

Overview of
NATURAL RESOURCE BASED

OUTDOOR RECREATION

In Eastern Pima County



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Sonoran Desert Conservation Plan
February 2003

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Introduction and Purpose

Introduction:

The Sonoran Desert Conservation Plan (SDCP) is being developed with the goal of protecting the habitat needed to ensure the survival of several special-status wildlife species in eastern Pima County. To accomplish this goal, the Draft SDCP recommends that large tracts of land surrounding the Tucson metropolitan area be retained in an undeveloped natural condition. The conservation of these lands will facilitate wildlife species survival. Conserving these lands can also provide other public benefits. One of these benefits is the continuation and expansion of opportunities for natural resource based outdoor recreation.

Natural Resource Based Outdoor Recreation:

Natural resource based outdoor recreation encompasses those activities that occur within a natural setting or that directly involve observation of, or interaction with, the natural environment. Hiking, birding, and rock climbing are representative activities. Excluded from natural resource based outdoor recreation are activities such as tennis or golf, which occur outdoors but within constructed environments. Also excluded are illegal activities, such as poaching, pothunting, and other activities that are prohibited on any particular piece of land. Mention of illegal occurrences of otherwise legal natural resource based recreation activities in this report is intended only to highlight issues and should not be taken as an endorsement of such occurrences.

This report focuses exclusively on natural resource based outdoor recreation. This is due to the fact that the areas where these activities typically occur are often the same areas that are under consideration for inclusion within the SDCP planning boundary. Understanding the relationship between recreation and conservation will be important to the success of the SDCP. Conversely, a broad multi-faceted approach to conservation can enhance opportunities for natural resource based outdoor recreation.

Benefits of Natural Resource Based Outdoor Recreation:

The benefits of natural resource based outdoor recreation are numerous. One such benefit is public health. The provision of opportunities for local residents to engage in physical exercise in a clean and healthy environment has a positive impact on the health of the community.

Quality of life is also impacted by natural resource based outdoor recreation. Opportunities to engage in these activities, particularly in close proximity to neighborhoods where individuals and families live, enhance the quality of life for Pima County residents. The relatively low cost associated with participating in most natural resource based outdoor recreational activities makes this quality of life benefit available to a broad range of individuals living in eastern Pima County.

Natural resource based outdoor recreation also supports and strengthens the local economy. It benefits the economy through direct employment at businesses that sell related goods and services and through sales tax revenue generated by these businesses. Opportunities to engage in these activities also make Tucson and Pima County an attractive destination for visitors from other states and countries. These visitors support the hotel and tourism industry, an important component of Pima County's economy.

An additional and important benefit of natural resource based outdoor recreation is resource protection. This can be achieved through the voluntary stewardship that results from enhanced public knowledge, understanding, and appreciation of the natural environment and the community's cultural heritage.

Position of the Recreation Technical Advisory Committee:

The Recreation Technical Advisory Team (RecTAT) believes that recreation must be given full consideration in the final version of the Sonoran Desert Conservation Plan. To ignore the inevitability of natural resource based recreation within the SDCP planning boundary would be short-sighted. Attempts to impose widespread exclusions on recreational activities within the planning boundary will inevitably fail and, in the short term, may undermine public support for adoption of the SDCP.

In light of the above, the Recreation Technical Advisory Team (RecTAT) advocates full consideration, accommodation, and support for natural resource based outdoor recreation in the development of the Sonoran Desert Conservation Plan.

Report Limitations:

There is currently very little specific or detailed information available regarding the scope and impacts of natural resource based outdoor recreation in eastern Pima County. A few studies of limited scope have been performed by various land management agencies. These do not, however, provide a comprehensive picture of the type, location, and extent of participation in various recreational activities. Additional information is needed. As much information as possible should be collected and documented during the SDCP process.

The Recreation Technical Advisory Team supports the idea of a comprehensive study to develop the needed data. The RecTAT acknowledges that the funding and implementation of such a project will likely take several years. As an interim measure, the RecTAT has prepared this initial report.

Information Included in this Report:

In this initial (interim) report, twenty-one (21) different natural resource based outdoor recreational activities are identified. These activities are believed to represent the most popular natural resource based recreational activities in eastern Pima County. Based on the best information available to the RecTAT members who drafted this report, the document provides an overview and description of each of the noted activities. Information is also provided regarding the primary or preferred locations where the subject activity occurs. Data on participation in the individual activity is included where available. Use patterns, such as seasons when the activity is most prevalent, have been identified and trends related to changes in participation levels are discussed. Finally, issues related to the recreational activity vis-a-vis the goals of the Sonoran Desert Conservation Plan are also presented.

Purpose and Intent of Report:

The Recreation Technical Advisory Team presents this report to the Pima County Board of Supervisors, to the public, and to the individuals participating in the preparation of the Sonoran Desert Conservation Plan as information to be considered in the decision making process.

Specifically, it is the intent of this document to:

1. Generally describe the current scope and nature of natural resource based recreation in eastern Pima County.
2. Identify general trends related to participation in the various natural resource based outdoor recreational activities noted.

3. Acknowledge the importance of natural resource based outdoor recreation to the quality of life that is available to Pima County residents.
4. Acknowledge the positive impacts of natural resource based outdoor recreation on tourism and the local economy.
5. Identify some of the potential conflicts between natural resource based outdoor recreation and wildlife / habitat conservation.
6. Advocate for the full consideration of natural resource based outdoor recreation in the development of the Sonoran Desert Conservation Plan.

Recommended Follow-up Actions:

The Recreation Technical Advisory Team believes the information included herein has value in the context of the SDCP planning effort and that it can be used beneficially in the decision making process. The RecTAT also acknowledges, and wishes to call to the attention of Pima County and other governmental officials, that the information included herein is incomplete. Additional investigations are needed to confirm and supplement the data presented in this report.

Specifically, the RecTAT recommends that Pima County, in concert with other land management agencies and interested organizations, undertake a comprehensive study to document the scope and direction of natural resource based outdoor recreation in eastern Pima County and surrounding areas. The Recreation Technical Advisory Team can and should be a resource that is employed in the development of a scope of work for this project and for the review and assessment of study findings.

Birding

Locations:

Primary locations for birdwatching activities in Pima County were defined by local experts as those places well-known and visited often by birders from across the nation. Examples of some primary locations mapped for this report (see Activity Maps) include Madera Canyon and Saguaro National Park.

Secondary birdwatching locations were identified as those places known and visited by local birders, but not well-known to out-of-town visitors. Examples of these are Cienega Creek Natural Preserve and Arthur Pack Park.

Participation:

A national survey on recreation and the environment ranks birding as the seventh most popular outdoor activity in America (54 million participants in 1995, with enthusiasts totaling 6 million, or 2.9% of our population). As our area is a prime destination spot for birding, many of these people eventually visit and can be found at any time of the year birding alongside local enthusiasts. Indeed, both the Tucson Metropolitan Visitors Bureau and the Arizona Department of Tourism have led media campaigns to encourage birders to flock here. Visitors also rely on two guidebooks (Taylor 1999; Tucson Audubon Society 1999) and the multi-agency produced Southeastern Arizona Birding Trail map (see www.seazbirding.com).

Local birders number in the thousands (the Tucson Audubon Society has more than 3,000 members), as this is an easy hobby to take up and can be enjoyed at any age. All of the Tucson-area nature centers have bird-oriented information, programs, and sometimes special trips, including Arizona-Sonora Desert Museum, Mason Audubon Center, Tohono Chul, and Tucson Botanical Gardens, as do park and recreation site visitor centers. Birders participate in many “citizen science” projects, including bird counts during Christmas and International Migratory Bird Day, banding programs, and the especially useful Tucson Bird Count (see www.tucsonbirds.org). The most dedicated birder, who wishes to see as many unusual birds as possible, participates with about 650 people in a rare bird alert listserv service.

Use Patterns:

While some prefer solo birdwatching, most birders go out in small groups because when the size of the group increases, birding quality diminishes. Birding is popular in all seasons, though spring (because of migration) has the highest level of activity. Commercial tour groups, catering to out-of-town visitors, are popular, especially in the spring. Specific areas may experience a dramatic increase in birdwatching when rare or unusual birds are reported to the birding community through the Internet or the bird hotline maintained by Tucson Audubon.

Trends:

Birding continues to grow in popularity. Specific locations for this activity come and go due to development or other reasons for habitat loss and the resulting decrease in bird productivity. Riparian restoration activities offer promise for new birding sites; the constructed Sweetwater Wetlands, for instance, have become a popular place for birds and birdwatchers.

Issue Identification:

There is some evidence that large groups of birders, or birders entering sensitive habitat, can have a negative impact on some nesting birds. For instance, a predator can key in on what birders are watching and later rob the nest of its eggs.

Preservation of bird habitat and maintaining access to birding areas are issues of great interest to birders.



Photo by Robert Wenrick.

Camping, Developed

(tent/RV camping in designated campgrounds or sites)

Description:

Camping in Southern Arizona and Pima County is a year-around recreational activity; one that is enjoyed by all ages. We are all familiar with the “snowbirds” who arrive to spend their winter with us. Pima County residents and families also like to camp and have a variety of places to enjoy themselves. Several local nonprofit organizations, such as churches and scouting groups, maintain camps on Mt. Lemmon for local children. Although camping, for many, is enjoyed alongside other outdoor recreational pursuits, this section will deal specifically with camping in established campgrounds or recreational vehicle (RV) parks.

Locations:

Woodall's Campground Directory for 2002 lists 28 campgrounds in Pima County. This is a combination of public and private developed campgrounds and RV parks. They range from small spots with few camping pads and no amenities to full range parks with over a thousand spaces, clubhouses, swimming pools, putting greens, private golf courses, and some with hot tubs at individual sites. Established campgrounds are found in all areas of Pima County. Those located on Forest Service land on Mt. Lemmon are group camp areas used by organizations like the Boy Scouts and 4-H, as well as camping spots for individuals who tent camp or use RVs. The State of Arizona has a well-used campground at Catalina State Park with both group camp areas and a separate area for RVers. Pima County has two developed campgrounds, one at Colossal Cave Park and one west of Tucson in Tucson Mountain Park. Davis Monthan Air Force Base has an RV Park on the base. Public RV parks contribute a variety of locations and amenities. Some encourage long term stays, with a variety of recreational activities offered to their residents, while some limit their stays to a maximum of 14 days. Some are connected with local businesses, some with RV “Clubs”. Many advertise heavily in RV publications.

Participation:

The Recreation Vehicle Industry Association estimates that, of the 30 million RV enthusiasts in the nation, one in 10 is a snowbird. Just as the name implies, a snowbird is an annual visitor who comes to a warm climate, such as Pima County, in the winter months. Their stays may range from a week to 6 months. Those that choose to travel by recreational vehicle, whether trailer, motor home, pick-up camper, 5th -wheel, or with a tent, look for certain amenities for their overnight stays. A certain segment chooses to camp in undeveloped areas where there are no amenities, such as BLM or Forest Service land. These campers are often fully self-contained with water, sewage tanks, generators for electricity and, usually, a dingy or towed vehicle to travel to various sites. Most campers consider water and toilet facilities a minimum requirement. Many choose parks that offer more than the basic services for long term visits.

Local camping enthusiasts fall into two categories: those that camp for the pleasure of camping, and those that camp to facilitate enjoyment of another recreational activity. In speaking with several RV dealers in the area, they indicated that the majority of their sales to Pima County residents are used to “get out of the heat”, either up on Mt. Lemmon or to the White Mountains. Another attraction is water, with campgrounds located near lakes in Santa Cruz, Maricopa, and Gila counties, or along the Colorado River.

There are also organizations that sponsor youth camping, with well-established group camp areas in the Coronado National Forest. These are used heavily during the summer months.

Use Patterns:

Use of local campgrounds in Pima County varies according to the location and the amenities offered. Rural camp areas, such as those on Mt. Lemmon, are used almost exclusively by Pima County residents in the summer time. Most private campgrounds or RV parks are used by visitors in the winter.

Trends:

Local residents will continue to seek cool spots to camp in the summer. Camping spots on Mt. Lemmon are usually difficult to find on summer weekends and holidays.

Winter visitors are a welcome addition to the economic health of Pima County. The yellow pages of the Pima County phone directory lists 16 RV and travel trailer dealers, 17 RV equipment and supply dealers, 5 RV rental dealers, 42 shops that perform RV repairs, and 18 RV storage facilities. According to sources in Pima County Government, the RV tax of 50 cents per night has generated revenue of over \$189,000 in the past fiscal year. This would mean that over 94,500 visitors spent at least one night in a Pima County RV Park. This figure does not include those that stayed at County, State, or Federal campgrounds. While the “bed tax” applied by Pima County on RV park stays caused problems when it was first instituted, the negative effects of that seem to have diminished. Several RV dealers said they have seen an increase in sales of units as an alternative to hotel and motel stays. There have also been rumors of some interest in developing a large RV Park in southern Pinal County at Red Rock.

Issue Identification:

The majority of campers who use public and private campgrounds will have little impact on land set aside for the Sonoran Desert Conservation Plan. People who camp in established campgrounds are a major industry in Southern Arizona that does not seek to destroy the ecology of the area, but rather to see it enhanced to make their stay more enjoyable.

The possibility that fewer campgrounds may be developed because of the restrictions of the plan is a concern. If such restrictions were implemented, it could lead to the perception that less land is available for recreation, so there is less to “do” in Pima County. Having the option of developed campsites is important for those who camp, since undeveloped sites may have more restrictions than developed sites.

Camping, Dispersed

(including driving to, backpacking to camp site)

Description:

Dispersed camping is defined here as camping away from developed campgrounds. It includes backpacking, car camping, and horse (and other beast of burden) packing. If Pima County had runnable rivers or reasonable cross-country ski trails, river camping and snow camping would also be included. Dispersed camping may be done by a solo backpacker sleeping out under the stars, or by a group of recreational vehicle users pulled out along a road. For the purposes of this report, we refer very specifically to recreational dispersed camping, rather than temporary residences such as homeless camps.

Locations:

Most recreational dispersed camping takes place along roads and trails on public land. Most dirt roads in the Coronado National Forest are open to dispersed camping. Numerous campsites are located along the dirt roads in the Las Cienegas National Conservation Area. There are also many undeveloped campsites in the Ironwood Forest National Monument and the Buenos Aires National Wildlife Refuge. The only campsites in Saguaro National Park are dispersed campsites accessible to backpackers in the Rincon Mountain Unit. Many excellent backpacking campsites can be found along the trails in the Santa Catalina Mountains and Santa Rita Mountains. Camping is allowed on State lands, provided that the campers have a State Lands Recreation Permit and follow very limited rules.

Camping is not allowed in the Tucson Mountain Unit of Saguaro National Park, or within Tucson Mountain County Park. It is restricted to designated and permit-only campsites in the Rincon Mountains Unit of Saguaro National Park. There are a few locations in the Coronado National Forest that are closed to camping. In Organ Pipe Cactus National Monument, dispersed camping is allowed and requires a permit, and a minimum distance of $\frac{1}{2}$ mile from roads and historic sites. Some areas of Organ Pipe Cactus National Monument may be restricted due to high incidence of illegal activity.

Participation:

Dispersed camping may be a family activity with several generations camping together, a small group activity, or a solo activity. No records are known that indicate the number of participants in dispersed camping in Pima County, although the National Park Service has records of the number of camping permits they issued in Saguaro National Park and Organ Pipe Cactus National Monument.

Use Patterns:

Dispersed camping is a very popular weekend activity in Pima County. Less frequent use occurs during the typical work week. Many campsites appear to be occupied every weekend, but some appear to be used very seldom. Dispersed camping is very popular for hunters, and almost every possible campsite is occupied during deer and javelina seasons. Many hunting camps are unoccupied for most of the rest of the year. Frequency of occupation appears to be inversely correlated with distance from roads and elevation increase between the nearest parking place and the campsite, so that some mountain campsites accessible only on foot or horseback are seldom visited. On the other hand, some backpacking campsites are very popular and used almost once a week or more. Most of these are near reliable water sources.

High elevation camping is popular in the summer, and low elevation camping is popular in the winter, for obvious reasons.

Each land management agency that allows dispersed camping restricts the length of stay, generally to 14 days or less. Most campsites are used for only one night or for a long weekend, then not used on weekdays. Campers tend to stay longer at car-camping sites that are popular with families, off-highway vehicle users, and hunters. Backpackers tend to camp only one night in a site, then move on the next day.

Trends:

Records are not available that show trends in dispersed camping. Personal observation over 20 years of participation leads to the perception that dispersed camping has increased and continues to increase.

Issue Identification:

Lack of Enforcement and Education. Each land management agency has its own rules and regulations, but enforcement is limited and there appears to be little effort to educate the camping public regarding appropriate camping behavior.

Overuse and Offensive Use. Some areas are extremely popular for dispersed camping, and there is competition for campsites. Overuse can occur throughout a large area if the campsites are not properly configured, such as some specific areas that are crowded with dispersed campsites. Overuse can also occur at specific sites, such as those that appear to be used to the point of severe damage to vegetation, accumulation of human and animal waste, and trash. Some areas have several-to-many campfire rings. For example, at many sites the limited flat, open space that provides the most decent tent spots has been used to create multiple fire rings, indicating that some segment of the camping population believes that it is inappropriate and/or undesirable to use someone else's fire ring. Some campers leave trash behind and spoil a campsite so that no one else would want to use it. Some campers practice target shooting in or near their campsites and seem not to care whether other campers are nearby. Fire use is also an issue; some campers feel it necessary to build large campfires, keep them burning constantly, and use anything burnable as fuel. Many forest and range fires are started by careless campers. Finally, in areas where campsites may be close together, noise may become an issue if some campers are insensitive to the fact that they may disturb other campers within earshot by playing loud music into the night.

Wildlife and Livestock Impacts. Dispersed camping in some areas at some seasons may disturb wildlife or livestock. State law prohibits camping at or within 1/4 mile of limited water sources, but many campers are not familiar with this law. Camping too close to nests or dens during reproductive seasons may harm wildlife. Frequently-used dispersed campsites may attract bears and other nuisance wildlife if campers do not practice good camp management.

Caving / Mineshaft Exploration

Description:

Caving is the exploration of natural openings in the ground that are large enough to admit people. Mineshaft (and adit) exploration is exploration of man-made openings in the ground. Both constitute subterranean activities. Subterranean environments are fragile and dangerous. They may harbor sensitive wildlife, delicate geological and biological features, and many potential hazards to explorers, including rattlesnakes and other dangerous animals, pitfalls, rotten support timbers, explosives, and poisonous gases.

Locations:

Caves occur only in restricted geological formations. Cave locations are closely guarded secrets, when possible. Publicly known caves usually have restricted access, such as locked gates and keys available only with deposit and a pledge of limiting the number of participants and activities. Some caves have unrestricted access because of past damage done to them. Most caves in the vicinity of Pima County are on U.S. Forest Service lands, and are protected. Colossal Cave and its associated smaller caves are within a County park, open to the public with restrictions that are designed to ensure safety and resource conservation.

Mines are much more abundant and widespread than caves. There are somewhere between 50,000 and 100,000 inactive mines in Arizona. The number in Pima County is unknown. Most occur in mountain ranges, where geological conditions provide suitable ore deposits; very few mineshafts or adits occur in alluvial material. All mountain ranges in Pima County have inactive mines.

Participation:

Participants range from trained, careful professionals and amateurs trained in safety and conservation, to untrained amateurs with little regard for the environment. The National Speleological Society (NSS) is the umbrella organization for serious underground explorers, and it has two active Tucson chapters. NSS cavers take their caving very seriously, support conservation and restoration efforts, favor limiting access, and have training sessions for participants. They are the folks who are called out to rescue the untrained amateurs. Most cavers are reluctant to enter mines, which they generally consider unsafe. Mine exploration is generally done by bat biologists and untrained amateurs.

Use Patterns:

Most cave access is strictly controlled by cave owners or managers to conserve the resource. Mine access is generally uncontrolled. Caving parties tend to be limited to fewer than six people, usually with one or two highly experienced leaders followed by trainees. Mine exploration by amateurs may be done singly or in small groups, whereas professionals typically have two or more participants, with one in the mine and the other(s) outside for safety.

Cave entry may be limited to seasons when bats are not present or nursing young. Mine entry by professionals is primarily for the discovery of bat roosts, and, therefore, occurs during the nursery period (spring and summer). Recreational mine entry occurs at all seasons, but should probably be restricted to seasons when bats are not present.

Trends:

Coronado National Forest keeps records on the number of cavers using restricted-access caves. Colossal Cave keeps records on the number of cave tours and other activities. Trends should be available from these agencies.

Like most outdoor recreational activities, there is an apparent, but undocumented, increase in mine exploration.

Issue Identification:

- Caves are extremely fragile, complex natural environments that are not well understood. Strict protection is necessary to prevent irreversible damage to the resource.
- Most of the caves in this area have been damaged by past users.
- Mines are potentially extremely dangerous.
- Caves and mines are used by wildlife species considered Potentially Vulnerable Species by the SDCP.
- Many mines are used as shelters by bats and other animals that depend upon them. Unrestricted recreational use may render use by wildlife impossible.
- Many mines and some caves show signs of inappropriate activity, such as beer cans, spent shotgun and bullet cartridges, fires, dead animals, melted candles, and trash.
- The large number of mines, and relatively easy access to them (most are near roads or trails) makes enforcement of restrictions difficult.

Cultural / Historical Resources Observation

Description:

People interested in the culture and history of the Southwest have a plethora of opportunities within Pima County to learn about these topics, as southern Arizona has a rich cultural history dating back to approximately 10,000 B.C.

Cultural resources may be generally defined as historic properties or places, which include sites, structures, buildings, objects, districts, landscapes, and traditional cultural places that are significant representations of our nation's history, archaeology, architecture, engineering, and culture. For the purpose of this report, the sites being examined are those that fit the previous description and also meet the definition of natural resource based outdoor recreation used for this report.

Locations:

Although only about 16% of eastern Pima County has been surveyed, by 1999 more than 100 individual properties and districts were listed in the National Register of Historic Places, with nearly 4500 individual cultural resources identified and recorded with the Arizona State Museum. Some of the most widely advertised and frequented cultural and historical resources that meet the criteria for inclusion in this report include Colossal Cave and La Posta Quemada Ranch, Aqua Caliente Ranch, the Las Cienegas NCA, Romero Ruin in Catalina State Park,

Agua Caliente Ranch. Photo by Linda Mayro, Cultural Resources Manager for Pima County.



Prison Hill on Mt. Lemmon, and Signal Hill petroglyphs. There are also several sites that fit under this category that have been targeted for conservation and/or restoration with the intent of providing additional opportunities for public recreation and education in the near future (see Trends).

Participation:

Observation of cultural and historical resources occurs by individuals, families, and by small and large groups. This form of recreation often occurs in conjunction with other forms of outdoor recreation, such as picnicking, hiking, or scenic driving. Pima County is also very attractive for cultural and historical observers because there are numerous sites representing a wide variety of cultures and historical periods within relatively close proximity; for example, the Metropolitan Tucson Visitors Center website offers several 5-day itineraries for regional tours, based on interest in western culture, missions, and others. Although not all of these sites are natural resource based, they are an important factor to consider, in that they provide additional incentives for persons interested in cultural and historical attractions to come to the region.

While some sites have ways to calculate how many people visit the site, this is primarily limited to sites that charge admission, which is a relatively small portion of the sites available for recreation.

However, there is good indication from recent tourism studies that cultural and historical observation is a prevalent form of recreation in Pima County. One study from the University of Arizona found that 14% of overnight visitors went to some form of historic attraction, and 44% went to parks, zoos, or natural areas (many of which contain cultural or historic sites). Statistics found on the Arizona Office of Tourism Research Library website stated that 15% of tourists visited historical sites and 18% reported visiting national parks. These categories ranked higher than camping, visiting museums or plays, and hiking/biking.

Use Patterns:

While cultural and historical observation can occur at any time during the year, there is an increase in this activity during the spring that corresponds with the increase in overall climate-related tourist patterns. In addition, there are many special events, such as Dia de los Muertos and Rodeo Days, that motivate persons to explore the culture and history of this region.

Trends:

Societies' interest in tangible objects that connect people with their past is as old as culture itself, and over time we have found ways to codify or otherwise act on the desire to preserve such objects. Incorporating the Cultural and Historic Resources Element into the Sonoran Desert Conservation Plan is one example of this.

There is other evidence that this interest is currently growing. In recent years, there have been several historical resource ordinances passed by Pima County and the State of Arizona. Local voters approved a bond in 1997, part of which targets 11 candidate historical and cultural sites to be restored and re-opened for public use, including Empirita Ranch, Robles Ranch, Canoa Ranch, Anza National Trail and Campsites. In addition, several community groups have recently emerged to assist with fundraising, in-kind donations, and garnering community support for specific restoration and preservation projects.

Issues:

Due to the broad range of objects that can be categorized as cultural/historical resources, the impacts to biological resources will vary depending on the way that people access those resources. For example, the impacts from scenic landscape viewing would likely be similar to scenic driving and picnicking (i.e., increased air pollution, soil erosion/compaction on back roads and in picnic areas). The level of impact will be determined by the

intensity of the use at a particular site. In areas where cultural sites are themselves natural areas or are located within them, human disturbances to wildlife and the resources on which they depend may be an issue. A case-by-case analysis with regard to the resources present and the type of human activity anticipated to occur will be needed.

However, it should be mentioned that conserving cultural and historical resources can provide opportunities to conserve natural resources where there may not have been sufficient support or prioritization otherwise; many of the national parks in the United States contain both cultural and biological resources that are maintained for conservation as well as public enjoyment. There are few ways other than directly observing objects from the past in which a person is able to understand and connect with a community's identity and sense of place.

For cultural and historical resource observation in natural settings, vandalism, new construction, lack of awareness, and lack of financial incentives are the primary conflicts identified with providing and adequately protecting current and future sites for public use. Although there are surveys required for new developments, many times there is no requirement that the development cease or avoid areas found in the surveys; the sites are merely documented for the public record before being destroyed. It is likely that, as population grows and increasing development degrades or destroys more sites, sites that are well-preserved and maintain their integrity of place will become increasingly valuable.

Pima County and the community at large have shown support for the preservation and restoration of cultural and historical sites for public enjoyment. This is very necessary, in most cases, where the resources need some investment in order for the public to enjoy the resource without causing it further degradation.

Dog Walking

Description:

Outdoor adventures for dogs help maintain good physical and mental health for both the dogs and the people associated with them. Exploring nature with a dog is a way of expanding our awareness of the world around us. Dogs perceive the world in a very different way than we do, and share their views openly with us, insofar as we can understand them. All healthy dogs need exercise in order to remain healthy. The evolutionary history of the dog is one of exploring, running, and chasing prey. Many people like to let their dogs run free, and the dogs love the freedom, but the local wildlife, as well as many other hikers, may be adversely impacted by dogs.

Locations:

Every park in the city has its dog walkers. Dogs are not permitted off leash in city and county parks, with few exceptions, but many people knowingly violate the law and risk prosecution in order to give their dogs exercise. This has become a problem at some parks, notably Himmel Park, which has had a long-standing struggle with illegal dog walkers. Special areas are set aside for dogs to be off-leash in Randolph Park and Christopher Columbus Park (both City of Tucson parks), and McDonald Park (a Pima County park). A portion of Arthur Pack Park is used regularly by an organized group, Saguaro Scramblers, for dog agility training and contests.

Many of the trails in the Catalina and Santa Rita Mountains are popular with dog walkers. On one Sunday hike of the Aspen Loop-Marshall Gulch trail, we encountered 33 other hiking parties, 19 of which included dogs. Dogs are required to be leashed on trails in the Santa Catalina Ranger District, but this is seldom enforced. Of the 19 parties with dogs cited previously, six dogs were not on leash. Most dog owners quickly call their dogs to them and put on leashes when other hikers approach.

Another popular place for dogs is the Las Cienegas NCA. This area is often used for training hunting and herding dogs, as well as for formal dog trials (contests). Dogs are often run off-leash in the Las Cienegas NCA, and there have been no known prosecutions, although such activity may be prohibited by Pima County leash law.

Dogs are NOT ALLOWED on trails in the following places: Saguaro National Park (East and West), the western portion of the Pusch Ridge Wilderness in the Santa Catalina Mountains of Coronado National Forest, and Tucson Mountain Park. Prosecution is limited, but does occur sporadically.

Participation:

There are approximately 10,000 more dogs licensed in Pima County than there are children enrolled in the public schools of Pima County. In 2001, a total of 104,223 dog licenses were issued: 51,420 within the City of Tucson, 52,803 in Pima County outside the city. All dogs in Pima County are required to be licensed by Pima Animal Control Center, the source of these statistics. Not everyone obeys the law, and in 2001, there were 2,986 cases of dog bites responded to by Pima Animal Control; 2,126 were by unlicensed dogs. Although 71% of the dog bites were by unlicensed dogs, that probably does not mean that 71% of the dogs in Pima County are not licensed. More likely, people who do not license their dogs are less likely to control them than people who do license their dogs.

It is not possible to estimate the number of people that walk their dogs regularly, but most dog owners probably walk their dogs at least once a day. In an informal survey (mentioned above) 58% of hiking parties on a popular trail in the Santa Catalina Mountain included one or more dogs.

Use Patterns:

Observations of 19 hiking parties with dogs Aspen Loop-Marshall Gulch Trail, 15 September 2002		
# of People in Group	# of Groups with dogs	
	1 dog	2 dogs
1	2	1
2	8	2
3	0	2
4	1	1
5	2	0
37 people	19 groups, 25 dogs	

This informal count, combined with unrecorded general observations, indicates that the mode is two people and one dog for hiking parties with dogs at this trail, which is very popular but fairly rugged. And 19 out of 33 parties had at least one dog. Informal observations in parks suggest that the mode is one dog/one person for dog-person teams.

Dogs are often included as part of the family, and included in family outings to parks or natural resource recreation areas. The mode of two persons and one dog suggests that most of the people are couples with dogs and no children, but this has not been established by additional information.

Trends:

Data are not available on trends in dog use of natural resource recreation areas. Pima Animal Control statistics indicate 104,223 dogs licensed in FY 01/02 and 101,640 in FY 00/01, an increase of 2,583.

Data are not available to evaluate the economic importance of dog walking, but there are several clues that indicate that people are willing to spend money for the privilege of owning and walking dogs.

These include:

- People are willing to pay to license dogs. Dog licenses cost \$8 for spayed or neutered dogs, \$20 for unaltered dogs in Pima County, and \$75 for unaltered dogs in the City of Tucson.
- Pima Animal Control had 2,630 dogs adopted in FY 2001/2002. Also, the Humane Society of Southern Arizona and several other private organizations have several thousand dogs adopted each year. Dog adoption costs are: \$65 plus license fee at Pima Animal Control, and \$70 at the Humane Society.
- The Tucson Yellow Pages has 26 listings for dog trainers, 71 pet groomers, and 31 kennels.
- Equipment specifically for dog hiking, such as hiking boots, backpacks, and leashes, is sold at Popular and Summit Hut, in addition to PetsMart and Petco. In hundreds of encounters of dogs hiking, very few have specialized equipment, but most people hiking with dogs comment approvingly of dog packs and boots that they see along the trail.

- People pay \$5 per day or \$20 per year for a Catalina Mountains recreation permit. More than half of the hiking parties observed on a popular trail in the Catalina Mountains had one or more dogs. Data are not available to determine whether some or any of these parties would purchase a permit if they knew that dogs would not be allowed in the area.

Issue Identification:

- Some people just don't like dogs, and some people are afraid of dogs.
- Dogs can be regulated, so they are.
- Dogs can frighten or injure people, wildlife (a few species), livestock, and other dogs.
- Free-running dogs are considered harmful to livestock, and may be shot on sight by livestock growers. Also, a free-running dog thought to be charging a ranger was shot in Saguaro National Park in the 1980s. Such action is entirely legal, and should be considered a possible outcome of letting dogs run uncontrolled.
- Feral dogs form packs that may be dangerous to people, livestock, pets, and wildlife.
- Some dog owners are rude and their dogs poorly trained, so rules are often broken if the owners think they can get away with it.
- Dog rules are unevenly enforced.
- Some people object strongly to dog feces on trails, in parks, on sidewalks.
- Places where dogs can run free, legally, in Pima County are extremely limited (three public parks have small dog run areas) and not really large enough for dogs to get good exercise..
- Pima Animal Control is a subagency of the Pima County Health Department and was originally created to regulate public health issues involving animals. The agency's activities have been expanded beyond the sphere of public health.
- Many of the hiking trails in the Santa Catalina Mountains that were open to dogs were closed to all users by the 2002 summer fire.
- Pima County regulations specify:

No domestic animals or other pets are permitted to be at large in Pima County Parks and Recreation areas. Domestic animals and pets shall be restrained by a cage, or a leash of not more than six (6) feet in length and of sufficient strength to control the animal.

Dogs over four (4) months of age shall wear a valid license on a collar. Dog owners or handlers shall clean up all litter created by the animal and place it in trash cans

Equestrian Use

Description:

Horseback riding is enjoyed in Pima County year-round. Riding is usually defined as either showing or trail riding.

Locations:

Showing usually occurs in an arena set up for one of the disciplines, i.e., cutting, reining, roping, jumping, dressage, etc. For the purpose of the Sonoran Desert Conservation Plan, this report will focus on trail riding only.

Trail riding occurs everywhere from urban neighborhoods to the ranges of the Santa Catalina, Rincon, Tucson, Tortolita, and Santa Rita Mountains, and on State Trust Land. Equestrians without trailers ride washes and trails near their homes or where their horses are boarded. Riders who have horse trailers often haul their horses to favorite locations. Catalina State Park, Saguaro National Parks East and West, Tucson Mountain Park, Tortolita Mountains, and Santa Rita Mountains are popular. As more of the Arizona Trail is built in Pima County, it is also being used.

Participation:

People from 7 or 8 years old to 85 years old enjoy trail riding. Singles, couples, and families can and do participate.

Use patterns:

Most trail riding is done on the weekends, however there are many riders who do ride weekdays. All of the local equestrian clubs have weekly or bi-monthly rides. Club memberships range from 60 to over 200 members. However, many equestrians do not belong to clubs and ride trails either alone, in pairs, or in small groups of 3 to 6 people.

Trends:

As the population in Pima County grows and development occurs, there will be fewer places to go trail riding. Therefore, it is important to keep recreational trails open and accessible in conservation areas.

A recent economic study also suggests that equestrian activities are growing in popularity. A partial economic impact analysis of Arizona's Horse Industry (University of Arizona, October 2001) found that the equine industry contributes one billion dollars per year to the economy of Arizona. This staggering amount (a percentage of which occurs in Pima County) comes from real estate taxes paid by horse property owners, vehicle taxes on tow vehicles and horse trailers, and support of equine-related businesses such as tack shops, farriers, vets, feed stores and trainers.

Issue Identification:

Horses have little negative impact on wildlife because horses are not a predator species and therefore are not perceived as a threat by wildlife. Degradation of trails by continuous equestrian use can be prevented by proper maintenance; there are volunteer groups, like the County Line Riders of Catalina, who participate in such projects. There is always conflict between off road motorized use and equestrians on trails, and it is generally thought that these two users groups are not compatible. Some conflict exists between equestrians and mountain bicy-

clists. Rules of the trail require that all users yield to horses, but some mountain bicyclists are either unaware of this etiquette or choose to ignore it; however, most bicyclists and equestrians share the trail successfully. No conflict exists between horses and hikers or between horses and dogs on leash.



Photo from Sue Clark, Pima Trails Association.

Fishing

Description:

Fishing is one of America's most popular outdoor recreation activities and provides a major source of funding for fish and wildlife management. In addition to proceeds from the sale of fishing licenses, all fishing equipment sold in the U.S. is subject to a federal excise tax which goes to fund the U.S. Fish and Wildlife Service and the nation's state game and fish agencies.

Using Arizona Game and Fish Department statistics and census estimates, it is estimated that about 50,000 of Pima County's residents bought fishing licenses in 2001. However, there is no reliable means of estimating the amount of fishing that takes place within Pima County's boundaries since county residents may or may not do any of their fishing in Pima County.

Locations:

Despite fishing's popularity, there are few fishing sites in Pima County. Primary locations consist of two non-urban lakes—Arivaca and Rose Canyon, and four urban lakes—Lakeside, Kennedy, Christopher Columbus (formerly Silverbell), and Sahuarita. All of these waters are maintained for recreational fishing by Arizona's Game and Fish Department. The four urban lakes are stocked with catfish in the warm months and trout during the cooler months of November to March.

Arivaca Lake, located south of the town of Arivaca, is a warm water fishery with largemouth bass and a variety of other sunfish that are of interest to anglers. In the past, Arivaca had a state-wide reputation for growing large fish very quickly and was once considered one of the best places in the state to catch a bass weighing over 10 pounds. However, the drought conditions of the late 1990s resulted in a major fish kill. The summer rains in 2002 re-filled the lake to the extent that it could be re-stocked with bass through the efforts of private sportsmen, and today the lake holds a large number of young bass up to 12 inches. On good days, individual anglers have caught and released as many as 80 to 100 fish. Currently, the Game and Fish Commission is not allowing any of these fish to be harvested.

Arivaca Lake faces an additional problem in the form of mercury contamination. The area has gold and silver mines dating back to the 1700s, and the source of the mercury (used to separate gold from ore) is still unknown. For the past several years, the Game and Fish Department has been advising the public not to eat fish from Arivaca Lake.

Rose Canyon Lake is located next to a campground in the Santa Catalina Mountains a short distance from the Mount Lemmon Hwy. It is a cold water fishery and is regularly stocked with Rainbow Trout beginning in May of each year and continuing through September. There is some ice fishing on a walk-in basis during winter months when the campground is closed.

Secondary locations are streams and stock ponds. Prior to the 1990s, the Arizona Game and Fish Department periodically stocked Pima County's streams and stock tanks with game fish, providing anglers with an opportunity to fish small waters in relative solitude. Examples of fishable tanks include Bear Grass Tank on the western escarpment of the Tumacacori Mountains, Fagan Lake near Mt. Fagan northeast of the Santa Ritas, and various stock tanks in the Reddington Pass area. Sycamore Reservoir, located west of the prison camp site in the Santa Catalinas, received stocks of largemouth Bass and bluegill during the 1980s. Boy Scout troops backpacked



Photo from Debby Kriegel, Landscape Architect for Coronado National Forest.

fingerling rainbow trout to Lemmon Creek, and Game and Fish planted brown trout in Sabino Creek at various points between Summerhaven and Hutch's Pool, sometimes using a helicopter to reach remote locations. In the late 1980s this writer spent several Sundays hiking the remote stretches of Sabino Creek catching and releasing Brown Trout in the 7 to 14 inch range.

The era of fishing small waters in solitude in Pima County may be coming to an end due to environmental regulations that discourage the stocking of non-native game fish in streams and stock tanks. A spokesman for the Game and Fish Department stated that the stocking of these secondary locations is no longer feasible due to the lengthy and expensive review process necessary to ensure that non-native fish will not harm native flora or fauna. However, another Game and Fish official stated with certainty that the larger impoundments continue to be stocked surreptitiously by private individuals despite a Game and Fish regulation prohibiting such activity.

According to Joe Janisch of the Game and Fish Department, there are virtually no prospects for any additional lakes in Pima County. Under the state's water laws, all of the water in Arizona is owned by someone, and water lost through evaporation from a lake can be a basis for a lawsuit from a downstream user.

Use Patterns:

Pima County's lakes and streams are fished by individuals, families and small groups. At the urban lakes fishing is a year round activity, but the non-urban sites are most heavily fished during spring, summer and fall. However, serious bass fishermen have found that the biggest bass at Arivaca are often taken in the colder months of December through February.

Trends:

At the national level, about 15% of the population fishes fresh water for recreation (U.S. Statistical Abstract, year 2000.) In Arizona, however, the figure has never been much higher than 10% and in recent years has declined to below 7%. A Game and Fish Department spokesman believes one of the reasons for the decline has been the 10-year drought which has resulted in poor conditions at some lakes and streams. Other possible factors may be more permanent. These include the emergence of competing outdoor activities, an increasingly urban population, the rise of the single-parent household, and increasingly crowded fishing conditions as the State finds it difficult to add new fishing sites for a growing population.

Issue Identification:

Environmental impacts. Although game fish such as bass and trout are not native to southern Arizona, the non-natives being held in Pima County's impoundments at this time do not currently threaten any native fish or other species. One apparent fishing-related impact on the environment is the presence of litter from bait containers and fishing line at the more intensively used sites. However, these impacts are only temporary since someone invariably cleans up the messes left by others. Another concern is the release of live bait (i.e., crayfish) in waters where they may compete with native species of fish and frogs. AZ Game and Fish is reviewing ways to reduce this impact.

Use restrictions. There are various restrictions on the use of boats at all of Pima County's lakes. There is also a ban on fishing in Sabino Creek in the lower portion that stretches from the Sabino Visitors Center upstream to the confluence of Sabino and Sycamore Creeks.

Access. There are no known access problems.

Conflicts with other users. Conflicts between anglers and other users usually involve the anglers' objections to jet skis and speedboats. There are no such conflicts in Pima County since there are no waters large enough for jet skis and speedboats.

Hiking

(including trail running, orienteering, etc.)

Description:

Hiking in eastern Pima County is an extremely popular, year-round activity. Hiking itself includes a wide array of activities from strolling along a paved trail to backpacking into the wilderness for several days at a stretch. In between are the hikers who go on day hikes on many of the hundreds of trails in eastern Pima County. The Tucson area has been called a “hiker’s heaven” and “America’s winter hiking wonderland.” Hiking in eastern Pima County is unique in part because of the incredible diversity of types of hikes. A hiker can choose a low elevation hike that will be characterized by the Sonoran desert flora and fauna. Drive twenty minutes up the Catalina Highway, and a hiker will find desert grasslands and oak woodlands. At higher elevation, hikers encounter pine forests and then finally the spruce-fir-aspen forests of the higher peaks, typically found above 7,000 feet.

Locations:

Hiking opportunities in eastern Pima County are incredibly numerous; there are more than 200 known hiking trails. Some of the more popular trails include the Aspen Loop, Sycamore Canyon, Brown Mountain Trail, Rincon Peak Trail, Ventana Canyon Trail, Sabino Canyon Trails, Old Baldy/Madera Canyon Trails, David Yetman Trail, Douglas Spring Trail, Tanque Verde Ridge, King Canyon and Wasson Peak trails.

The four surrounding mountain ranges—the Santa Catalina Mountains, the Rincon Mountains, the Santa Rita Mountains, and the Tucson Mountains—all offer excellent hiking opportunities. Nestled within these areas are also the East and West units of Saguaro National Park. Many trails within each mountain range may be linked for multi-day backpacking trips.

Eastern Pima County is also home to numerous paved or otherwise very well developed trails such as the Rillito Riverwalk which boasts over 20 miles of improved trails through Tucson itself, and Sabino Canyon where visitors can amble on a 3.7-mile paved trail. There is also a riverwalk along parts of the Santa Cruz River. Other near-city parks such as Agua Caliente Park in east Tucson provide well-developed hiking opportunities as well. In addition to local trails, a portion of the Arizona Trail, a statewide trail, runs through Pima County over mostly-public land managed by several different agencies. Some segments are still under development and certain uses, such as bicycling, are restricted in some portions of the trail. Other popular areas found within Pima and surrounding counties are Organ Pipe Cactus National Monument, Ironwood Forest National Monument, Cabeza Prieta National Wildlife Refuge, Buenos Aires National Wildlife Refuge, and the Las Cienegas National Conservation Area.

The Santa Catalina Mountains (which includes Mount Lemmon) offer the most easily accessed, but also the most heavily used, hiking opportunities.

Participation:

Estimating the number of people who hike is very difficult because of the sheer number of hiking opportuni-

1 Leavengood, Betty, 1997, *Tucson Hiking Guide 2nd Ed.*, at Introduction.

2 Molvar, Eric, 1995, *Hiking Arizona's Cactus Country*, at Introduction.

ties in this area, very few of which require payment of a fee or registration at the trailhead. The Arizona Trails 2000 survey by Arizona State Parks determined that 56% of Arizona residents, and about 65% of Pima County residents, are non-motorized trail users, and the favorite trail activity was hiking (82%). Using these figures, there are likely over 450,000 hikers living in Pima County. And because this survey did not include visitors to Pima County, the number of hikers is far greater. On some of the more popular hiking trails, such as the Aspen Loop near Summerhaven in the Santa Catalina Mountains, there are likely to be 15-25 hiking parties on a typical Saturday morning. In Catalina State Park, located in the Pusch Ridge area of the Santa Catalina Mountains, the parking lot is frequently full on weekend mornings by 9 a.m.

There are several established hiking organizations with steady membership. The Southern Arizona Hiking Club, founded in 1958, has approximately 2000 regular members. Its hikes may have anywhere between 1 and 26 hikers participating (as reported in the September 2002 Bulletin), with occasional groups as large as 50. The Rincon Group of the Sierra Club has 3702 active members and regularly leads hiking outings in the area, which are open to the public. Spas and resorts around Tucson, such as Canyon Ranch, have active hiking programs. Canyon Ranch regularly brings groups of up to 15 hikers on some of the easier and more popular trails in Pima County, including Solider Trail in the Santa Catalina Mountains.

Hiking parties range in size from a private individual to a group such as the Sierra Club, which might have 20 members on one hike. The majority of hikers travel in smaller groups of two to six hikers, and solo hikers are common.

Use Patterns:

Most of the trails in eastern Pima County see frequent, weekly use. Generally, hikers tend to use the higher elevation trails during the warmer months and the lower elevation trails during the cooler months. On many trails, the first mile or two are heavily used, but use may drop sharply with distance from the trailhead or increasing difficulty of the hike.

Many hikers travel with dogs (see Dog Walking), most hikers bring lunch (see Picnicking section), and some hikers camp, either in developed campgrounds or dispersed (see both), some hikers are also hunters, and almost all hunters are hikers.

Trends:

According to the American Hiking Society, hiking is one of America's fastest growing recreation activities . The AHS also states that hiking improves physical and mental health, and hiking instead of driving can help improve air quality. The Arizona Trails 2000 survey by Arizona State Parks found that 96% of Arizona's residents believe that trails benefit their community and State and 92% say that trails enhance their quality of life.

Unfortunately, there are no definitive scientific resources describing trends in hiking in Pima County. One frequent, local hiker who has hiked almost all of the developed trails in Pima County has observed that it is no longer possible to hike a developed trail without encountering other hikers, even on weekdays, in inclement weather, and on the roughest trails, and solitude is no longer possible along developed trails in Pima County. There is no question that hiking has risen to mainstream status. Hiking apparel can now be purchased at major chain stores such as Target, although the boutique outlets are also doing very well. In Tucson, one local outdoor gear store recently opened a second store to accommodate the increasing number of customers in northwest Tucson.

3 The Value of Trails, www.americanhiking.org.

4 A Step in the Right Direction, www.AmericanHiking.org.

Issue Identification:

In Pima County there are two main issues: the impacts of development and similar activities on hiking, and the impacts of hiking on the environment. Development in areas throughout Pima County has restricted access to popular and beautiful hiking areas, including Pusch Ridge Wilderness Area and some areas in the Front Range of the Santa Catalina Mountains. In one area, a voluntary, cooperative agreement with a neighborhood allows hikers access to Milagrosa Canyon, just east of Sabino Canyon.

Hiking can cause various impacts, depending in large part on the ethics practiced by the hiker. Many hikers practice “Leave No Trace” ethics, which are now described in every hiking guide, but there are some hikers who appear to have little concern for their impacts. Regardless of the hiker’s ethics, hiking almost always, by nature, causes trampling of the natural floor upon which the hiker walks. In established trail areas, this may have no actual effect on the flora and fauna. However, wildcat trails—the blazing of new trails for singular purposes—does have a negative effect on the desert environment, and can also affect the aesthetics of a hiking area. The Pontatoc Ridge area in north Tucson is one example, where there are numerous wildcat trails leading to small clearings with fire rings where trash is frequently visible. The wildcat trails also impact hikers in this area by making it difficult to determine which is the real trail to the top.

Even maintained trails can experience overuse and, over time, the trailbed itself will widen and deepen. Access to the trailhead may have impacts if there is not sufficient parking and hikers park their cars outside of parking areas. Lack of trash receptacles at trailheads often results in trash littered throughout the parking area. The lack of bear-proof trash receptacles may also cause problems in some areas.

Conflicts may also arise between different user groups. Most of the trails in Pima County are multi-use trails. This means that hikers share the trail with bicycles, horses, and other recreators; for example, a popular hiking area in the Tanque Verde Wash, east of Tucson, is also a nudist area.

In addition to user-group conflicts, multi-use trails can experience faster erosion and more environmental impacts. Maintenance on multi-use trails, and trails generally is a problem. Some volunteer hiking groups do trail maintenance, but such efforts are not enough to reach every trail in Pima County.

Finally, wildfire, such as the 2002 Bullock Fire in the Santa Catalina Mountains, can destroy trails or require closure of trails. Several trails are still closed months after the Bullock Fire for public safety and stabilization efforts.



Sabino Canyon, photo from Debby Kriegel, Landscape Architect for Coronado National Forest.

5. A Step in the Right Direction, www.AmericanHiking.org.

Hunting

Description:

Former President Teddy Roosevelt and the great early naturalist Aldo Leopold both realized that this country could conserve our native wildlife populations and avoid the extirpations experienced and expected by our European ancestors. The key to this early conservation effort was found in sport hunting and the significant support and financial resources that sportsmen were willing to put forward for this recreational, and for some an almost spiritual, opportunity. In the 1800s wildlife was simply viewed as a resource ripe for exploitation and by the beginning of the twentieth century most wildlife populations had been decimated. The advent of the sport hunting culture, where wildlife became an equally shared and managed renewable natural resource, saw the return of many wildlife populations to their pre-European settlement numbers. Today, the funds raised by hunting-related commerce continue to provide the primary source of funding for all state wildlife management programs. This North American model of wildlife conservation has been an unprecedented success not seen or experienced any place else in the world. It is a system that this country, and especially its sportsmen, can be proud of and that demonstrates the benefits to wildlife provided by a sport hunting heritage.

Locations:

The Arizona Game and Fish Department (AGFD) manages the state's wildlife resources by separating the state into a number of game management units that are primarily defined and bounded by significant landscape elements such as highways and rivers. Eight such game management units (GMU) are located within eastern Pima County. These units provide a mechanism and a structure for the management of the resident wildlife populations inhabiting each unit. The game management units in eastern Pima County are 33, 34A, 34B, 36A, 36B, 36C, 37A and 37M.

Hunting opportunities are provided in each unit on most public lands allowing multiple use. The majority of these public lands are administered by either the U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, or the State Land Department. With a total state area of approximately 72.9 million acres, roughly 47%, or 34.3 million acres, is public land that is available for hunting. Of the 5.9 million acres within Pima County, almost 36% or 2.1 million acres are public lands where hunting opportunities currently exist. This allocation of public lands suggests that Pima County provides 6.1% of the state's hunting opportunities.

Hunting occurs throughout these public lands but is typically focused on the areas where suitable habitats exist and where wildlife is most abundant. These habitats are often shared by a wide variety of wildlife and are usually very well known and popular areas for other forms of recreation.

Participation:

The AGFD manages and provides a wide variety of hunting opportunities, including permitted big game, non-permitted big game, small game, migratory bird and predator hunts. A special permit is required for permitted big game hunts, while only a statewide license is required for the others. The AGFD collects specific data on permitted big game hunts, as this information is used to manage the resource, monitor populations, and establish harvest objectives. Other forms of hunting do not require such precise monitoring of data.

In 2001, approximately 12,500 permits were issued for big game hunts in eastern Pima County, which provided almost 41,200 days of big game hunting for individuals. It should be noted that this figure represents hunter-days only and excludes time spent scouting and sharing hunting experiences with family and friends.

It is unfortunate that similar data does not currently exist for non-permitted big game, small game, migratory

bird or predator hunts. Many of these additional hunting opportunities exist with extended seasons that provide multiple opportunities to go afield and would likely add a significant number of recreational days to the hunting picture. The allocation of general hunting licenses, however, might provide an indication of this additional recreational benefit. According to the 2000 census, Pima County has 843,000 residents or 15.4% of Arizona's statewide population of 5,130,600. This would then suggest that of the 192,000 hunting licenses sold statewide in 3001, 15.4% or 31,400 were like held by residents of Pima County and that these sportsmen likely pursued game close to home at least once per year.

Combing these participation numbers reveals a conservative estimate that hunting opportunities in Pima County provide at least 72,600 days of recreation annually.

A national survey also revealed that in 2001 nearly \$211 million dollars worth of hunting related expenditures where made in Arizona. As described above, about 6.1% of licenses are probably held by Pima County residents. Therefore, it could be reasoned that \$12.9 million is spent in Pima County in pursuit of hunting related recreational opportunities.

Use Patterns:

Hunting is generally a solitary sport where one takes enjoyment in the fair chase pursuit of wild game in their natural environment. Hunters often pair up with friends and family, so as to share the hunting experience and to provide camaraderie and support, before, during and after the hunt. The act of hunting usually also involves other forms of recreation, including camping, hiking, 4x4 driving and backpacking.

Trends:

The number of hunters is increasing every year, as evidenced by a steady increase in hunting licenses sold and the number of applicants for permitted big game hunts. Although the total number of hunters is increasing every year, the percentage of hunters is decreasing in our more rapidly growing statewide population. With an increasing demand and a limited resource, the opportunities for some hunts are becoming more difficult to secure.

Issue Identification:

There is a growing concern regarding the potential conflicts between consumptive and non-consumptive wildlife dependent recreation. Loss of public lands that allow hunting will reduce hunting opportunities and, over time, may result in a decrease in sportsmen's involvement in the wildlife conservation equation. This decrease in volunteer financial support would necessitate an increase in government appropriations and subsidies to maintain the same level of wildlife conservation and management. Lack of access to public lands and increasing limits on the multiple use of public lands continues to threaten hunting opportunities. These increasing restrictions are due, in part, to the concern for public safety. Unfortunately, hunting accidents do occur, and as public lands become more used by all types of recreators the struggle to find a balance that allows for hunting without undue risk to others will continue. Diminishing wildlife populations and decreased hunting opportunities can result from habitat loss and misguided preservation efforts. Undocumented aliens and smuggling traffic present increased concerns for safety, as well as the resulting compromises in habitat and disturbances to wildlife.

Mineral Collection / Rockhounding

Description:

As the “Copper State”, Arizona has led the nation in copper production for many years, providing a major source of employment and revenues for state and local governments. Much of the state’s copper production occurs in southern Arizona, notably Pima County.

The history of mining in Pima County begins with the development of small silver and copper mines worked by the indigenous residents of the region, and further exploited by early Spanish and Anglo settlers. Throughout this early era, mining productivity fluctuated dramatically until the turn of the 20th century, and the resulting metal demands of the First World War. This period showed a strong increase in mining production in Pima County, especially with the establishment of the first large-scale, open-pit copper operation at Ajo.

The success of large scale mining operations fostered the discovery and development of several additional major copper deposits in Pima County. These mineral rich districts such as Ajo, Helvetia, Silver Bell, Twin Buttes, and others, are ideal locations for amateur rock and mineral collecting. The City of Tucson has long enjoyed the reputation as a haven for mineral collectors. This is evidenced by the popularity of the “World Famous” Tucson Gem and Mineral Show, which is held every year, and is a major economic boost for the community.

Key Locations:

There are several significant mining districts within Pima County, particularly in the eastern half. Several “rockhounding” locations are within an easy drive of metropolitan Tucson. Good collecting can occur south of town in districts near Patagonia, including the Greaterville, Helvetia, and Empire Districts, and at old mine sites within the Patagonia and Santa Rita mountains. There are many other good collecting sites including the Sierrita Mountains, Arivaca area mines, and the Silverbell Mountains. In some areas, public access may be limited due to private land ownership.

The minerals most commonly sought by rockhounds in Pima County are the copper minerals such as Azurite, Wulfenite, Malachite, Turquoise, and other colorful minerals favored by jewelers. There are also local sites for fossil collectors.

Participation:

Many active and dedicated mineral collectors reside within Pima County. Some of the area’s private collections are of the highest museum quality. In addition, many non-resident collectors come to this region annually to collect minerals, rocks, and fossils, especially during the Tucson Gem and Mineral Show. There are several local clubs and societies that cater to the “mineral collecting” enthusiast. The development of organized field trips for collecting minerals, and the designation of approved collecting sites, would help promote the region’s popularity for this type of activity.

Use Patterns:

Due to the pleasant climate in Pima County, mineral collectors have the opportunity to recreate nearly year round; however, there are special events, like the Gem and Mineral Show, that create more activity. In addition, there are very good mineral museums in Pima County.

Considering the region’s notoriety for such hobbies, it may be beneficial for a recreational rockhounding program to be developed by an agency such as the Pima County Natural Resources, Parks, and Recreation

Department. This programs could include areas for individual “self guided” tours, club and society field trips, and collecting/learning opportunities for school students.

The establishment of mineral collecting programs and designated collecting areas will be very helpful in providing collectors with clear authority to enjoy their hobby without concerns over access and mineral trespass. The Bureau of Land Management has successfully designated some areas under BLM management as authorized rockhounding sites. The BLM's experience with this issue could be a useful guide for developing County programs.

Trends:

Commercial mining activity in Arizona continues to decline due to poor mineral economics. However, rock and mineral collecting hobbyists continue to flock to this region to pursue their interests. In some cases, mine closures result in an increase in collecting sites since issues of access and mineral trespass normally associated with active mines are no longer enforced except for safety reasons.

Issue Identification:

Most rockhounding activities will have little impact on biological resources, especially if guidelines are developed for collecting. The two most challenging issues for rockhounding are legal access and authority to collect. Unless the property is owned by Pima County, access and collecting authority may be limited. On state and federal land, mineralized areas are often controlled by private parties, who have acquired mineral rights via the methods established under the Mining Law, or by State Mineral Lease. In these areas, access and collecting may be prohibited and strictly enforced. It may be necessary to develop some rockhounding programs with the cooperation of managing agencies or private parties. Large mining companies might be very helpful setting up tours and other public involvement opportunities.

Another concern is the public safety around old mines. Old mines are extremely dangerous and should not be entered without strict safety considerations. The Arizona State Mine Inspector can provide valuable guidance on this issue. Pima County programs for mineral collectors should not encourage mine entry. In fact, any planned activities around old mines should be reviewed by Risk Management prior to commencing any such activities that may produce a public safety liability.

Mountain Biking

(including variations such as fat-tire in-line skating)

Description:

Mountain biking is a sport involving cycling off the road, over varied terrain, on bicycles specifically built to withstand hard knocks and rough treatment. From its northern California inception in the early 1970s, mountain bicycling has blossomed into one of the fastest growing and most popular outdoor recreational activities. Mountain bicycling affords riders of all abilities and ages the opportunity to exercise and spend time in the outdoors away from traffic, pollution, and the dangers associated with street riding.

Locations:

Mountain bicyclists presently have recreational trail opportunities in virtually every natural resource area in Eastern Pima County. These areas include:

Tucson Mountain Park

Mountain bicyclists have been using the 26-mile shared-use trail system in Tucson Mountain Park since the beginning of mountain biking in the Tucson area in the early 1980s. (Actually, bicyclists have used park trails since before mountain biking during the 1970s.) Mountain bicyclists are the park's largest single trail user group.

Coronado National Forest

Mountain bicyclists use the trails in both the Santa Catalina Ranger District and the Nogales Ranger Districts of the forest. The Arizona Trail, an 800-mile long shared-use trail, passes through both districts. Mountain bikes are prohibited in Wilderness Areas.

Catalina State Park

This 5,500-acre state park is a favorite with Pima County mountain bicyclists, who have access to its shared-use singletrack trail system.

Saguaro National Park

Mountain bicyclists had access to the 2.5-mile Cactus Forest Trail for 11 years until April 2002, when the National Park Service closed the trail to bicycling to resolve a technical issue



Tucson Mountain Park. Photo from John Fleming, Sonoran Desert Mountain Bicyclists.

associated with authorization of that use. Use of the Cactus Forest Trail by mountain bicyclists is currently the subject of a federal rule-making. A final rule is expected by late spring, 2003. Additional opportunities for mountain biking will be considered as the park updates its General Management Plan during the next few years.

BLM-Administered Lands:

- **Ironwood Forest National Monument.** Mountain bicyclists have been riding in the Silverbell, Roskruge, Waterman and Sawtooth Mountains since at least the early 1980s. The mountain biking community was active in supporting the creation of the new protective jurisdiction that eventually became the Ironwood Forest National Monument in May of 2000. Each of these ranges provides doubletrack and singletrack trails popular with mountain bicyclists.
- **Las Cienegas National Conservation Area.** This area has been used by mountain bicyclists for recreation purposes for many years.

Arizona State Trust Lands:

- Trust Lands surrounding the Tortolita Mountains;
- Trust Lands on Tucson's east side, including Fantasy Island (355 acres);
- Trust Lands in the Rincon Valley;
- Trust Lands surrounding and in the vicinity of the Cerro Colorado and Sierrita Mountains southwest of Tucson;
- The Arizona Trail, which crosses more than 20 miles of State Trust Land in eastern Pima County;
- The 50-year Trail, located on State Trust Lands south of the Village of Catalina.

Future:

- **Tortolita Mountain Park.** The Tortolita Mountain Park Master Plan includes mountain bicyclists among the approved users of the trail system that will eventually be developed there.
- **Santa Rita Mountain Park.** This proposed park has a number of shared-use trails that are presently being used by mountain bicyclists, including a proposed segment of the Arizona Trail. These trails are listed on the Eastern Pima County Trail System Master Plan.
- **Colossal Cave Mountain Park.** A segment of the Arizona Trail will pass through the park, and will be shared by mountain bikers.

Participation:

Southeastern Arizona is internationally recognized as one of the premier mountain bicycling destinations in the United States. The warm weather and unique natural environment attract and support year round riding opportunities. Statistics compiled by National Sporting Goods Association showed an 87% increase in mountain biking participation between the years 1990 and 1998. In a Bicycle Retailer & Industry News Reader Survey, mountain bike sales accounted for approximately 32% of U.S. bicycle retailers' gross revenue in 1999. In the three years since that survey, these numbers are assumed to have increased. No detailed statistical data are available for Arizona.

Use Patterns:

Participation varies from individual riders seeking the quiet solitude of a solo outing, to group rides organized by mountain bicycling clubs. The two largest clubs in the area are the Southern Arizona Mountain Bikers Association (SAMBA) and the Sonoran Desert Mountain Bicyclists (SDMB). Many local bicycle shops also orga-

nize group rides. Resorts in the area such as Canyon Ranch and Miraval also provide instruction and organized rides for their guests. Owing to our weather, participation in mountain bicycling in Pima County occurs year round. In the winter and spring, tourist participation tends to increase. Although participation occurs throughout the summer, it tends to be focused in the mornings and evenings, when temperatures are cooler.

Trends:

In light of population growth and national trends, participation in mountain biking in Pima County will likely continue to increase.

Issue Identification:

Mountain bicyclists are often perceived as wreckless thrill seekers. This stigma stems from the fact that, as a user group, they are the ‘new neighbors’ and are often misunderstood. Among user groups, conflicts may arise when cyclists do not practice proper etiquette (i.e., yielding to other users). Riding in an inappropriate fashion, which could potentially endanger other users, can also lead to conflicts. Proper education is the key to helping minimize these conflicts. The environmental impacts associated with mountain biking are no more deleterious than other non-motorized uses (hiking, running, equestrian use). In terms of volunteer involvement in organized and sanctioned trail building and maintenance projects in Pima County, the mountain bicycling community consistently provides the greatest representation relative to other user groups

Native Plant and Animal Collecting

Description:

Picking fallen maple leaves along a trail high in the Catalinas, gathering prickly pear fruit to make wine, or systematically developing a synoptic collection of beetles of the family Scarabidae all fall within this category. Native plant and animal collecting is here defined as the legal capture and removal from the wild any native plant or animal, in whole or in part. The Endangered Species Act defines it as “to reduce to possession.” Not included in this definition are activities that fall under licensed hunting and/or fishing, transplanting native plants under the local native plant preservation laws, or gathering firewood.

Because the RecTAT defined the parameters of the activities discussed in this report as including only those that are legal, the activities that are most potentially harmful to the resources are NOT included here. However, it is important to mention briefly that there is a lucrative illegal trade in Arizona native plants and wildlife (especially cacti, reptiles, and butterflies) which are sometimes gathered in fairly large numbers without regard to damage done to the habitat or populations. Rarely are perpetrators of this illegal activity apprehended by authorities, but occasionally some are prosecuted severely for wanton disregard of local, state, and federal regulations prohibiting illegal collecting.

Key Locations:

Most collecting is done near roads, such as roadside flower collecting, or along trails, such as leaf collecting. Occasionally, one may encounter a scientist in the backcountry more than a mile from a road with collecting equipment and a small number of prize specimens, but this is highly unusual. Many of the most attractive wildlife areas are closed to collecting of any type. Most children probably begin (and end) their collecting careers within a few blocks of home. Serious collectors may range many miles from home.

Participation:

Numbers of amateur participants are unknown. Probably almost every kid goes through a collecting phase of some duration, usually short, and only a few go on to develop a lifetime habit of systematically collecting a specific group of organisms. In times of abundant flowers, it is common to see people picking roadside flowers along rural roads. Numbers of serious amateur and professional collectors are also unknown. The field is so broad that it is virtually impossible to investigate, and no agencies or organizations keep track of all types of collecting.

Information regarding resident or visitor status of collectors is not readily available. Southeastern Arizona is widely regarded as an important area for collectors of beetles, butterflies, and moths, but no one keeps records of where they come from or how many there are.

The Arizona Game and Fish Department issues Scientific Collecting Permits for individuals and institutions that wish to legally collect native vertebrate wildlife. These permits are also necessary for capture and release of wildlife, visiting bat roosts, and conducting surveys for birds by using playback of recorded calls. The administrator of permits reported that 329 Arizona Scientific Collecting Permits were issued in 2002, as of July 8, 2002.

Use Patterns:

Collecting may be done in small groups (i.e., a school class) or individually. Rarely is it done by large organized groups, although some collecting may be done in the context of larger group activities, such as the annual butterfly counts sponsored by the Southeast Arizona Butterfly Association which may collect vouchers of unusual or difficult-to-identify specimens.

Most flower and insect collecting in Pima County probably occurs in the spring and following the monsoon rains. Our summer rains often result in an abundant outburst of short-lived insects that are prized collectors' items. Collecting native fruits and colorful leaves usually is done in autumn, although some, especially cactus fruits, appear in summer.

Trends:

Collecting has probably been declining over the past decade, as more books on wildlife (including insect watching) are being published. Such titles as *Arizona Butterflies - A Photographic Guide*, *Handbook for Butterfly Watchers*, *Dragonflies through Binoculars*, and *Plants of Arizona* are now available, and encourage the appreciation of organisms without collecting them. The decline in price and increase in quality of cheap binoculars have undoubtedly made observation easier and reduced the necessity of collecting. More importantly, perhaps, is development of the cultural attitude that collecting is harmful and unnecessary, and the increasing regulation of collecting by government agencies. In the past thirty years, we have seen a major reduction in legal collecting of birds and other vertebrate wildlife, as collecting permits have become more difficult to obtain, and collecting has been discouraged by public opinion. Collecting migratory birds requires a permit from the Arizona Game and Fish Department and the U. S. Fish and Wildlife Service. Such permits are extremely difficult to obtain. Other collecting permits are less difficult to obtain, but even so, the inconvenience of applying for them, uneven enforcement, and the ever-changing regulations, make many would-be collectors either ignore (or intentionally violate) laws or give up collecting.

Issue Identification:

In addition, collecting may remove individuals of rare populations, and this may have population-damaging effects. The effects of collecting on populations of most organisms are unknown, but collecting is so rare that the effects are probably minimal, except for extremely rare species or species that inhabit very limited and delicate habitats.

Collecting may disrupt or destroy habitat features, such as hiding places for animals, and render them unsuitable for continued use. This has become a problem for some reptiles that are collected by illegal commercial collectors. Habitat destruction is sometimes a necessary part of the process, as for example the collecting of land snails that bury themselves deep within rock crevices or in mounds of decaying plant materials.

Systematic scientific collecting of many groups of organisms has contributed immensely to understanding of the natural world. Collecting is the foundation upon which all taxonomy is built.

Under current social and legal conditions, little collecting of some groups of organisms, particularly vertebrates, has been done in the past several decades; some people even view collectors as aberrant. Potentially important data, especially with regard to effects of environmental changes, are lost because of inadequate comparative material from recent times. This is especially true for birds, which are seldom collected in current times, but which may have important information that can only be obtained by careful examination of dead birds by trained scientists with extensive experience examining collected specimens. Some organisms can only be identified by examination, including dissection, of dead individuals in systematic collections.

Although many people who collect plants and animals do not have such expert scientific training, the change in cultural perception regarding the collection of plants and animals has served to decrease the number of individuals who would likely have been drawn to such activities as their interest in collecting increased, or who would have likely given their samples or other information voluntarily to such professionals.

Natural History Study

(wildlife and native plant study, photography, etc.)

Description:

This activity includes wildlife and plant study, outdoor photography, and other natural history study activities.

Locations:

Sabino Canyon, Madera Canyon, Mt. Lemmon, Saguaro National Park, Santa Cruz River, and Buenos Aires National Wildlife Refuge are all principle locations for natural history study. Any area with undisturbed habitat, including desert, riparian, grasslands, mesquite bosque, pine-oak woodlands, and montane regions, is a good location for this activity.

Participation:

Group tours, workshops, and outings are held by local organizations. Individuals also undertake these activities by themselves, or with family and friends.

Use pattern:

Organized outings usually have formally trained personnel available for interpretation. Individuals try to learn on their own by firsthand experience with the help of field guides (books). An explosively growing trend in digital photography use with Internet sharing of results has occurred. It is becoming common for natural history study to be mixed in with traditional activities such as birdwatching.

Trends:

This form of recreation is definitely growing, in part due to the growing interest and understanding of our environment and the impacts of human activities. As mentioned above, the digital photography boom has interested many. The wealth of field guides available in all areas of natural history makes it straightforward for those interested to advance their knowledge. This form of recreation also offers the opportunity to further one's personal knowledge, and to socialize and pass on information to interested beginners.

Issue Identification:

Reducing habitat loss is the main concern. Impacts on endangered species are of some concern.

Off-Highway Vehicle Use

(dirt bike, 4-wheel drive, ATV)

Description:

Off-highway vehicle (OHV) use involves the operation of motorized vehicles on unpaved roads, trails, desert areas, and designated OHV Parks. Off-highway vehicles include a wide range of vehicle types, with some of the most common being: 4-wheel drive pick-up trucks, 4-wheel drive sport utility vehicles, jeeps, sand rails, dune buggies, all-terrain vehicles (ATVs) or quads, and motorcycle / dirt bikes. Some OHVs can be and are licensed for use on public highways. Others do not comply with state statutes and cannot be legally operated on designated streets or highways. A driver's license is not required for the operation of these vehicles in off-highway locations.

OHV recreational activities include: rides on designated back-roads, operation on designated OHV trails, and operation within designated OHV courses or parks. OHVs are also operated in areas such as along drainage-ways / washes and on vacant parcels of land. Operation of OHVs in these areas is typically illegal.

Locations:

There is only one public OHV course in Pima County, the Pima County Motor Sports Park. This facility has been operated sporadically over the past few years. It is currently closed to the public, but Pima County is working with a new concessionaire and anticipates a re-opening of the facility in 2003.

Within the Coronado National Forest many primitive roads are used by OHVs. Some of the most popular are in the Redington Pass area and on the east side of the Santa Rita Mountains. The Coronado National Forest encourages backcountry touring on the existing road system, but cross-country travel is prohibited. Other public lands are also sites for recreational OHV use. These include Bureau of Land Management land, where OHV use is permitted in certain areas and State Trust land, where the operation of OHVs is permitted on existing roads with a valid Recreation Permit.

Specific sites where OHV use is frequent include: Redington Road, Buehman Canyon Trail, Charouleau Gap Trail, Chimney Rock Trail, Chiva Falls Trail, Gunsight Pass, and Gardner Canyon. Other popular areas include dirt roads and trails in the vicinity of the Tortolita, Silverbell, and Waterman Mountains and within the Happy Valley area.



Photo from Debby Kriegel, Landscape Architect for Coronado National Forest.

OHV use also occurs on large tracts of public land and undeveloped private land surrounding the Tucson community. It also occurs in urban and suburban locations. Typical urban / suburban sites include: constructed drainage channels, undeveloped washes, dry river beds, and vacant lots.

Participation:

The number of local residents and visitors that participate in OHV operations within Pima County is unknown, but it is substantial. The Arizona Game and Fish Department's web site references a 1990 report which estimated that there are over 550,000 OHVs in the State of Arizona. Many of these are owned by residents of the Tucson basin and/or used in eastern Pima County.

In addition, although disabled individuals are a small component of the overall OHV user population, these vehicles can be utilized to provide access for the disabled to remote natural areas.

Use Patterns:

Local residents are the primary participants in OHV use within Pima County. There are, however, some individuals who will trailer or drive their OHVs to sites within Pima County. When it reopens, the Pima County Motor Sports Park has the potential to be a destination for OHV operators from other states and Arizona communities.

OHV use occurs within Pima County on a year-round basis. As with most outdoor recreational activities, use increases in the cooler fall / winter / spring period and decreases during the hottest summer months.

OHV use is typically an individual or small group activity. Anecdotal evidence suggests that when OHVs are operated in groups, that the size of the group size is typically less than five vehicles / operators; however, there are organized events that have been known to attract large numbers of vehicles, up to 20 or more, to one area at a time.

Trends:

Nationally, OHV sales have increased significantly over the past decade. It is believed that this trend also applies to OHV sales and use in Pima County, which contribute to the local economy through direct employment and tax revenues.

Running contrary to this trend is a reduction in the number and size of areas where OHV use has historically been allowed. Various resource management agencies have adopted resource management prescriptions and/or implemented programs to enforce existing prescriptions that restrict OHV use on certain lands.

The development of private land at the fringe of the Tucson urban area has also had the effect of eliminating areas where OHV use historically occurred. Concerns related to user injury and potential liability exposure have also prompted many private land owners to install fences and take other measures to prevent OHV use on their property.

The establishment of the Pima County Motor-Sports Park is at present an event rather than a trend. If it is successful, it could well be a prototype for other public and private OHV facilities in Pima County.

Issue Identification:

With the predominant location for OHV use being on public and private lands outside a designated OHV park, this activity has the potential to cause direct damage to the region's natural resources. Direct damage can occur to vegetation, wildlife (typically reptiles and amphibians), soils, and road surfaces. Indirect impacts can include increased soil erosion along OHV routes and increased stress on some wildlife species.

The compatibility of OHV use with other natural resource based outdoor recreational activities is also an issue. Public safety, as in direct conflicts with hikers, equestrians, and mountain bicyclists, is an area of concern for both land owners and participants in these other recreational activities. The noise and dust that result from OHV use can also diminish the experience of individuals participating in different recreational activities within the same area.

Picnicking

Description:

Whether munching a peanut butter and jelly sandwich on a rocky mountaintop at the end of a long hike, eating from a traditional wicker basket on a blanket spread out under a tree, or dining on a gourmet feast at a table in a developed picnic area, people enjoy having a meal in a beautiful natural place. It's been said, "Everything tastes better outside." And picnicking echoes deep within our ancestral roots; early humans probably ate most of their meals outside. This report will focus on picnic spots in Pima County outside of Tucson's city limits.

Locations:

Although nearly anywhere can be a perfect place to picnic, the most popular picnic sites are those with a couple of simple facilities: a picnic table and a grill. These "developed" picnic areas often include other facilities such as drinking water, trash bins, restrooms, and sometimes even ramadas and bear-proof food lockers. Most established locations for picnics in Pima County have a variety of other recreation activities available, such as hiking trails on Mt. Lemmon, birdwatching in Madera Canyon, or soccer fields and swimming pools in parks closer to town. (See Activity Maps)

According to Pima County Parks & Recreation, there are 58 county parks in Pima County, 18 of which have ramadas with tables. Ten of these parks have ramadas that can be reserved, and on average about 50% of these are reserved. On holidays they are 100% booked. Some of the most popular developed picnic areas in Pima County are in Saguaro National Park (East and West units), Coronado National Forest (Sabino Canyon, Mt. Lemmon, and Madera Canyon), Catalina State Park, and the many Pima County parks including Tucson Mountain Park, Colossal Cave Mountain Park and Agua Caliente Park. These locations alone host at least 24 developed picnic areas.

Additionally, developed campgrounds often serve as popular picnic sites (see Camping, Developed).

Participation:

A table, friends or family, and good food are the primary ingredients for a picnic. Company picnics, neighborhood gatherings, sporting events, and church groups are some common variations. According to a 1994 Roper Survey, *Outdoor Recreation in America*, 33% of all Americans report that they participate in picnicking.

It is likely that most residents and visitors to Pima County participate in some form of picnicking. Although much picnicking in Pima County is in urban parks that have little tie to more remote natural resources, certainly the majority of those who participate in other outdoor recreation activities have eaten a meal outdoors.

Use Patterns:

While picnicking can be an event in itself, it is often a part of other outdoor recreation activities. Eating a meal after a hike or as a part of a day in the park with the family is very common.

Picnicking is an activity that is generally done with others; often with friends and family, sometimes in larger groups. In Pima County there are opportunities to picnic year-round. Low elevations are more popular in winter, higher elevations in summer. Many picnic sites fill to capacity on weekends and holidays. And during the winter months, seasonal residents increase use in many areas.

Trends:

Although there are few studies on the topic, it is likely that picnicking will continue to be a very popular activity. Picnicking is something everyone can participate in. It requires no special equipment and fits into any schedule. Many developed picnic areas provide good opportunities for people with limited mobility.

The 1994 Roper Survey Outdoor Recreation in America lists the top motivations of the public for participating in outdoor recreation are “fun,” “relaxation,” “health and exercise,” “family togetherness,” “stress reduction,” “to experience nature” and “to be with friends.” Picnicking fulfills all of these. And picnicking benefits the local economy when people purchase accessories such as ice chests and picnic supplies, as well as box lunches and other foods for their picnics. As the population of Pima County grows, it is reasonable to expect that more people will be looking for places to picnic.

Issue Identification:

Picnicking can cause resource impacts as well as conflicts with wildlife. Soil compaction and vegetation trampling are common around picnic facilities. Litter is sometimes an issue, especially in sites without restrooms and trash bins. And food left for wildlife (including bears) can be a problem because it causes wildlife to lose their fear of people.

Some picnickers play loud music that disturbs others, and rowdy groups can also disturb those who are looking for a peaceful meal in a natural place.

Additionally, many developed picnic areas near Tucson fill to capacity on weekends and holidays. Crowds and lack of sufficient facilities will likely be a growing problem.

Mt. Lemmon. Photo from Debbie Krieger, Landscape Architect for Coronado National Forest



Rock Climbing

Description:

Climbing in Southern Arizona is year-round and world-class. From beginning sport routes to advanced traditional routes, from twenty feet to two hundred feet, including Granite and Gneiss rock types, Eastern Pima County has an abundance of good-quality rock climbing opportunities. The most popular climbing areas in Eastern Pima County are found in the Santa Catalina Mountains, along the Mount Lemmon Highway, in Coronado National Forest. Other areas include the Pusch Ridge Wilderness Area, which has longer approaches and longer routes, and Sabino Canyon which has a few poor quality long routes. There are over 2000 rock climbing routes just in the areas accessible by the Mount Lemmon Highway and a short hike. The Mount Lemmon Highway is 27 miles long and reaches the top of Mount Lemmon at 9157 feet of elevation. Because of the altitude and topography of the Santa Catalina Mountains, regardless of the temperature on the desert floor, climbing opportunities abound year round in the shady flanks of Mount Lemmon. In most cases, individuals engaging in rock climbing are probably also engaging in other recreational activities such as hiking.

Locations:

Squeezing The Lemmon II...More Juice Than Ever is a rock climbing guide to climbing along the Mount Lemmon Highway. This guide features over 115 climbing areas, each with multiple routes. By far the most popular climbing area along the Highway is Windy Point, which has over 39 areas and 200 routes all just a short hike from the parking area. The climbing areas near the summit of Mount Lemmon are also very popular because there are longer, harder routes in that area and very moderate temperatures year round.

Participation:

Rocks and Ropes, the only climbing gym in Eastern Pima County, has about 1200 regular members regular; 600 who pay monthly and 600 who pay yearly. Rocks and Ropes has 12,000-15,000 users a year which includes all ages and types of users. From January 2002 through September 2002, the gym has received 1000 regular members. The Tucson climbing community is much larger than the number of people who climb at Rocks and Ropes, however, the individuals and families with year passes to Rocks and Ropes most likely all climb outside the gym in the Santa Catalina Mountains. The Southern Arizona Climbers Coalition is a prominent organization although the number of members is unknown. The Access Fund, a nationwide climbing advocacy organization has 61 members in Tucson, 319 members statewide, and 10,100 members nationwide. Many individuals may overlap in these numbers, being a member of both Rocks and Ropes and organizations like the Access Fund.

In addition to local residents and state residents, climbing areas in Southern Arizona are a destination for individuals from all over the United States and the world. At this time, we are unable to estimate participation and use by individuals outside of the Eastern Pima County area.



Photo from Debby Kriegel, Landscape Architect for Coronado National Forest.

Use Patterns:

Generally, as temperatures rise on the desert floor, climbers seek refuge in the higher elevations of Mount Lemmon and surrounding climbing areas. In the summer months, it is typical to see groups of 5-10 climbers in the Wilderness of Rocks bouldering areas and the rock climbing areas located near the summit of Mount Lemmon. The other nine months of the year, the most popular area in the Santa Catalina Mountains is Windy Point. Notably, on any given Saturday, there is often a wait to climb the more popular routes in the Windy Point area. Second to Windy Point, the Rose Canyon Lake area has several popular areas including Middle Earth and Munchkinland. Some moderate areas such as Munchkinland, Ridgeline, and the Ruins (located in Molino Basin) see a fair amount of traffic because they are easier areas.

Rock climbing occurs mostly during the daylight hours and typically on weekends as opposed to weekdays. Parties tend to include at least two individuals. Larger groups of 4-6 are typical, including dogs as well.

As far as diversity within the user group, climbers range in ages from young children (typically about age 9) to 65 years old and over. Some of the more prolific climbers in the Tucson area are all over 50 years old and still climbing. Generally, climbing communities tend to contain more male than female members, although this is changing rapidly with the institution of national women's climbing organizations such as SHE Rocks. Rocks and Ropes climbing gym has seen an increase in its younger membership, particularly with the establishment of the Youth Climbing Team which has kids ranging in ages from 11-18.

Trends:

While climbing is unlikely to wane in popularity, problems relating to access to climbing areas because of private development is a serious problem that is likely to increase in intensity as Eastern Pima County continues to grow. Over the past ten years, climbing has become recognized as a mainstream sport.

Notably, climbing routes are still being developed on Mount Lemmon in various locations, and in many other locations in Southern Arizona, although not in Eastern Pima County.

Issue Identification:

Rock climbing has little impact on the environment for several reasons. First, there are simply not that many climbers so their collective impact is small. Second, the climbers' focus point is the rock wall – not the vegetation or area around the wall which is where most animals make their homes. Granite and Gneiss are very hard rocks and aside from drilling bolts for protection and anchors, climbers do not otherwise alter the natural state of the rock. Some climbers use chalk on their hands to reduce sweating, much like gymnasts. While chalk has caused problems in some areas, like the sandstone towers of Indian Creek in Southern Utah, chalk is essentially invisible on Granite and Gneiss and does not have a tendency to stick to the rock. Third, most climbing areas in Eastern Pima County are already located within a national forest and are, therefore, unlikely to be largely affected by the Sonoran Desert Conservation Plan. Finally, as a community, climbers have, and continue to, respectfully faced restrictions for environmental reasons.

There are seasonal closures to rock climbing at specific locations throughout the Santa Catalina Mountains, including The Fortress, the Ravens, Wheeler Wall, San Pedro Overlook, Panorama Wall, and sites near Rose Canyon Lake. The most commonly sighted mammal in climbing areas is the coatimundi, which nests high on rock cliffs. This animal is neither endangered nor threatened and does not appear to be impacted by climbing or climbers.

Scenic Driving

Description:

Southeastern Arizona's landscapes offer tremendous opportunities for scenic drives. From broad desert plains to shady mountaintops and rolling grasslands to deep canyons, there's something for everyone...and for every season. Scenic driving is a popular activity in itself, but is also an integral part of getting to a destination for other recreation activities.

Locations:

Many roadways in Pima County are used for scenic driving. Designated scenic routes include Patagonia-Sonoita Scenic Road (State Route 83) and Sky Island Parkway (also known as the Catalina Highway or Mt. Lemmon Highway).

Some of the most popular scenic drives near Tucson include the roads through Saguaro National Park (both East and West units), Gates Pass, Picture Rocks Road, and Old Spanish Trail. Many roads into surrounding mountains are also used for scenic driving; some of these include Mt. Lemmon Highway, Redington Pass, Catalina State Park, Madera Canyon, Box Canyon Road, and the road to Arivaca. Pima County's online map of scenic routes shows dozens of major roadways and many more minor roads (http://www.dot.co.pima.az.us/gis/maps/majscenic/MSSRc02_01.pdf).

Mt. Lemmon, photo from Debby Kriegel, Landscape Architect for Coronado National Forest.



Participation:

According to Scenic America, 40% of American adults drive for pleasure, making it American adults' second favorite recreation activity, behind only walking (Outdoor Recreation in America, Recreation Roundtable/Roper Starch Worldwide Survey, 1994). Scenic driving is something nearly everyone can enjoy. No special equipment is required, it can be done within any schedule, and it provides excellent opportunities for people with limited mobility.

It is likely that nearly all residents and visitors to Pima County participate to some extent in scenic driving.

Use Patterns:

Scenic driving is an activity that can be done alone or with others. In Pima County there is year-round use on most scenic drives, but during the winter months seasonal residents increase use in many areas. Most scenic routes get heavier use on weekends. And Mt. Lemmon gets more use during summer months as people escape the desert heat.

Trends:

America's love affair with the car is legendary. With low gasoline prices and recent events keeping people closer to home, scenic driving is likely to continue to grow in popularity.

In addition, the value of scenic driving is becoming more recognized. Research has shown that high-quality scenery enhances people's lives and benefits society; viewing interesting and pleasant landscapes improves physiological and psychological well-being (Landscape Aesthetics, USDA Forest Service, 1995). In addition, the U.S. Travel Data Center estimates that every mile of a designated "scenic highway" generates between \$30,000 and \$35,000 in tourist spending annually (Balancing Nature and Commerce in Gateway Communities, Howe/McMahon/Propst).

Issue Identification:

Scenic driving creates resource impacts and conflicts with other recreational uses. Vehicles pollute the air, create dust on unpaved roads, and kill wildlife. Sights and sounds of motorized vehicles can degrade the experiences for non-motorized recreational users.

Over time, opportunities for scenic driving decrease, as landscapes are degraded by urban sprawl, haphazard developments, and ever-increasing utility structures. Unprotected natural landscapes are the most threatened. Impacts along road corridors can also negatively impact scenic driving — billboards and litter are some examples.

Stargazing / Astronomy

Description:

Humans have long been intrigued by the universe; some of the earliest records in history include references to stargazing and other precursors to what has now become the formal science of astronomy. As a form of recreation, stargazing and astronomy can range from informal amateurs using only their bare eyes to witness a meteor shower to the professional stargazer who uses elaborate and expensive equipment to search for a yet-undiscovered galaxy.

In Pima County, stargazers of all levels have the opportunity to experience the night sky in ways that stargazers in other areas are not afforded—both because of the natural resources and climate that are present here, and because of the effectiveness of the stargazing and astronomy community in influencing local governments to enact stringent lighting standards to minimize artificial night lighting. “For astronomers and stargazers worldwide, Tucson is known as the center of gravity. With nights that are nearly always clear, stars as bright as beacons, and unobstructed mountain peaks to hold our formidable astronomy tools, the Tucson area offers some of the best possible conditions on Earth for viewing outer space.” (Howell & Connelly 2000).

Locations:

Stargazing/astronomy requires a very dark sky; for this reason, most of this type of recreation occurs at least one hour away from highly urbanized areas. An ideal spot for stargazing would be a large area with no lights and very little night traffic; most stargazers try for places that are as close to this description as possible. In addition, this type of recreation differs from others in that it attracts many people who otherwise may not be outdoor enthusiasts and often requires the use of large, bulky equipment that is extremely fragile. For these reasons, areas used by stargazers also need to be accessible by roads in good condition.

Many, but not all, primary locations used by stargazers in Pima County are either southeast or southwest of Tucson. Most views of the night sky are to the south, and heading this direction puts the light from the city at the viewer’s back. Popular areas that have been identified include the Las Cienegas National Conservation Area, Redington Pass, areas near Sahuarita, and the Tucson International Modelplex Park Association (TIMPA) lands leased by the City of Tucson in Avra Valley.

Secondary locations can include nearly any back road with the characteristics described above; in speaking with a representative of the Tucson Amateur Astronomy Association, he said it would not be uncommon to find several hundred people on back roads during a new moon.

Participation:

The exact number of people who participate in this form of recreation in Pima County has not been formally documented. The Tucson Amateur Astronomy Association (TAAA), which is the most visible and active recreation group in this area, has a membership of approximately 400; the representative estimated that this number was 10%-20% of active and regular participants. The University of Arizona also has several clubs dealing with astronomy or interest in the cosmos. There may additional smaller groups within the community, but contact information was not available via the telephone directory or web searches for local groups.

The local interest in astronomy and stargazers is able to support three stores specifically related to this form of recreation and study. In addition, Tucson is home to the International Dark Sky Association, which hosts many functions that attract visitors from all over the world.

Use Patterns:

Those who are invested in the hobby of stargazing and astronomy do not necessarily need any special occasion to starwatch; in fact, there are many star charts and activities for amateur astronomers that can be done any day of the year, providing that the weather is clear. Similar to the motivation regarding the selection of a site, stargazers only need it to be dark and clear—which is why there is usually more activity close to new moons. And, like most recreation activities, there is more activity during the weekends than the weekdays.

However, special events, like comets, eclipses, or meteor showers can bring out many people, any day of the year, at any hour of the night.

Trends:

The trend in the number of people participating in stargazing seems to be a general slow increase. This is, in part, due to the outreach efforts of the current groups; the University clubs and the TAAA host frequent events for the community and throughout the elementary and secondary schools in Pima County in an effort to promote interest in astronomy and science in general.

Issues:

During the research for this report, there were no studies found with regard to the specific impacts of stargazing on biological resources. However, the activities involved are similar to that of picnicking or, for those without large equipment, hiking. While there has been significant debate regarding the construction of large telescopes in certain areas, such activity does not fall under the scope of what is considered natural resource based outdoor recreation in this report.

Given the impacts known to occur from picnicking and hiking, it is likely that some ground compaction may occur during stargazing, especially for large groups. This may be more acute in areas that are used frequently. The presence of humans in any natural area could potentially disturb wildlife that are present; however, it is noteworthy that most stargazers and astronomers are seeking a serene recreational experience and, therefore, attempt to cause minimal disturbance normally.

The fact that the activity occurs primarily at night when many animals are most active is not characteristic of other forms of recreation, generally speaking, and could be an interesting area of future study.

Stargazers/astronomers have issues regarding access and conflicts with other users. As population growth increases both the geographical area and intensity of the already-lighted urbanized areas, stargazers/astronomers must travel increasingly further distances to reach areas that are adequately dark. When they do reach these areas, many parks and public lands have restricted or no access permitted at night. Also, many areas do not have roads that are in adequate condition (if there are roads at all) to allow access by passenger cars to areas apart from those that are lighted.

Conflicts can occur with any user group generating a large amount of light; however, off-road vehicle use can be particularly problematic, since it is a mobile source of light. In addition, the element of noise can detract from the serene experience that many stargazers/astronomers seek when engaging in this form of recreation.

Swimming – Wading – Water based activities

(in creeks, pools, lakes)

Description:

Water in a desert environment is as much sought-after, and enjoyed, as a cold drink on a hot summer day. Whether it is Sabino Creek at the height of its snow-melt flow or a monsoon rain-filled puddle teeming with tadpoles, water attracts people who might just enjoy walking or stopping by it, using it to drink, or splashing a family member caught off guard. Riparian vegetation is lush and typically more inviting than the surrounding desert or grassland, providing cooler, shady places for picnics, camping and other outdoor activities.

Key Locations:

Permanent creeks (mostly) that flow through beautiful canyons in nearby mountain ranges include Cargodera, Sutherland, Romero, Montrose, Pima Canyon, Pontatoc, Ventana, Esperero, Sabino, Bear Canyon, Molina Canyon, La Milagrosa, Agua Caliente Canyon and Buehman Canyon (Catalina Mountains); Tanque Verde, Rincon, Posta Quemada, and Agua Verde (Rincon Mountain); and Madera and Florida Canyons (Santa Rita Mountains). Cienega Creek has permanent water in both the Las Cienegas National Conservation Area and the Cienega Creek Natural Preserve. Arivaca Creek and Arivaca Cienega are additional places where permanent water is found in Pima County, as is the short stretch of the San Pedro River and the Bingham Cienega found in the county's far northeast corner.

Despite their names and former importance, the Santa Cruz and Rillito Rivers no longer provide any significant water-based recreation, except for the extremely popular scenic viewing during flashflood events (though hope springs eternal for those who advocate restoring some stretches of these riparian areas). North of the Roger Road Treatment Plant, treated effluent water causes the Santa Cruz to flow, resulting in good wildlife habitat enjoyed by birdwatchers and hunters.



*Photo from Debby Kriegel,
Landscape Architect for
Coronado National Forest.*

Participation:

There is no formal documentation regarding the number of people that participate in this type of recreation; however, these areas are typically some of the most attractive places for other outdoor activities (i.e., picnicking, hiking, camping) precisely because of the opportunity to encounter water.

Use Patterns:

Water-based outdoor recreation is attractive for persons in Pima County year-round, simply because water is so rare in this desert environment. However, these areas are especially sought-after during the hot summer months, and the monsoons can provide additional opportunities in certain areas for weeks following the showers.

Trends:

Water-based outdoor recreation will increase along with other types of recreation. As there is a finite number of areas for these activities in Pima County, they will face increasingly crowded conditions.

Issue Identification:

Total acreage of riparian land in the Southwest is a lot less than it once was. Some estimate as much as 90 percent has been lost, though this figure has never been substantiated. As can be easily surmised, existing riparian habitat has become the refuge for a number of vulnerable species of fish, amphibians, birds and plants. Threats to riparian habitat from poorly managed livestock grazing, water diversion, groundwater pumping, dams, and invasive species are widely acknowledged in the literature, but there is practically no mention of concerns about recreational use of these areas. In some places, off-highway vehicles use washes and streams as natural roadways, and road crossings can cause some habitat degradation.

For the outdoor recreationist, the danger of drowning or being swept away by a flash flood is a concern (Childs 2000 and 2002). In some areas, conflicts between people who wish to swim in the nude and those who don't wish to see nudity has also become an issue.

Where riparian habitat is important and considered by land managers to be potentially threatened by overuse, permit systems have been put in place to limit recreational use. For instance, the Bureau of Land Management has a permit system at Aravaipa Canyon, as does Pima County for the Cienega Creek Natural Preserve.

Target Shooting

Description:

Recreational shooting has been a favorite activity of many Pima County residents and visitors since before the founding of Arizona as a state. As the population of the state has increased, the number of citizens engaging in shooting sports at shooting ranges and in suitable natural open space areas has increased greatly. At the same time, such suitable venues are increasingly being encroached upon by human development, which is often incompatible with such a noise intensive and potentially hazardous activity.

Target shooting includes the use of rifle, pistol, shotgun, air gun, and/or archery equipment. Enthusiasts may engage in competition, “plinking”, firearms training, hunter education, hunter sight-ins, or police, security, and military training.

Locations:

Locations for the safe practice of shooting sports include both indoor and outdoor ranges and any natural open space with a suitable backstop. Currently, in Pima County, there are 2 indoor pistol ranges, 7 outdoor rifle/pistol or shotgun ranges, 3 archery ranges and 4 military/law enforcement ranges. “Wildcat” shooting, at informal sites, occurs throughout the county, and is especially prevalent at roadside sites in the Redington Pass area of the Coronado National Forest. Recreational shooting is not allowed in Saguaro National Park East and West Units, Tucson Mountain Park, or Catalina State Park. Shooting is allowed in much of the Coronado National Forest.

Participation:

Participants in shooting sports have a wide range of backgrounds and interests. Various agencies, such as the Arizona Game and Fish Department, the National Rifle Association, local gun shops and shooting ranges, offer a variety of firearms training and hunter education courses for adults and youth.

A steady increase in participation at shooting ranges over the last decade would indicate that there probably has also been a steady increase in participation at informal “wildcat” sites. However no data is readily available. Participation at ranges is highest in the mornings and during the fall, when hunters are preparing for fall and winter hunting seasons.

Use Patterns:

Use of natural open space public lands for informal “wildcat” target shooting in eastern Pima County has noticeably increased since the Tucson Rod and Gun Club on National Forest land at Sabino Canyon was shut down.

Trends:

According to the Arizona Game and Fish Department, residential encroachment is a major factor in range closures. They cite six Arizona ranges which have been closed in recent years, six which are immediately threatened by closure, and six which are concerned about near future demands for closure. Such closures will undoubtedly result in increased pressure on remaining ranges and perhaps increased use of natural open space areas for informal shooting practice.

Issue Identification:

Noise and concern for safety are the primary issues associated with shooting sports. An informal “wildcat” shooting site or a well-managed shooting range in a natural resource area can be heard from miles away. Nearby residences and other outdoor recreationists may not enjoy hearing firearms being discharged, especially on a regular basis. Lead migration into the water table from lead shot is a potential environmental hazard, but according to experts, it is less of an issue in alkaline low-moisture soils such as those present in Pima County. Litter from spent shells and shot-up targets, whether bottles and cans or TVs, can be an eyesore in a natural resource area and can impact the resources of the local land manager.

Activity Maps

The collection of data for the following maps began with solicitation of input during a forum on recreation issues held on January 9, 2002, which was co-sponsored by the Recreation Technical Advisory Team and the Coalition for Sonoran Desert Protection. It continued with other meetings with experts, recreation groups and literature searches. It is by no means complete, nor does it give equal weight to each recreation type represented. But as a start it does a very good job of demonstrating that a great amount of outdoor recreation takes place in eastern Pima County

Findings, Conclusions & Recommendations

Findings:

1. There is a wide range of opportunities for natural resource based outdoor recreation (NRBOR) in eastern Pima County. These opportunities range from arduous physical activities such as rock climbing and mountain biking to less strenuous pursuits such as birding and cultural resource observation.
2. Many of the sites where NRBOR occurs are located in close proximity to the urban / developed portions of the Tucson metropolitan area, facilitating access to these sites.
3. A warm climate combined with a wide range of elevations in Pima County allow for year-round participation in NRBOR.
4. Although detailed information is quite limited, there is a high level of participation in NRBOR in Pima County. Participants include both residents and visitors. Individuals from nearly all demographic groups participate in various forms of NRBOR.
5. The number of individuals participating in NRBOR activities in Pima County is increasing. This is due to population growth and due to a growing interest in activities such as hiking, birding, and mountain biking.
6. Historical access to some key NRBOR areas has been lost due to land development at the perimeter of the Tucson area. With some exceptions, attempts to address the access issue continue to be reactive rather than proactive.
7. NRBOR has a positive impact on the local economy. Benefits are derived from:
 - a. Expenditures from tourists who travel to Pima County to participate in these activities.
 - b. Direct employment, as in retail outlets that sell equipment and / or services.
 - c. Sales tax revenues generated by the sale of equipment and services.
8. There have been no comprehensive studies prepared that document the scope and distribution of NRBOR activities in Pima County.
9. NRBOR does occur, will continue to occur, and may increase in scope and intensity on lands in Pima County being considered for conservation under SDCP.

Conclusions:

1. Existing opportunities for NRBOR enhance the quality of life for Pima County residents and support the local economy through tourism, direct employment, and generation of sales tax revenues.
2. To maintain the existing quality of life for current and future Pima County residents, it will be necessary to retain existing - and provide new opportunities for NRBOR.
3. The Sonoran Desert Conservation Plan (SDCP) planning process must acknowledge existing and future NRBOR on lands in Pima County.

Recommendations:

1. That Pima County, with the cooperation and support of other local jurisdictions (City of Tucson, Town of Oro Valley, Town of Marana, and Town of Sahuarita) and land management agencies (Arizona Game and Fish, Arizona State Parks, US Fish and Wildlife Service, USDA Forest Service, National Park Service, Bureau of Land Management, State Land Department) implement a basin-wide study of NRBOR in eastern Pima County. The purpose of this study would be:
 - a. To document the scope and character of NRBOR in eastern Pima County.
 - b. To assess future needs / demands for NRBOR.
 - c. To develop a plan that best addresses these needs and demands within the context of the SDCP and in a manner that is consistent with the legal mandates under which the participating land management agencies must operate.
2. That the Pima County Board of Supervisors consider opportunities for NRBOR when determining land use management under the SDCP.
3. That the Pima County Board of Supervisors convey to the public, when presenting the plan for consideration, the benefits of the SDCP as they relate to opportunities for NRBOR.

Land Managing Agencies

Since the late 1980s, managers of the large, public natural open space areas in eastern Pima County began meeting informally to share concerns and work on joint projects. This group, calling themselves the Tucson Basin Managers, continues to meet approximately monthly (contact Mark Brosseau, 877-6107). Members include representatives of USDA Forest Service Coronado National Forest, National Park Service Saguaro National Park, US Bureau of Land Management Tucson Field Office, US Fish and Wildlife Service Buenos Aires National Wildlife Refuge, Arizona State Parks Catalina State Park, Arizona Game and Fish Department, Arizona State Land Department, Pima County Natural Resources Parks and Recreation, City of Tucson Parks and Recreation, and the Arizona-Sonora Desert Museum.

Arizona Game & Fish Department

555 N. Greasewood Rd.

Tucson, AZ 85745

(520) 628-5376

www.gf.state.az.us

Issues hunting & fishing permits and enforces wildlife regulations.

Arizona State Land Department

233 N. Main Ave.

Tucson, AZ 85701

(520) 628-5480

www.land.state.az.us

Hunters with valid permits are allowed to use State Trust Lands. For other recreational uses, an annual permit is available for \$15.

Buenos Aires National Wildlife Refuge

P.O. Box 109

Sasabe, AZ 85633

(520) 823-4251

southwest.fws.gov/refuges/arizona/Buenos.html

Bureau of Land Management

Tucson Field Office

12661 E. Broadway Blvd.

Tucson, AZ 85748

(520) 258-7200

<http://azwww.az.blm.gov/tfo/index.htm>

Catalina State Park

P.O. Box 36986

Tucson, AZ 85740

(520) 628-5798

www.pr.state.az.us/parkhtml/catalina.html

Coronado National Forest

300 W. Congress

Tucson, AZ 85701

(520) 670-4552

<http://www.fs.fed.us/r3/coronado/>

Includes portions of the Catalina, Rincon and Santa Rita Mountains.

Pima County Natural Resources,

Parks & Recreation

3500 W. River Rd.

Tucson, AZ 85741

(520) 877-6000

www.co.pima.az.us/pksrec

Manages Tucson Mountain Park, Cienega Creek and Tortolita Mountain Park.

Saguaro National Park

3693 Old Spanish Trail

Tucson, AZ 85730

(520) 733-5100

www.nps.gov/sagu/

Recreation User Organizations

The following non-commercial organizations are composed of outdoor recreation users, serve those users, or organize outdoor recreation trips in Pima County. We have thrown a wide net, and attempted to obtain up-to-date (as of Fall 2002) information for each group by sending a survey to every group that was initially identified. Information about new organizations, or ones inadvertently missed, should be sent to Natural Resources Superintendent, Pima County Natural Resources, Parks & Recreation Department, 3500 W. River Rd., Tucson, AZ 85741.

American Motorcycle Association

3012 W. Hampshire Crt.
Tucson, AZ 85742

Arivaca Sportsmen Club

P.O. Box 128
Tucson, AZ 85601

Arizona Antelope Foundation

4281 N. Ventana Dr.
Tucson, AZ 85750
(520) 621-1590, 886-3297
www.azantelope.org

Lloyd Wundrock, President

Established in 1992, the nonprofit Arizona Antelope Foundation is "dedicated to the welfare of pronghorn antelope. The Foundation actively seeks to increase pronghorn populations in Arizona through habitat improvements, habitat acquisition, the trans-location of animals to historic range and public comment on activities affecting pronghorn and their habitat." About 70 of the 200 members (\$35/yr.) live in Pima County.

Arizona Bowhunters Association

P.O. Box 67084
Phoenix, AZ 85082-7084
www.arizonabowhunters.org
Carl Smith, Chairman

A nonprofit group working "to foster, perpetuate and expand bowhunting and bowhunting ethics in Arizona." \$25/yr.

Arizona Desert Bighorn Sheep Society

511 E. Roberta Circle
Tucson, AZ 85704
(520) 797-2407

www.adbss.org

Gary Barcom, President

This nonprofit group supports "the conservation and enhancement of bighorn sheep throughout Arizona." The 1,100 members (95 in Pima County) receive a newsletter and work on such projects as waterholes and transplanting sheep. \$40/yr.

Arizona Native Plant Society

Box 41206
Tucson, AZ 85717
www.aznps.org

Jeff Creamer, President

A nonprofit group devoted to Arizona's native plants, and which offers many field trips. \$20/yr.

Arizona Shed Antler Club

8607 E. 24th
Tucson, AZ 85710
www.geocities.com/azshedclub

An informal nonprofit that provides record keeping for sheds found in Arizona, and lobbies to keep shed collecting legal. \$5/yr.

Arizona State Association of Four-Wheel Drive Clubs

P.O. Box 30295
Mesa, AZ 85275
(602) 832-8132
www.asa4wdc.org

A nonprofit association of 4x4 clubs working to promote the responsible use of four-wheel drive vehicles and the development and maintenance of 4x4 recreational opportunities.

Arizona Trail Association

P.O. Box 36736
Phoenix, AZ 85067-6736
(602) 252-4794
www.aztrail.org

A nonprofit organization that works "to build, maintain and promote the Arizona Trail." \$25/yr.

Arizona Wildlife Federation

644 N. Country Club Dr. Ste. E
Mesa, AZ 85201
Mike Perkinson, President
www.azwildlife.org

Since 1923, this nonprofit has worked "to promote the management of Arizona's natural resources on a scientific basis."

Arizona-Sonora Desert Museum

2021 N. Kinney Rd.
Tucson, AZ 85743
(520) 883-1380
www.desertmuseum.org

World-famous nonprofit facility with a mission "to inspire people to live in harmony with the natural world by fostering love, appreciation, and understanding of the Sonoran Desert." Classes and tours. \$40/yr.

Awareness to Access

3881 W. Sunny Shadows Place
Tucson, AZ 85741-1907
(520) 744-4039
Contact: Bob Mora
bob@mora.com

This southern-Arizona based nonprofit (formal 501(c) 3 status retired) group works "to explore

undeveloped trails that may be available to hikers of various abilities, including those that may have disabilities." The group has 25-35 members and welcomes more (call or send in name).

Catalina Council, Boy Scouts of America

5049 E. Broadway, Suite 200
Tucson, AZ 85711
(520) 750-0385
www.catalinacouncil.org

Louis D. Salute, Scout Executive
With 11,312 scouts, this nonprofit group works "to prepare young people to make ethical choices over their lifetime by instilling in them the values of the Scout Oath and Law." Newsletter, volunteer opportunities.

County Line Riders of Catalina

P.O. Box 8881
Tucson, AZ 85738
(520) 825-7609
www.countylineriders.org

A 150-member informal nonprofit equestrian club that leads rides, works with land agencies and engages in advocacy.

Desert Gold Diggers, Inc.

5490 E. Edwin Rd.
Tucson, AZ 85739
Jerry Schultz, President
http://home.att.net/~desert-gold-diggers/

This 250-member informal nonprofit is "devoted to all aspects of recreational prospecting and mining, including panning, sluicing, dry washing and metal detecting." \$30/yr.

Ducks Unlimited

4291 N. Luna de Oro Place
Tucson, AZ 85749
Kevin O'Connell, District Chairman
(520) 419-1650
www.ducks.org

"Ducks Unlimited conserves, restores, and manages wetlands and associated habitats for North America's waterfowl." More than 300 Tucson members of this nonprofit group have paid the annual \$25 membership fee. Volunteer opportunities.

Foundation for North American Wild Sheep

3710 S. Dodge Blvd.
Tucson, AZ 85713
Jim Travis

Girl Scouts, Sahuaro Council

4302 E. Broadway Blvd.
Tucson, AZ 85711
(520) 327-2288
www.sahuarogsc.org

This nonprofit group offers camping and other outdoor activities to its membership.

Green Valley Hiking Club

P.O. Box 1074
Green Valley, AZ 85614
www.gvrhc.org
Philip A. Gray, President

This nonprofit group, organized to “provide safe hiking experiences for club members,” has approximately 3,000 members, 500 of whom are active. Members must reside in a Green Valley recreation area and attend an orientation meeting to join.

International Dark-Sky Association

3225 N. First Avenue
Tucson, AZ 85719-2103
(520) 293-3198
Elizabeth M. Alvarez del Castillo, Ex. Dir.
www.darksky.org

Almost 10,000 people belong to this nonprofit, based in Tucson, that works “to preserve and protect the nighttime environment and our heritage of dark skies.” \$30/yr.

Loners on Wheels, PuebloW Chapter

8080 East Speedway #514
Tucson, AZ 85710
(520) 722-1236
J. Nicholson

Mule Deer Foundation

1645 W. Valencia #226
Tucson, AZ 85746
www.muledeer.org
(520) 822-1396, 631-3048
Rick Redpath, State Chair

This nonprofit group with 10,000 national members (\$25/yr) works “to ensure the conservation of mule and blacktail deer and their habitats through education, member involvement and funding conservation programs.”

National Adventure Dog Association

Local contact: Ken Kingsley
646 N. Hayden
Tucson, AZ 85710
(520) 296-7934

National Outdoor Leadership School

2751 N. Soldiers Trail
Tucson, AZ 85749
(520) 749-095
www.nols.edu
Judd Rogers, SW Branch Director

By providing classes in the outdoors, this nonprofit group strives “to be the leading source and teacher of wilderness skills and leadership that serve people and the environment.” Newsletter.

National Rifle Association

1173 N. Thunder Ridge Dr.
Tucson, AZ 85745
(520) 903-1666
www.nra.org
Todd Rathner, Board Member

This nonprofit group, with 4 million members nationwide (approx. 100,000 in Arizona), works to protect the right of law abiding citizens to own guns and access public lands. \$35/yr.

National Speleological Society

www.caves.org
This nonprofit organization works to advance “the study, conservation, exploration and knowledge of caves.” Two chapters or “grottos” are active in Pima County:

Escabrosa Grotto

P.O. Box 3634
Tucson, AZ 85722-3634

Southern Arizona Grotto

3233 W. Ruth Ann Rd.
Tucson, AZ 85745

National Wild Turkey Federation,

Southern Arizona Chapter
P.O. Box 13141
Tucson, AZ 85732
(520) 907-6141
Jim Warren, President

A nonprofit group dedicated to the "conservation of the wild turkey in America." Local members (185 adults, 25 juniors) receive newsletter. \$25/yr. Volunteer opportunities.

Old Pueblo Archaeology Center

P.O. Box 40577
Tucson, AZ 85717-0577
(520) 798-1201
www.oldpueblo.org
Allen Dart, Executive Director

This nonprofit group works "to educate children and adults to understand and appreciate archaeology and other cultures, to foster the preservation of archaeological and historical sites, and to develop a lifelong concern for the importance of non-renewable resources and traditional cultures." 176 members. \$25/yr. Newsletter, volunteer opportunities.

Old Pueblo Friends of the NRA

5170 N. Campbell Ave.
Tucson, AZ 85718
(520) 975-5170
Bill Perkins, Chairman

This nonprofit organization of more than 400 (15 active) members has monthly meetings and supports the goals of the National Rifle Association. No membership fee (just enthusiasm required).

Pima Pistol Club

3235 N. Country Club
Tucson, AZ 85716
(520) 825-3603
www.pimapistol.org
Douglas Hoeflinger, President

Formed in 1920, this club of about 300 members maintain a 15-acre shooting range in the foothills of the Catalina Mountains. Dues are \$100 annually.

Pima Trails Association

P.O. Box 41358
Tucson, AZ 85717
(520) 577-7919
www.pimatrails.org
Sue Clark, President

An all-volunteer nonprofit advocacy organization composed of hikers, equestrians and mountain bikers working together to preserve and protect recreational trails in Pima County. \$20/yr. Newsletter. Volunteer opportunities.

Quail Unlimited, Inc.

HC 3 Box 2930
Willcox, AZ 85643
www.qu.org
Lee Sullivan

Local chapter of a national nonprofit that is "dedicated to the wise management of America's wild quail as a valuable and renewable resource."

Rocky Mountain Climbing School

260 S. Pantano Road #251
Tucson, AZ 85710
(520) 721-6751
www.climbarizona.com
Jeff Fassett

Rocky Mountain Elk Foundation

Tucson Chapter
431 S. Calle del Cobre
Tucson, AZ 85748
(520) 722-6586
Kent Miller, President

This nonprofit international group raises funds to enhance habitat. Annual membership information available at www.rmef.org. Locally, the group seeks volunteers to help with banquet.

Safari Club International

& SCI Foundation
4800 W. Gates Pass Road
Tucson, AZ 85745
(520) 620-1220
www.safariclub.org
www.safariclubfoundation.org
Jim Brown, Dir. of P.R.

This 42,000-member group works to protect the

freedom to hunt and promotes wildlife conservation worldwide.

Safari Club International,

Arizona Chapter
P.O. Box 12954
Tucson, AZ 85732

(520) 293-1500 ext. 141

Mark W. Kuhn, President

This 150-member chapter of the nonprofit Safari Club International works "to support wildlife conservation and protect the rights of sportsmen." Newsletter and volunteer opportunities such as "habitat projects, youth hunts, game research, Sportsmen Against Hunger, sensory safari."

Saguaro Aerostat Association

P.O. Box 57084
Tucson, AZ 85732-7084
(520) 297-5783

Jerry Schell, President

Informal club of ballooning enthusiasts.

Santa Cruz Valley Horsemen's Association

P.O. Box 266
Green Valley, AZ 85622

Senior Trekkers Club

210 N. Maguire, #412
Tucson, AZ 85710
(520) 751-4513, 296-7795
Emory Westlake, President

A 100-member hiking and walking club for people over 50. Events include weekly walks in Sabino Canyon.

Sierra Club, Rincon Group

738 N. 5th Ave., Suite 214
Tucson, AZ 85705
(520) 620-6401
<http://arizona.sierraclub.org/rincon>

Linda Rothchild-Tepper, Chair

Local group of the national conservation organization that encourages its members to "explore, enjoy and protect the planet." Local hiking trips are among its activities. \$39/yr membership. Newsletter, volunteer opportunities.

Sky Island Alliance

P.O. Box 41165
Tucson, AZ 85717
(520) 624-7080
www.skyislandalliance.org

Contact: Trevor Hare

This nonprofit group with 1500 members (500 active volunteers) has a mission to "preserve and restore native biological diversity in the Sky Islands of SW United States and NW Mexico." Activities include road surveys and closures, wildlife tracking and other natural history information collection on forest and other lands. Quarterly newsletter.

Sonoran Arthropod Studies Institute (SASI)

P.O. Box 5624
Tucson, AZ 85703
(520) 883-3945
www.sasionline.org
Steve Prechal, Director

SASI "fosters awareness, appreciation and knowledge of all nature through the study and interpretation of the vital roles arthropods play in the Sonoran Desert ecosystem." With a center located in Tucson Mountain Park, and 631 members (381 active) receiving a newsletter, this nonprofit group welcomes new members (\$25/yr) and offers volunteer opportunities.

Sonoran Desert Mountain Bicyclists

P.O. Box 65075
Tucson, AZ 85728-5075
(520) 299-9151
www.sdmb.org

Mark Flint, Advocacy Director

This informal nonprofit group with 127 members supports "mountain bike riding and advocacy." \$20/yr membership. Newsletter, volunteer opportunities.

Southern Arizona Climbers Coalition

5532 E. Fairmount
Tucson, AZ 85712
Diane Vetter, President

Southern Arizona Hang Gliding Association

P.O. Box 43722
Tucson, AZ 85733
(520) 760-2884
www.sahga.com

Mozey Brown, Secretary/Treasurer

A nonprofit group with 80 members, SAHGA represents the local hang gliding and paragliding community. \$20/yr. Newsletter.

Southern Arizona Hiking Club

P.O. Box 32257
Tucson, AZ 85751-2257
www.sahcinfo.org

Pete Cowgill, President

This nonprofit volunteer club of about 2000 members is "dedicated to the purpose of promoting hiking and related activities which further the appreciation, understanding, preservation and enjoyment of the land, its plants and wildlife, and all natural things and objects." \$21/yr.

Southern Arizona Mountain Bike Association

P.O. Box 85456
Tucson, AZ 85754
www.sambabike.org

John Pollock, President

The mission of this nonprofit "is to promote the enjoyment of mountain biking and nature; to protect and enhance mountain biking opportunities; and to support environmentally and socially responsible use of the land." \$15/yr.

Southern Arizona Paddlers Club

P.O. Box 41443
Tucson, AZ 85717-1443
(520) 296-2111

Chip Arnberg, President

This informal nonprofit group, with 50 members and a newsletter, promotes muscle-powered boating on all types of water. \$15/yr; volunteer opportunities.

Southern Arizona Roadrunners Club

4625 E. Broadway Blvd.
Tucson, AZ 85711
(520) 326-9383

www.azroadrunners.org

Randy Accetta, President

This nonprofit group with more than 1,000 members is "dedicated to promoting physical and mental fitness in Tucson and Southern Arizona through running and walking." Road races are a focus, though it also supports trail running.

Record Desert Whitetail Club

9565 N. Lenihan Ct.
Tucson, AZ 85742
(520) 579-0140

Dave Mattausch

This informal nonprofit club has 150 members working to promote the conservation of Coues deer. \$20/yr.

Southern Arizona Wildlife Callers Association

P.O. Box 12442
Tucson, AZ 85732
www.soazwildlifecallers.org

Mike Chapdelaine, President

This informal nonprofit group of 75 individual members, 20 business members, enjoys calling and hunting of predators and big game. The \$25/yr membership includes a monthly newsletter.

Tohono Chul Park
7366 N. Paseo del Norte
Tucson, AZ 85704
(520) 742-6455

www.tohono-chul-park.org

Jo Falls, Director of Public Programs

This nonprofit organization works "to enrich people's lives by providing them the opportunity to find peace and inspiration in a place of beauty, to experience the wonders of the Sonoran Desert, and to gain knowledge of the natural and cultural heritage of this region." The park's 3,700 members receive a newsletter and are offered special field trips.

Trout Unlimited

Local Chapter: Old Pueblo 531
3865 E. Edison Place
Tucson, AZ 85716-2950
(520) 321-4420

Danny Hooper

Trout Unlimited's mission is "to conserve, protect and restore North America's trout and salmon fisheries and their watersheds." Workdays and outings, local membership over 400 and growing. \$15/yr.

Tucson Amateur Astronomy Association

P.O. Box 41254

Tucson, AZ 85717

(520) 882-1950

www.tucsonastronomy.org

Andrew Cooper, President

This 380-member nonprofit group provides "monthly lectures, observing sessions, and special events for astronomy enthusiasts (members and public) and schedules evening observing sessions for school, church, and other groups (for a donation, as appropriate)." Monthly newsletter; volunteer opportunities. \$23/yr.

Tucson Audubon Society

300 E. University Blvd. #120

Tucson, AZ 85705

(520) 629-0510

www.tucsonaudubon.org

Contact: Sonja Macys, Executive Director

This nonprofit group "is dedicated to improving the quality of the environment by providing education, conservation and recreation programs, and environmental leadership and information." 3000+ members. Members (starting at \$20/yr) receive newsletter (9 per year). More than 125 trips offered annually.

Tucson Botanical Gardens

2150 N. Alvernon Way

Tucson, AZ 85716

(520) 326-9686

www.tucsonbotanical.org

Lynn Kaufman, Director of Education

This garden-based nonprofit works "to provide horticultural and ecological education, to encourage responsible environmental stewardship, and to provide a setting for relaxation and renewal." Members (\$30/yr) receive a quarterly newsletter; field trips and volunteer opportunities offered.

Tucson Climbers Association

11 E. Orange Grove Rd., #1421

Tucson, AZ 85704

James DeRoussel, President

www.tucsonclimbers.org

This informal nonprofit group is "committed to promoting climber fellowship, education, and access in Southern Arizona."

Tucson Herpetological Society

P.O. Box 709

Tucson, AZ 85702-0709

<http://tucsonherpsociety.org>

Taylor Edwards, President

This nonprofit group of about 250 members is "dedicated to the conservation, education, and research concerning the amphibians and reptiles of Arizona and Mexico." \$20/yr.

Tucson Mountain Riders

6394 N. Yuma Mine Rd.

Tucson, AZ 85743

(520) 444-0308 or 579-1397

www.tucsonmountainriders.com

Lou Mindes, President

An informal nonprofit with 80 members dedicated to the preservation of the equestrian lifestyle in the Tucson Mountains. \$25/yr. Newsletter.

Tucson Orienteering Club

P.O. Box 13012

Tucson, AZ 85732

(520) 628-8985

<http://go.to/tucsonorienteering>

This 120-member strong nonprofit group supports "map and compass skills in a recreational and competitive setting." \$10/yr.

Tucson Rifle Club

H C 2 Box 7128

Tucson, AZ 85735

(520) 822-5189

www.TucsonRifleClub.org

Will Schmall, President

This nonprofit club, with 825 members, operates a two-square-mile public shooting range (via lease agreement with Arizona Game & Fish) near Three Points.

Tucson Rod & Gun Club

P.O. Box 42486
Tucson, AZ 85733
(520) 749-3283

Brandon Roxbury, President

This informal nonprofit group of more than 3,000 members works "to provide a safe supervised place to shoot and to provide gun safety instructions to all members of the public."

Tucson Rough Riders

P.O. Box 78726
Tucson, AZ 85703-8726
www.tucsonroughriders.org
Hal Loy, President

This informally nonprofit "four wheeling and land conservation" group has 87 families who have joined by attending two meetings and two four wheel drive events. Newsletter; volunteer opportunities, such as "road maintenance with Forest Service, Game and Fish, and State Trust lands."

Tucson Saddle Club

P.O. Box 30433
Tucson, AZ 85751
(520) 749-8608

David Cummings, President

A trail riding horse club with 130 members and nonprofit status. \$20/yr. Newsletter.

Tucson Trap and Skeet Club

223 W. 29th St.
Tucson, AZ 85713
Bob Boido

Tucson Volkssport Klub

270 S. Candlestick Dr.
Tucson, AZ 85748
(520) 298-4340
<http://home.att.net/~jdmount/index.html>

Fred Barton, President

This nonprofit sports and recreation club offers "family-oriented, noncompetitive walks, hikes, bike rides, and swims in the southern Arizona region." No formal membership requirements.

U.S. Sportsmen's Alliance

64631 E. Round Robin Lane
Tucson, AZ 85739
Gar Thomas

University of Arizona Astronomy Club

http://ethel.as.arizona.edu/astro_club
Eric Huff, President emhuff@email.arizona.edu
Student club that takes skygazing field trips.

University of Arizona Cliffhangers

www.geocities.com/clffhngrs
Marc Rafelski, President
marcar@physics.arizona.edu
Student club that works "to promote interest in technical rock climbing and mountaineering for both new and experienced climbers."

University of Arizona

Ramblers Hiking Club
<http://clubs.arizona.edu/~ramblers/index.html>
Dan Carroll, President (dcarroll@u.arizona.edu)
This informally nonprofit group creates a campus-wide resource for outdoor enthusiasts by providing resources, expertise and a forum to meet so the outdoor world is accessible and fun for everyone. Meets Wednesdays, 5 pm at Forbes Bldg (College of Agriculture), Rm. 307

Western Gamebird Alliance

P.O. Box 14152
Tucson, AZ 85732
www.gambird-alliance.org
Troy Hawks, President
This nonprofit group of 207 members (\$25/yr) champions the interest of upland birds and the people who hunt them.

Women in the Outdoors

7400 N. Michelle Place
Tucson, AZ 85704
(520) 797-8106
Rebecca J. (RJ) Moorehouse
This nonprofit program, affiliated with the National Wild Turkey Federation, provides interactive education outdoor activities and opportunities for women. Locally, 200 members. \$25/yr.

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Lifestyles: Snowbirds: Searching for Shangri-la Motor Home Webpage

Useful Internet Links (see organizations for more)

www.math.arizona.edu/~mcmillen/bouldering/bouldering.html (Information on bouldering on S. Arizona)

<http://personal.riverusers.com/~jrbaker/> (Various information on local climbing areas)

www.arizonaclimbing.com

www.climbaz.com

www.pr.state.az.us

www.fs.fed.us/r3/coronado/