

# **Antelope Island State Park**

## ***Wildlife Management Plan Update***



**November 2001**



STATE OF UTAH  
NATURAL RESOURCES  
Division of Parks & Recreation

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## **EXECUTIVE SUMMARY**

In January 2001, the Utah Division of Parks and Recreation (UDPR) Board charged division staff to develop a comprehensive plan for the management of Antelope Island State Park (AISP) wildlife and habitat. Staff were directed to integrate previous research efforts regarding island wildlife and habitat, review existing policies, improve and update recommendations made in the 1990 Wildlife Management Plan - the document currently guiding AISP wildlife/habitat management policies - and resolve issues or concerns with the goal of making the park a world class facility for wildlife-based recreation. While significant research on island wildlife/habitat has been supported by the AISP Wildlife Technical Committee - a steering committee consisting of wildlife and range management experts chartered to implement island wildlife/habitat goals - it was felt that the planning perspective should be broadened to include a wider array of wildlife and habitat issues including interactions with the human recreation element. Board members felt that wildlife/habitat management issues should also include strategies to enhance wildlife viewing opportunities and associated information and education programs for park visitors. Accordingly, an Antelope Island State Park Wildlife Management Planning Team - a citizen-based steering committee comprised of Wildlife Technical Committee members, interested recreational users and agency representatives - was formulated to develop issues and recommendations that will provide comprehensive guidance for wildlife/habitat management and associated recreation activities at the park.

The plan provides recommendations which are founded upon five primary vision elements that will guide future wildlife/habitat management at AISP. These elements focus on:

- C Evaluating the adequacy of current policies, programs and research concerning island wildlife and habitat;
- C Implementing policies to attain healthy, sustainable populations of diverse, native plant and animal communities for the non-consumptive beneficial use of the public;
- C Developing management objectives through interdisciplinary coordination, cooperation and partnerships with the Utah Division of Wildlife Resources, academic institutions, and volunteer stewardship (research/monitoring) programs;

- C Sustaining Antelope Island wildlife and habitats while making contributions to wildlife science in the process;
- C Emphasizing enhancement of watchable wildlife opportunities through the designation of appropriate areas and programs;
- C Helping meet the needs of Utah's consumptive users by exploring development of nursery programs to enhance big/upland game populations in other areas of the state.

These elements are geared toward developing policies, activities and programs that will more effectively balance the island's ecosystem protection, preservation and conservation needs with development demands to provide quality visitor experiences. Achievement of these vision elements will require the continued support of users, the AISP Wildlife Technical Committee, sister agencies, community leaders and the Division of Parks and Recreation.

The planning team issued several specific recommendations in support of the plan's vision elements. Six issue areas form the basis of the team's recommendations. Each issue area with its accompanying recommendations are outlined as follows:

**C IMPLEMENT A SYSTEMS APPROACH FOR WILDLIFE/HABITAT MANAGEMENT**

- < Manage for Species Relationships/Overlap
- < Determine Island Bio-Diversity Goals
- < Restoration of Island Sage-Steppe Community
- < Habitat Monitoring
- < Exotic Species Management

**C HABITAT MANAGEMENT**

- < Fire Management
- < Island Re-Vegetation
- < Management of Recreation Impacts
- < Water Resource Development

**C WILDLIFE MANAGEMENT**



- < Ungulate Species
  - Bison: Bison Management; Bison Roundup; Bison Hunting; 9<sup>th</sup> Allele Genetics; Bison Carrying Capacity.
  - Deer: Survey Island Deer Populations; Recreational Impacts on Deer Populations.
  - Pronghorn: Survey Pronghorn Populations; Excessive Pronghorn Predation
  - Bighorn Sheep: Implement Bighorn Management Plan; Survey Island Bighorn Populations; Enhance Bighorn Viewing Opportunities

- < Avian Issues
  - Comprehensive Planning for Avian Species
  - Potential Introduction of Avian Species
  - Systems-Based Approach for Avian Management
  - More Direction Needed for Avian Management Issues
  - Breeding Habitat for Migratory Bird Species

- < Small Mammals, Predators, Reptiles and Fish

**C FUNDING, STAFFING AND POLICY ISSUES**

- < Enhance Funding Base
- < Effectively Respond to Politically-Based Initiatives
- < Interagency Coordination
- < Park Boundaries Uncertain
- < Lake Level Fluctuation
- < Revisit Shed Antler Collection Policies
- < Avoid Duplication of Effort
- < Determine if Wildlife/Habitat Policies are Overly Restrictive

**C RECREATION MANAGEMENT AND PROGRAMS**

- < Managing Recreational Development
- < Enhance Wildlife Viewing Opportunities

- < Effects of Increased Recreational Demand
- < Minimization of Visitor Impacts on Wildlife/Habitat

**C EDUCATION AND INFORMATION**

- < Interpretive Strategy to Encourage Wildlife Viewing
- < Enhance Education Efforts About the Need for Prescribed Fire

Implementing some of these recommendations will be dependent upon acquiring new funding sources. There may be keen competition for funding or other unforeseen priorities and contingencies that could affect implementation.

The plan's success is dependent upon the continued support of park stakeholders. Efforts must be made to preserve park resources, interact with local communities and strive to meet the expectations of park visitors. The recommendations contained within this plan were based upon an open and collaborative process. It is imperative that this collaborative spirit continue as the plan's components are implemented.

**MISSION STATEMENT**

**Mission Statement:**  
The Antelope Island Wildlife Management Planning Team's mission is to update the current Wildlife Management Plan by developing policies, activities and programs that will more effectively balance the island's ecosystem protection, preservation and conservation needs with development demands to provide quality visitor experiences.

Team members developed the mission statement on the premise that current policies guiding wildlife and habitat management at Antelope Island State Park need to be updated and broadened. With increasing visitation, it is imperative that policies, programs and activities be implemented to effectively protect island resources while providing visitors with a quality recreational experience.

**VISION STATEMENT**

A vision statement is similar to a compass; it charts a destination, sets the team on the correct course of action, and it provides the means to determine how closely team recommendations will follow that charted

**Vision Statement:**  
The future vision of the Antelope Island Wildlife Management Plan is to:

- T Evaluate the adequacy of current policies, programs and research concerning island wildlife and habitat;
- T Identify and implement policies to attain healthy, sustainable populations of diverse, native plant and animal communities for the non-consumptive beneficial use of the public;
- T Develop management objectives through interdisciplinary coordination, cooperation and partnerships with the Utah Division of Wildlife Resources, academic institutions, and volunteer stewardship (research/monitoring) programs;
- T Sustain Antelope Island wildlife and habitats and to make contributions to wildlife science.
- T Emphasize enhancement of watchable wildlife opportunities through the designation of appropriate areas and programs;
- T Help meet the needs of Utah's consumptive users by exploring development of nursery programs to enhance big/upland game populations in other areas of the state.

course. Utilizing the basic principles in the mission statement, the team developed a vision statement to guide development of the plan's recommendations. The vision statement provides the foundation for recommendations that balance recreational demands with preservation of the park's unique wildlife and habitat resources.

## **RESOURCE MANAGEMENT PLAN PURPOSE AND PROCESS**

### ***Purpose of the Plan***

This Wildlife Management Plan Update is intended to revise, enhance and implement wildlife and habitat management policies and concepts contained in the 1990 AISP Wildlife Management Plan, the current guiding document. This plan is outdated and needs to be broadened in scope to include more comprehensive policies and programs for all wildlife and habitat. Moreover, planning is needed to better manage the interactions between an increasing visitor base and island wildlife/habitat. A primary goal is to balance these wildlife/habitat needs with recreation demands to provide visitors with a unique opportunity to observe a diversity of healthy and stable wildlife populations in a unique, scenic environment.

Wildlife and habitat planning for the park is essential given the recent rapid increases in visitation that have occurred since Antelope Island re-opened in 1993. During that year, 137,906 individuals visited the park. By 2000, visitation jumped to 343,410 - an increase of about 150 percent above the 1993 levels. Visitation continues to increase as new policies and programs are put in place: restoration of the historic Garr Ranch on the island's east side; development of non-motorized trails; enhanced recreational opportunities for hikers, bikers, wildlife watchers and equestrian enthusiasts; interpretive programs; and boating activities.

The increasing interest in the island make it imperative that effective policies and programs be implemented to both meet visitor needs and protect wildlife and associated habitat. In fact, both these objectives are not inconsistent. A majority of visitors list sightseeing and wildlife viewing as their primary recreational activities on the island. More than 78 percent of visitors participating in a 2000 survey participate in wildlife viewing activities during their stay on the island.<sup>1</sup> Consequently, preserving and protecting island wildlife and habitat is essential to effectively ensure visitor satisfaction - analogous to the concept of "the goose that lays the

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<sup>1</sup>Utah Division of Parks and Recreation. (October, 2000). Antelope Island State Park Visitor Survey Report, pp. 5-6.

golden egg.” Furthermore, failure to effectively deal with the dynamic changes occurring on the island today will only lead to more complex problems in the future.

A number of issues ranging from wildlife/habitat management to staffing, operations and funding were identified by planning team members as well as the public-at-large through opinion surveys. Team members identified approximately 200 issues and aggregated them into six distinct categories dealing with: systems-based management; habitat management; wildlife management; funding, staffing and policy issues; recreation management; and education and information. This plan addresses each of these issue areas. It will provide flexible guidelines for the management and development of the park over the next 5 to 10 year period. More importantly, it will provide this direction on the foundation of continued public input and consensus of key stakeholders, rather than by the unilateral auspices of the Division of Parks and Recreation.

### **The Planning Process**

Planning for an outstanding natural resource such as Antelope Island State Park is required for the protection of its unique wildlife/habitat and to ensure the efficient and effective expenditure of state and private funds. It is also necessary for the long-term protection and public enjoyment of these resources that are of great interest to the recreating public in Utah, and for our out-of-state and international guests. This Wildlife Management Plan Update is intended to be an update of previous wildlife/habitat planning efforts contained in the 1990 Antelope Island Wildlife Management Plan.

The Utah Division of Parks and Recreation’s master planning document, *Frontiers 2000*, delineates the required planning actions needed to effectively meet customer recreational and leisure needs as the agency moves into the new millennium. The document identifies resource management planning as an essential action to be completed for each park within the agency’s system. Under the guidance of *Frontiers 2000*, each planning process is designed around one core concept: meeting the needs and expectations of customers, citizens of the state of Utah and visitors while protecting each park’s unique resource base. In short, the process is “customer

driven and resource-based.”

The planning process recommends limits of acceptable change or modification, and a future vision for wildlife/habitat management activities at the park. Specifically, the process: (1) recognizes impacts will result from use and enjoyment of the site; (2) defines how much and what types of impacts may be accommodated while providing reasonable protection of the resources for future visitors; (3) incorporates values of resource sustainability, quality facilities, education and interpretation for visitors; and (4) seeks to determine the conditions under which this can be attained.

In January 2001, the Utah Division of Parks and Recreation Board directed park staff to form a citizen-based team with the objective of upgrading the current Wildlife Management Plan and developing more comprehensive management strategies to meet the needs of both wildlife/habitat and island visitors. Staff identified various recreational users, wildlife and habitat experts from resource agencies and academia and division staff serve as members of a planning team. Team members were selected for a variety of reasons ranging from technical expertise to interest in the park. All team members participated on a voluntary basis and expressed a willingness to sacrifice a significant portion of their time and expertise to the process. Ten individuals were selected to serve on the planning team and three representatives from the Division served as staff to the team.

## **PARK WILDLIFE AND HABITAT**

The team's chartered mission is to develop policies, activities and programs that will more effectively balance the island's ecosystem protection, preservation and conservation needs with development demands. To do this, the planning process calls for an inventory and analysis of park wildlife and habitat. It is essential that management decisions affecting the park's natural environment be made upon the foundation of reliable scientific information about the park's diverse wildlife/habitat resources. This section provides an overview of island habitat and wildlife - the core resources intrinsic to team recommendations.

### **Mission:**

develop policies, activities and programs that will more effectively balance the island's ecosystem protection, preservation and conservation needs with development demands to provide quality visitor experiences.

### **HABITAT**

Blue bunch wheatgrass/sage brush communities are typical to the slopes, aspects and elevations found on the island. This is the vegetation type described to have dominated the island prior to colonization of the surrounding area by Anglo-Saxons beginning in the 1840s (Egan 1977). Almost immediately upon arrival, settlers brought livestock onto the island. The island's vegetation was heavily grazed by horses, cattle and sheep for nearly 150 years aiding in the conversion of shrub communities to more of an open grassland system which dominates the island today.

The island's vegetation has been influenced by many factors over time. Grazing by domestic livestock is only one of those factors. Grazing opened the door for the establishment of cheatgrass (*Bromus tectorum*) which in turn increased the return rate of fire in the system. The more frequently the island's vegetation burned, the more rapid the cheatgrass spread. Sage brush gave way under continued grazing pressures and frequent fire until grasslands dominated the island.



Other factors influencing the vegetation include disturbances due to farming, construction and visitation. Remnants of tall wheat grass fields planted for livestock still persist along the island's east side. Gravel mining has altered vegetation at various locations on the island. Gravel fill for Interstate 80 was taken from the southeast end of the island and the borrow site was re-vegetated with an alfalfa-dominated seed mixture. Park facilities and roadways have also contributed to the alteration of the island's plant communities.

Invasive species also impact island vegetation through direct competition with native vegetation. Several of these species are expanding at rapid rates. Invasive weeds have many avenues for being introduced and spread. Seeds may be carried in on the wind, by automobile, by livestock and their feed or on the clothing of visitors. The long term objective is to inhibit the spread of invasive species and move the island's plant communities toward the blue bunch wheatgrass/sage brush communities which were once dominant in the Great Basin.

## **WILDLIFE**

### **C     *Bison***

Of the ungulates found on Antelope Island, the bison (*Bison bison*) is the most abundant and easily seen. Bison are generally dark brown with large forequarters and the males sport a massive hump. At birth, calves are reddish tan but change to the adult coloration at about three months. Bison are large animals. An average bull weighs 1500 pounds and stands 6 feet at the shoulder while the smaller cows average 700 pounds and are 5 feet high. Both sexes have horns.

Antelope Island falls within the extreme western historic range of bison. Osborne Russell (1965) documented the best evidence that bison once roamed the island. Referring to a conversation with Ute Chief Wanship who frequently hunted on the island, Russell stated:

“The old chief told me he could recollect the time when the Buffalo passed from the main land to the island without swimming and that the depth of the waters was yearly increasing.”

By the mid 1830's bison had been extirpated from the Great Basin. Declines occurred among all populations of bison until the late 1800's when less than a thousand animals remained (Player 1989).

During this era of rapid decline among bison, William Glasmann and Charles Jones saw an opportunity to stimulate interest in their real estate venture on the south shore of the Great Salt Lake by having bison on site as a novelty. The venture was not profitable and in 1893 Glasmann sold off his herd. John Dooly and W. H. White purchased Glasmann's herd (comprised of twelve animals) for the Island Improvement Company. A boat was constructed shortly thereafter to transport the bison across the lake and once again, bison roamed Antelope Island (Popov and Low, 1950 Carter, 1996). Since the reintroduction, the herd has gone through several growth and reduction cycles. Presently the herd is managed near 600 animals.

### **C     *Bighorn Sheep***

Bighorn sheep (*Ovis canadensis californiana*) are reclusive animals that prefer the rugged, inaccessible areas of the island. The color pattern of these sheep is brown with a white muzzle, underparts, rump patch and white strips down the rear of the legs (Clark 1970). Bighorn sheep are most noted for the large, massive horns carried by the rams. Ewes have horns as well but are much smaller. Adult males weigh about 200 pounds and adult females weigh approximately 130 pounds. Single lambs are typically born in late April to mid-May.

Bighorn sheep bones discovered in Headbanger Cave (Rood, 1998) demonstrate that these animals once roamed the island. During March 1997, twenty-three California bighorn sheep (4 rams, 19 ewes) from Kamloops, British Columbia were released onto the island. In February of 2000, four more rams and two ewes from Nevada joined the herd. By the fall of 2000 the herd consisted of approximately 90 animals. This herd was established, in cooperation with the Utah Division of Wildlife Resources (UDWR) and the Foundation for Northern American Wild Sheep as a nursery herd to provide sheep for future transplant efforts. Sheep from Antelope Island State Park will be used to aid in the recovery of bighorn sheep throughout their historic range. In

line with this purpose, UDWR trapped six rams, six ewes and three lambs (2 females, 1 male) in February 2001. These sheep were relocated to the Newfoundland Mountains in the west desert of Utah in Box Elder county.

Since the reintroduction of bighorn sheep, several studies have been completed while others are ongoing that monitor herd structure, dynamics and health. A minimum population target of 120 to 150 animals has been recommended (AISP Wildlife Technical Committee, 1996).

### **C     *Pronghorn***

During a western exploration trip in 1845, John C. Fremont and his expedition party traveled to the island. The explorers found pronghorn and were able to obtain needed meat for their group through the hunting of these animals. Fremont named the island Antelope Island out of gratitude for this species which was once so prominent (Egan 1977).

Pronghorn (*Antilocapra americana*) are swift runners preferring open habitats where they can detect and outrun potential predators. Pronghorn are commonly called antelope. Their markings are striking with the upper body parts being reddish-brown to tan. The underparts, rump and neck bands are white. The neck has a black mane and males have black cheek patches. Both sexes have horns which are shed annually. Males are identified by their horns which are usually longer than their ears while the female horns are typically shorter than the ears. Adult males weigh about 120 pounds and adult females weigh approximately 85 pounds. Females give birth to one or two fawns typically from mid-May into June.

Pronghorn were last sited on the island in 1933.<sup>2</sup> It was not until 1993 that pronghorn again roamed the island when 10 females and 16 males were reintroduced from Summit County, Utah near Echo Junction. Since the reintroduction the herd has been intensively studied. Annual fawn mortality is high keeping the population static around 50 animals.

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<sup>2</sup> From conversations with Bill Olwell, Ranch Manager for Antelope Island Improvement Company.

### **C     *Mule Deer***

Mule deer (*Odocoileus hemionus*) are indigenous to the western United States. Deer demonstrate seasonal variation in their coat color. During the summer their coats are slick and reddish-brown. As winter approaches, a denser gray coat replaces the lighter summer coat. Bucks have antlers which grow throughout the summer. In the fall, the velvet is rubbed off leaving only hardened bone. Late winter the antlers are shed and the cycle starts again. Females (does) do not have antlers. Adult males weigh up to 275 pounds while adult females weigh approximately 150 pounds. Does give birth to one to three fawns with twins being most typical. Fawns are born from mid-May into June (Wallmo 1978, Mackie et. al. 1982).

Mule deer are indigenous to the island with populations that fluctuate over time. Both immigration and emigration occur with the north and south causeways providing corridors for movement. The current population is estimated at 200 animals.

### **C     *Predators***

Several small and mid-sized predators have been documented on the island (Jensen 1981). The most notable and readily observed is the coyote (*Canis latrans*). Coyotes prey upon rodents, rabbits, pronghorn and mule deer fawns and occasionally bison calves. In connection with the island's ranching history, varying measures to control coyote numbers have been used. Under current management philosophy, no control measures have been used in recent years.

Bobcats (*Felix rufus*) and badgers (*Taxidea taxus*) are also mid-sized predators. Bobcats prey upon similar animals as the coyote while the badger utilizes smaller rodents more frequently. Other smaller predators documented on the island include the striped skunk (*Mephitis mephitis*) and the long-tailed weasel (*Mustela frenata*). Notable avian predators include eagles, falcons, hawks and owls.

### **C     *Fish, Amphibians and Reptiles***

In 2000, the Division of Parks and Recreation and UDWR entered into a Memorandum of

Understanding (MOU) to maintain a population of least chub (*Lotichthys phlegethontis*) in the island's south pond in addition to other areas of the state (UDWR 2000). UDWR lists least chub as a "sensitive" species, due to its small population numbers. Close to a hundred individuals have been released into the pond and UDWR will continue to monitor that population.

Surveys conducted by Jensen (1981) found no amphibians present on the island. Reptiles were found including four snake and two lizard species. Jensen indicated that other reptiles may exist but in low numbers and they went undetected during the survey.

### **C     *Small Mammals***

Little is known about small mammal populations on Antelope Island. Jensen (1981) verified the presence of thirteen small mammals. He was able to obtain a population estimate for two of the verified small mammal species; deer mice (*Peromyscus maniculatus*) and meadow mice (*Microtus montanus*).

### **C     *Avian***

The Great Salt Lake ecosystem is home to approximately 250 bird species that frequent the area throughout the course of a year. Antelope Island is part of this system and the majority of these birds are associated with the island for many reasons among which are nesting, foraging, loafing, and uplift.

The island provides unique fresh water habitats around much of the island's shoreline that attracts many waterbirds. Small islands and sandbars close by provide nesting habitat for colonial nesters. Chukar partridge flourish on the uplands while neotropical migrants use nearly every habitat type provided by the island. Some of the more notable neotropical species include the snow bunting, rosy finch and longspurs in the winter and various warblers, vireos, tanagers and shorebirds in the warmer seasons.

## **ISSUES AND RECOMMENDATIONS**

A number of issues relating to Antelope Island wildlife management were identified and addressed in this plan. Team members prioritized approximately 45 issues relating to wildlife/habitat management which were aggregated into six distinct categories. An analytical technique used to determine the park's strengths, weaknesses, opportunities and future threats (otherwise known as a "SWOT" analysis) was used to help develop recommendations for these issues. A specific description or statement summarizing each issue or problem was also constructed to clearly identify and articulate the problem at hand.

A number of constraints (e.g., available funding, sufficiency of staff, etc.) will need to be addressed prior to issue resolution. Team members, park staff and division experts identified some of the limiting factors that may hinder implementation of a specific team recommendation.

From these issues, and with the constraints in mind, the planning team developed specific recommendations. The team's recommendations were arrived at by consensus of opinion. Furthermore, team members agreed to ensure that recommendations are consistent with the vision elements listed within the mission and vision statements.

The six issue areas that form the basis of the team's recommendations include: managing wildlife/habitat under a systems approach; habitat management; wildlife management; funding staffing and policy issues; recreation management and programs; and education and information. Key to the successful implementation of recommendations developed by the planning team will be the continued input and involvement of the AISP Wildlife Management Planning Team. This group will be needed to help put in motion many of the proposed objectives listed in the plan and provide continuity to the process. A discussion of specific team issues and recommendations under each issue area follows.

## **I. SYSTEMS APPROACH**

### ***Background***

A comprehensive, ecosystem approach is needed to better manage island wildlife and habitat. More data and information should be collected to better understand inter-species competition, species habitats and distribution, and impacts from wildlife management actions such as species introduction. Actions are also needed to sustain a more diverse array of species. Five general goals defining an effective ecosystems management program should be integrated into each recommendation:

- C Ensure viable populations of native, Great Basin species;
- C Protect examples of native habitat types across their range of natural variation;
- C Maintain ecological and evolutionary processes such as nutrient cycles;
- C Plan over a time horizon long enough to maintain evolutionary potential of the system and its species; and
- C Accommodate human activities within these constraints.

The team identified the following issues and recommendations to achieve these goals and better grasp the interrelationships among island species and habitat.

### ***C Issue: Need to Identify Areas of Inter-Species Relationships (Overlap) and Facilitation***

Antelope Island lacks adequate information about location and utilization of habitat. A comprehensive, systems-wide approach to management of island wildlife and habitat is needed to prevent unhealthy competition or to promote facilitation of one species by another. Thus, an understanding of the interrelationships among wildlife species is needed. An effort to identify areas of species overlap is needed to implement appropriate actions to control, introduce and

### **Issue Area: Systems Approach for Wildlife/Habitat Management**

#### **Key Issues:**

- Species Relationships/Overlap
- Determine Island Bio-Diversity Goals
- Restoration of Island Sage-Steppe Community
- Habitat Monitoring
- Exotic Species

manage the wide variety of island species.

## **T Recommendations**

1. Collect data about habitat and identify how and where species utilize these areas; evaluate range conditions; determine areas of species overlap and map accordingly.
2. Once identified, prioritize habitat areas and implement actions for habitat improvement.
3. Develop maps for the following areas:
  - a. Species habitats and distributions.
  - b. Habitat - composed of slope, vegetation, soils, and competing species overlap.
  - c. Relate vegetation maps to diets of wildlife to identify areas used by specific species; Identify wildlife utilization of less desirable plant species.

## **C Issue: *Determine Island Bio-Diversity Goals***

Island habitat currently consists of vast areas of undesirable plant species (cheatgrass and Three-awn in particular). Current habitat is limited in supporting more diverse wildlife populations because of climate and fire frequency. Wildlife/habitat diversity is directly related to the viability of wildlife/habitat populations. Enhanced bio-diversity will buffer against climate variation, the greatest threat to viable populations over time.

## **T Recommendations**

1. Identify goals and objectives to develop a more diverse variety of island vegetation.
2. Work with range and wildlife experts to better understand the structure of island vegetation and the associated interrelationships.

## **C Issue: *Need to Restore the Island's Soil Fertility***



Actions are needed to restore the island's soil fertility, which was depleted by more than a century of heavy livestock grazing and wildfires. This will require soil restoration efforts and associated long term planning for specific areas requiring attention.

## **T Recommendation**

1. Attract bison to target areas; introduce nitrogen supplements through bison waste.
2. Increase abundance of native legumes or introduce short-lived non-native legumes as part of the re-vegetation plan.

## **C Issue: Need to Restore the Island's Sage-Steppe Community to a More Natural Condition (See Plate #1: Habitat Zones/Spring , Seep and Well Locations, p.55)**

Actions are needed to restore the island to a more natural sage-steppe community characteristic of the Great Basin environment in which Antelope Island resides. Comprehensive targets for the desired sage-steppe community should be determined within identified elevation zones which include island lowlands (lakeshore to the Provo Terrace), midlands (Provo Terrace to the Bonneville Terrace) and highlands (above Bonneville Terrace).

## **T Recommendations**

### **1. Lowland**

The desired future condition of the island lowland areas will have the following attributes:

- C Basin big sage with a mixed grass understory as the dominant community type.
- C Mountain big sage with a blue bunch wheatgrass understory should dominate north facing slopes.
- C Islands of three-awn and sand dropseed are interspersed throughout the community.
- C Varying densities of sage create a mosaic across the landscape.

- < No more than 30% of the sage is old growth while 10% of the range is free of sage.
- C Bare ground accounts for less than 20% of the community.
- C A diversity of plant species exist with at least 5 shrubs, 8 grasses and 15 forbs.
- C Spring developments exist where necessary to protect the resource with free-flowing seeps elsewhere creating scattered pockets of lush vegetation.
- C Fire frequency is 20 years or greater.

Actions Required to Achieve Desired Future Condition:

- < Monitor plant communities through photo points (annually) and range transects following protocol used by the Division of Wildlife Resources (every five years).
- < Convert cheatgrass to perennials.
- < Monitor patches of three-awn.
- < Target burned areas for reseeding.
- < Increase sage and forb component.
- < Complete mechanical treatment project.
- < Develop a fire management plan that includes prescribed burns.

2. **Midlands**

The desired future condition of the island midland areas will have the following attributes:

- C Mountain big sage with a blue bunch wheatgrass understory is the dominant community type among the scattered rock outcrops.
- C Interspersed pockets of juniper
- C Varying densities of sage create a mosaic across the landscape.
  - < No more than 30% of the sage is old growth while 5% of the range is free of sage.
- C Bare ground accounts for less than 15% of the community.
- C A diversity of plant species exist with at least 5 shrubs, 8 grasses and 20 to 30

forbs.

- C Riparian zones are productive and stable with a woody overstory.
- C Fire frequency is 20 years or greater.

Actions Required to Achieve Desired Future Condition:

- < Monitor plant communities through photo points (annually) and range transects following protocol used by the Division of Wildlife Resources (every five years).
- < Reseed burn areas.
- < Develop a fire management plan that includes prescribed burns.

3. **Highlands**

The desired future condition of the island highland areas will have the following attributes:

- C Mountain big sage with a blue bunch wheatgrass understory is the dominant community type among the talus slopes and scattered rock outcrops.
- C Pockets of low sage are interspersed throughout - varying densities of sage create a mosaic across the landscape.
- C No more than 30% of the sage is old growth while 5% of the range is free of sage.
  
- C Bare ground accounts for less than 15% of the community.
- C A diversity of plant species exist with at least 5 shrubs, 8 grasses and 25 to 40 forbs.
- C Headwater and riparian zones are productive and stable.
- C Fire frequency is 20 years or greater.

Actions Required to Achieve Desired Future Condition:

- < Monitor plant communities through photo points (annually) and range transects following protocol used by the Division of Wildlife Resources (every five years).
- < Reseed burn areas.

- <     Develop a fire management plan that includes prescribed burns.

### ***C     Issue: Habitat Monitoring***

There is a critical need for a comprehensive monitoring program to predict change in island habitat over time. Specific attention should be given to human and natural disturbances (fire, for example).

### **T     Recommendation**

1.     Identify (map) areas that sustain heavy recreation use; determine impacts at such areas and monitor accordingly; define the limits of acceptable impact (adverse change) within each area; design a plan to accommodate existing and future recreational activities to the benefit of both recreationists and wildlife.

### ***C     Issue: Exotic Species***

A wide variety of exotic invasive species currently exist on the island. However, little has been done to inventory such species, determine how widespread each species is and evaluate their specific impacts. Exotic species present a variety of undesirable consequences including fire hazards (particularly from cheatgrass), impacts on the island's water budget by reducing soil water tables and competition with desired native species.

### **T     Recommendations**

1.     Inventory – by survey and mapping - invasive species and noxious weeds.
2.     Consult with Utah State University, U.S. Forest Service range experts and Davis County; develop an action plan for exotic species management.
3.     Implement a plan for optimum biological, mechanical and flash or chemical controls.
4.     Identify transmittal modes and develop appropriate strategies to prevent re-occurrence;

Implement an active monitoring and education/prevention program to control new introductions; Dedicate appropriate funding needed for monitoring and control.

5. Map current conditions and monitor changes; Consult with experts for education/prevention/control methods.

## **II. HABITAT MANAGEMENT**

### **C Issue: Fire Management**

Antelope Island is prone to frequent, natural wildfire events that are often uncontrollable.

As a result, there is significant damage to island habitat and consequential impact on wildlife populations. The island's lack of

vegetative diversity fails to buffer or inhibit the rapid spread of fire. There is also a lack of needed fire prevention technology or equipment to help preempt and control large fire events. Comprehensive planning efforts guiding island fire management policies are also needed. The team developed several recommendations to reduce the frequency of uncontrolled fire on the island. It is important to note that controlled fire (prescribed burns) is an essential habitat management tool. Controlled burns help park staff manage the frequency of fire events. Moreover, these burns provide breaks that help control wildfires during fire season.

### Issue Area: Habitat Management

Key Issues:

- Fire Management
- Island Re-Vegetation
- Management of Visitor Impacts
- Water Resource Development

### **T Recommendations**

1. Create a suppression plan with associated agencies (Division of Forestry, Fire and State Lands and local communities). Plan elements will include:
  - a. Development and implementation of a prescribed burning plan;
  - b. Green-stripping in appropriate areas to create a vegetation buffer zone; and
  - c. Addressing fire equipment/training needs.
  
2. Review efficacy of current lightning rod structures and evaluate new lightning monitoring technologies for fire control; If a determination is made that current structures are working, implement the following actions:
  - a. Repair existing rods and provide additional rods as needed.
  - b. GPS and map rod locations.
  - c. Obtain lightning frequency map and implement proper course of action.

3. Identify and prioritize critical areas to be protected (note that the team identified sage stands, riparian areas and other critical habitat areas as top priorities); Fire control (suppression) should be considered as an integral part of an island re-vegetation plan.
4. Collect location information on fires and create a historical map as events occur.

**C** *Issue: Island Re-Vegetation (see Plate #3: Reseed Potential and Range Improvement - Shrubs, p.55)*

An assessment of the island's re-vegetation needs should be conducted to determine appropriate actions. As with other plan elements, a systems-wide approach is needed to meet a variety of needs including habitat improvement, monitoring for visitor use and fire control (see also recommendations regarding island sage-steppe restoration in *Systems Approach* section on pp. 19-22).

**T** **Recommendations**

1. Develop a map - in an overlay format - that includes the following attributes:
  - a. vegetation types
  - b. soils
  - c. critical wintering areas for wildlife
  - d. lambing/fawning areas
  - e. bird nesting and critical foraging habitat
  - f. zones of visitor impact
  - g. monitor island vegetation improvements through satellite imagery showing changes over specified climate cycles
  - h. coordinate appropriate vegetation analyses through time using photo transects, crew analysis or other appropriate means.
2. Assist with collection and spreading of appropriate seed sources over the entire island.
  - a. Revegetate by aerial seeding at the time of first snowfall with burned areas

receiving priority.

3. Develop a plan to appropriately fund re-vegetation projects; Funding needs should be considered with regard to costs, available funding sources and other wildlife/habitat project needs.
4. Create maps of burn areas for target re-seeding projects using identified critical habitat areas.
5. Prioritize re-seeding efforts using the following criteria/approaches.
  - a. Evaluate both the desirability and the utility of the proposed vegetation.
  - b. Utilize benefit-cost analysis to assess project feasibility/efficiency.
  - c. Special consideration should be given to re-seeding projects in:
    - i) burned areas
    - ii) target areas for conversion
    - iii) areas essential/critical for wildlife habitat
    - iv) green strips for fire control
  - d. Weigh the benefits (and the drawbacks) of utilizing either perennial or annual vegetation; Determine the degree of dominance that each type has on different soils within zones, particularly the impacts on grassland and shrubs.
  - e. Seed selection should be based on the following criteria:
    - i) determine whether seed type should be native or non-native
    - ii) timing of planting activities (time of year)
    - iii) capacity the plant has to replace nitrogen back to system
    - iv) cost and availability
6. Develop vegetation maps and utilize to evaluate and prioritize all future re-seeding projects; Make a determination of acreage to target; Determine optimal re-seeding methodology/strategies (different methods of re-seeding).



7. Utilize a systems approach when considering re-seeding projects; Implement numerous, small-scale re-seeding projects over time (such projects increase the probability of success and introduce new seed sources over a larger area thus enhancing program cost effectiveness).
8. Develop plans for the establishment of a “seed farm” to serve as an on-site seed source; Consider locating the nursery near the Garr Ranch; This farm could be developed as a “co-op” utilizing local support; This proposal should be consistent with the historically based interpretive programs presented at the Garr Ranch.
9. Identify actions to enhance island (tree) canopy cover to increase diversity of both plant and wildlife species, avian in particular.

### ***C Issue: Management of Visitor Impacts***

Island visitation has virtually tripled over the past eight years. Visitation is expected to continue this upward trend over the next several years. While these increases are encouraging, they also have an impact on island cultural and natural resources. Consequently, management goals are needed to minimize impacts on habitat as interest in the island increases.

### **T Recommendations**

1. Identify critical areas that need protection; document these areas via mapping.
2. Account for timing issues with respect to wildlife/habitat; Identify the seasonal needs of each critical area and develop appropriate wildlife/habitat management strategies (e.g., closures of such areas) during critical times of the year.
3. Fully implement and comply with relevant zoning concepts established in the 1994 Resource Management Plan.

4. Monitor recreational impacts on wildlife/habitat resources using range trend studies and photography; Implement education/information efforts to ensure that visitors understand the need to minimize impacts on wildlife/habitat.
5. Habitat improvement actions should not depreciate the island's view shed or aesthetic qualities.

***C Issue: Water Resource Development (See Plate #1: Habitat Zones/Spring , Seep and Well Locations)***

Additional water sources from island springs should be developed for habitat needs. Such development should be consistent with resource management goals.

**T Recommendations**

1. An inventory of all springs is needed; Identify existing spring developments; Evaluate and make recommendations for potential development; Monitor seasonal flows.
2. Future spring developments should be wildlife friendly viz., the installation of guzzlers natural catchments, and development of seeps.
3. Develop and dedicate appropriate funding sources for spring management; Coordinate with UDWR's habitat council as a potential funding source.

### III. WILDLIFE MANAGEMENT

#### A. Ungulate Species -- Bison

##### **C Issue: Bison Management**

The park's bison program, while well-established, is not well-defined. An appropriate, sustainable herd composition/ratio needs to be determined. Moreover, it is unclear how to effectively promote a successful bison sale, particularly in unstable market conditions.

#### T Recommendations

1. Implement recommendations in accordance with the mission of enhancing the quality of life through well managed wildlife programs and conservation principles. Consistent with this mission, the bison program's primary goal is to provide for viewing and interpretive opportunities. All facets of bison management should be geared toward protecting, preserving and conserving natural ecosystems. Development demands should be balanced with these objectives in mind.

#### Issue Area: Wildlife Management

##### Key Issues:

##### -Ungulate Species

- < Bison
  - Bison Management
  - Bison Roundup
  - Bison Hunting
  - 9<sup>th</sup> Allele Genetics
  - Bison Carrying Capacity
- < Deer
  - Survey Island Deer Populations
  - Recreational Impacts
- < Pronghorn
  - Survey Pronghorn Populations
  - Excessive Pronghorn Predation
- < Bighorn Sheep
  - Implement Bighorn Management Plan
  - Survey Island Bighorn Populations
  - Enhance Bighorn Viewing Opportunities

##### -Avian Issues

- < Comprehensive Planning for Avian Species
- < Potential Introduction of Avian Species
- < Systems-Based Approach for Avian Management
- < More Direction Needed for Avian Management Issues
- < Breeding Habitat for Migratory Bird Species

##### -Small Mammals, Predators, Reptiles and Fish

2. Reduce/restructure the herd size to establish a more natural composition and alleviate marketing pressures.
  - a. Recommend a target ratio of 1 bull to 4-5 cows.
  - b. Sell younger age classes, keeping older animals to be viewed.
  - c. Determine a bison carrying capacity that is commensurate with habitat and other wildlife resources.
  
3. Partner with Utah Department of Agriculture and State Surplus to monitor, research and develop a long-term marketing plan.

### ***C Issue: Bison Round-Up***

Many questions exist about roundup policies. For example, at what point in the year should the round-up be held? What are the most appropriate roundup techniques? How can staff more effectively project bison sales revenue and industry trends? Safety issues concerning workers and animals during the roundup? Additionally, there are concerns about separation of calves from cows during the working process.

### **T Recommendations**

1. The roundup should be held during periods of cool weather to ensure bison health. It is recommended that the roundup *not* take place before the last week of October.
  
2. Park management should be vested with the authority to review and implement appropriate roundup policies regarding technique and sales/marketing. Management should also develop recommendations to alleviate concerns about calf weaning and ear tagging.

### ***C Issue: Bison Hunting***

Bison hunting is a high profile issue that has spawned much debate and discussion. Many support the option of bison hunting as one of the island's diverse recreation opportunities.

Others feel that bison hunting is inconsistent with non-consumptive wildlife management policies on the island. If the bison hunt continues, several issues should be addressed. For example, at what age should bison be hunted? Should hunting policies be modified given the current shortage of older bulls? Similarly, should cows be hunted? Should special hunts for youth or disabled individuals be provided? There are also concerns about what constitutes a “fair chase.” Finally, can the island’s herd be used as a nursery to provide animals for hunting in other areas of the state?

## **T Recommendation**

1. The team felt this issue has strong political implications and requires more thorough discussion and debate. Biologically, the team supports the wildlife manager’s discretion in all bison management recommendations, including the need for a hunt.
2. Both the Utah Division of State Parks and Wildlife Resources Boards should convene a joint meeting to discuss hunting issues and address herd composition questions to provide guidance to park management.

## **C Issue: 9<sup>th</sup> Allele Genetics**

The Antelope Island bison herd contains a unique 9<sup>th</sup> Allele gene. In fact, the island herd serves as a reservoir for this genetic attribute. The 9<sup>th</sup> allele provides genetic diversity among bison herds and thus helps to ensure stable, healthy populations. More clearly defined policies are needed to guide management of this biological characteristic. For example, the allele’s economic value needs to be determined. Should or can it be effectively/efficiently retained? What are the ethical consequences of losing the 9<sup>th</sup> allele?

## **T Recommendations**

1. At this time the wildlife manager should try to retain the allele by not selling animals containing the gene. Further hands-on steps should only be considered if funding becomes available.

2. Identify and work with geneticist/researcher to gather additional information and advice; develop appropriate management policies and/or options on the basis of these recommendations.

### ***C Issue: Bison Carrying Capacity***

There is a need to determine the carrying capacity of the Island's bison herd. An expanding herd will clearly impact habitat for other species. However, the optimum herd size relative to these constraints has not been identified.

### **T Recommendation**

1. Carrying-capacity research should be conducted and recommendations should follow; Subsequent policies should be implemented under a systems approach that identifies interrelationships with other island wildlife and habitat. The current Wildlife Technical Committee should provide guidance for future carrying capacity determination.
  - a. Utilize the current Wildlife Technical Committee recommendation of 550 animals until further notice.

## **B. Ungulate Species -- Deer**

### **Overview**

Management of Antelope Island mule deer populations has been a predominant issue at the park over the past two years. In November, 2000 the Division of Parks and Recreation Board reaffirmed existing policies regarding mule deer management, particularly with respect to hunting as a needed *population management* tool. Namely, management of Antelope Island's ungulate populations provides for capture, removal or control if populations grow to exceed carrying capacity (with hunting as the management tool of last resort). The Wildlife Management Planning Team supports this position.

***C Issue: Accurate Information Regarding Island Deer Populations is Needed***

There is a need to accurately survey/inventory island deer populations. Current population estimates are speculative. More accurate, thorough surveys are needed to adequately assess population size and herd composition. Research should be conducted and subsequent policies should be implemented under a systems approach that identifies interrelationships with other island wildlife and habitat.

**T Recommendations**

1. Identify specific survey needs; Gather classification data (e.g., herd size, age classes, ratio of males/females, distribution, etc.).
  - a. Implement an on-going monitoring program and utilize data to determine sustainable deer population and associated carrying capacity.
2. Currently, there is no evidence indicating that deer populations are unstable. Consequently, it is recommended that current management policies remain in effect until surveys are complete.
3. Identify and map seasonal habitat areas.
4. As research information becomes available, maintain a sustainable population for the purposes of viewing, education, and research.
5. While a stable deer population is important, actions implemented for deer management will receive a lower priority relative to other more unique ungulate species (and associated needs) on the island due to the fact that there are significant deer populations in other areas of the state.

***C Issue: Recreational Impacts on Deer Populations***

There is a need to develop and implement management policies that both provide recreational opportunities *and* ensure a sustainable population.

**T Recommendations**

1. Create better viewing areas by opening the east side road earlier in the day and consider re-seeding projects to provide desirable habitat along roadsides.
  - a. Identify and map such areas
2. Promote viewing opportunities in months when deer are most visible (e.g., fall and winter).
3. Enhance interpretative and education programs to educate visitors about island deer populations.

**C. Ungulate Species -- Pronghorn*****C Issue: Survey Island Pronghorn Populations***

The team felt that pronghorn are a historically significant species that need to be conserved. More accurate, thorough surveys are needed to adequately assess population size and herd composition. Research efforts should continue and subsequent policies should be implemented under a systems approach that identifies interrelationships with other island wildlife and habitat.

**T Recommendations**

1. Identify specific survey needs; Gather classification data.
  - a. Implement an on-going monitoring program with emphasis on recruitment/fawn survival and utilize data to determine sustainable pronghorn population and associated carrying capacity.
  - b. Research should also determine the interrelationships with other species.



- c. Identify critical seasonal habitat areas.
2. Maintain sustainable populations for the purpose of viewing, education, and research.
3. Consider other opportunities for introduction/transplant.
  - a. Coordinate such efforts with UDWR and other entities, including Wyoming Game and Fish.

***C Issue: Excessive Pronghorn Predation Rates***

There are high rates of predation on pronghorn, particularly among juvenile populations. Actions may be needed to ensure effective fawn recruitment.

**T Recommendations**

1. Because pronghorn are a unique, historically significant island species, steps should be taken to ensure the population is sustainable. Weigh costs vs. benefits of “stocking” particularly with respect to the high fawn mortality/predation. Look for opportunities to augment the female population.
2. Predator control/management actions to sustain pronghorn populations should be at the discretion of the AISP Wildlife Manager in consultation with the Wildlife Technical Committee.

**D. Ungulate Species -- Bighorn Sheep**

***C Issue: Fully Implement Bighorn Sheep Management Plan***

A draft management plan for Bighorn Sheep has been initiated but has not yet been formally approved. There is a need to finalize and implement this document.

**T Recommendations**

1. Implement the Antelope Island State Park Bighorn Management Plan. Follow and adhere to plan recommendations.
2. Need to review and, if needed, update/enhance cooperative management agreement between State Parks and UDWR.

**C Issue: *Survey Island Bighorn Populations***

An accurate survey/inventory of island bighorn sheep is needed to adequately assess population size and herd composition. Research should be conducted and subsequent policies should be implemented under a systems approach that identifies interrelationships with other island wildlife and habitat.

**T Recommendations**

1. Identify specific survey needs; Gather classification data.
  - a. Implement an on-going monitoring program and utilize data to determine sustainable bighorn population and associated carrying capacity.
  - b. Research should also determine the interrelationships with other species.
  - c. Identify critical seasonal habitat areas.
2. Maintain sustainable populations for the purpose of viewing, education, transplant and research.
  - a. Management of the bighorn population should be a higher priority because it is not found in many other areas of the state.
  - b. Island bighorn should continue to serve as a nursery for cooperative transplant to other herds and areas.
  - c. Monitor for health problems, particularly bighorn lungworm/pneumonia complex.
3. Review lambing season trail closures; Review lambing data and critical dates (spatial);

Consult with bighorn experts on need and timing for closures (pre-lambing, lambing, post-lambing periods).

***Issue: Enhance Bighorn Viewing Opportunities***

Island bighorn populations provide a unique wildlife viewing opportunity for visitors. These opportunities should be expanded, enhanced and promoted where appropriate.

**T Recommendations**

1. First and foremost, evaluate impact of human activity in prime habitat areas; ensure that human impact does not diminish, degrade habitat or populations.
2. Create better viewing areas by promoting viewing opportunities in winter months; Enhance interpretative and education media and programs to educate visitors about bighorn populations.

**E. Avian Issues**

***C Issue: Comprehensive Planning Needed for Avian Management***

There is a need for a more comprehensive avian species management plan. First, the 1990 Wildlife Management Plan lacks clear management objectives for *all* avian species. Secondly, a thorough review of existing avian studies should be incorporated, where possible, to avoid duplication of effort.

**T Recommendations**

1. Consider the major avian habitat types associated with Antelope Island and provide a checklist (or inventory) of birds associated with these habitats including their specific habitat requirements.

2. Compile a bibliography of existing Antelope Island avian study reports and use them to assist in developing the checklist/inventory; Evaluate this compilation of plans to determine if additional avian research and data collection is warranted.
  - a. Utilize this research to prioritize species for the development of management objectives; Identify associated, sustainable management goals and implement accordingly.

### ***C Issue: Potential Introduction of Avian Species***

Identify and evaluate the feasibility of introducing additional native avian species. Appropriate species may include sharptail and sage grouse.

### **T Recommendations**

1. Conduct a literature and historic account search to best assess which grouse species historically occurred on Antelope Island.
2. After a target species is selected enlist the assistance of a species expert to carry out a habitat assessment and make a feasibility recommendation for reintroduction.
3. Carry out appropriate habitat improvements or alterations.
4. Develop an introduction plan to include a cost assessment and population objectives.

### ***C Issue: Systems-Based Approach to Avian Management***

As with other species, avian management should be conducted on a systems-wide basis. Avian habitat management should be integrated with other wildlife habitat management objectives.

### **T Recommendations**

1. Consider all AISP wildlife species (including avian) as an integral part of the systems approach planning effort of this Wildlife/Habitat Management Plan.

2. Prioritize avian species management objectives and integrate into the comprehensive Habitat Management Plan.

***C Issue: More Direction Needed Regarding Avian Management Policies***

The current Wildlife Management Plan lacks direction and policy on avian management, protection and research.

**T Recommendations**

1. Use the AISP Wildlife Technical Advisory Committee to develop and implement guidelines for critical issues related to avian management on the island. These guidelines should fall in compliance with UDWR rules and regulations.
2. Policies or procedures should be developed and implemented to assist park rangers and other staff in the protection of birds and their habitat (i.e. the protection of Egg Island and the disturbance of upland nesting species).
3. Use the AISP Wildlife Technical Advisory Committee to provide guidelines on research requests and needs relevant to bird study.

***C Issue: Breeding Habitat for Migratory Bird Species***

Island shorelines may serve as important breeding habitat for migratory birds - water birds in particular. Research is needed to document the role that the island's shorelines play in the breeding habits of migratory bird species.

**T Recommendations**

1. Conduct an inventory of migratory breeding birds within the determined avian habitats (Integrate as part of the recommendation to develop a Comprehensive Inventory of Avian Species as recommended in Issue 1 above); Assess habitat use and value.
  - a. From this information develop park management plans to enhance and protect

important breeding habitats. Identify the location of these habitats as it relates to current and potential park development and visitor use.

## **F. Small Mammals, Predators, Reptiles, Amphibians and Fish**

### **F-1 Small Mammals**

#### ***C Issue: Inventory Small Mammal Populations***

The status of small mammals on the island is largely unknown. An accurate, complete identification program is needed to document small mammal habitat and distribution of species.

#### **T Recommendations**

1. Review existing species lists - both predator and prey; Conduct presence/absence surveys; effective survey methods may include prey use analysis, scat/pellet analysis; emphasize studies during lambing/fawning season.
2. Establish survey routes and monitor lagomorph populations annually.
3. Evaluate potential/suitability of reintroducing other Great Basin small mammal species.
4. Evaluate feasibility of establishing a prairie dog/blackfooted ferret complex (see recommendations for *threatened and endangered species* on p. 42).

### **F-2 Predators**

#### ***C Issue: Inventory Island Predator Populations***

The status of island predators is largely unknown. An accurate, complete identification program

is needed to document predator habitat and distribution of species. Potential control measures should also be explored as needed.

**T Recommendations**

1. Review existing species lists. Conduct presence/absence surveys.
2. Fund a study to determine predator density and distribution as it relates to population abundance of rodents and lagomorphs and the impact low rodent numbers have on predator selection of prey (specifically selection of young ungulates).

**F-3 Reptiles, Amphibians, Fish**

**C Issue: *Identify Status of Reptiles, Amphibians and Fish***

The status of reptiles, amphibians and fish on the island is largely unknown. An accurate, complete identification program is needed to document habitat and distribution of species.

**T Recommendations**

1. Review existing species lists; Conduct presence/absence surveys.
2. Continue cooperative effort with UDWR to maintain a least chub population on the island (see recommendations for *threatened and endangered species* on p. 42).

## **F-4 Threatened and Endangered Species**

### ***C Issue: Explore the Possibilities of Utilizing Antelope Island as a Mitigation Preserve to Enhance Threatened Species***

Antelope Island may serve as a potential mitigation site for threatened, endangered or state-designated “sensitive” species. Currently, the island hosts populations of least chub - a species listed as sensitive by the UDWR. There may be other opportunities to protect and enhance other such species.

### **T Recommendations**

1. Coordinate with UDWR to evaluate the feasibility, impacts, benefits and costs of utilizing Antelope Island as a mitigation site for threatened species; If program is feasible, identify appropriate species for mitigation actions.



#### IV. FUNDING, STAFFING AND POLICY ISSUES

##### ***C Issue: Enhance Funding Base***

The Island has an inadequate base of funding to effectively manage wildlife/habitat. Bison sales are currently the primary revenue source for wildlife/habitat management programs. A more diverse array of sources and opportunities are needed to increase the revenue base for island wildlife/habitat management actions.

#### Issue Area: Funding, Staffing and Policy Issues

##### Key Issues:

- Enhance Funding Base
- Effectively Respond to Politically-Based Initiatives
- Interagency Coordination
- Park Boundaries Uncertain
- Lake Level Fluctuation
- Revisit Shed Antler Collection Policies
- Avoid Duplication of Effort
- Determine if Wildlife/Habitat Policies are Overly Restrictive

##### **T Recommendations**

1. Develop strategies to obtain funding from more diverse sources including: grants, special fund raising projects, friends groups, other agencies (federal and state, in particular), special interest groups, other partnership opportunities.
2. Periodically assess budget/staffing levels relative to habitat management needs.
3. Work with Parks Board to investigate establishing an entrance fee surcharge to expand funding base.

##### ***C Issue: Effectively Respond to Politically-Based Initiatives***

There is a need to help ensure that management actions are in harmony with the public interest. Many well-meaning, politically-based initiatives regarding management of Antelope Island have been put forward. Often, however, these initiatives are in conflict with existing policies and run counter to the needs of the island's broader recreating public. Actions are needed to ensure that politically-based initiatives impacting management policies are congruent with the needs of all

island constituents.

## **T Recommendation**

1. Park staff should develop and initiate an active public relations campaign to invite key legislative members and politically motivated individuals out to the island and discuss wildlife/habitat issues and needs.
  - a. Staff will work with Division management, user groups or other relevant partners to identify strategies and goals.

## **C Issue: Interagency Coordination**

Most of the policies guiding island wildlife/habitat management require interaction and coordination with state and local agencies (the UDWR and their respective Wildlife Regional Advisory Councils and Wildlife Boards and Davis County), non-governmental organizations and conservation organizations. To ensure effective implementation of these policies, actions are needed to secure effective interagency and external coordination and cooperation. Similarly, strategies should be developed to garner increased support from these organizations and the interested public as well.

## **T Recommendations**

1. Enhance cooperative wildlife/habitat management efforts between State Parks and UDWR by more frequent contact with each agency's respective governing board.
  - a. Provide progress reports to each board as plan elements are implemented.
  - b. Meet as needed or as issues arise.
2. Develop cooperative relationships with other Great Salt Lake wildlife organizations to help showcase and receive support for Antelope Island wildlife/habitat management policies.
  - a. Establish (or maintain) contacts with the following organizations: Important Bird Area Program; Western Hemispheric Shorebird Reserve; Great Basin Shorebird

Inventory; Great Salt Lake Comprehensive Management Plan (GSLCMP), Nature Conservancy; Inland Shore Bird Reserve; Gilmore Sanctuary; and other relevant organizations.

3. Build/strengthen relationships with all influential stakeholders about issues.
  - a. Utilize Bison Roundup as an opportunity to host/reach those interested in wildlife/habitat issues.

***C Issue: Park Boundaries Uncertain***

Currently, park boundaries are not well defined. This issue makes it difficult to effectively implement many wildlife/recreation policies related to shoreline management.

**T Recommendations**

1. Work with DNR Attorney General's Office to assess legal options to resolve boundary issues.
2. Coordinate with UDWR and local air-boat associations to evaluate their needs.

***C Issue: Lake Level Fluctuation***

Increases in the level of the Great Salt Lake may impair/prevent island access. Actions are needed to minimize impacts from lake level fluctuations.

**T Recommendation**

1. Advocate implementation of policies set forth in the 2000 Great Salt Lake Comprehensive Management Plan and Decision Document.

***C Issue: Revisit Shed Antler Collection Policies***

Current policies regarding collection of natural resources may be too restrictive. However, limited shed antler collection may be a means of generating additional revenues for the island.

**T Recommendation**

1. Reevaluate natural resource (collection) policies; evaluate feasibility of a limited shed antler collection program as a means of generating revenues for island wildlife/habitat.
  - a. If collection program is feasible, develop criteria to prevent conflict with management goals or regulatory requirements concerning shed antlers.
  - b. Present recommendations to the State Parks Board for discussion.

**C Issue: *Avoid Duplication of Effort***

Develop policies and procedures regarding the establishment of working groups, technical teams, subcommittees to avoid duplication of effort and minimize conflict between groups.

**T Recommendation**

1. The established Wildlife Technical Committee (WTC) will evaluate need and provide final approval for all working groups and subcommittees dealing with Antelope Island wildlife and habitat issues. The WTC will serve as an information clearinghouse, will share ideas and research where applicable, and make recommendations for staff. This process should alleviate conflicts between groups.

**C Issue: *Determine if Wildlife/Habitat Policies are Overly Restrictive***

The impacts of the extent of island recreation upon wildlife/habitat is not clear. For example, the level of resource wildlife/habitat protection afforded by existing park policies may be excessive to the point of excluding recreation opportunities that have no significant deleterious impacts.

**T Recommendation**

1. Review current policies to determine if restrictions are commensurate with the level of wildlife/habitat protection required.
  - a. Evaluate and “zone” critical areas; determine which potential recreation activities are appropriate within each zone; map accordingly.
  - b. Adhere to Wildlife Management Plan and associated goals established therein.



## V. RECREATION MANAGEMENT AND PROGRAMS

### C *Issue: Managing Recreational Development (See Plate #2: Recreational Use Patterns, p.55)*

Increased visitation brings with it pressures to further develop island or expand recreational use and/or park income. There is a need to balance this growth with wildlife/habitat needs, goals and objectives.

### Issue Area: Recreation Management and Programs

#### Key Issues:

- Managing Recreational Development
- Enhance Wildlife Viewing Opportunities
- Minimization of Visitor Impacts on Wildlife/Habitat

## T Recommendations

1. Potential development or expansion of programs or activities should conform to the recreation management goals outlined in the 1994 Antelope Island Resource Management Plan (RMP).
2. Seek public input and approval as new developments or programs are proposed.
3. Continue to monitor the island's visitor "carrying capacity" with the goal of sustaining a quality recreational experience while protecting natural and cultural resources.

### C *Issue: Enhance Wildlife Viewing Opportunities*

There is a need to provide more quality wildlife viewing opportunities. Such opportunities were viewed as a high priority issue in the 1994 RMP.

## T Recommendations

1. The proposed wildlife monitoring programs as outlined above should include a research

component to determine the best times and locations to view the particular species.

2. Consider other eco-tourism opportunities for interested visitors where appropriate.
  - a. Such opportunities may include: back-country permits; interpretative programs; species tours based upon wildlife/habitat issues; programs for birding, ungulates, predators, etc.
  - b. Where appropriate, locate and develop additional viewing areas; Include adequate interpretive signage within each area; Determine the most appropriate informational “focus points”; conform with wildlife use patterns to minimize conflict and give visitors best chance to view wildlife.

### ***C Issue: Minimization of Visitor Impacts on Wildlife/Habitat***

There is a need to identify programs or policies that negatively impact wildlife/habitat.

Subsequent strategies should be employed to minimize these conflicts.

### **T Recommendations**

1. Determine where there are programmatic overlaps between recreational activities and wildlife/habitat management; assess the associated impacts and determine what measures need to be taken.
  - a. Utilize zoning concepts to effectively target and manage interactions and develop recommendations for such impacts. After this determination, make recommendations for actions to minimize impacts where needed.
2. Utilize past and on-going research to assess and reduce impacts; determine if further research is needed.

## VI. EDUCATION AND INFORMATION

### *C Issue: Interpretive Strategy to Encourage Wildlife Viewing*

With increased emphasis on non-consumptive wildlife recreation, there is a need to develop and implement a wildlife interpretive strategy

that encourages wildlife viewing/wildlife interaction while minimizing negative impacts on wildlife resources.

### Issue Area: Education and Information

#### Key Issues:

-Interpretive Strategy to Encourage Wildlife Viewing

-Enhance Education Efforts About the Need for Prescribed Burns

### T Recommendations

1. Charter an interpretive committee to develop a plan of action for island wildlife/habitat education and information.
2. Promote education of wildlife/habitat issues through established interpretive programs already in place (particularly those at the Visitor Center and Garr Ranch).
3. Work with relevant wildlife/environmental education-oriented groups to develop appropriate interpretive information programs that effectively educate visitors about wildlife/habitat issues and its unique Great Basin ecosystem.
4. Work with user groups and the State Parks Public Affairs Section to identify and implement various marketing strategies promoting the positive aspects and benefits of wildlife/habitat on Antelope Island.
  - a. Ensure that the public has easy access to documented interpretive programs, signs, brochures, volunteer efforts, Internet links, etc.



***C Issue: Better Education Efforts Needed With Implementation of Prescribed Burn Activities***

Interpretive and educational efforts are needed to explain the need/purpose of prescribed fire on Antelope Island.

**T Recommendation**

1. As part of the above proposed interpretive efforts, install signage explaining the purpose, need and benefits associated with controlled fire as such events are implemented.

## **CONCLUSION**

This plan is a blueprint to help develop and implement the planning team's recommendations. As such, it outlines the initial steps to be taken in concert with users, sister agencies and other local communities to upgrade wildlife and habitat policies to more effectively balance the island's ecosystem protection, preservation and conservation needs with recreational demands. The recommendations contained in this plan conform to this mission. This central theme was considered with the development of each recommendation.

The plan's recommendations effectively deal with needs concerning island wildlife, habitat and associated recreational use. However, it is crucial that adequate funding be received to implement these goals. As stated earlier, the plan's success is dependent upon the continued support of park stakeholders - users, sister agencies and local communities. Stakeholders must continue their efforts to preserve park resources, interact with local communities and strive to meet the expectations of park visitors in the midst of a rapidly growing community of recreation-oriented citizens. The recommendations contained within this plan were based upon an open and collaborative process. It is imperative that this collaborative spirit continue as the plan's components are implemented.

It is also imperative that the document be reviewed on a regular basis to ensure its viability, relevance and usefulness. This document has sufficient flexibility to be amended in response to changing resource conditions, visitor needs and expectations, community needs and agency priorities. Such amendments may occur under the auspices of The Utah Division of Parks and Recreation working in conjunction with the AISP Wildlife Technical Advisory Committee. Any such changes will include input from park visitors, local citizens, community leaders, park management or other stakeholder with interests relevant to the operations and maintenance of the park.

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## MAPS

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Plate 1 Habitat Zones/Spring, Seep and Well Locations

Plate 2 Recreational Use Patterns

Plate 3 Reseed Potential and Range Improvement

# APPENDIX A

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## Implementation Plan for Wildlife and Habitat Recommendations

## **Implementation Plan for the Wildlife and Habitat on Antelope Island**

### ***Background***

The systems approach for this planning document explores the “big picture” in terms of wildlife and habitat issues on Antelope Island. Needs were identified by areas of influence and foreseeable events that may impact the resources. Following this issue identification phase, the planning team developed corresponding recommendations and implementation actions. A determination was made to monitor cumulative/interactive effects by management actions. If unforeseen negative impacts stress resources beyond critical thresholds, island activities or influences should cease until conditions are improved. Such actions will be consistent with five basic team goals: 1) ensure viable populations of native Great Basin species; 2) protect examples of native habitat types across their range of natural variation; 3) maintain ecological and evolutionary processes such as nutrient cycles; 4) plan over a time horizon long enough to maintain evolutionary potential of the system and its species; and 5) accommodate human activities within these constraints.

The plan’s recommendations effectively account for cumulative effects. The Council on Environmental Quality’s regulations define these effects as:

“...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency or persons undertakes such actions.” (40 CFR Section 1508.7).”

Cumulative effects result from spatial (geographic) and temporal (timing) crowding of environmental perturbations. While cumulative impacts on the island may affect some species, the implementation of goals, objectives, standards and guidelines are expected to conserve existing habitat and improve habitat for some species. By managing within the range of historic variation and a properly functioning condition, it is expected that all preferred species will be sustained in the long term.

From the six issue areas outlined in this plan - Systems Approach, Habitat Management, Wildlife Management, Funding, Staffing, and Policy, Recreation Management and Programs, and Education and Information - over 200 issues were identified. This implementation document prioritizes the most critical issues. Implementation of recommendations to deal with these pressing issues will effectively stem negative long-term cumulative effects by rectifying the most potentially damaging problems, especially those requiring attention now. The team recognizes the need to eventually address all 200 issues because of the cumulative effects of each issue area and the interconnections between these issues. The list below represents the prioritized recommendations of the Wildlife/Habitat Technical Planning Team:

- 1) Fire Management
- 2) Exotic Species/Weed Control



- 3) Island Re-vegetation/Sage Steppe Restoration
- 4) Enhance Funding Base
- 5) Systems-Based Avian Management
- 6) Inventory (all) Species
- 7) Enhance Wildlife Viewing Opportunities
- 8) Bison Management
- 9) Habitat Monitoring
- 10) Bison Roundup/Marketing
- 11) Bison Hunt
- 12) Interagency Coordination
- 13) Manage Visitor Impact
- 14) Excessive Pronghorn Predation Rates
- 15) Interpretive Strategy to Encourage Wildlife Viewing

***Implementation Actions***

The following is a summary of the prioritized recommendations along with associated implementation actions. These implementation steps specify the estimated project time frames, responsible personnel and proposed actions. A brief description of issues and recommendations (as described in greater detail in the plan) is also provided.

**Issue #1 - Fire Management (*refer to p. 24 in plan for detailed recommendations*)**

**Recommendations**

1. Create a fire suppression plan.

**Implementation Actions**

Time Line: Plan complete, July 2002  
Personnel Responsible: AISP Wildlife Range Manager; AISP Fire Ranger  
Actions: Develop a fire suppression mobilization plan

2. Review efficacy of current lightning rod structures and evaluate new lightning monitoring technologies for fire control.

**Implementation Actions**

Time Line: Analysis completed, May 2001  
Personnel Responsible: AISP Wildlife Range Manager; Private Consultant (VFC Inc.)  
Actions: Will draft document indicating current lightning grounding system

3. Identify and prioritize critical areas to be protected.

**Implementation Actions**

Time Line: Complete, February 2002  
 Personnel Responsible: AISP Wildlife Range Manager; UDPR GIS Manager  
 Actions: Will create map document indicating critical areas to be included in suppression plan

4. Collect location information on fires and create a historical map as events occur.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: AISP Wildlife Range Manager; UDPR GIS Manager  
 Actions: Add data to file as events occur

**Issue #2 - Exotic Species/Weed Control (*refer to p. 22 in plan for detailed recommendations*)****Recommendations**

1. Inventory - by survey and mapping - invasive species and noxious weeds.

**Implementation Actions**

Time Line: March 2002 - November 2002  
 Personnel Responsible: AISP Wildlife Range Manager; Utah State University (USU)  
 Actions: Inventory and map

2. Consult with Utah State University, U.S. Forest Service range experts and Davis County; develop an action plan for exotic species management.

**Implementation Actions**

Time Line: Initiate plan, January 2002  
 Personnel Responsible: AISP Wildlife Range Manager; USU; Davis County Weed Control  
 Actions: Draft document for noxious weed management

3. Implement a plan for optimum biological, mechanical and flash or chemical controls.

**Implementation Actions**

Time Line: March 2002 (for next 10 years thereafter)  
Personnel Responsible: AISP Wildlife Range Manager; USU; Davis County Weed Control  
Actions: Apply biological, mechanical, chemical controls as recommended

4. Identify transmittal modes and develop appropriate strategies to prevent re-occurrence; implement an active monitoring and education/prevention program.

**Implementation Actions**

Time Line: March 2002 - March 2012  
Personnel Responsible: AISP Wildlife Range Manager; USU; Davis County Weed Control  
Actions: Will follow noxious weed plan as funding allows

5. Map current conditions and monitor changes; Consult with experts for education/prevention/control methods.

**Implementation Actions**

Time Line: March 2002 - March 2012  
Personnel Responsible: AISP Wildlife Range Manager; USU; Davis County Weed Control  
Actions: Will follow noxious weed plan as funding allows

**Issue #3 - Island Revegetation/Sage Steppe Restoration (*refer to pp. 19, 25 in plan for detailed recommendations*)**

**Recommendations**

1. Lowland, midland, highland restoration.

**Implementation Actions**

Time Line: December 2001 - December 2011  
Personnel Responsible: AISP Wildlife Range Manager; UDWR Range Specialists  
Actions: Adhere to re-vegetation recommendations

2. Develop comprehensive re-vegetation overlay map.

**Implementation Actions**

Time Line: December 2001 - December 2011  
 Personnel Responsible: AISP Wildlife Range Manager; Great Salt Lake Ecosystem Project Biologist; UDWR Northern Region Wildlife Program Manager  
 Actions: Identify zones, map, and monitor

3. Assist with collection and spreading of appropriate seed sources over the entire island.

**Implementation Actions**

Time Line: December 2001 - December 2011  
 Personnel Responsible: AISP Wildlife Range Manager; USFS Ecologists; UDWR Range Specialists  
 Actions: Perform tasks as needed on annual basis with seed available

4. Develop a re-vegetation project funding plan.

**Implementation Actions**

Time Line: December 2001 - December 2011  
 Personnel Responsible: AISP Wildlife Range Manager  
 Actions: Utilize available funding by priority with current year

5. Create maps of burn areas for target re-seeding projects using identified critical habitat areas.

**Implementation Actions**

Time Line: Ongoing - target September each year  
 Personnel Responsible: AISP Wildlife Range Manager; UDPR GIS Manager  
 Actions: Utilize data from habitat map

6. Prioritize re-seeding efforts.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: AISP Wildlife Range Manager; UDWR Range Specialists  
 Actions: Will follow criteria outlined above

7. Develop vegetation maps and utilize to evaluate and prioritize all future re-seeding projects; Make a determination of acreage to target; Determine optimal re-seeding methodology/strategies.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: Make determination for each year prioritization with available funding

8. Implement numerous, small-scale re-seeding projects over time.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: Make determination for each year prioritization with available funding

9. Develop plans for the establishment of a “seed farm” to serve as an on-site seed source.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager; AISP Historic Replicator; UDWR Range Specialist  
Actions: Prioritize efforts and make determination for each year given available funding

10. Identify actions to enhance island (tree) canopy cover to increase diversity of both plant and wildlife species, avian in particular.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager; Great Salt Lake Ecosystem Project Biologist  
Actions: Prioritize efforts and make determination for each year given available funding

**Issue #4 - Enhance Funding Base (refer to p. 43 in plan for detailed recommendations)****Recommendations**

1. Develop strategies to obtain funding from more diverse sources including: grants, special fund raising projects, friends groups, other agencies (federal and state, in particular), special interest groups, other partnership opportunities.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: Park Manager; AISP Wildlife Range Manager  
 Actions: Research funding sources and create funding sub-committee

2. Periodically assess budget/staffing levels relative to habitat management needs.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: Park Manager; AISP Wildlife Range Manager  
 Actions: Prioritize with available funding on an annual basis

3. Work with Parks Board to investigate establishment of an entrance fee surcharge to expand funding base.

**Implementation Actions**

Time Line: July 2001 – August 2001  
 Personnel Responsible: Park Manager; AISP Wildlife Range Manager  
 Actions: Work with administration to ensure transfer of funds

**Issue #5 - Systems-Based Avian Management (refer to p. 38 in plan for detailed recommendations)****Recommendations**

1. Consider the major avian habitat types associated with Antelope Island and provide a checklist (or inventory) of birds associated with these habitats including their specific habitat requirements.

**Implementation Actions**

Time Line: January 2002  
 Personnel Responsible: AISP Wildlife Range Manager; Great Salt Lake Ecosystem Project Biologist  
 Actions: Create systems avian plan including maps and descriptions

2. Compile a bibliography of existing Antelope Island avian study reports and use them to assist in developing a checklist/inventory.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager; Great Salt Lake Ecosystem Project Biologist  
Actions: Compile necessary documentation to make recommendations

**Issue #6 - Inventory (all) Species (refer to pp. 32 - 42 in plan for detailed recommendations)**

**Recommendations**

1. Identify specific survey needs; Gather classification data.

**Implementation Actions**

Time Line: Ongoing (September-April)  
Personnel Responsible: AISP Wildlife Range Manager; UDWR Northern Region Wildlife Program Manager  
Actions: Aerial and ground surveys to compile necessary data

2. Maintain sustainable populations for the purpose of viewing, education, transplant and research.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager; UDWR Northern Region Wildlife Program Manager  
Actions: Utilize wildlife survey/inventory data to make necessary recommendations

3. Consider other opportunities for introduction/transplant.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager; UDWR Northern Region Wildlife Program Manager  
Actions: Utilize wildlife survey/inventory data to make necessary recommendations

4. Review seasonal trail closures; Review data and critical dates (spatial); Consult with experts on need and timing for closures.

**Implementation Actions**

Time Line: March 2002  
 Personnel Responsible: AISP Wildlife Range Manager; UDWR Northern Region Wildlife Program Manager  
 Actions: Utilize wildlife survey/inventory data to make necessary recommendations

**Issue #7 - Enhance Wildlife Viewing Opportunities (*refer to p. 48 in plan for detailed recommendations*)**

**Recommendations**

1. The proposed wildlife monitoring programs should include a research component to determine the best times and locations to view the particular species.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: AISP Wildlife Range Manager; UDWR Northern Region Wildlife Program Manager  
 Actions: Utilize wildlife survey/inventory data to make necessary recommendations

2. Consider other eco-tourism opportunities for interested visitors where appropriate.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: Park Manager; Assistant Park Manager; AISP Wildlife Range Manager  
 Actions: Consider concessionaire proposal for viewing opportunities

**Issue #8 - Bison Management (*refer to p. 29 in plan for detailed recommendations*)**

**Recommendations**

1. Provide for bison viewing and interpretive opportunities.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: AISP Wildlife Range Manager  
 Actions: Implement bison management plan



2. Reduce/restructure the herd size to establish a more natural composition and alleviate marketing pressures.

**Implementation Actions**

Time Line: November 2001-November 2010  
Personnel Responsible: AISP Wildlife Range Manager; Park Manager  
Actions: Cull appropriate animals to achieve recommendations

3. Partner with Utah Department of Agriculture and State Surplus to monitor, research and develop a long-term marketing plan.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager; Utah Dept of Agriculture  
Actions: Implement marketing plan as outlined

**Issue #9 - Habitat Monitoring (refer to p. 22 in plan for detailed recommendation)**

**Recommendation**

1. Identify (map) areas that sustain heavy recreation use; determine impacts at such areas and monitor accordingly; define the limits of acceptable impact (adverse change) within each area; design a plan to accommodate existing and future recreational activities to the benefit of both recreationists and wildlife.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: Photograph use areas/use data to make necessary recommendations

**Issue #10 - Bison Roundup (refer to p. 30 in plan for detailed recommendations)**

**Recommendations**

1. Hold roundup during periods of cool weather to ensure bison health.

**Implementation Actions**

Time Line: Complete  
Personnel Responsible: AISP Wildlife Range Manager; Park Manager  
Actions: Sustain recommendation for timing of roundup

2. Park management should be vested with the authority to review and implement appropriate roundup policies regarding technique, sales/marketing, etc. Management should also develop recommendations to alleviate concerns about calf weaning and ear tagging.

**Implementation Actions**

Time Line: Initiate, October 2001  
 Personnel Responsible: AISP Wildlife Range Manager; Park Manager  
 Actions: Develop standards for marketing, weaning and tagging

**Issue #11 - Bison Hunt (refer to p. 30 in plan for detailed recommendations)**

**Recommendations**

1. The team felt this issue has strong political implications and requires more thorough discussion and debate. Biologically, the team supports the wildlife manager's discretion in all bison management recommendations, including the need for a hunt.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: Park Manager; AISP Wildlife Range Manager  
 Actions: Work with administration for recommendations

2. Both the Utah Division of State Parks and Wildlife Resources Boards should convene a joint meeting to discuss hunting issues and address herd composition questions to provide guidance to park management.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: Park Manager; AISP Wildlife Range Manager  
 Actions: Work with administration for recommendations

**Issue #12 - Interagency Coordination (refer to p. 44 in plan for detailed recommendations)**

**Recommendations**

1. Enhance cooperative wildlife/habitat management efforts between State Parks and UDWR by more frequent contact with each agency's respective governing board.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: Park Manager; AISP Wildlife Range Manager  
 Actions: Work with administration as needed

2. Develop cooperative relationships with other Great Salt Lake wildlife organizations to help showcase and receive support for Antelope Island wildlife/habitat management policies.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: Attend necessary meetings and present island management information. Seek support and input where applicable

3. Build/strengthen relationships with all influential stakeholders about issues.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: From survey data make necessary recommendations

**Issue #13 - Manage Visitor Impact (*refer to p. 27 in plan for detailed recommendations*)**

**Recommendations**

1. Identify critical areas that need protection; document these areas via mapping.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: See fire and habitat management issues

2. Account for timing issues with respect to wildlife/habitat; Identify the seasonal needs of each critical area and develop appropriate wildlife/habitat management strategies (e.g., closures of such areas) during critical times of the year.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: See fire and habitat management issues

3. Fully implement and comply with relevant zoning concepts established in the 1994 Resource Management Plan.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: Park Manager; AISP Wildlife Range Manager  
 Actions: Utilize Antelope Island RMP zoning concept

4. Monitor recreational impacts on wildlife/habitat resources using range trend studies and photography; Implement education/information efforts to ensure that visitors understand the need to minimize impacts on wildlife/habitat.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: AISP Wildlife Range Manager  
 Actions: Continue range studies and photo plots make data available to staff and visitors. Use interpretive strategy to assist with dissemination of information.

5. Habitat improvement actions should not depreciate the island's view shed or aesthetic qualities.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: AISP Wildlife Range Manager  
 Actions: Implement habitat recommendations considering view shed

**Issue #14 - Excessive Pronghorn Predation Rates (*refer to p. 35 in plan for detailed recommendations*)**

**Recommendations**

1. Implement steps to ensure a stable pronghorn population.

**Implementation Actions**

Time Line: Ongoing  
 Personnel Responsible: AISP Wildlife Range Manager; UDWR Northern Region Wildlife Program Manager  
 Actions: Determine population status, limiting factors, implement recommendations

2. Predator control/management actions to sustain pronghorn populations should be at the discretion of the AISP Wildlife Manager.

**Implementation Actions**

Time Line: Ongoing  
Personnel Responsible: AISP Wildlife Range Manager  
Actions: Determine predator impacts and make recommendations

**Issue #15 - Interpretive Strategy to Encourage Wildlife Viewing (*refer to p. 50 in plan for detailed recommendations*)**

**Recommendations**

1. Charter an interpretive committee to develop a plan of action for island wildlife/habitat education and information.

**Implementation Actions**

Time Line: January 2002  
Personnel Responsible: Park Manager  
Actions: Charter interpretive committee to develop plan

2. Promote education of wildlife/habitat issues through established interpretive programs already in place (particularly those at the Visitor Center and Garr Ranch).

**Implementation Actions**

Time Line: March 2002  
Personnel Responsible: AISP Naturalist; AISP Curator  
Actions: Implement changes in current programs to include wildlife/habitat issues

3. Work with relevant wildlife/environmental education-oriented groups to develop appropriate interpretive information programs that effectively educate visitors about wildlife/habitat issues and its unique Great Basin ecosystem.

**Implementation Actions**

Time Line: March 2002  
Personnel Responsible: AISP Naturalist; AISP Curator  
Actions: Implement changes in current programs to include wildlife/habitat issues

4. Work with user groups and the State Parks Public Affairs Section to identify and implement various marketing strategies promoting the positive aspects and benefits of wildlife/habitat on Antelope Island.

**Implementation Actions**

Time Line: March 2002

Personnel Responsible: AISP Naturalist; AISP Curator

Actions: Identify strategies to promote wildlife/habitat issues

## APPENDIX B

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### Proposed Operating Budget

**Wildlife/Habitat Program Proposed Operating Budget  
2001-2010**

	<u>Annual Budget</u>	<u>Start-up Year</u>
<b>HABITAT</b>	<b>\$35,000.00</b>	<b>\$35,000.00</b>
<b>FIRE MGT.</b>	<b>5,000.00</b>	<b>10,000.00</b>
<b>WEED MGT.</b>	<b>16,000.00</b>	<b>24,000.00</b>
<b>BISON</b>	<b>23,000.00</b>	<b>23,000.00</b>
<b>ADMINISTRATIVE</b>	<b><u>13,000.00</u></b>	<b><u>23,000.00</u></b>
<b>TOTAL</b>	<b>\$92,000.00</b>	<b>\$115,000.00</b>
+ ROUNDUP	<u>45,000.00</u>	<u>45,000.00</u>
<b>GRAND TOTAL</b>	<b>\$137,000.00</b>	<b>\$160,000.00</b>
HABITAT		
seed	20,000.00	20,000.00
aerial seeding	3,000.00	3,000.00
site prep	5,000.00	5,000.00
shrubs	2,000.00	2,000.00
water development	<u>5,000.00</u>	<u>5,000.00</u>
TOTAL	35,000.00	35,000.00
FIRE MGT.		
equipment	500.00	5,000.00
equip. maint.	500.00	500.00
green stripping	1,500.00	1,500.00
prescribed burns	1,000.00	1,000.00
access maint.	1,000.00	1,000.00
training	<u>500.00</u>	<u>1,000.00</u>
TOTAL	5,000.00	10,000.00



	<u>Annual Budget</u>	<u>Start-up Year</u>
WEED MGT.		
equipment	250.00	8,000.00
equip. maint.	750.00	0.00
chemical	<u>15,000.00</u>	<u>16,000.00</u>
TOTAL	16,000.00	24,000.00
 BISON		
hay	15,000.00	15,000.00
blood typing	4,000.00	4,000.00
fence maint.	3,000.00	3,000.00
advertising	<u>1,000.00</u>	<u>1,000.00</u>
TOTAL	23,000.00	23,000.00
 ADMINISTRATIVE		
research	0.00	10,000.00
vehicle	3,800.00	3,800.00
monitoring	4,450.00	4,450.00
misc. (meals/awards)	750.00	750.00
travel	3,000.00	3,000.00
conference fee	500.00	500.00
postage/phone?	<u>500.00</u>	<u>500.00</u>
TOTAL	13,000.00	23,000.00