: Located 5 miles south of Lake Havasu, Arizona.

Land ownership: Bureau of Land Management, Lake Havasu Field Office.

Site Description: Standard Wash landscape boasts a series of interconnected washes, lined with berms and vegetation is sparse. The overarching area consists of sandy, alluvial soil drainage surfaces with gravel and primarily Sonoran desert vegetation. The near 5,000-acre area is limited to existing trails; however, following completion of the Havasu Travel Management Plan (TMP) it will become "open" to cross-country travel. From the OHV area there is access to 200-300 miles of other routes or trails, primarily east and north; as far as Kingman, and Wikieup, Arizona. There are a number of access points into Standard Wash, all to the east of the 5-mile strip of AZ Highway 95 from Lake Havasu City. Please observe all barriers and 'Closed to Motorized Use' signs on the west side, also the large sand and gravel pit. Weekends, particularly Sundays, appear to be the busiest for OHV use. There is a large bulletin board placed at the most popular access (Mile Marker 172.3). There is no fee to enter the area, so please pack it in and pack it out.

Recreation Clientele and Use: Almost all types of OHVs are popular: ATVs, ROVs (UTVs or side-by-sides), 4x4s, SUVs and dirt bikes. All the land agency managers' stress "follow the rules, avoid confrontation, practice safe behavior, and stay on trails." Most users are cooperative, but it's most appreciated and necessary during the winter weekends having the most use. Local residents recreate at Standard Wash during the year. In the winter many people from California; Phoenix,

Arizona; and Las Vegas, Nevada visit the area. Many visitors enjoy 'dispersed camping' while in Standard Wash and can extend their visit up to 14 days.

Road Count Data: Road count data for Highway AZ-95 is available through the Arizona Department of Transportation, however, with the many access points to Standard Wash accurate OHV use road count data is difficult to acquire.

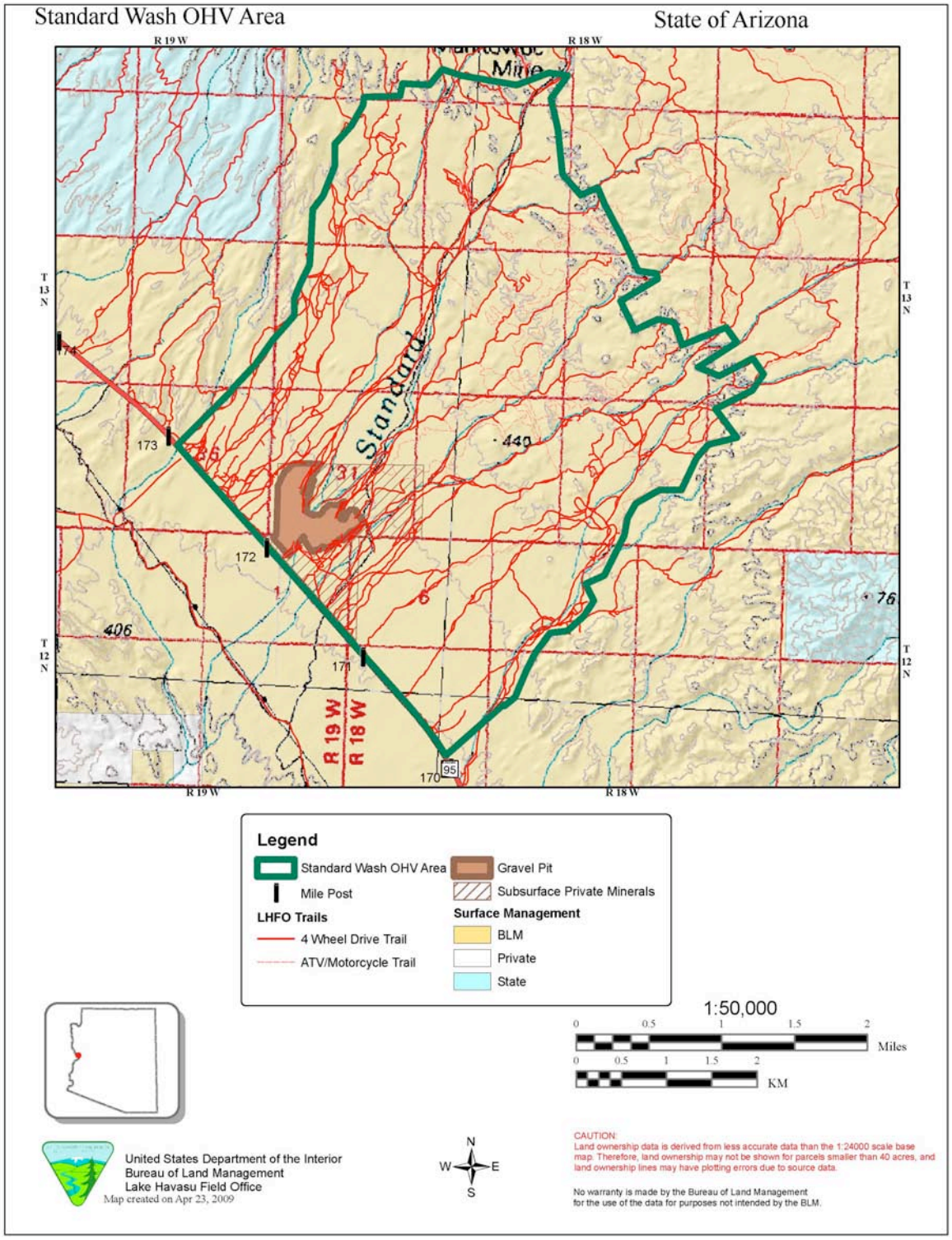
Some users feel it is important to have posting of rules and regulations, and maps. Long distance trails, loop trails, desert racing trails, and single track trails are important to some of the users.

***Issues*:** The Standard Wash area receives resource impacts to vegetation and wildlife habitat as a result of fast driving and carelessness. Often the degradation to cultural and historical artifacts is unintentional (e.g., driving over artifacts). User conflicts can occur between ATV, ROVs (UTVs), dirt bikes, Jeeps and SUVs; a number of collisions have occurred resulting in bodily injuries and some fatalities. Like much of Arizona abandoned mine shafts are found here and can pose a public safety issue. Please avoid and stay out of all abandoned mines. Illegal dumping and abandoned vehicles are an issue; please report any incidents to the Lake Havasu Field Office.

Signage and Facilities: Directional signs are located at main route intersections and the Bulletin Board is useful for safety, map and rules information; however, additional signs and/or trail marking would be helpful. Staging areas are casual and undeveloped.

Desired Management Features: Desired management features include additional signing, sign maintenance, an improved kiosk(s) for rules, regulations, maps and public safety information; developed parking, restroom and staging area(s), additional signing (i.e. 14 day camping), staff and volunteer compliance monitoring, emergency communications for public, and ingress/egress (turning) lanes for access off of Hwy 95; trash collection and disposal services.

Map: Standard Wash



Cinder Hills

Location: Cinder Hills is located 13 miles northeast of downtown Flagstaff, south of Sunset Crater/Wupatki National Monuments.

Land ownership: USDA Forest Service, Coconino National Forest, Peaks Ranger District.

Site Description: Cinder Hills is a scenic recreation area enjoyed by many off-highway vehicle enthusiasts. Its numerous volcanic cinder cones and craters surrounded by a ponderosa pine forest environment give the area its unique value. At an elevation of 6,900 feet, the volcanic field is a flat open space with some hills. Approximately 13,500 acres in the Cinder Hills has been designated for off-highway vehicle recreation. Within the 13,500 acre area, portions will have use restricted to a relatively dense network of designated routes which will be identified at a later date. There are 2 main access (entry points) off of State Route 89. From the Coconino National Forest, there are secondary access points leading to the area. There are two illegal access points from cross-country use. There is no fee to enter the area.

Recreation Clientele and Use: Many OHV users at Cinder Hills use sand rails, dirt bikes, ATVs, and custom made vehicles for recreation. Four-wheel drive vehicles such as jeeps rarely visit Cinder Hills for OHV driving. Most OHV users are local. Flagstaff area residents and users host site clean-ups. Primary OHV visitors are conscientious and clean up after themselves. Some users, most from out-of-state and other parts of Arizona do not follow the rules. Hunting and RV camping with some tent camping occurs mainly on weekends and holidays. The highest OHV use occurs on weekends, especially in the summer and summer holidays.

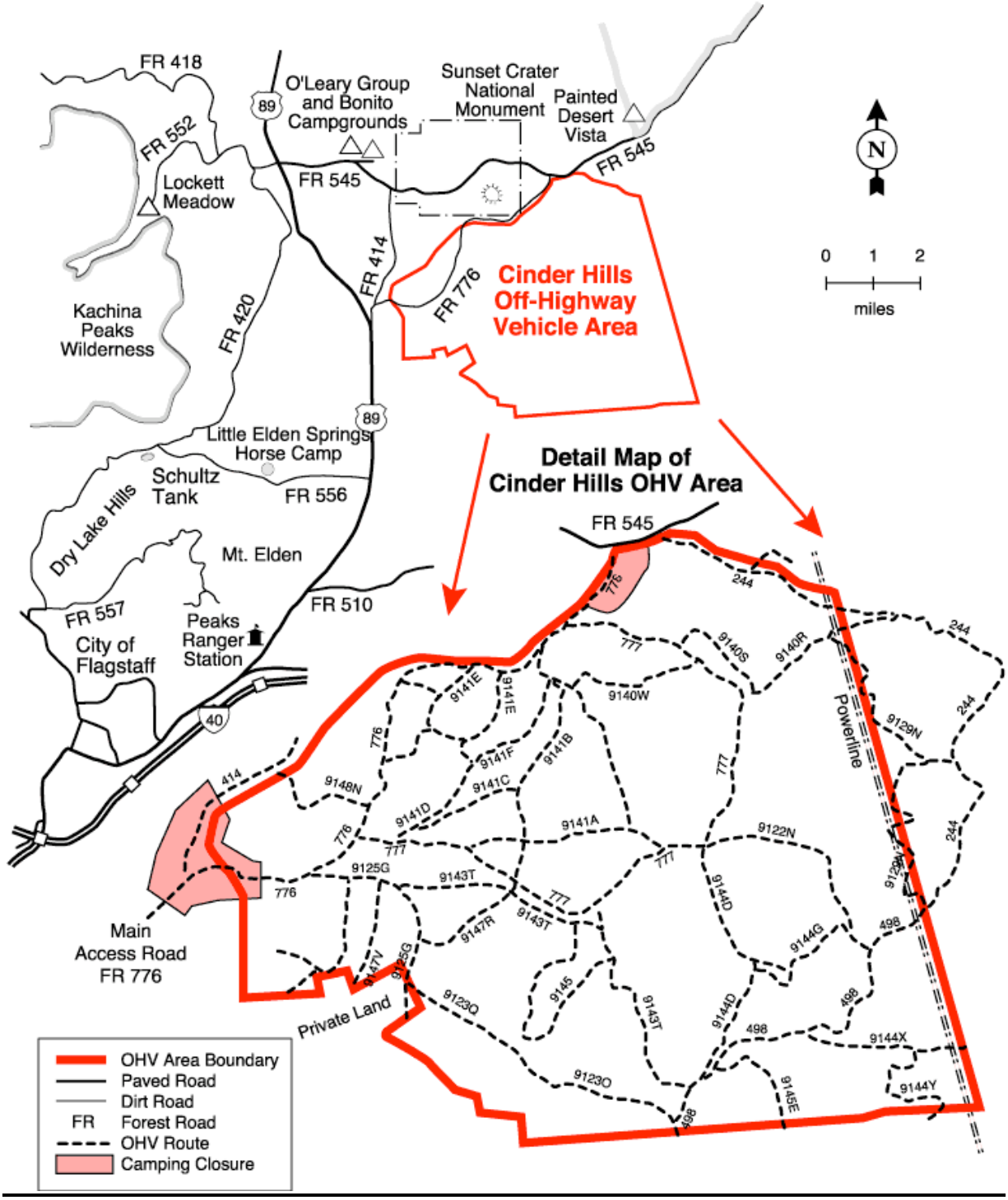
Road Count Data: Some road count data has been collected by the Forest Service but is not available for this report.

***Issues*:** Trespass from Cinder Hills into Sunset Crater (managed by the National Park Service) occurs. The National Park Service utilizes their rangers in the Cinder Hills area to help offset trespass into Sunset Crater. The fence that bounds a historic area within the Cinder Hills area, near Cinder Lake, is cut often. Motorized trespass violations also occur on steep slopes that are closed to cross-country travel, which damage protected plants and violates Coconino National Forest Plan standards for scenery. Signs are vandalized often.

Signage and Facilities: Cinder Hills has an unimproved staging area by Cinder Lake, and an improved entrance road. Signage includes one informational kiosk, directional signs, and boundary signs with the National Monument. There are un/loading ramps which are rarely used.

Desired Management Features: Due to a growing interest in this area for off-highway vehicle recreation, additional management direction is needed to protect sensitive resources and to provide for continuing use of this recreation. Desired management features include interpretive signs about historic sites, prehistoric sites, and protected plants; bathroom facilities; continued site maintenance; a management presence and informal on-site education; fencing for protection of archeological sites and other areas; directional signs; and the completion and implementation of an effective management plan.

CINDER HILLS OFF-HIGHWAY VEHICLE AREA



Alto Pit

Location: Located 4 miles west of Prescott, Arizona on Iron Springs Road.

Land ownership: USDA Forest Service, Prescott National Forest, Bradshaw Ranger District

Site Description: Alto Pit is a 400-acre site which includes a 13-acre cross-country travel area, 9 miles of trails open to vehicles less than 50-inches wide (e.g., dirtbikes and ATVs), and one small tot-lot. ROVs (UTVs or side-by-sides) and four-wheel drive vehicles are not allowed on the trails if the vehicle span is greater than 50-inches. The main "pit" at Alto Pit is a former gravel pit just below Granite Mountain at 6,200 feet. There is also a smaller gravel pit. Higher terrain trails rise to 6,400-foot elevation. Primary vegetation is ponderosa pine. Rock and granite surface the area. Temperatures are cool in the winter. There is one legal access point to enter the area. There was one illegal access point from a cut fence which has been repaired. Weekends in the summer are the highest use days. There is a fee to enter the area: $5 per vehicle per day and camping is $14 per site. An annual pass is $40.00. The highest use occurs on weekends in the summer.

Tot Lot at Alto Pit

Former Gravel Pit at Alto Pit

Recreation Clientele and Use: Many users at Alto Pit participate in ATV and dirtbike riding. Tent and RV camping, picnicking, hiking, and target shooting occurs. Some users enjoy the experience at Alto Pit to be with friends and family, and get away from the usual demands of life. Compliance with rules and regulations occurs for the most part; however, sometimes ROVs (UTVs) and four-wheel drive users will drive on trails, which is unauthorized due to the width of the vehicle. Volunteers participate in trail maintenance and brush clearing. Some weekend users are from Phoenix or out of state, and locals from Prescott participate in OHV activities at Alto Pit as well, especially after work hours and on weekdays.

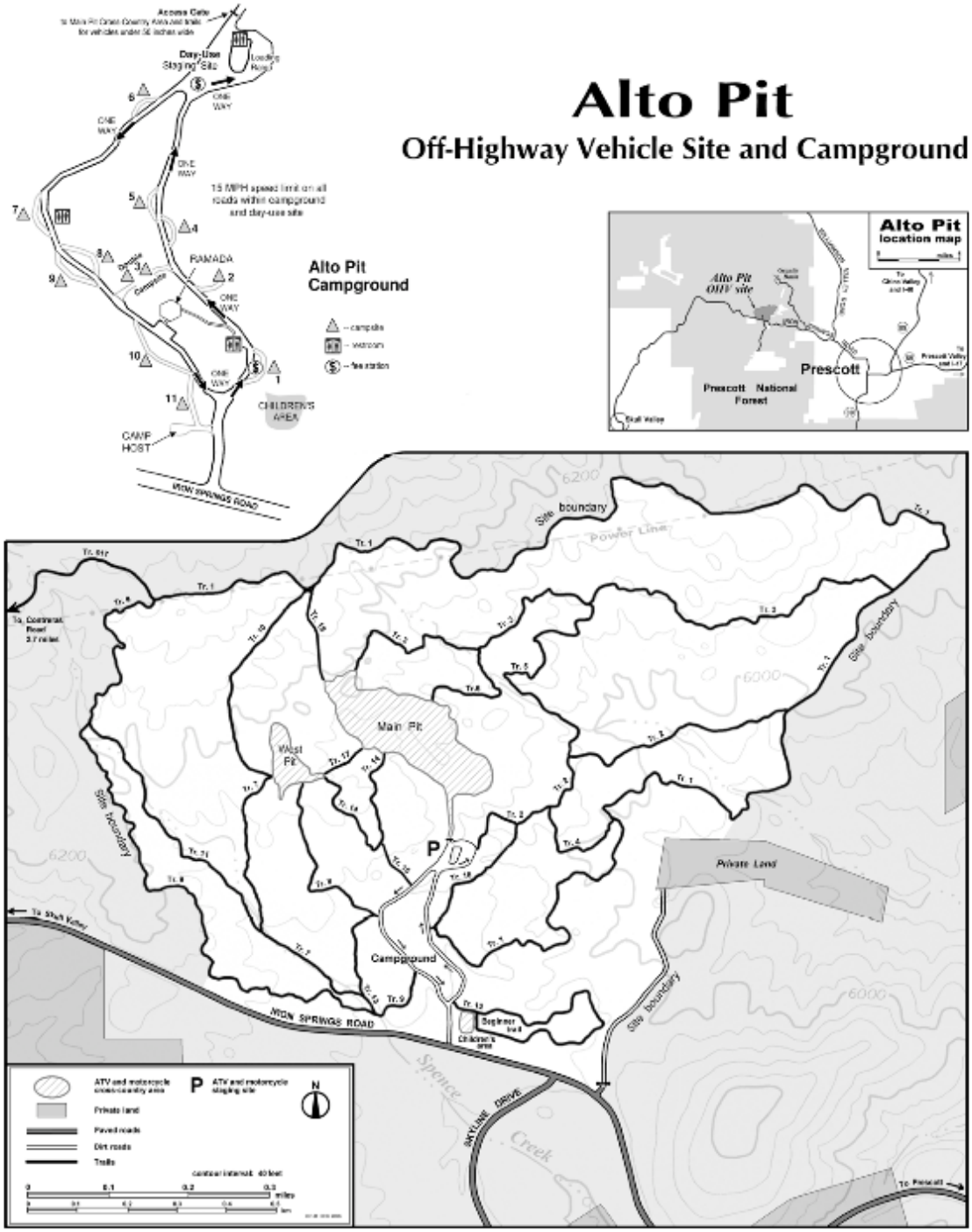
Road Count Data: There is no existing road count data.

***Issues*:** Unauthorized use by ROVs and four-wheel drive vehicles occurs. Some OHV users will remove barriers including rocks to gain access to the trails and also travel cross-country in unauthorized areas. This is less of an issue today then it was in the past due to fences around Alto Pit. During crowded seasons riders sometimes speed through crowded areas and lack safety equipment.

Signage and Facilities: There is adequate signage in the area including five kiosks with maps, and rules and regulations: two at the self pay station, one before the staging area, one at the staging area, and one on the northwest side of Alto Pit. Trail numbers are located on fiberglass posts. Wooden signs are used for directions and mileage. There is a "tot lot" or beginner riding area for youth riders, a staging area with ramps, three (3) restrooms, campsites, and a ramada with grills and picnic tables.

Desired Management Features: To reduce site issues, and improve OHV opportunity and management, the Forest Service would like to see a larger volunteer base and more funding for site maintenance activities.

Map: Alto Pit


Alto Pit
Off-Highway Vehicle Site and Campground
Alto Pit Campground
Alto Pit location map
Alto Pit OHV site
Prescott
Prescott National Forest
Main Pit
West Pit
Campground
Site boundary
Power Line
Private Land
MOUNT SPRINGS ROAD
SKYLINE DRIVE
Spence Creek
CHILDREN'S AREA
CAMP HOST
RAMADA
ONE WAY
15 MPH speed limit on all roads within campground and day-use site
Day-Use Staging Site
Access Gate
To Shell Valley
To Prescott

Hot Well Dunes

Location: Hot Well Dunes is located 35 miles south of Safford, Arizona.

Land ownership: Bureau of Land Management, Safford Field Office.

Site Description: Hot Well Dunes consists of approximately 2,000 acres of rolling sand dunes and shifting lands of creosote, scrub vegetation and shrubs. There are low, sparsely vegetated dunes for those preferring a slower paced ride, while several larger dunes provide a challenge for the adventurous rider. Two legal access points are available for entrance into the area. Illegal access occurs a few times a year when the site boundary fence is cut. Weekends in the spring, fall, and winter are the highest use days. There is a $3 per vehicle/per day fee to use the area. The highest use occurs on Saturday in the morning to late afternoon.

Recreation Clientele and Use: The primary reasons for visiting Hot Well Dunes are split equally between OHV riding and hot water bathing. ATV and dirtbike use is popular. Visitors tend to recreate in groups of 2 or more people. The majority of users consist of Arizona residents, primarily from Safford, Tucson, Sierra Vista, Bowie, and Willcox. The site is also used for RV and tent camping. Target shooting occurs outside of the area. Users are generally compliant with rules and regulations, including obeying speed limits on access roads, self-pay compliance, and using safety flags. Volunteers assist with clean-up efforts.

Many users feel it is important to have restrooms, rules and regulations posted, camp sites, and parking available. They are concerned about target shooting, unsafe OHV use, and lack of trail ethics by other users. There are many experiences users seek at Hot Well Dunes including being with friends or family, and getting away from the usual demands of life. Many users are interested in designated, developed riding areas with jumps, hill climbs, and other terrain features for OHV use; trails that offer challenge and technical driving opportunity; and loop trails.

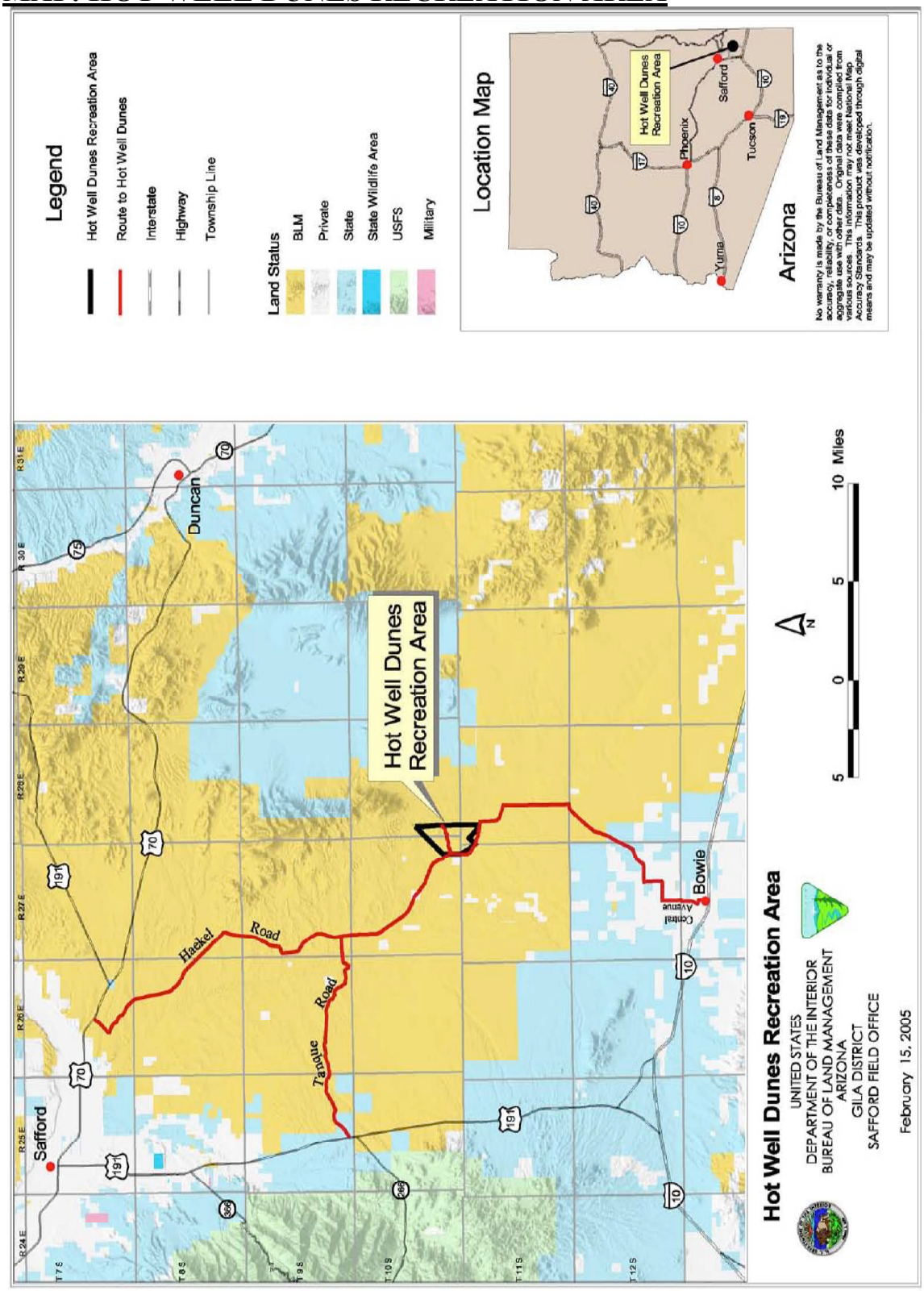
Road Count Data: There is no existing road count data.

***Issues*:** Approximately 4 or 5 times a year, the barbwire fence that bounds Hot Well Dunes is cut. There is undocumented immigrant traffic that creates roadside trash and litter. Sign vandalism is a recurring problem. During the months when there is not a site host at the dunes, there is a rise in non-compliance with rules and regulations.

Signage and Facilities: Facilities at Hot Well Dunes include restrooms, trash collection through a trash contractor, picnic areas, parking/staging, a pay station, natural spring hot tubs, and camping at ten (10) RV and tent sites and three (3) group sites. Undeveloped camping is also available throughout the recreation area. Rules and regulations are posted at the main entrance and at the hot tubs. There are speed limit signs on the main access roads.

Desired Management Features: The Bureau of Land Management desired management features include an effective neighbor stamp reward for good behavior program and a full time site host.

MAP: HOT WELL DUNES RECREATION AREA



Hieroglyphic Mountains Area/ Boulders Staging Area

Location: Hieroglyphic Mountains Area/ Boulders Staging Area (Boulders) is located northwest of Phoenix, Arizona between Lake Pleasant (east), Wickenburg (west), and the Prescott National Forest (north). Boulders Staging Area is located off of Highway 74, between mileposts 11 and 12.

Land ownership: Bureau of Land Management, Hassayampa Field Office.

Site Description: Boulders consists of approximately 30,000 acres in the Hieroglyphic Mountains and currently has approximately 150 miles of trail. Old mining roads meander through mountains, desert foothills, rocky sand washes, and desert vegetation reaching 1,800-2,500 feet in elevation. The area is a mix of private, state and public land. Vehicle travel is allowed on existing routes. There are 20 legal access points. Illegal fence cutting is not a problem due to the topography. There has been a vast increase in OHV use in Hieroglyphic Mountains possibly due to other closures in other areas around Phoenix. Sometimes, illegal access occurs through private land, such that they trespass on private land to access the Boulders area without permission of the land owner. OHV volunteers assist with clean-up efforts. OHV volunteers are currently educating others on the rules and regulations in the area. There are no fees to enter the area. The highest use occurs on Sundays. Holidays are very busy.

Recreation Clientele and Use: Boulders is used for OHV riding including ATVs, ROVs (UTVs or side-by-sides), and dirtbikes. The site is also used for RV and tent camping. Target shooting occurs, however, since the closure of Kileaua Crushers Road, target shooting has declined. Most riders (70-80%) know to stay on trails, but others, especially the riders that do not have a sense of "connection" with Boulders, are not as compliant. The area is attracting lots of families, which pushes out the less compliant users like partiers and illegal dumpers. There is self-policing and education among users, and people are reporting illegal or inappropriate use. OHV Ambassadors (volunteers) provide a frequent presence and are invested users of the area.

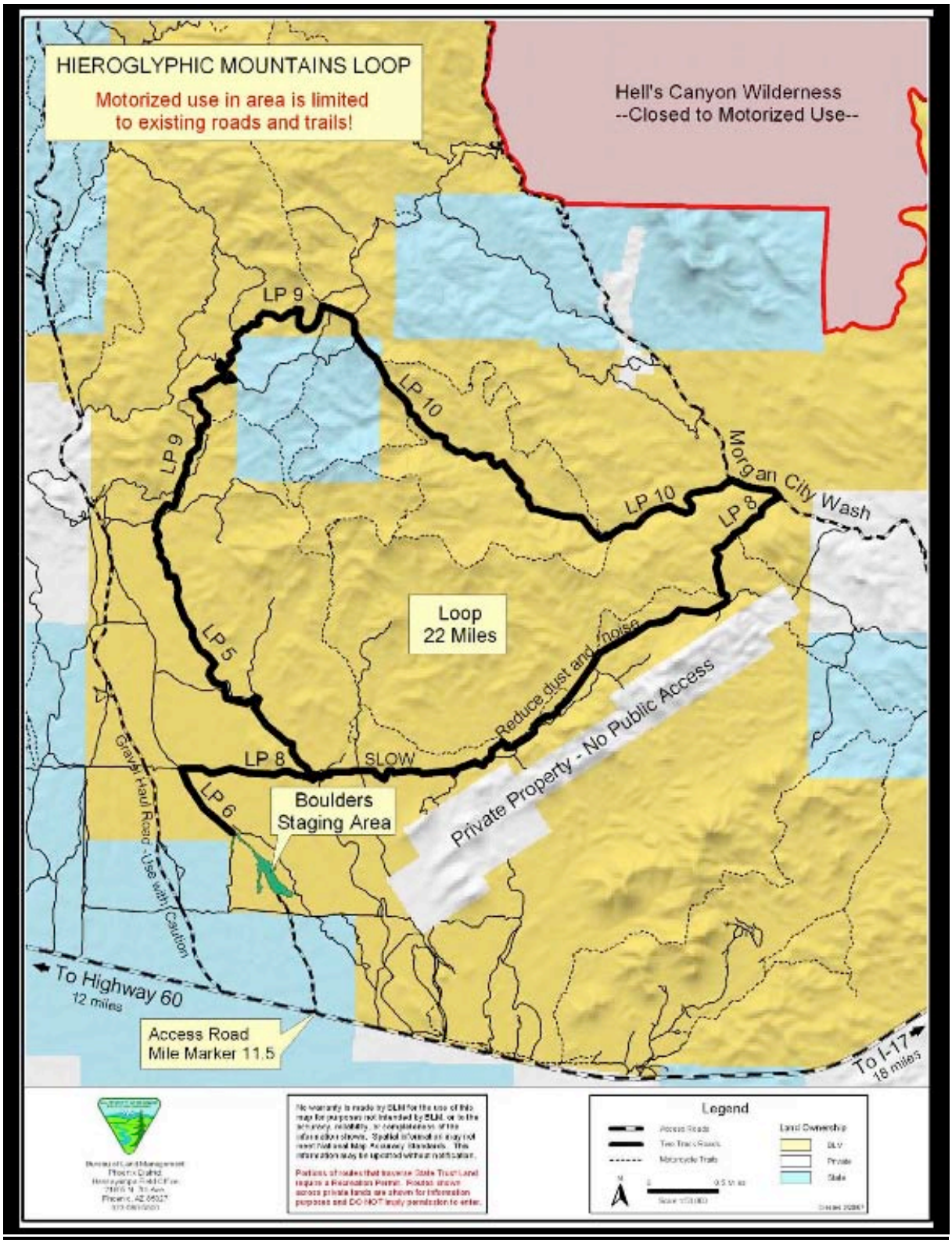
Some users feel it is important to have maps, directional signs, and restrooms. There are many experiences users seek at Boulders including being with friends or family, and getting away from the usual demands of life. Many users are interested in designated, developed riding areas with jumps, hill climbs, and other terrain features for OHV use; and trails that offer challenge and technical driving opportunity.

Road Count Data: 20,000 counts from October 2008 to April 2009 were recorded from infrared sensors at Boulders Staging area. An additional 10,000 counts are anticipated from May 2009 to September 2009.

***Issues*:** Boulders borders the Phoenix metropolitan area so there is rapid urban encroachment. There are potential conflicts with private property development adjacent to Boulders. There is an influx of people who do not follow rules and may displace compliant users. Users challenge dust management (i.e. looping in circles in the staging area – doing "donuts"). Trees and shrubs are cut for firewood, instead of using just dead and downed wood. There are challenges to wildlife management - new trails are created illegally, which impacts wildlife habitat and desert ecosystems. There is a lack of land agency staff presence, a lack of funding for operations, educational materials and site maintenance.

Signage and Facilities: Facilities at Boulders includes a beginner rider area for youth, a staging area delineated by pipe fencing, vault toilets, group campsites in a curved designed area that prevents corner campsites and provides space for a trailer to back in, non-motorized hiking opportunities, and an Eagle Scout project, which is an interpretive plant walk with plant identification signs. There are three 4'x 4' metal kiosks with rules. The enclosed plywood billboard on the kiosks provides impromptu messages that are changed out regularly. There is also a 3-panel kiosk with rules/regulations and maps. Some roads are numbered, but not every road is signed because roads and trails in this area have not been officially designated for motorized use yet.

Desired Management Features: Desired management features include a campsite host, better dust suppression, make it a fee area so that improved amenities and regular maintenance are possible, and a developed adult beginner riding/play area.


HIEROGLYPHIC MOUNTAINS LOOP
Motorized use in area is limited to existing roads and trails!
Hell's Canyon Wilderness
--Closed to Motorized Use--
LP 9
LP 10
LP 9
LP 10
LP 8
Morgan City Wash
Loop
22 Miles
LP 5
Reduce dust and noise
Private Property - No Public Access
LP 8
SLOW
LP 6
Boulders
Staging Area
Gravel Haul Road - Use with Caution
To Highway 60
12 miles
Access Road
Mile Marker 11.5
To I-17
18 miles
Legend
Access Roads
Two Track Roads
Motorcycle Trails
Land Ownership
BLM
Private
State

Bulldog OHV Area

Location: Bulldog OHV Area is located one hour from Phoenix, with access from the City of Mesa at Usery Pass Road, off of the Bush Highway.

Land ownership: USDA Forest Service, Tonto National Forest, Mesa Ranger District.

Site Description: Bulldog is low mountain terrain in the Goldfield Mountains with Sonoran Desert vegetation (cacti, mesquite) on the interface of public and private lands. The soils are granite and sandstone. The terrain is rocky, with some rolling terrain and some roads that go through canyons. Vehicle travel is allowed only on routes designated as open by brown fiberglass vertical markers. All routes other than FR10, 12, 1356, 3512, 3556, and 3554 are closed to motorized travel. There are six legal access points into the Bulldog area and approximately 20 illegal points of entry on the east side of Bulldog as the fences are cut throughout the year. Use of Bulldog OHV area requires a permit (no cost). The highest use occurs Saturdays-late morning and Sundays-early afternoon.

Recreation Clientele and Use: Bulldog is used for OHV riding primarily by ATV, Jeep (4WD, truck), and dirtbikes. OHV users tend to enjoy an easier, scenic ride. Most follow the rules likely due to the permit system. OHV users often stay on the trails and wear safety equipment. Volunteers help clean-up the area. Horseback riders and other non-motorized users also use the area. RV camping/homesteading and target shooting rarely occur and are illegal. Late night partying occurs. Bulldog has high use and enjoyment. The majority of users are local, from the east valley of Phoenix

Road Count Data: There is no existing road count data.

***Issues*:** Near the Wolverine access point, which is next to a housing development, homeowners complain about late night parties in the area. Riding off of trails on the hills near Wolverine occurs occasionally. Trash dumping and stolen vehicle dumping also occurs on occasion. Illegal homesteading and target shooting occur on occasion. Horseback riders also use the area and create unauthorized trails.

Signage and Facilities: There is casual staging/parking area with locked access gates and pipe fencing. A permit code is needed to enter. There is one kiosk with a map. When giving permits, permittees receive map with routes. Directional signs and no target shooting signs exist.

Desired Management Features: Desired management features include additional signage and continued maintenance of signage, increased law enforcement presence, rehabilitation of illegal routes, volunteers to continually help with clean up, site presence for on the ground informal education with public, more interaction with community members and road maintenance and renovation.

TONTO National Forest

Recreation
Opportunity
Guide
www.fs.fed.us/r3/tonto

OFF HIGHWAY TOURING

BULLDOG CANYON OFF-HIGHWAY VEHICLE AREA

RANGER DISTRICT
Mesa Ranger Station
5140 E. Ingram Street
Mesa, AZ 85205
Phone (480) 610-3300 Fax (480) 610 3346

RELATED OPPORTUNITIES
Picnicking, camping and hunting

SEASON OF USE
All year

USGS MAPS
Apache Junction-Stewart Mountain

OFF-HIGHWAY VEHICLE AREA ACCESS

Access #1- Forest Road (FR) 10, north entrance: This access point is reached through the Lower Salt River Recreation Area. From Mesa: Travel east for 7 miles on the Superstition Freeway (US 60) to Power Road/ Bush Hwy/Forest Road (FR) 204 and turn north. Follow Bush Hwy. for approximately 13 miles to the FR 10 junction with FR 204 west of the bridge at Blue Point Recreation Site.

Access #2- Forest Road (FR) 3554, west entrance: This entrance is ¾ mile north of Usery Pass Country Park. From Mesa, travel east 10 miles on the Superstition Freeway (US 60) to the Ellsworth exit. Follow Ellsworth approximately 8 miles to Forest Road (FR) 3554 and turn right.

Access #3- Forest Road (FR) 10, south entrance: This access point is reached from Apache Junction. From Mesa: Travel 15 miles east on the Superstition Freeway (US 60) to the Idaho Street exit. Follow Idaho Street north 4½ miles to McKellips. Turn right on McKellips and travel ½ mile to the Wolverine Pass Road and turn left. Follow it for 7/8 mile and turn right on Tonto Road. Travel north on Tonto Road for ¼ mile to Cactus and turn left. Follow Cactus to McDowell Road and follow it to FR 10 gate.

ATTRACTIONS
Road passes through the Goldfield Mountains and parts of the Sonoran Desert.

CONSIDERATIONS
- Obtain a permit from the District Ranger prior to entry into Bulldog Canyon
- Operate vehicles only on roads designated as open by brown fiberglass vertical makers. All roads and routes other than FR 10 and FR 12,1356, 3512, 3556, and 3554 are closed to motorized travel.
- The area south of Bush Highway (approximately ½ mile) in the Lower Salt River Recreation Area is closed to camping and target shooting. Glass containers are prohibited.
- Road condition is primitive in some areas, and require 4-wheel-drive
- Road length: FR 10 is 7 miles long
- FR 3554 is 4 miles long
- Practice "Leave No Trace" ethics: **PACK IT IN, PACK IT OUT!!**
- Carry an adequate supply of drinking water
- Please help us care for this fragile environment by ensuring that all fires are "dead out."

6/25/03 OH-03-01

Santa Rita Backcountry Touring Area

Location: Santa Rita Backcountry Touring Area (Santa Ritas) is located in southern Arizona just west of Highway 83 and north of the community of Sonoita (about an hour southeast of Tucson).

Land ownership: USDA Forest Service, Coronado National Forest, Nogales Ranger District.

Site Description: The east side of Santa Rita Mountains consists of approximately 98,200 acres and offers miles of roads within the "Sky Islands" area where mountains are isolated by expanses of desert and grassland plains. Travel is limited to roads and trails. Topography is diverse; the lower elevations and the plateaus have flat grasslands and desert scrub, along with canyons with washes and the higher elevations have oaks and pine trees. There is no fee to enter the area. The highest use occurs on Saturday.

Recreation Clientele and Use: The Santa Ritas are used for OHV riding, camping, target shooting, wildlife viewing, and hiking. OHVs consist mostly of ATVs, dirt bikes, some Jeeps and UTVs. OHV users tend to recreate in groups of two people or more. Visitors often follow rules by staying on designated trails and campsites. However, some riders go off trail and ride ATVs or dirt bikes in dispersed campsites that creates new unauthorized trails and increases resource damage. There are occasional organized volunteer clean up and trail maintenance efforts. Most users comply with rules and regulations and stay on designated areas. Local (Tucson) and out-of-state users visit the area.

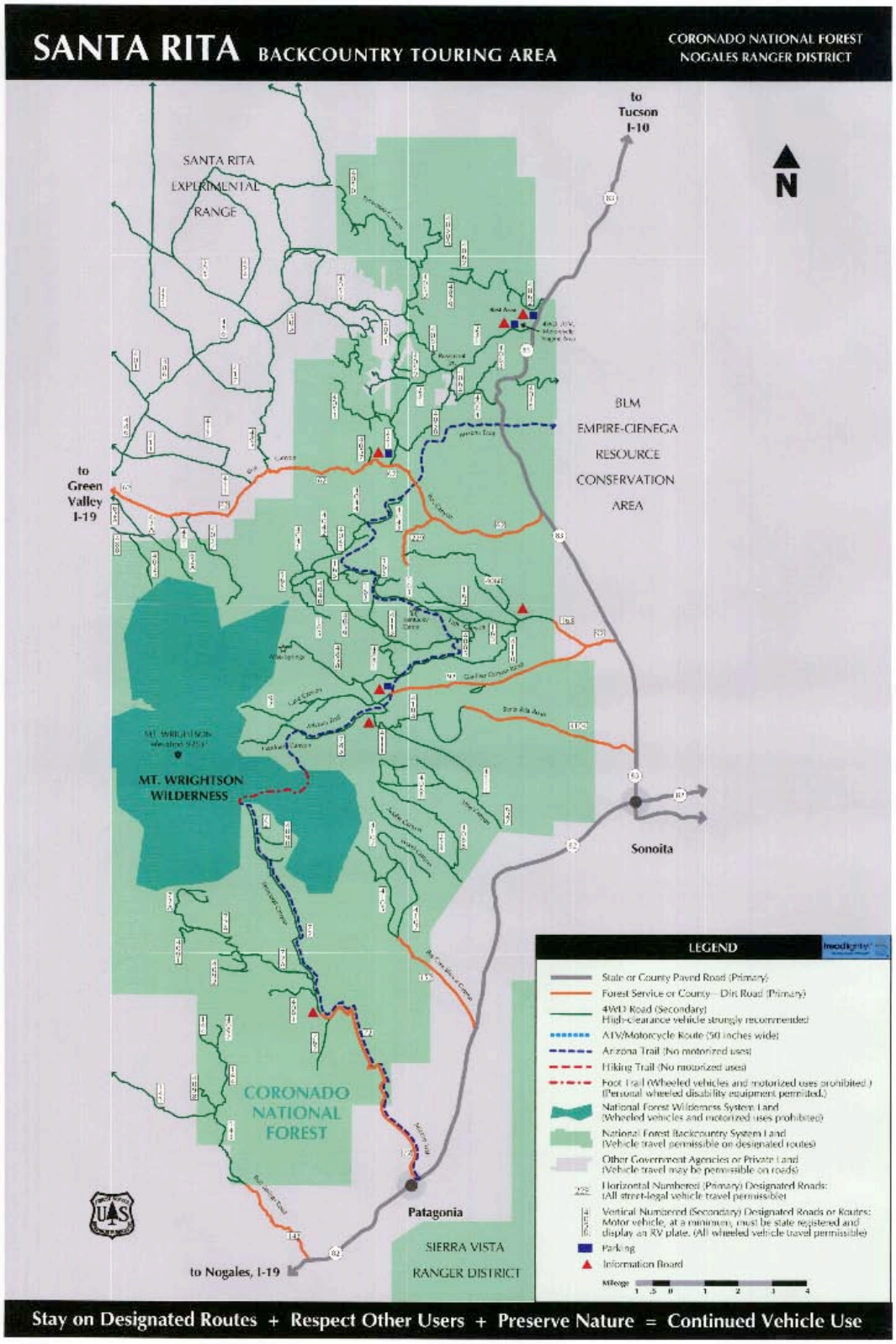
OHV users enjoy the experiences at the Santa Ritas including viewing scenery, being with friends and family, and getting away from the usual demands of life. Users feel it is very important to have loop trails, post rules and regulations, have directional signs, and the presence of agency personnel.

Road Count Data: There is no existing road count data.

Issues**:** Damage to signs by target shooting is a continuous issue at the Santa Ritas. OHV riding/driving off of trails and roads creates unauthorized routes and causes resource damage. Riding OHVs in campsites also occurs.

Signage and Facilities: There is a casual parking area with un/loading ramps. Maps are available. Rules and regulations are posted at four kiosks throughout the area. Road number signs are installed, and the Coronado National Forest is in process of installing more signs.

Desired Management Features: Desired management features include toilets at various multiple use trailheads along Highway 83, maintenance personnel for upkeep and cleaning of toilets, more agency presence to enforce OHV compliance, and additional road maintenance to fix damaged water bars and grade roads after heavy OHV use.


SANTA RITA BACKCOUNTRY TOURING AREA
CORONADO NATIONAL FOREST
NOGALES RANGER DISTRICT
to Tucson I-10
N
SANTA RITA EXPERIMENTAL RANGE
BLM EMPIRE-CIENEGA RESOURCE CONSERVATION AREA
to Green Valley I-19
MT. WRIGHTSON WILDERNESS
Sonoita
CORONADO NATIONAL FOREST
Patagonia
SIERRA VISTA RANGER DISTRICT
to Nogales, I-19
LEGEND
State or County Paved Road (Primary)
Forest Service or County – Dirt Road (Primary)
4WD Road (Secondary)
High-clearance vehicle strongly recommended
ATV/Motorcycle Route (50 inches wide)
Arizona Trail (No motorized uses)
Hiking Trail (No motorized uses)
Foot Trail (Wheeled vehicles and motorized uses prohibited.)
(Personal wheeled disability equipment permitted.)
National Forest Wilderness System Land
(Wheeled vehicles and motorized uses prohibited)
National Forest Backcountry System Land
(Vehicle travel permissible on designated routes)
Other Government Agencies or Private Land
(Vehicle travel may be permissible on roads)
Horizontal Numbered (Primary) Designated Roads:
(All street-legal vehicle travel permissible)
Vertical Numbered (Secondary) Designated Roads or Routes:
Motor vehicle, at a minimum, must be state registered and display an RV plate. (All wheeled vehicle travel permissible)
Parking
Information Board
Mileage
Stay on Designated Routes + Respect Other Users + Preserve Nature = Continued Vehicle Use

Desert Wells Multiple Use Area - Interim use of State Trust Land

Location: Desert Wells is located one hour east of Phoenix, Arizona near Apache Junction (US Route 60 and State Route 79).

Land ownership: Arizona State Land Department (ASLD) with cooperative assistance from the Arizona Game and Fish Department.

Site Description: Recreation use at Desert Wells is an interim use and land parcels are continually leased or sold to gain revenue for the beneficiaries of the Trust. Desert Wells is generally flat with dry washes and streambeds. The vegetation is Lower Sonoran Desert within alluvial-silt and sandy soils. Vehicle travel is allowed only on existing signed routes. There are over 180 miles of trails that are mostly flat with a few rolling trails. There are three grazing leases within the area; range improvements include cattle water tanks, numerous fences, and gated pastures. The area is anticipated to have future residential and commercial development and one railroad easement. Several utility easements exist. There are three designated access points and several illegal access points as a result of fences being cut on a regular basis. Recreationists must obtain an ASLD recreation permit, OHV Decal, and/or a hunting/fishing license dependent on the type of recreational use. The highest use occurs on Saturdays from October to April.

Recreation Clientele and Use: Desert Wells is used for OHV riding primarily by ATVs, dirtbikes, and ROVs (UTVs or side-by-sides). Small game hunting also occurs during the fall and winter months. Other activities that occur include camping, picnicking, and target shooting. In the past five years there appears to be an increased use of helmets and safety equipment for OHV riding. Users tend to recreate in groups of 2 or more people. The majority of users are local, from the east valley portion of the Phoenix metropolitan area.

Some users feel it is important to have rules and regulations posted, directional signs, and parking available. They are concerned about litter and trash dumping, closure of trails, and target shooting. There are many experiences users seek at Desert Wells including being with friends or family, and getting away from the usual demands of life. Users are interested in designated, developed riding areas with jumps, hill climbs, and other terrain features for OHV use; and loop trails.

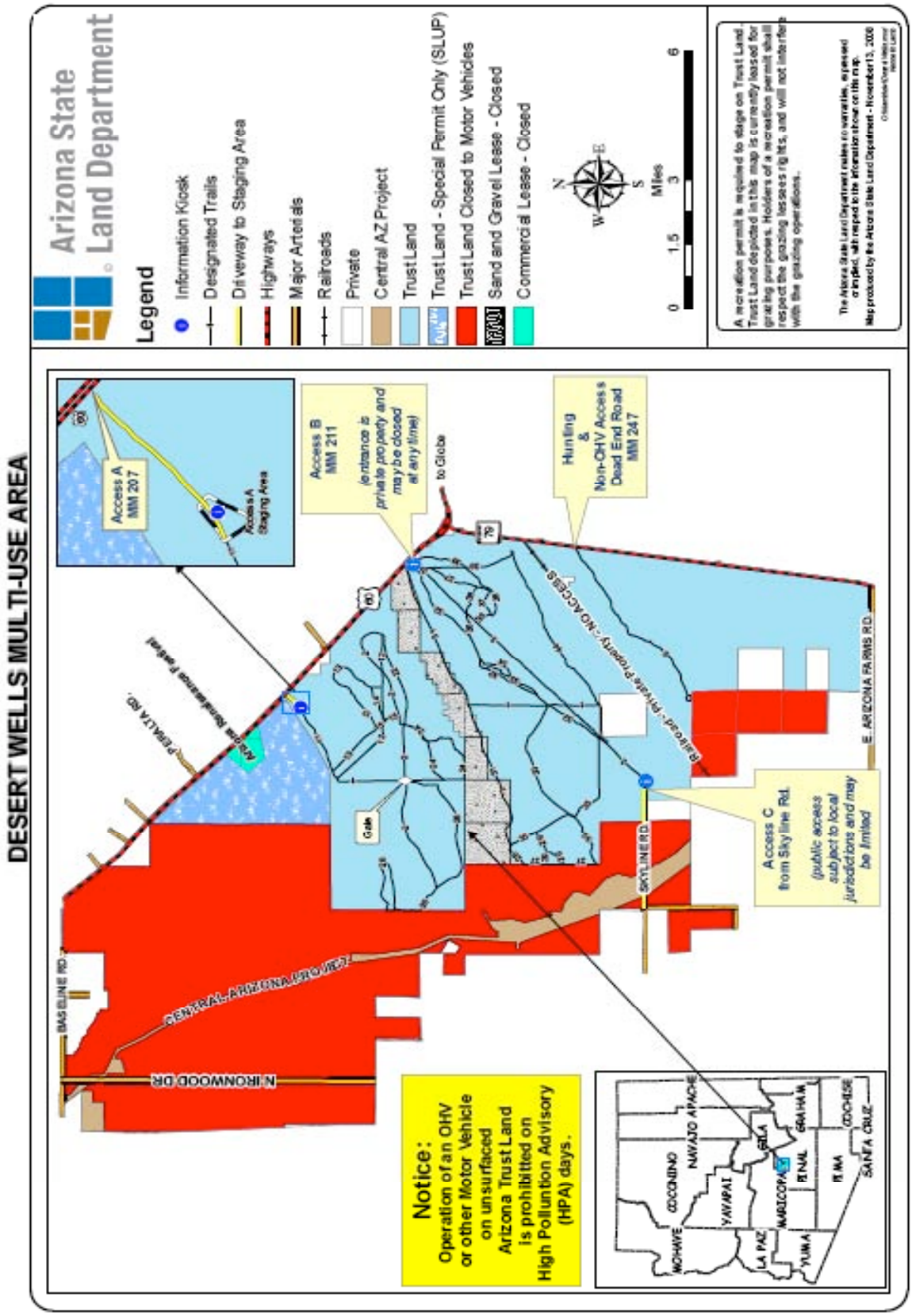
Road Count Data: There is no existing road count data.

***Issues*:** Illegal target shooting and trash dumping occurs at Desert Wells. Illegal fence cutting creates problems for livestock operations. Many OHV users fail to obtain recreation permits from the ASLD and often fail to follow the rules and obey the terms of the ASLD recreation permit, which were established to protect the Trust. Riders drive up and through livestock water tanks; ride close to fence lines and the highway; create dust opacity issues on the freeway; and fail to stay on existing, designated routes depicted on the Desert Wells map. Cross-country driving/riding occurs.

Individuals and groups that do not stay on trails, or tend to ride within one quarter mile of staging areas resulting in an expansion of the staging areas into previously undisturbed desert soils create habitat damage and dust issues. New unauthorized access routes are created especially near staging areas. Signs are often destroyed and trail markers and kiosks are shot-up or removed requiring regular maintenance. Local managers have noted that these problems are less severe than similar sites without active management.

Signage and Facilities: There are no facilities at Desert Wells. Staging areas are identified by fencing and barriers. There is one kiosk that was put up in 2008 that was vandalized shortly after installation. Trail markers and signs are routinely damaged requiring continuous maintenance.

Desired Management Features: Increased law enforcement presence, a full time manager responsible for signage, delineated staging/parking areas, continued and frequent rehabilitation of non-designated routes, an area designated for beginner riders, continual site maintenance, and designating routes open to motorized vehicle use will reduce the volume and magnitude of the damage to the land, and increase safety.


DESERT WELLS MULTI-USE AREA
Arizona State Land Department
Legend
Information Kiosk
Designated Trails
Driveway to Staging Area
Highways
Major Arterials
Railroads
Private
Central AZ Project
Trust Land
Trust Land - Special Permit Only (SLUP)
Trust Land Closed to Motor Vehicles
Sand and Gravel Lease - Closed
Commercial Lease - Closed
0 1.5 3 6
Miles
Access A
MM 207
Access A
Staging Area
Access B
MM 211
(entrance is private property and may be closed at any time)
to Globe
Hunting
&
Non-OHV Access
Dead End Road
MM 247
Access C
from Skyline Rd.
(public access subject to local jurisdictions and may be limited)
Notice:
Operation of an OHV or other Motor Vehicle on unsurfaced Arizona Trust Land is prohibited on High Pollution Advisory (HPA) days.
BASELINE RD
N IRONWOOD DR
CENTRAL ARIZONA PROJECT
PEBALTA RD
Arizona State Land Department Property
Globe
SKYLINE RD
Railroad - Private Property - NO ACCESS
E ARIZONA FARMS RD
COCONINO
NAVAJO
APACHE
MOHAVE
YAVAPAI
GILA
GRAHAM
LA PAZ
MARICOPA
PINAL
YUMA
PIMA
COCHISE
SANTA CRUZ