

# Antelope Island State Park

Resource Management Plan 2009



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# Utah State Parks & Antelope Island Resource Management Planning Area

Legend:

- ▲ Utah State Park Locations
- ★ Resource Management Plan Study Area



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## Executive Summary

In February 2007, representatives from the Division of Utah State Parks and Recreation (Division) met with community stakeholders to initiate a resource management planning effort for Antelope Island State Park (AISP). The planning process was based on public input and involvement. The Antelope Island State Park Resource Management Planning Team - a citizen-based team representing community leaders, interested users, local residents, neighbors, and agency representatives – was at the core of the process. The recommendations contained in this document represent months of work by the team as well as direct public input.

The plan provides recommendations founded upon nine primary vision elements that will guide the future management of the park. These elements focus on the following:

- Developing, maintaining and enhancing infrastructure and facilities that offer safe and suitable water and land-based recreation opportunities for visitors
- Providing management that maintains traditional recreational experiences, while being open to appropriate new activities
- Being a positive factor for local and state economic stability and development
- Planning and cooperating with residents, civic groups, businesses and agencies to enhance recreational opportunities
- Conserving park resources and the Great Salt Lake ecosystem by exercising good stewardship practices

- Offering interpretive and educational programs that provide visitors the opportunity to develop an appreciation of the park and its unique ecological and cultural resources
- Working with the Division to secure adequate funding, staff, equipment and support for the park
- Providing watchable wildlife opportunities by maintaining healthy, abundant and diverse wildlife populations and associated habitats
- Providing positive customer service through knowledgeable and well-trained staff, concessionaires and volunteers



*White Rock Bay*

These objectives are geared toward improving and expanding the park's recreational opportunities, protecting its resources and providing visitors with safe and enjoyable experiences. Achievement of these vision elements will require the continued support of users, legislative and community leaders, and the Division of Utah State Parks and Recreation.

The planning team issued a number of recommendations in support of the

plan's vision elements. Five issue areas with recommendations form the basis of the team's recommendations. The last issue area provides specific directives for nine different geographical management areas.

In its recommendations, the planning team reviewed the park's existing, specific resource management plans – 2001 Wildlife Management Plan, 2004 Access Management Plan, 1997 Fielding Garr Ranch Interpretive and Site Plan, and 2006 Antelope Island Comprehensive Interpretive Plan – and determined that they should continue to be used to guide management decisions at the park. *Applicable sections of these plans are found in Appendices B through E.* The team did develop a number of recommendations offering additional direction to park managers.

The key issues and recommendations are summarized below:

### **Resource Management**

- Wildlife and range management
  - Continue to implement the 2001 Wildlife Management Plan as the primary natural resource directive.
  - Determine population management targets for mule deer.
  - Limited hunting may be used as a management tool for the health of wildlife populations and their habitats when other management control options have not been effective.

- Manage resources for range, wildlife and visitor opportunity improvement.
- Protect visual and aesthetic resources
  - Preserve the concepts of solitude, openness and ruggedness, and other aesthetic values of the park.
  - Continue to implement the 2004 Access Management Plan.
  - Identify levels of acceptable change or measures to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems.

### **Marketing and Public Support**

- Marketing the park to attract visitors
  - Continue the strong marketing partnership with Davis Area Convention and Visitors Bureau.
  - Develop a marketing plan and campaigns.
  - Increase numbers of visitors in the shoulder seasons and winter by marketing the opportunities available (particularly wildlife viewing) during those times of year.
- Increase public support of the park and its programs
  - Continue to develop relationships with businesses and community groups to support activities at the park.

## **Funding and Revenue Enhancement**

- Provide adequate staffing and funding
  - Develop a business plan for the park that includes a staffing and budget analysis.
  - Support Division efforts to attract and retain qualified applicants for positions at the park.
- Enhance revenue collection at the park
  - Increase visitation by implementing the marketing recommendations of the plan.
  - Encourage special events at the park that are appropriate, will not adversely affect park resources or visitor experiences, and will produce additional visitors and revenue.
  - Enhance concessionaire opportunities as described in the management zones section.

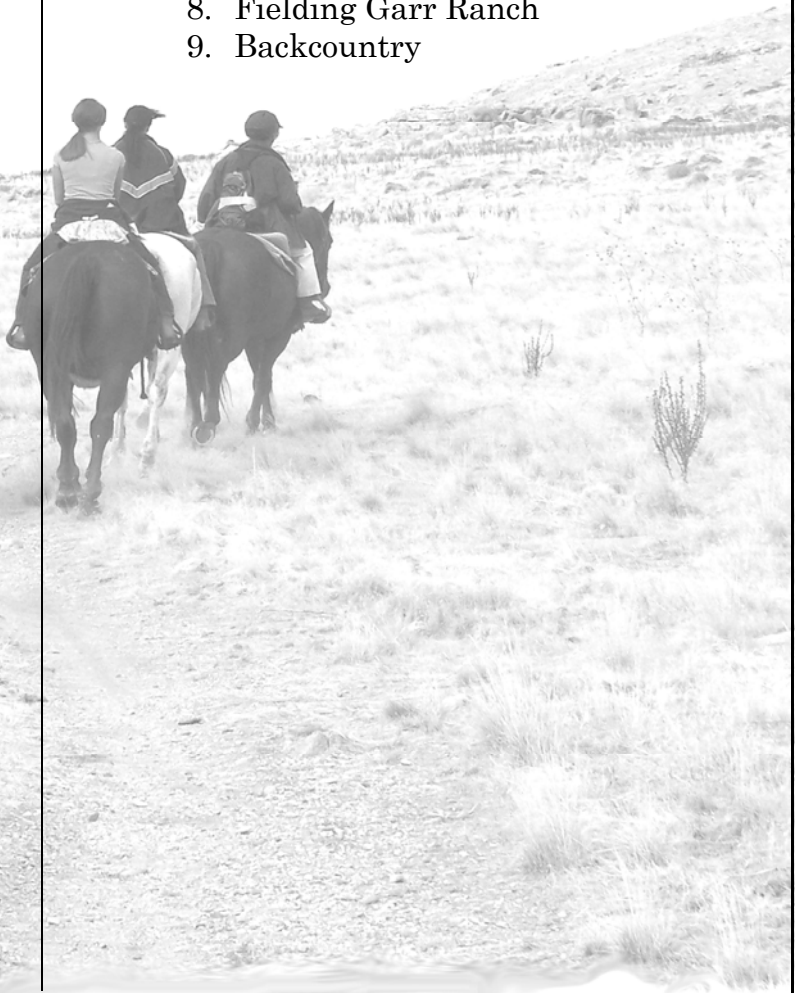
## **Interpretation and Education**

- Implement the recommendations and suggestions in the Antelope Island Comprehensive Interpretive Plan and the Fielding Garr Ranch Interpretive and Site Plan.
- Coordinate interpretive activities with Great Salt Lake State Marina.

## **Management Zones**

- Identify geographic management zones in the park with desired visitor activities and experiences, measures of acceptable change, appropriate concessions, and new and improved opportunities and facilities

- The planning team identified nine separate geographic management zones to better deal with the resources and opportunities specific to each locale. The issues and recommendations section later in this plan contains the specific recommendations for each zone. The zones include:
  1. Entrance Station and Causeway
  2. Marina
  3. Visitor Center
  4. Bridger Bay
  5. Buffalo Point
  6. White Rock Bay
  7. Ranch Road
  8. Fielding Garr Ranch
  9. Backcountry



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# Mission and Vision

## Mission Statement

Team members developed the mission statement recognizing that the park is an important provider of recreational opportunities in northern Utah. The team also recognized that the park has many unique and irreplaceable resources that need to be protected and preserved for the future, while being enjoyed by visitors.

### **Mission Statement**










The mission of Antelope Island State Park is to provide a variety of recreational, educational and interpretive, wildlife viewing and cultural opportunities, while conserving a unique island setting.

## Vision Statement

A vision statement is like a compass; it charts a destination, sets the team and park on the correct course of action and provides the means to determine how closely the team recommendations will follow that charted course. Utilizing the basic principles developed in the mission statement, the team developed a vision to guide the development of the plan's recommendations and park management for the next few years. The vision statement provides the foundation for recommendations that balance recreational demands with preservation of the park's natural and cultural resources, offer new and varied opportunities, and encourage community involvement.

### **Vision Statement**

Antelope Island State Park will accomplish its mission by:

-  Developing, maintaining and enhancing infrastructure and facilities that offer safe and suitable water and land-based recreation opportunities for visitors
-  Providing management that maintains traditional recreational experiences, while being open to appropriate new activities
-  Being a positive factor for local and state economic stability and development
-  Planning and cooperating with residents, civic groups, businesses and agencies to enhance recreational opportunities
-  Conserving park resources and the Great Salt Lake ecosystem by exercising good stewardship practices
-  Offering interpretive and educational programs that provide visitors the opportunity to develop an appreciation of the park and its unique ecological and cultural resources
-  Working with the Division to secure adequate funding, staff, equipment and support for the park
-  Providing watchable wildlife opportunities by maintaining healthy, abundant and diverse wildlife populations and associated habitats
-  Providing positive customer service through knowledgeable and well-trained staff, concessionaires and volunteers

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# Resource Management Plan Purpose and Process

## Purpose of the Plan

This resource management plan (RMP) is intended to help guide the Division of Utah State Parks and Recreation's stewardship obligations for Antelope Island State Park (AISP). Planning is essential, given the large numbers of visitors to the park and the unique and fragile character of the natural and cultural resources and viewshed.

AISP is the largest island in the one million-acre Great Salt Lake. The 28,240-acre park, in close proximity to the state's largest population centers, provides opportunities for quietness and solitude and the chance to view an amazing variety of wildlife in a natural setting.

A number of issues, ranging from wildlife and range management to level of development in specific areas, were identified by the park staff, planning team members and the general population through public scoping meetings and a visitor survey. For this plan, team members aggregated the issues into four general issue areas with recommendations. They also identified nine geographical management zones and developed recommendations for each. This plan provides guidelines for the management and development of the park over the next five to 10 years. More importantly, the plan is based on a foundation of public involvement rather than the unilateral direction of the Division of Utah State Parks and Recreation (Division).

## The Planning Process

Planning for an outstanding natural and scenic resource such as AISP is required for the protection of this unique area and to ensure the efficient and effective expenditure of state and local funds. It is necessary for the long-term protection and public enjoyment of the park's many opportunities and resources. This RMP is required by the Utah State Legislature and the Board of the Division of Utah State Parks and Recreation (Board) to guide short and long-term management and capital development.

The Division's long-range strategic plan, Vision 2010, outlines the required planning actions needed to effectively meet customer recreational and leisure needs for the next five to 10 years. Vision 2010 identifies resource management planning as essential to the effective administration and operation of all parks in the agency's system. Under the guidance of Vision 2010, each RMP is developed around one core concept: meeting the needs and expectations of customers, visitors and the citizens of the state of Utah, while protecting each park's unique resource base. In short, the process is customer-driven and resource-based.

The planning process recommends measures of acceptable change or modification and a future vision for 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 February 2007, Division representatives met with community stakeholders to familiarize them with the planning process and the need for creating a resource management plan for AISP. During this meeting, Division planners solicited the names of community members and various users with an interest and expertise in the park to serve as members of a resource management planning team.

All team members participated on a voluntary basis and expressed a willingness to sacrifice a significant portion of their time and knowledge to the process. Fourteen individuals were selected to serve on the planning team and two representatives from the Division served as staff to the team.

The team participated in two public meetings held in Layton and Salt Lake City. Division planners facilitated these meetings. This meeting was an opportunity for the public to provide input for the planning team to consider as they developed issues and recommendations for the park. The team met eight times between April 2007 and April 2008 to develop issues and recommendations for the park.

# **About the Park**

## **History**

### **Island History**

#### **American Indians**

Humans have inhabited the Salt Lake Valley, and possibly Antelope Island, for thousands of years. Archeological digs have yielded artifacts from the valley that date back as far as 10,000 years. Archeological investigations on the island have not been extensive, but the few studies and excavations completed to date indicate a human presence on the island as long as 6,000 years ago. The earliest known people to frequent the island were the prehistoric Archaic culture. These nomadic hunter-gather people used the area around the Great Salt Lake from approximately 8000 B.C. to A.D. 400. There is some evidence that they began visiting and using the island at least 6,000 years ago.

Retrieved cultural artifacts found on the island indicate that the Fremont culture (approximately A.D. 400 to A.D. 1300) also used the island. These people had developed some agriculture and lived in villages of pit houses around the Great Salt Lake.

Around A.D. 1000, other people moved into the area from the west and northwest. The Northwestern Shoshone lived in what was to become northern Utah and southeastern Idaho. The Northern Utes ranged throughout the area, and the Goshute lived in the area southwest of the Great Salt Lake. These groups also used Antelope Island for hunting and gathering activities.

During this time, Great Salt Lake fluctuated between elevations of 4,180 to 4,217 feet. Because of these fluctuations, Antelope Island alternated between an island and a peninsula. During periods of low elevation (below 4,198), people ventured back and forth with little interference from the lake. When the lake levels were higher, they used watercraft made from rushes and grasses to traverse the waters.

#### **European Exploration and Settlement**

In the winter of 1824-1825, mountain man Jim Bridger and several companions followed the Bear River to the edge of the Great Salt Lake where he noticed his boat floating unusually high in the water. He tasted the water and determined, because of its salty flavor, it must be an arm of the Pacific Ocean. Bridger's assumption that the salty lake was an arm of the Pacific was perpetuated until 1826, when another group of men circumnavigated the lake in bullboats and discovered no outlet.

In 1843, almost 20 years after Bridger and his men visited the eastern shores of the Great Salt Lake, John C. Fremont extensively explored Utah Valley, Salt Lake Valley, Cache Valley, and the salt flats of the western desert. His expedition used scientific equipment and cartographers to map the area. He was the first to measure the elevation of the surface of the lake, recording it at 4,200 feet, which later measurements proved true. He was also the first recorded white man to

set foot on any of the islands in the Great Salt Lake.

In 1845, Fremont and his companions followed a Goshute Indian guide across a sandbar on horseback to reach the southern shore of Antelope Island. Upon reaching the island they found several freshwater springs, trees and antelope of which they harvested a few to supplement their dwindling meat supply. In gratitude for the much needed meat, Fremont named the island after the antelope.

Fremont published his reports and maps, and these documents provided the most accurate information and reliable maps for those moving west in the late 1840s and 1850s. Fremont's information proved to be a significant factor in the decision of Brigham Young and LDS Church leaders to come to the Rocky Mountains/Great Basin area.

The first known white inhabitant of Antelope Island was an old mountain man called Daddy Stump. He lived on the island in the late 1840s and early 1850s, and built a small cabin up against the steep hill below what is now called Daddy Stump Ridge. No one knew who he was, where he came from or where he went when he left the island.

In 1848, widower, Fielding Garr and his seven children moved to the Salt Lake Valley. Because he was a bonded herdsman, leaders of the LDS Church asked Garr to manage their "tithing herd" of livestock on the island. By 1849, Garr and some of his children

were living on the island. His boys helped him watch and care for the livestock while his daughters helped with household operations and meal preparation. They stayed in a small log house somewhere on what is currently the ranch yard area. Garr constructed the adobe ranch house that remains on the island today. Fielding Garr died in 1855.

Briant Stringham was appointed to replace Fielding Garr, but he chose to spend most of his time in Salt Lake City. Stringham and members of his family lived on the island occasionally, mainly during the summer months, until his death in July 1871.

In 1871, George Frary filed a mining claim on 160 acres of land on Antelope Island. He built a small cabin and moved his young family out to a new and isolated life. His wife, Alice, had always been frail and suffered from poor health, but the climate of the island was favorable to her condition. Alice died on the island and is buried near the site of the family cabin.

In 1884, John E. Dooley and partner Frederick Myers started to acquire land on the island to pursue ranching activities. Their venture, the Island Improvement Company, maintained ownership and control of the island until 1972 (except for a few small parcels owned by the U.S. D. I. Bureau of Land Management).

In 1893, Dooley purchased 12 bison from Ogden newspaperman, William Glasmann, who had purchased the animals two years earlier from a

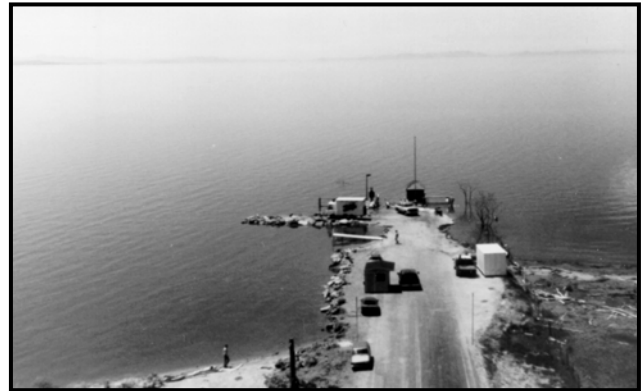
Kansas rancher who had acquired the animals in Manitoba, Canada. These bison were relocated to Antelope Island and became the genesis of the bison herd that roams the island today. More detail about the bison is found in the resource section of this plan.

### **Park History**

In 1960, Davis County officials persuaded several Utah legislators to tour Antelope Island and view its recreational potential. Senator Frank Moss introduced a bill in the U.S. Senate to designate the Great Salt Lake as a National Park, with Antelope Island as a National Monument. During the same time, the state also began efforts to acquire the island, and in 1963 created the Great Salt Lake Authority, which was empowered with eminent domain status, enabling them to condemn, buy and take over the island. Following the failure of Moss' bill in the Senate in 1967, state officials negotiated an agreement with the Island Ranching Company to purchase the northern 2,000 acres and shortly thereafter, the northern causeway was constructed to access the park. However, due to the rising lake, the causeway was washed out several times. Many improvements were made and in 1969, AISP, administered by the Division of Utah Parks and Recreation was open to the public.

In 1975, the legislature established a Great Salt Lake Board and Great Salt Lake Division to oversee all interests dealing with the lake. The Great Salt Lake Division Technical Team, along with legislators, planners and private

citizens continued to push for state purchase of the entire island. This was given added impetus when the State of Utah began negotiating with the island's current owner, the Anschutz Corporation, in 1976 to acquire at least 26 million tons of gravel and landfill material from the southeast corner of the island for use in the completion of the interstate highways I-80 and I-215. Faced with the prospect of spending hundreds of thousands of dollars for the fill plus the additional cost of building a haulage road that would eventually revert back to the island's owners after its ten-year lease expired, several lawmakers encouraged the 1978 Legislature to appropriate \$3.2 million for purchase of the rest of the island. Although Anschutz was willing to sell the needed road fill, the company repeatedly turned down state offers to sell the entire island or trade it for other property.



*Eastern End of Northern Causeway During Flooding in 1980s*

In 1978, following the passage of a resolution stating "The public interest and necessity requires the acquisition by the state..." and condemnation proceedings were initiated against Anschutz to acquire their island property. At the same time,

considerable controversy erupted over the prospect of the state buying the island and a bill was introduced in the 1979 Legislature to rescind the appropriation, based on the grounds that the state could not afford the purchase at that time. Following defeat of this second bill, the state finally acquired the entire island in September 1980.

Following several wet winters, the Great Salt Lake reached flood levels in the early 1980s, damaging both causeways as well as many park facilities and beach areas. Without access, the park had to be closed in June 1983, returning it to a nearly isolated state for 10 years. During much of this period, park personnel reached the island by boat. In 1987, the Division organized the first annual bison roundup to inoculate and improve the condition of the bison herd. Due to the efforts of several key legislators and Davis County, funding to repair the causeway was appropriated by the Utah Legislature in 1992. Davis County, through an agreement with the state, is responsible for maintaining the causeway, including the culverts. Antelope Island State Park collects an additional fee earmarked to help support causeway maintenance. In July 1993, AISP was officially reopened to the public.

### **Physical Setting and Relationship to the Surrounding Area**

AISP is a 28,240-acre natural area located in the southeastern corner of the Great Salt Lake and within Davis County. It is accessible by a seven-

mile long causeway that begins just east of Syracuse.

The island is the largest in the million-acre Great Salt Lake, measuring about 15 miles in length and seven miles at its widest cross-section. The elevation of the island varies from about 4,200 feet above sea level at the lakeshore, to 6,596 feet at Frary Peak, the island's highest point.

AISP is also within 25 miles of two other Wasatch Front counties—Salt Lake and Weber. These three counties account for almost sixty percent of Utah's population in an area still growing rapidly. AISP is an important local recreation source for these three counties. In addition, Davis County values the park as a draw for out-of-state visitors.

Several visitor surveys conducted since 1976 indicate that a large proportion of visitors are from out of state. The latest survey (2007-2008) indicated that 70 percent of visitors were from outside of Utah, with 12 percent from outside the United States.

The three counties close to AISP—Davis, Salt Lake and Weber counties—are among the most populous counties in Utah. Davis County in particular is experiencing high rates of growth, especially in the construction of new homes. AISP is and will be an important recreation resource, particularly for young families and retired people who enjoy close and affordable recreation as the demand for recreation and open space increases.

## Climate

The climate on Antelope Island is temperate and arid, with annual precipitation averaging about 18 inches. From June through early September thunderstorms advance from the Pacific Ocean off the coast of Mexico and southern California. Frontal-type storms out of the northwest move through the area from October through June.

The island's precipitation is spread throughout the year, averaging more than one inch per month, except May, June and July. December is the wettest month, averaging 2.99 inches. July averages only .09 inches of precipitation. Summer temperatures vary approximately 30 degrees between daytime highs and nighttime lows, with highs around 90 degrees Fahrenheit and low temperatures around 60. Winters have a temperature range of about 20 degrees, with highs in the high 30s and lows of about 20. Annual snowfall averages just 10 inches, beginning in October or November and ending in March or April.

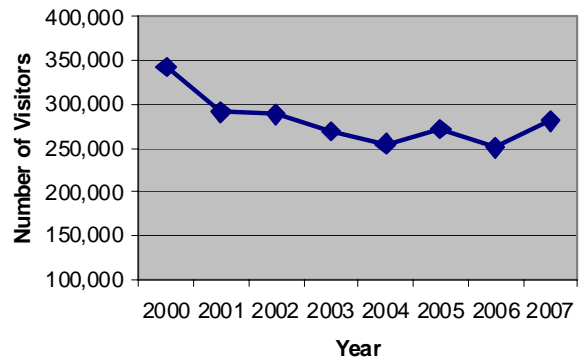


*Winter on Antelope Island*

## Park Visitation and Revenue

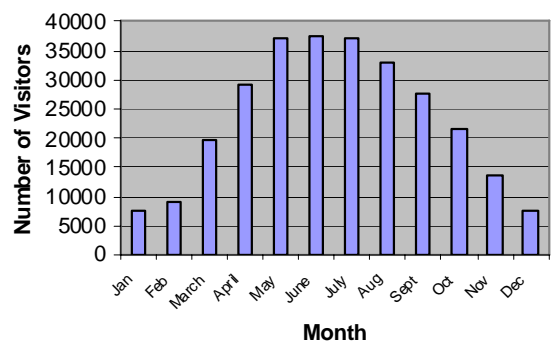
Visitation to the park was relatively steady between 2000 and 2007. During that period, the number of annual visitors ranged between 250,000 and 300,000 visitor per year.

**Figure 1: Total Visitation 2000-2007**



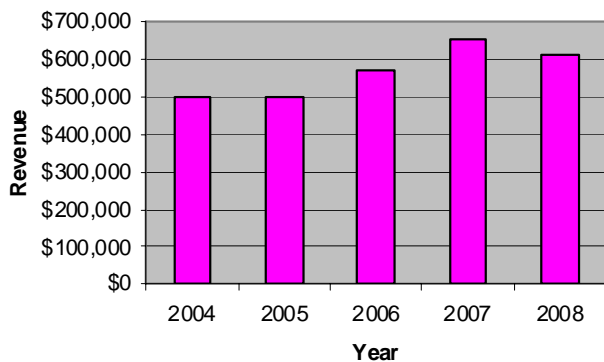
Most visits (86.4 percent) to AISP occur between March and October. May, June and July are the busiest months with each accounting for more than 13 percent of the park's yearly visitation. The cooler months of November through February account for less than 14 percent of yearly visitation. The park has a long visitation season considering its northern location and climate.

**Figure 2: Average Monthly Visitation 2000-2007**



The park's revenue collections from entrance fees and passes, and retail sales have been generally increasing in recent years. Figure 3 shows that revenue collected at the park has increased from \$501,295 in 2004 to \$610,260 in 2008. The park collected 43 percent of its operating costs in revenue in 2008.

**Figure 3: Anntelope Island Revenue 2004-2008**



### **Management Implications**

The implications of the park's visitation numbers and economic impact are discussed in the following demographic and socioeconomic, and visitor survey sections.

### **Demographic and Socioeconomic Information**

The Governor's Office of Planning and Budget indicates that Davis County had a resident population of 296,029 as of July 1, 2008. Of Davis County's households, 81 percent are families. Median age is 27.8 with 32 percent of the population 17 years old or younger and eight percent 65 or older. This is a much younger population than the U.S. average, where median age is 36.4 and only 25 percent of the population is 17 or younger.

With an average annual growth rate of 2.6 percent since 2000, Davis County's growth rate also outstrips the U.S. average. The U.S. growth rate for that same period is 1.1 percent. The fact that 80 percent of houses in the county have been constructed since 1990 is evidence of this incredible growth.

The racial makeup of the county as of 2006 is 91.6 percent white, 1.0 percent black, 0.5 percent Native American, 1.3 percent Asian, 0.4 Pacific Islanders, and 5.2 percent other races, or two or more races. Hispanics or Latino of any race account for 6.7 percent of the county's population. There has been little change in these statistics since 2000.

The largest employers by industry (2000 data) are education, health and social services with 17.7 percent of workforce; retail trade 14.4 percent; manufacturing with 11.3 percent; and public administration at 9.1 percent. In 2006, these were still the largest economic sectors.



The economic impacts of AISP were estimated by using information from a visitor survey conducted at the park in 2007-2008. Division planning staff entered this data into IMPLAN Professional Version 2.01.1025 software to estimate the economic impacts of annual visitation to Antelope Island. The IMPLAN model measured the direct, indirect and induced impacts of park visitor expenditures for lodging, restaurants and bars, vehicle operation, recreation fees and other associated recreation activities and supplies.

The results of the IMPLAN model are that AISP provides approximately 130 jobs in the study area comprised of Davis and Weber counties. The economic significance of the park is estimated to be \$6 million per year. Indirect impacts (the results of purchases by businesses and institutions patronized by park visitors) and induced impacts (the results of household purchases by employees and proprietors of those businesses and institutions) are approximately \$3.3 million in 2006 dollars. Indirect business taxes are estimated to be \$490,000.

Visitation to AISP has ranged between 250,000 to 300,000 in the past six years. Past surveys have shown that approximately 30 percent of visitors came from out of state. Responses to the 2008 visitor survey indicated that over 70 percent were from out of the three-county area surrounding Antelope Island. Economic impacts

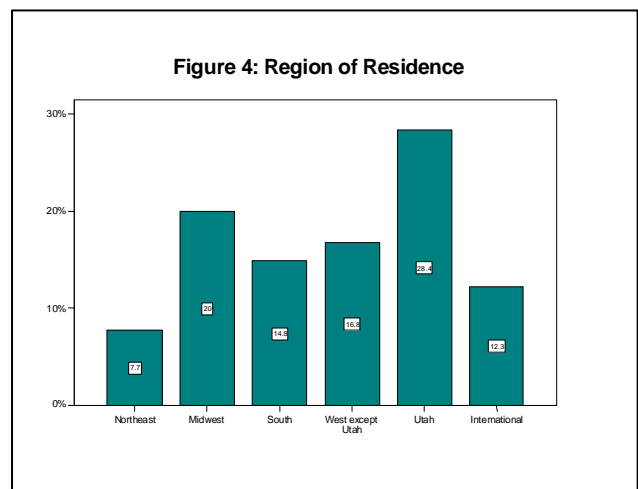
will of course vary as these factors vary.

### **Management Implications**

The Division's strategic plan directs park managers to increase the impact of tourism and recreation on local and state economies. The economic impact of AISP is considerable, but any efforts the park staff can make to increase visitation to the park, get visitors to stay longer or increase the sales tax collections would benefit nearby communities and the state greatly.

### **Visitor Survey**

Despite the proximity of AISP to a growing urban area, this was the first visit for substantial majority of respondents (76 percent). A similarly large majority (70 percent) was from out-of-state, including a surprising 12 percent who were international visitors.



Not surprisingly, most return visitors were Utah residents. Close to 70 percent of the return visitors had visited the island one to five times in the past 12 months. Close to half of Utah residents traveled more than 25

miles to visit the park, so that money comes into Davis and Weber counties from both out-of-area and out-of-state visitors.

The primary attractions at AISP are scenery and wildlife viewing in contrast to activities such as hiking, sailing, swimming, or camping. Some of this relates to the low water levels over the past several years. Other popular activities were bird watching, hiking, seeking solitude, nature study and swimming.

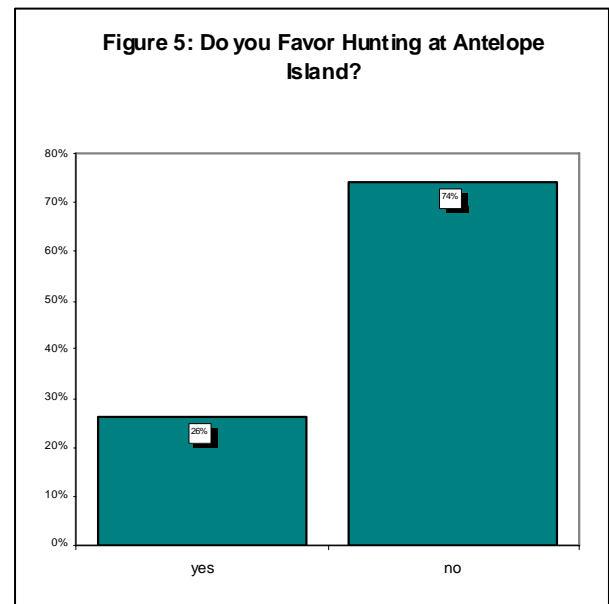
Utah visitors had slightly different preferences: these visitors listed their primary activities as sightseeing, then biking, followed by wildlife viewing. Hiking, camping and bird watching were also listed as primary activities by a number of Utah residents.

Respondents reported short stays at AISP, with 67 percent staying less than half a day and another 25 percent staying a half to a full day. Despite these short visits, a large majority (over 89 percent) of respondents were satisfied or very satisfied with their visit to the park. One area of disappointment frequently cited by visitors was not seeing wildlife on their trip to the park.

Survey results suggest AISP attracts older visitors traveling without children. According to the survey, approximately two-thirds of groups visiting the island traveled without children. For respondents from Utah, this was somewhat lower. Average age of respondents traveling without children was 52. The average age of

respondents traveling with children was much younger at 42.

Hunting on AISP has been proposed as a way to raise revenues for the park. The visitor survey therefore asked about visitor attitudes about allowing hunting on the island. Respondents did not favor hunting unless it was for management of herd size or other ecological reasons. Three out of four respondents opposed hunting at AISP. Of the 26 percent that favored hunting, 47 percent indicated that the reason for their response was to control wildlife populations.



Several visitor surveys have been conducted at AISP beginning in 1976. Some responses to survey questions have not changed over this 32-year period. For example, visitors to Antelope Island consistently enjoy short half-day visits and report sightseeing as their primary activity.

There have been shifts in visitor responses to survey questions over this time period. While sightseeing has over time been the primary activity for visitors, popularity of swimming and water-related activities have been replaced by wildlife viewing and hiking as favorite activities. Other changes over time have been in the increase in first time visitors and the increase in the average age of visitors. Many respondents in the 2008 survey wanted few or no additional facilities added to the park, in contrast to earlier surveys. Twenty percent of respondents asked for more concessions, increased access or additional trails, better beach access, signs and improved campgrounds.

### **Management Implications**

The fact that most visitors to the park are older without children indicates that there may be a relatively large potential customer group in the nearby community. Demographic information shows that the surrounding counties have populations that are younger than the national average. A large percent of households are families. The park should make attempts to increase visitation from the local area, while also increasing the current customer base.

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## **Park Resources**

### **Visual and Aesthetic Resources**

The visual and aesthetic resources offered at the park are very important to visitor experiences. The park is unique in that it can provide feelings of solitude and remoteness in a natural setting while being so close to the state's largest population center

Public scoping meeting results, park visitor surveys and the planning team all indicate that the park's visual resources and other aesthetic values are very important to quality visitor experiences.



*Scenic Antelope Island*

The 2004 Access Management Plan team stressed protecting values of solitude, openness and ruggedness. Sightseeing and wildlife viewing were the most participated in visitor activities listed in the 2000 and 2007 surveys of park visitors. This would indicate that protecting the aesthetic and natural resources of the park should be a high priority. Impacts that degrade these experiential values may also harm wildlife, plant life and soils.

### **Geography and Geological Resources**

Antelope Island has some of the oldest and youngest rocks in Utah. The oldest rock formation on the island, the Farmington Canyon Complex, is two to three billion years in age.

Two-thirds of the island's rock outcrops are comprised of the Farmington Canyon Complex. Most of these are classified as gneiss. Gneiss is a coarse-grained irregularly banded metamorphic rock. The Farmington Canyon Complex on Antelope Island is extremely banded, contorted and strikingly beautiful. The contorted bands observed in these rocks are good evidence of extreme heat and compression forces.

The rocks in the Farmington Canyon Complex and later geologic formations were formed from sedimentary layers such as silt and clay and are found on the lake bottom today. When intense heat and pressure are placed on sedimentary rocks they metamorphose, creating new rock types and minerals.

Some layers have, over geologic time, eroded away before the next layer was deposited. A lost or missing layer is called an unconformity. There is an unconformity between the Farmington Canyon Complex and the next layer, the Perry Canyon Complex, which dates to approximately 1.6 billion years ago. This group of layers is easily visible on the east portion of Elephant Head. It is a light pink/tan color under a layer of slate.

The visitor center is located amidst outcrops of Tintic Quartzite. Tintic Quartzite is 550 million years old. Much of the Tintic Quartzite was deposited in a shallow marine environment on beaches. Quartzite is metamorphosed sandstone.

Antelope Island is part of a basin and range mountain formation process. The plates forming the Earth's outer crust slide across the semi-liquid magma and they either pull or push each other. Often mountains are formed as a result of tectonic plate collision that causes the mountains to rise above their previous level. However, in a basin and range formation, the plates are pulling apart, thereby stretching the Earth's brittle outer crust.

The Wasatch Range and the Sierra Nevada Range are pulling apart at approximately the rate that fingernails grow. As this happens, part of the land slips on a cleavage plain, or a fault, creating mountains as the section of ground between two faults falls to a lower elevation. Antelope Island's mountain range is an example of this faulting. The valley between the island and the Wasatch Front fell several million years ago, and continues to do so.

Lake Bonneville, the prehistoric freshwater ancestor of Great Salt Lake, was created by a series of geologic events. Eighteen million years ago, the continental crust underlying much of the western United States was stretching in an east-west direction. A series of volcanic eruptions in what is now southern

Idaho also played a role in the formation of Lake Bonneville. The lava from these volcanic eruptions diverted the course of the Bear River. About 50,000 years ago the river began flowing southward into the western Utah portion of the Great Basin. By 30,000 years ago, the diversion was complete, sending larger amounts of water into the basin.

The Wisconsin Ice Age consisted of increased rainfall and lower rates of evaporation, due to cooler temperatures. In the mountains, above average amounts of snowfall and cooler weather caused glaciers to form on higher peaks. These glaciers melted during warmer seasons, adding to water entering the basin. Several freshwater lakes had formed in the Great Basin area that gradually deepened until they merged about 25,000 years ago, forming Lake Bonneville.

Lake Bonneville had its ups and downs, literally. The lake is believed to have climbed to the rim of the basin then dried up completely two or three times. This was caused by periods of abundant precipitation followed by periods of severe drought, the result of tremendous climatic changes. At its highest point, Lake Bonneville was 1,200 feet deep and covered 20,000 square miles. At this depth, the peaks of the mountains west of the present Great Salt Lake were islands. Of the islands of Great Salt Lake, only the highest peak of Antelope Island was above water. At Lake Bonneville's highest level, Salt Lake City would be under 850 feet of water, and cities on Great Salt Lake's shore such as

Syracuse would be under 1,000 feet. Lake Bonneville was 345 miles long and 145 miles wide. It covered several counties in Utah, and extended into Idaho and Nevada.

During the Pleistocene Age, around 14,500 years ago, while the lake was at its highest, the waters of the lake broke through the rim at Red Rock Pass (present day southern Idaho), lowering the level of the lake by 350 feet in less than a year. The lake remained at this level, known as the Provo level, for 500 years. The climate warmed and became arid at the end of the Pleistocene. By 12,000 years ago, the lake level had fallen 1,000 feet from its highest level. Geologists think that the lake became saline about 10,000 years ago as water continued to evaporate, thus becoming the Great Salt Lake.

Tufa, the youngest rock on Antelope Island, was mostly deposited 10,000 to 15,000 years ago (extremely young as rocks go). Tufa is comprised of calcium carbonate that precipitated out from the wave action and algal activity of Lake Bonneville. Tuffaceous deposits on Antelope Island are typically a thin coating over previously deposited cobbles and pebbles, resembling cement. The best place to observe tufa on Antelope Island is on the Buffalo Point Trail.

### **Paleontological Resources**

The rocks of Antelope Island are not known to contain paleontological resources, but the soils, caves, packrat middens, and other features have the potential to contain plant and animal remains that can offer important

information about the island's past climate and natural history. Oolitic beach sand is found on the west side of the island. These sand grains are formed when calcium carbonate coats brine shrimp fecal pellets. Paleontological resources receive protection through Federal and state antiquities laws and Division guidelines.

## **Biological Resources**

### **Ecosystem**

AISP is a signature sagebrush steppe community. Junipers dot the rugged landscape of the higher regions. Shrubs such as sagebrush, rabbit brush, shadscale, greasewood and buckwheat cover the majority of the island.

Every season springs to color with blooming flowers. From the early blooming biscuitroot and stork's bill, to the summer blooming sego lilies, paintbrush (two species), scarlet globe mallow, Palmer penstemon, rush pink and several species of primrose, to the late-blooming rabbit brush and sunflowers. The island is constantly filled with color. The island's plant species are listed in a plant checklist being developed by the park naturalist. The checklist as it now stands documents over 170 native species and many non-native species of plants.

The wetlands surrounding the various springs on the island yield willows, rushes, sedges, watercress, nettles, cattails and phragmites. These plants provide vital habitat for many species of animals.

The island's native plants have suffered at the hand of many introduced noxious weeds. The majority of these weeds were introduced to the island during its time of private ownership. The introduction of livestock introduced noxious weeds carried by the animals from their summer rangelands near the Wyoming-Utah border.

Noxious weeds recover quickly from fires and dominate water resources leaving native plants a more difficult path to recovery. The island is mainly composed of grasses and often faces lightning-caused grass fires. These frequent fires stunt the recovery of sagebrush and juniper which both require a longer maturation period. Noxious weeds found on AISP include Dalmatian toadflax, tamarisk, Russian olive, diffuse knapweed, Dyer's woad, white top (small and tall), musk thistle, puncturevine, hounds tongue, phragmites, burdock, Russian star thistle, field bindweed and Canada thistle.

Noxious weeds out-compete native plants, increase overall range and soil degradation, create water table fluctuations, decrease wildlife carrying capacity, increase wildfires, decrease scenic and recreational opportunities and may poison wildlife. Management efforts are currently underway to control and eradicate a number of these weed species from the island's rangelands.

Over 40 natural fresh-water springs on the island, as well as numerous small springs and seeps provide water for wildlife and vegetation on the

island. Approximately 37 of the springs are found on the east side of the island, providing over 36 million gallons of water per year. Water from many of these springs creates wetland areas along the shores of Antelope Island. Wetlands are an important part of the island ecosystem because they provide habitat for numerous species of birds and mammals.

Several canyons on the island are created by springs flowing down through creeks. Most of the trees on the island (excluding the ranch) are found along the creeks in the canyons. These trees include juniper, netleaf hackberry, big tooth maple, chokecherry, box elder, Russian olive, and willows. They provide habitat for porcupines, songbirds and nesting bald eagles.

### **Wildlife**

Antelope Island provides a crucial resting stop for thousands of migratory birds each year. Black-necked stilts, American avocets, American white pelicans, double-crested cormorants, Wilson's phalaropes, eared grebes and many more come to Great Salt Lake to feed and some to nest on its isolated islands. Waterfowl of many different species use the lake and islands for a feeding and nesting area. Many raptors use the island for nesting purposes throughout the year. The island is included in the Western Hemisphere Shorebird Reserve Network. The mission of this organization is to conserve migrating shorebirds and their habitats through a network of key sites across the Americas. Sites extend north to



Canada, through the United States and Mexico and into countries in South America. For shorebirds, the island habitats include upland habitat, mudflats and playas, open salt water, rocky shorelines and levees, both salt and fresh-water marshes and saltwater-freshwater interface.

The Intermountain West Joint Venture also named the island as an important birding area. The mission of this group is to facilitate the long-term conservation of key avian habitat in intermountain and western ecosystems throughout Canada, the U.S. and Mexico. The focus is on habitat of all bird species, to include shorebirds, but also waterfowl, raptors, and other families of birds that rely on western habitats.

Lizards, snakes, rabbits, pronghorn, bobcats, coyote, mice and voles race across the grasslands. Porcupine, skunk, songbirds, raptors, deer and bison stay close to the larger springs near Garr Ranch among the shelter of the trees. This is not all of the wildlife found on the island; however it is a good representation of the diversity found on this desert island. The park naturalist has a checklist for mammals that have been seen on the island. A checklist developed by Utah Birds for Antelope Island lists 239 species of birds that have been seen on the island including several species that have strayed to the island out of their usual range. Species checklists are found in Appendix F.

### **Bison**

In the late 1800s, it was estimated

that only 600 bison remained of the more than 45 million bison that had roamed the plains when European explorers first came to North America. Conservationists began taking steps to prevent the extinction of this majestic animal. One such effort (and subsequently a successful one) was that of a man from Utah. William Glasmann brought bison from Texas to stock his "Buffalo Park" in Garfield City on the south shore of Great Salt Lake in Tooele County. He was developing the city of Garfield, and thought a zoological garden with a buffalo park would draw many people to settle the city. This venture was not successful and Glasmann needed a buyer for his bison. John Dooly, owner of most of Antelope Island at the time, purchased some of the bison for the island. In 1893, four bulls, four cows, and four calves were brought to the island on a barge. These 12 animals provided the foundation for what has grown into one of the oldest and largest publicly owned herds of bison in the nation.

For many years, the bison shared the island with cattle and domestic sheep, along with native wildlife of the island. The population size was controlled by competition for food with other animals, and hunting.

The state purchased the northern 2,000 acres of Antelope Island for a state park in 1969. In 1981, the state of Utah purchased the south 26,000 acres of the island from the Anschutz Land and Cattle Company as an addition to AISP. As part of the purchase, Anschutz donated the bison herd to the state.

The bison herd is now owned and managed by the Division of Utah State Parks and Recreation. The park maintains a bison population of 600-700 animals. An annual bison roundup is conducted to monitor the health of the herd, inoculate individuals, and to allow for the sale of excess animals.

### **Bighorn Sheep**

The concept of restoring bighorn sheep to Antelope Island began through the development of a Wildlife Management Plan for the island in 1989. Subsequently, joint efforts between the Division of Utah State Parks and Recreation, the Division of Wildlife Resources and the Foundation for North American Wildsheep resulted in the successful establishment of a very productive population of California bighorns. Watchable wildlife opportunities and establishment of a donor herd for future transplant projects were primary objectives for the project.



*Bighorn Ram on Antelope Island*

A proposal was submitted in 1995 for the reintroduction and two years later, 23 sheep from Kamloops, British

Columbia were released onto the island. In 2000, the growing herd was augmented with six additional sheep from Nevada.

The population continued to increase exponentially and by 2001 sufficient sheep were present to begin moving sheep off of the island to other suitable habitat sites in Utah. That year, 15 sheep were captured and relocated to the Newfoundland Mountains. Another 20 sheep were moved to the Newfoundlands in 2003, 58 in 2006 and an additional 20 head during 2008. The Stansbury Mountains received 35 sheep during the 2008 relocation. To date, 148 bighorns have been removed from the island to start or augment other herds in the state.

### **Threatened and Sensitive Wildlife Species**

Antelope Island is habitat or potential habitat for 12 species considered to be species of concern. One of these, the yellow-billed cuckoo, is a candidate for federal threatened and endangered species listing. The remaining 11 species—two mammals, one fish and eight birds—are considered to be species of concern under Utah Division of Wildlife Resources criteria. Not all of these species have been observed on the island but there is potential for finding these species because of appropriate habitat and because of sightings close to the island.

### **Candidate Species under Federal Endangered Species Act**

#### ▶ **Yellow-billed Cuckoo, *Coccyzus americanus***

The yellow-billed cuckoo is found in riparian areas and nests in lowland

cottonwood/willow habitats. These birds have been sighted on the island. Although common in southeastern states, the bird is a rare breeder in Utah and other western states, as populations and range have sharply diminished. The yellow-billed cuckoo is therefore a candidate species under the Federal Endangered Species Act in the west.

**Species of Concern:**

- **American White Pelican, *Pelecanus erythrorhynchos***  
Gunnison Island in the Great Salt Lake is only one of four breeding colonies for this bird in North America, and is the only one remaining in the Great Salt Lake complex. The pelican's low reproductive potential and high sensitivity to disturbance have caused reductions in populations.
- **Bald Eagle, *Haliaeetus leucocephalus***  
The bald eagle is the only eagle unique to North America. Decreasing populations caused the U.S. Fish and Wildlife Service to list the eagle as endangered in 1965. Populations have been increasing and the species designation was changed to threatened in 1995. Despite the recovery, only a few nests have been found in Utah, one of which is on the uplands adjacent to Great Salt Lake. In the Great Salt Lake, the fresh water/salt water interface areas, where fish and waterfowl prey are found, are important winter habitat for these eagles.

- **Ferruginous Hawk, *Buteo regalis***  
The ferruginous hawk takes its name from the rusty plumage on its back, shoulders and tail. Its preferred habitat is grasslands and shrub steppes. The ferruginous hawk nests in Utah.

The cyclic nature of jackrabbit prey populations may cause crashes in the number of hawks, and if additional prey is not abundant, ferruginous hawk populations may not recover from declines. Ferruginous hawk productivity in Utah is insufficient to support stable long-term populations.

- **Long-billed Curlew, *Numenius americanus***  
This large shorebird nests in dry grasslands where sufficient cover exists. The shoreline of the Great Salt Lake is an important breeding area for this species. Loss of habitat, especially along the eastside of the Lake, has caused decreases in population of this bird. Antelope Island has several habitat types that support the long-billed curlew and has been observed at the Fielding Garr ranch.
- **Short-eared Owl, *Asio flammeus***  
This ground nesting and diurnal owl is found in open grasslands, and occasionally salt marshes. It is found statewide, but populations have been decreasing, probably due to loss of habitat. Summer residents, they nest in the vicinity of Antelope Island.

- **Burrowing Owl, *Athene cunicularia***

The burrowing owl is a nesting summer resident of Antelope Island. Like the short-eared owl, the burrowing owl is a ground nester, adopting the burrows of mammals such as prairie dogs. These long-legged owls can be seen on Antelope Island during spring and summer months perching on the mounds around burrows or on near-by fence posts. The northern populations of burrowing owls migrate to southwestern states. Like many other species of concern at Antelope Island, the decline in populations is attributed to loss of habitat.



*Burrowing Owls, photo by Lynn Chamberlain*

- **Grasshopper Sparrow, *Ammodrammus savannarum***

The source of the grasshopper sparrow's common name is the insect-like song although it does eat insects including grasshoppers. This species prefers grasslands, breeding in northern Utah, including on Antelope Island. Loss of habitat has reduced populations of this bird.

- **Bobolink, *Dolichonyx oryzivorus***

The bobolink is a member of the

blackbird family that nests in wet meadows, grasslands or irrigated fields. Because of its dependence on these wet habitats, it is vulnerable to periods of drought. Once common in Utah, its numbers of declined. Bobolinks have been reported in nearby Farmington Bay although nesting status in that area is not known. The bobolink migrates over 12,000 miles and spends almost half a year in migration.

- **Townsend's Big-eared Bat, *Corynorhinus townsendii***

Townsend's big-eared bat is widespread throughout Utah in areas below 9,000 feet in elevation. It roosts and hibernates in caves, buildings and mineshafts near forested areas. Although widespread, its populations appear to be declining, possibly due to disturbance of roosting sites.

- **Kit Fox, *Vulpes macrotis***

Populations of this small desert fox are declining. It is found elsewhere around lake and could occur on the island.

- **Least Chub, *Iotichthys Phlegethontis***

This small fish is found in ponds and streams throughout the Bonneville Basin. Its numbers have been declining. Through a conservation agreement between the state of Utah and the U.S Fish and Wildlife Service, efforts are underway to expand numbers and distribution of this species. It is found in a pond on Antelope Island, but the population is identified as non-essential.

## **Cultural Resources**

Antelope Island's cultural resources are vast and widely unexplored. There are a number of known cultural sites on the island and many more that have been mentioned in historical writings, but the locations of these are unknown.

The earliest known people to frequent the island were the prehistoric Archaic culture. These nomadic hunter-gather people used the area around the Great Salt Lake from approximately 8000 B.C. and A.D. 400. There is some evidence that they began visiting and using the island at least 6,000 years ago.

Stone tools, bone fragments of prey species and the remains of campsites are evidence that the Fremont culture (approximately A.D. 400 to A.D. 1300) also used the island. These people had developed some agriculture and lived in villages of pit houses around the Great Salt Lake. Later arriving cultural groups including the historic Shoshone, Ute, Piute and Goshute may have displaced the Fremont. Evidence has shown these people also used island. No permanent dwellings of these people have been found on the island, and it is thought that these groups used the island mainly for hunting.

The Fielding Garr Ranch was established on the island in 1848 and remained a working ranch until 1981. The historic ranch structures remain a popular visitor attraction. Lesser known historic sites include the Frary Homestead, Dairy Springs and Beacon Knob. These sites were all part of the

islands history but except for Beacon Knob little remains of them. There are remnants of mining activities from the late 1800s and early 1900s on the island, but little research has been done to gather information about this aspect of the island's history.

## **Natural Hazard Analysis**

The Utah Division of Emergency Services and Homeland Security conducted a natural hazards analysis of AISP during the fall of 2007. This study discussed the risks associated with flooding, earthquake activity, severe weather, drought, landslides and wildfire.

The Great Salt Lake rose almost 12 feet during 1982 and 1983. This rise in lake level caused flooding to Interstate 80, the Union Pacific Railroad, Great Salt Lake State Marina and AISP. The causeway leading to the island was flooded and received severe damage. Public access to the park was closed for 10 years. Flooding also damaged many park facilities and beaches. The state installed pumps to control the lake level during extremely wet years, so flooding of this magnitude may not occur again. High winds and wave action may cause localized flooding, however. The hazard analysis recommends that park staff monitor flooding potential during high water events.

The Wasatch Front is prone to earthquakes. A significant earthquake could cause some damage to the park. Ground shaking and liquefaction would increase the risk of damage to buildings and roads. The causeway may be compromised due to ground

shaking and secondary effects may occur from liquefaction or a lake seiche. The Division of Emergency Services recommends that all equipment and furniture that could pose a danger during an earthquake be tied down or secured to walls or other less moveable structure. Park staff should work with Davis County to develop an evacuation plan.

The park serves as an important recreational opportunity for visitors interested in sailing, camping, hiking and enjoying the wildlife and panoramic views of the lake. While lower water levels will not affect access to the park, water activities tied to the lake such as sailing and kayaking and the secondary services in support of these activities may be impacted by drought. Drought also increases the threat from wildfires.

There are no structures at risk from landslides on Antelope Island. There are areas where landslides may occur at higher elevations on the island. The potential for landslide and rock falls could affect the park trail system and create a threat to people hiking or biking in the higher elevations on the island.

AISP facilities are located in an area defined as high risk for wildfire and many wildfires have occurred on the island. The higher elevations in the park are defined as an extreme risk of wildfire. Wildfires on the island are mostly the result of lightning and appear to be a regular occurrence during the summer and fall. Wildfires may affect park attendance, air quality, and be of concern to wildlife

and recreationists. The park should monitor fire conditions and disseminate fire warnings to employees and visitors, and work with the interagency fire center for response to fires.

Extreme heat and thunderstorms that include lightning, cloudbursts and hail, have the potential to impact park facilities and park visitors. Park visitors and park staff are also in danger of extreme heat, summer lightning, and thunderstorms. Weather forecasts should be made available to employees and visitors.

Natural hazards can create safety concerns for visitors and staff, damage park facilities, and have detrimental effects on the economy of the area by interrupting access and use of the park. Thoughtful management can reduce the potential damage from these hazards.

### **Management Implications**

The resources and opportunities offered by the park are unique, especially considering the location near the heavily populated Wasatch Front.

The team recognized the importance of the resources and the responsibilities of the park and Division in protecting them for the future. Many of the recommendations in the following issues and recommendation section address the stewardship responsibilities of the Division for the park and its precious resources.

## Issues and Recommendations

A number of issues are identified and addressed in the plan. Some of these issues are general in nature, but many more are specific to various locations on the island. To better deal with the great variety of resources, geography, visitor opportunities, facilities, and related issues, the team identified nine separate management zones on Antelope Island. These zones include: 1) Entrance Station and Causeway; 2) Marina; 3) Visitor Center; 4) Bridger Bay; 5) Buffalo Point; 6) White Rock Bay; 7) Ranch Road; 8) Fielding Garr Ranch; 9) Backcountry.

General issues relating to resource management, marketing and public support, funding and revenue enhancement, and interpretation and education are considered. The planning team developed recommendations for these issues. The team listed desired visitor activities and experiences, suggested concessions to provide visitor services, and recommended facility and amenity improvements and additions for each management zone. Also for each zone, measures to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems were identified.

Each of these issues was identified by various means including input from planning team members, the public-at-large through public meetings, and by a visitor survey. An analytical technique used to determine the park's strengths, weaknesses, opportunities and future threats (known as a "SWOT" analysis) helped in the development of these issues.

The team emphasized that recommendations be consistent with the park's mission and vision statements.

The planning team felt that the existing, specific resource management plans – 2001 Wildlife Management Plan, 2004 Access Management Plan, 1997 Fielding Garr Ranch Interpretive and Site Plan, and 2006 Antelope Island Comprehensive Interpretive Plan – should continue to be used to guide management decisions at the park. *Pertinent parts of these plans are found in Appendices B through E.* The team did develop a number of recommendations offering additional direction to park managers.

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

### **Resource Management**

Even though the specialized resource management plans will continue to be used to guide resource management decisions at the park, the planning team did develop recommendations offering additional resource management direction.

In particular, the team made recommendations for enhancing range and wildlife management, while allowing for visitor use and enjoyment of these resources. Land ownership

issues and mineral exploration and development were also addressed.

The public and planning team identified a number of experiential values as essential in creating quality visitor experiences. The team also developed recommendations to protect these aesthetic resources.

### Issue Area: Resource Management

#### Key Issues:

- 🏹 **Wildlife and Range Management.**
  - Continue to implement the 2001 Wildlife Management Plan as the primary natural resource directive.
  - Determine population management targets for mule deer.
  - Hunting will only be allowed as the management tool of last resort to control wildlife population numbers.
  - Manage resources for range, wildlife and visitor opportunity improvement.
- 🏹 **Protect Visual and Aesthetic Resources**
  - Preserve the concepts of solitude, openness and ruggedness, and other aesthetic values of the park.
  - Continue to implement the 2004 Access Management Plan.
  - Identify levels of acceptable change or measures to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems.

### **Issue: Wildlife and Range Management**

The planning team reiterated that the 2001 Wildlife Management Plan is the primary natural resource management directive for the park. The team ensured that some elements

of the wildlife plan would receive particular emphasis. The team agreed that population targets for mule deer should be identified, and that the wildlife plan's directive that hunting be used only as the tool of last resort to control ungulate populations be expanded to include all wildlife in the park.

Other recommendations include range improvements, reducing impacts on wildlife by park visitors, and consideration of renewable energy sources.



*Bison on Antelope Island*

### **Recommendations**

1. **Continue to implement the 2001 Wildlife Management Plan as the primary natural resource directive.**



**2. Determine population management targets for mule deer.**

- Park biologists should determine population management targets for mule deer (as has been done for pronghorn and big horn sheep) and manage to maintain desired population numbers. Deer populations have increased over time and the effects of this should be monitored.

**3. Limited hunting may be allowed as a management tool for the health of wildlife populations and their habitats when other management control options have not been effective.**

- The 2001 Wildlife Management Plan Update states: *“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.”* The resource management planning team also supported this position. At a meeting in June 2009, the Board of Utah State

Parks and Recreation approved this RMP with the “hunting as a management tool of last resort” directive in the Wildlife Management plan being changed to *“Limited hunting may be used as a management tool for the health of wildlife populations and their habitats when other management control options have not been effective.”* The RMP team also recommends that the directive be broadened to include all wildlife species on the island. Bison were excluded from this recommendation in the wildlife management plan. A bison-specific recommendation is listed below.

- Two visitor surveys (2000 and 2007) were conducted with respondents being asked questions about hunting policy and preferences on the island. A majority (59 percent) of respondents in the 2000 visitor survey indicated that they supported the park’s policy of no hunting. Another 24 percent said they opposed the policy. Visitors were also asked their opinion of six hunting alternatives. These included: 1) allowing a public mule deer hunt for a broad spectrum of reasons; 2) allowing a limited deer hunt to protect or enhance deer habitat; 3) allowing a limited deer hunt to generate revenues for Antelope Island; 4) allowing a limited mule deer hunt for biological reasons (i.e. if capture and removal fails to

manage deer populations; 5) prohibiting a public deer hunt regardless of circumstance; and 6) prohibiting public hunting of any animal on the island, including bison. Of these options, only the one allowing a mule deer hunt to control populations after other efforts have failed had majority support. In the 2007 visitor survey, 74 percent of respondents did not favor hunting in the park. Seven percent of these respondents indicated they would support a limited hunt to control wildlife population numbers if other means failed to do so. Of the 26 percent who said they would favor hunting at the park, 47 percent indicated the reason for their support was to control wildlife populations.

- The 2001 Wildlife Management Plan Update left the future of the historic bison hunt up to park managers. The plan states that due to the “strong political implications” of the historic limited bison hunt; the park’s wildlife manager will have discretion in all bison management recommendations, including the need for a bison hunt. The resource management planning team agreed with this approach.

**4. Use treatments such as occasional mowing, planting of desirable forage, and developing water sources to improve habitat and draw**

**wildlife to locations easily viewed by visitors.**

**5. Ensure adequate water supply for current and future needs.**

- Estimate the amount of water needed for current and future demands (wildlife, range management and improvement, facilities and visitor use) of the park.
- Determine water quantity and quality available on the island, and investigate other sources, such as hauling water from the mainland, and their costs.
- Conduct a study of the natural springs on the island to determine how they are connected, how drought and lake levels affect them, and how they might be utilized for wildlife and range management.
- Consider water use and supply when planning improvements, additional facilities or increasing visitor activities.

**6. Develop ponds east of the ranch road for use by wildlife, and to offer visitors a short trail with interpretive opportunities (consider a boardwalk trail with interpretive signing).**

**7. Eradicate noxious and invasive species.**

- Create and implement noxious and invasive species management plans that map where these plants occur and identify priority areas and recommended actions (such as

prescribed burning, and chemical and mechanical treatments).

8. **Develop and implement a plan that identifies appropriate areas and methods for re-establishing native tree and shrub communities to the island.**
9. **Investigate controlling populations of no-see-ums (biting midges), and the effect of potential control efforts on other wildlife populations (involve the Great Salt Lake Project and the Division of Wildlife Resources in considering insect control methods and implications).**
  - Research the use of repellents to stop the midges from biting visitors and park staff.
  - Educate visitors and potential visitors about the importance of insects in the ecosystem, and how the nuisance species may be avoided.
10. **Continue to implement the 2004 Access Management Plan, concentrating on minimizing wildlife/visitor conflicts through trail and facility design, and visitor education.**
11. **Study the possible impacts on wildlife before opening the southern tip access road to hiking, biking and horseback riding as recommended in the 2004 Access Management Plan. Park biologists have suggested that these activities may cause wildlife, especially mule deer,**

**to walk off the island (particularly at lower lake levels).**

12. **The use of off-highway vehicles will be limited to park staff, cooperating researchers and others engaged in search and rescue actions, maintenance of trails and other facilities, wildlife and range management, public safety, natural and cultural resource research, and other park management related activities.**
13. **Continue to support the trail patrol and their efforts to protect park resources and experiences.**
14. **Investigate opportunities for renewable energy resources such as wind, solar, ground source heat pumps and partnering with university research groups.**

### ***Issue: Inholdings and Mineral Rights***

The U.S.D.I. Bureau of Land Management (BLM) maintains ownership of a number of small parcels of land on the island. The Federal ownership of these inholdings has the potential to affect the park's resource management efforts, such as range improvements, and also may impact visitor amenities and opportunities. The previous private owner of the island retains minerals rights within the park. Disturbances from mineral exploration and development are contrary to the park's mission and vision, and would adversely affect range management,

wildlife populations, and visitor experiences and opportunities.

### **Recommendations**

- 1. To promote continuity in resource and visitor management on the island, the Division should continue to pursue obtaining ownership of the BLM inholdings.**
- 2. The Division is opposed to exploration and development for mineral extraction within the park.**



*Antelope Island has a vast array of visual resources*

### **Issue: Protect Visual and Aesthetic Resources**

Public scoping meeting results, park visitor surveys and the planning team all indicate that the park's visual resources and other aesthetic values are very important to quality visitor experiences.

The recommendations for this issue identify these resources as well as the means to protect them.

### **Recommendations**

- 1. Preserve the visual and aesthetic values of the park such as the concepts of**

### **solitude, openness and ruggedness.**

- The 2004 Access Management Plan team recognized the unique resources and experience Antelope Island offers. In particular, the team mentioned the island's ability to offer the feeling of solitude and remoteness in a natural setting in close proximity to the state's largest population center. The access team specifically stressed protecting values of solitude, openness and ruggedness. Sightseeing and wildlife viewing were the most participated in visitor activities listed in the 2000 and 2007 surveys of park visitors. This would indicate that protecting the aesthetic and natural resources of the park should be a high priority.

### **2. Continue to implement the 2004 Access Management Plan.**

- Allow management and access plans to adapt to changing resource conditions, public expectations and/or demand on resources by relying on staff expertise and consulting with other resource experts as needed to adjust management approaches.
- Monitor implementation of access plan for impacts on island resources and visitor experiences, and if monitoring indicates that resources or experiences are being degraded, the park will take actions to mitigate impacts.

- Monitor special events, including the open access days (as described in the Access Management Plan), and adjust future event criteria based on impacts to park resources and activities.
- Upon substantial completion of the recommendations in the current access management plan, form a new planning team to evaluate implementation successes and impacts, and to develop a new plan.

**3. Identify levels of acceptable change or measures to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems.**

**4. Enforce the Board of the Division of Utah State Parks and Recreation’s restriction on placing new communication towers, antennas or other structures on the island.**

- Due the extreme pressure from the government and private sector to place radio, television and communication towers on Antelope Island, the Board felt that the island’s viewshed was critical and needed to be protected. They did not want the island’s hillsides cluttered with communication installations similar to those visible on nearby mountains.
- At the time of the closure, there were several monitoring

stations on the island. These were allowed to stay in place as long as they were in use for the original purpose for which they were installed. One of these monitoring stations was located behind the park residences. Recognizing that there would be future requests, the Board identified the small area behind the residences as the only area on the island where these structures could be placed. The Board also required that all equipment must be hidden from view of the average park visitor. The only exception was given to Davis County. Due to flooding problems with the county's eastern hillsides, the Board gave the county approval to place a monitoring station at Beacon Knob to monitor for future flooding problems.

- The resource management planning team was informed that the park might be able to obtain the original aircraft-warning beacon that was housed in the existing structure on top of Beacon Knob in the park. The light is currently being used at the Moab airport, but may be replaced in the near future. The team recommended that due to the historic nature of the beacon, the park should seek to return it to its original location on Beacon Knob. The team also suggested that it be used (lit) during some special events.

**5. Explore means of controlling civilian aircraft (including**

**ultra lights, paragliders, and helicopters) use of airspace over the island when it presents hazards to visitors or harassment of wildlife.**

## **Marketing and Public Support**

### **Issue Area: Marketing and Public Support**

#### **Key Issues:**

- 🏠 Marketing the park to attract visitors.**
  - Continue the strong marketing partnership with Davis Area Visitors and Convention Bureau.
  - Develop a marketing plan and campaigns.
  - Increase numbers of visitors in the shoulder seasons and winter by marketing the opportunities available (particularly wildlife viewing) during those times of year.
- 🏠 Increase public support of the park and its programs**
  - Continue to develop relationships with businesses and community groups to support activities at the park.

The park, through a partnership with the Davis Area Convention and Visitors Bureau, does actively market and promote Antelope Island. The team suggests continuing the partnership and also gives additional direction to increase visitation throughout the year.

To be successful, the park needs to generate public support of its management and programs.

***Issue:* Marketing the Park to Attract Visitors**

Antelope Island has many resources that are attractive to people from around the world. The park also has many excellent visitor opportunities available throughout the year, especially wildlife viewing. Visitation could be increased during the traditionally slower shoulder seasons and winter to take advantage of these opportunities and to increase revenue collection.

#### **Recommendations:**

- 1. Continue the strong marketing partnership with Davis Area Convention and Visitors Bureau.**
- 2. Develop marketing campaigns and materials to attract people to the park from the Wasatch Front, as well as from outside the area, including international visitors.**
- 3. Increase numbers of visitors in the shoulder seasons and winter by marketing the opportunities available (particularly wildlife viewing) during those times of year.**
- 4. Complete a business plan that includes a marketing plan as a component.**

#### ***Issue:* Increase Public Support of the Park and its Programs**

Antelope Island does have good local support of its activities. The team thought this support should continue and be enhanced.

#### **Recommendations:**

- 1. Continue to develop relationships with businesses**

**and community groups to support activities at the park.**

- Maintain, and provide direction to, the park's public support groups, the Friends of Antelope Island and the Trail Patrol.
- Park management should be an active member of the local chamber of commerce.

## **Funding and Revenue Enhancement**

### **Issue Area: Funding and Revenue Enhancement**

#### **Key Issues:**

- 🚧 Provide adequate staffing and funding
  - Develop a business plan for the park that includes a staffing and budget analysis
  - Support Division efforts to attract and retain qualified applicants for positions at the park.
- 🚧 Enhance revenue collection at the park
  - Increase visitation by implementing the marketing recommendations of the plan.
  - Encourage special events at the park that are appropriate, will not adversely affect park resources and visitor experiences, and will produce additional visitation and revenue.
  - Enhance concessionaire opportunities as described in the zones section.

The Division of Utah State Parks and Recreation has been challenged by the legislature, governor and Department of Natural Resources to operate more efficiently and to maximize revenue to reduce dependence on the state's general fund. Vision 2010, the Division's long-range strategic plan,

echoes these goals, and also suggests that parks consider ways to increase their impact on local and state economies. The strategic plan also suggests that when new development is considered, its potential to increase revenue should be a consideration.

### ***Issue: Provide Adequate Staffing and Funding***

To successfully manage resources and visitor opportunities, the park does need skilled staff in sufficient numbers, as well as adequate funding for park operation.

#### **Recommendations:**

- 1. Develop a business plan for the park.**
  - Include a staffing and budget analysis to determine needs.
- 2. Support Division efforts to attract and retain qualified applicants for positions at the park. Efforts include adequate compensation, and possibly expanding employee housing on the island.**

### ***Issue: Enhance Revenue Collection at the Park***

As mentioned above, all Utah state parks are encouraged to maximize revenue collection by means compatible with the parks' missions and in ways that do not degrade park resources and visitor experiences.

#### **Recommendations:**

- 1. Increase visitation and revenue at the park by implementing the marketing recommendations.**



2. **Encourage special events at the park that are appropriate, will not adversely affect park resources and visitor experiences, and will produce additional visitation and revenue.**
3. **Enhance concessionaire opportunities as described in the zones section.**

### **Interpretation and Education**

Interpretation and education are important functions of the park. The park provides a variety of interpretive offerings including formal and informal lectures and programs, special events with an interpretive theme, printed materials and curriculum-based education activities for school children.

#### **Issue Area: Interpretation and Education**

##### **Key Issues:**

-  **Implement the recommendations and suggestions in the Antelope Island Comprehensive Interpretive Plan and the Fielding Garr Ranch Interpretive and Site Plan.**
-  **Coordinate interpretive activities with Great Salt Lake State Marina.**

***Issue:*** Implement the recommendations and suggestions in the Antelope Island Comprehensive Interpretive Plan and the Fielding Garr Ranch Interpretive and Site Plan. These two plans provide direction for

park staff to follow to meet desired goals and objectives.

### **Recommendations:**

1. **The Antelope Island Comprehensive Interpretive Plan and the Fielding Garr Ranch Interpretive and Site Plan should continue to be used to guide the staff toward reaching the park's interpretive and educational goals and objectives.**
  - Many of the recommendations in this resource management plan contain suggestions for interpretive improvements. Park staff should consider these recommendations in the context of the existing interpretive and educational goals and objectives.



*Interpretive Program at the Fielding Garr Ranch*

***Issue:*** Coordinate interpretive activities with Great Salt Lake State Marina.

Antelope Island and Great Salt Lake state marina share many natural resources and interpretive themes. It seems logical that they should



coordinate any interpretive efforts. Currently, Antelope Island has more expertise and staff to oversee their interpretive programming.

### **Recommendations:**

1. Coordinate interpretive programs with the Great Salt Lake State Marina and offer assistance as needed and available to improve interpretation at the marina.

### **Management Zones**

The planning team identified nine separate geographic management zones to better deal with the resources and opportunities specific to each locale. The zones include:

1. Entrance Station and Causeway
2. Marina
3. Visitor Center
4. Bridger Bay
5. Buffalo Point
6. White Rock Bay
7. Ranch Road
8. Fielding Garr Ranch
9. Backcountry

*\*Note: the team recommends that any new development, renovation or improvements meet Americans with Disabilities Act requirements if possible, and should be situated above 4217 feet in elevation to avoid the potential for flood damage at high lake levels.*

### ***Issue:* Identify Geographic Management Zones in the Park with Desired Visitor Activities and Experiences, Measures of Acceptable Change, Appropriate Concessions, and New and Improved Opportunities and Facilities.**

The team developed lists for each zone

identifying appropriate activities and associated visitor experiences, recommended concessions, enhancements to facilities and visitor opportunities, and measures to trigger management action to protect resources and visitor experiences.

### **1. Entrance Station and Causeway Zone**

This zone includes facilities at the eastern end of the northern causeway leading to Antelope Island (including a parking lot, restroom, entrance and exit gate, and entrance/contact station), and the seven-mile long causeway and road.

- **Visitor activities**
  - Vehicle parking and bicycle staging area.
  - Comfort station use.
  - Orientation for visit to the park.
  - Interpretive displays.
  - Current conditions.
  - Sightseeing and photography.
  - Wildlife and bird watching.
  - Road bicycling.
- **Desired visitor experiences**
  - Welcoming first impression and exit.
  - Adequate orientation and trip planning.
  - Opportunity through a variety of mediums (signs, radio stations, brochures) for visitors to obtain information on park resources and activities.
  - Easy and safe access to view birds, wildlife and scenery.

- Safe and enjoyable mix of vehicles and bicycles on the causeway.
- **Recommended Concessions**
  - No concessions are recommended for this zone.
- **Recommended facility improvements and development, and additional visitor opportunities**
  - Landscape the eastern end of the causeway and renovate the entrance station to create a more welcoming and inviting first impression for park visitors.
  - Support Davis County's efforts to seek funding for causeway maintenance and improvement.
  - Provide additional interpretive information at the parking lot outside of the entrance station.
  - Create gravel pullouts with interpretive information along the causeway for safe viewing of wildlife and scenery.
  - Devise system to direct visitors to where wildlife can currently be viewed. This information could also be provided at the visitor center and Fielding Garr Ranch.
  - Provide educational information, including road signage, about vehicles and bicycles sharing the road.
  - Investigate need and feasibility of adding bicycle lanes to all paved park roads.

- Adequately train entrance station staff and provide them with the materials they need to provide friendly and professional service to visitors.
- Consider adding a second traffic lane for entrance to the park.
- **Measures to be used to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems**
  - Conduct exit surveys to determine visitor satisfaction levels for each zone. Use this information to establish visitor satisfaction goals for each zone, and if future surveys show that goals are not being met, the park will act to improve satisfaction.
  - A trend of increased numbers of complaints or incidents recorded and/or responded to by park staff
  - An increase in vehicle, bike or pedestrian accidents
  - Increase in number of vehicle citations issued on causeway

## **2. Marina Zone**

The marina zone includes the area at the western end of the northern causeway. It encompasses the area surrounding the marina and the intersection in the road at the end of the causeway.

- **Visitor Activities**
  - Vehicle parking.
  - Recreational and commercial boat launching and docking.
  - Commercial brine shrimp staging and operations.
  - Interpretive activities.
  - Visiting ranger memorial.
  - Sightseeing and photography.
  - Wildlife and bird watching.
- **Desired visitor experiences**
  - Develop a welcoming first impression. The marina area is the first location that visitors reach on the island. Currently this area is not very attractive. Landscaping and improved visitor facilities would give visitors a better impression of the park and a chance to enjoy a vibrant marina scene.
  - Provide easy and safe access for bird watching.
  - Develop a comfortable rest stop for bicyclists and others after long ride over causeway.
  - Another opportunity to provide visitors with interpretive information about park resources and activities.
  - The marina area is a better location for a visitor center and dispensing of park information and retail sales because all visitors must pass this location.
- **Recommended concessions**
  - Recommended concessions for the marina area are a

restaurant or snack bar; boat, kayak and bicycle rentals and guided tours; cabins or yurts; and lake cruises.

- **Recommended facility improvements and development, and additional visitor opportunities**
  - The marina area, because of its location at the end of the causeway, should be a high priority for development.
  - Build a visitor center, park office and concession building or complex at the marina. The existing visitor center on Ladyfinger Ridge could be converted to a museum and education center.
  - Investigate improving the functionality of the marina in low lake level years, by such things as dredging the marina and entrance channel, and reengineering the breakwater to stop silting problems.
  - Interpretive opportunities could include information about the brine shrimp industry, including a brine shrimp boat that could be boarded by visitors when it is not actively harvesting shrimp.
  - Consider cabins or yurts for rental lodging at the marina.
- **Measures to be used to determine when park management must act to reduce impacts to resources**

**or visitor experiences, or to solve public safety or other problems**

- Exit surveys show that visitor satisfaction goals are not being met for this zone.

### **3. Ladyfinger Ridge Visitor Center Zone**

This zone includes the existing visitor center and surrounding area.



*Ladyfinger Ridge Visitor Center*

- **Visitor activities**
  - Vehicle parking.
  - Obtaining orientation information and materials.
  - Receive educational and interpretive information, materials and programs.
  - Purchase souvenirs, books and convenience items at sales outlet.
  - View wildlife and scenery.
  - Use restrooms.
  - Attend meetings.
- **Desired visitor experiences**
  - Use of quality facilities and amenities while enjoying the activities listed above.
  - Enjoy easy access to staff, orientation materials, and interpretive exhibits,

publications and programs.

- **Recommended concessions**
  - No concessions are recommended for the visitor center zone.
- **Recommended facility improvements and development, and additional visitor opportunities**
  - Devise system to direct visitors to where wildlife can currently be viewed.
  - If a visitor center were added to the marina zone, the existing building would need to be remodeled to serve as an educational center.
  - If a visitor center is not added to the marina zone, an expansion is needed to provide meeting/multipurpose rooms, offices and a theater.
  - Provide displays and publications that describe hiking and biking opportunities including trail or ride length and difficulty, time need to complete, and potential for wildlife viewing. Also, include tips on how to avoid conflicts with wildlife.
  - Improve the amphitheater and expand educational programming.
  - Use public telescopes, pipe viewers and skyline exhibits to help visitors identify key points of interest.
  - Provide reporting system for visitors to share wildlife

sightings, and install and maintain a visitor register at the center. These are fun for visitors and can provide information to park managers.

- **Measures to be used to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems**
  - Exit surveys indicate that visitor satisfaction goals are not being met for this zone.

#### **4. Bridger Bay Zone**

The Bridger Bay zone encompasses the area surrounding the large bay (Bridger) located at the extreme northwestern tip of the island. It includes a large white-sand beach with day-use shelters and restrooms, indoor and outdoor showers, a concession building, trailhead and trails, and a 26-unit campground.

- **Visitor activities**
  - Vehicle parking.
  - Sightseeing.
  - Wildlife viewing.
  - Swimming and sunbathing.
  - Picnicking.
  - Camping.
  - Educational activities.
  - Hiking.
  - Equestrian use.
  - Open access exploration.
  - Road biking and mountain biking.
  - Special events.
- **Desired visitor experiences**
  - Use of quality facilities and

amenities while enjoying the activities listed above.

- Easy access to the lake and shoreline.
- **Recommended concessions**
  - Snack bar and associated services at the beach.
  - Cabins or yurts in campground area.
- **Recommended facility improvements and development, and additional visitor opportunities**
  - Improve existing campsites with shade shelters and driveways that accommodate recreational vehicles.
  - Develop additional campsites with some having full hookups for recreational vehicles.
  - Consider adding cabins or yurts for overnight use. Could be provided and maintained by a concessionaire.
  - Wildlife travel patterns should be considered when placing new visitor facilities to avoid visitor/wildlife conflicts.
  - Investigate acquiring or building moveable shade structures to adapt to changing lake levels and shoreline.
  - To make access to the lake easier for visitors and park staff at lower lake levels, build boardwalks from parking areas and day-use facilities at beach to the lake edge. At lower lake levels, it

may be a quarter-mile walk through deep sand to reach the water.

- Provide some ADA acceptable access to the lake.
- Replace or renovate the beach facilities. Most of the structures at the beach were constructed in the 1970s and need to be replaced or renovated.
- **Measures to be used to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems**
  - Exit surveys indicate that visitor satisfaction goals are not being met for this zone.

## **5. Buffalo Point Zone**

Buffalo Point is the summit of the high ridge to the south of Bridger Bay. This ridge comprises the Buffalo Point zone. It includes the developed viewpoint with concession bistro and gift shop.

- **Visitor activities**
  - Vehicle parking.
  - Sightseeing.
  - Wildlife viewing.
  - Picnicking.
  - Equestrian use.
  - Open access exploration.
  - Road biking.
  - Concession (food service and store).
- **Desired visitor experiences**
  - Use of quality facilities and amenities while enjoying the activities listed above.

- Easy access to spectacular viewpoints.
- Positive experience with concession food service.
- **Recommended concessions**
  - Food service, restaurant and small store.
- **Recommended facility improvements and development, and additional visitor opportunities**
  - Upgrade restroom facilities at Buffalo Point with water and electricity.
  - Provide informational signage explaining why water and other utilities are not currently available at Buffalo Point.
  - Provide shaded outdoor seating and indoor dining at the concession facility.
  - Add hitching posts and bike rack at the viewpoint and concession area.
  - Evaluate visitor-created social trails in the Buffalo Point area to determine if there is a need to formalize some of these paths (in particular, trails that lead to the viewpoint from the campgrounds in Bridger and White Rock bays). If some are desirable for connectivity between attractions, those trails should be upgraded to trails standards. All other social trails should be closed and rehabilitated.
- **Measures to be used to determine when park management must act to**

**reduce impacts to resources or visitor experiences, or to solve public safety or other problems**

- Exit surveys indicate that visitor satisfaction goals are not being met for this zone.
- Undesirable social trails are rehabilitated and the creation of new social trails is curtailed.

## **6. White Rock Bay Zone**

This zone includes the large shallow amphitheater of land surrounding the northern half of White Rock Bay.

The zone includes the park's maintenance and office area, the bison holding pens and facilities, 12 primitive group campsites, trailheads and hiking/mountain biking trails.

- **Visitor activities**
  - Vehicle parking.
  - Sightseeing.
  - Wildlife viewing.
  - Hiking.
  - Mountain Biking.
  - Equestrian use.
  - Open access exploration.
  - Road biking.
  - Group Camping.
  - Equestrian Camping
  - Special events.
- **Desired visitor experiences**
  - Use of quality facilities and amenities while enjoying the activities listed above.
  - Easy access to trails.
- **Recommended concessions**
  - No concessions are recommended for this zone.

- **Recommended facility improvements and development, and additional visitor opportunities**

- Pave roads to all facilities.
  - Solve the social trail problem as outlined in the Buffalo Point zone section, with emphasis on developing a well-designed trail to Buffalo Point from the White Rock Bay area.
  - Develop interpretive trails in the area. Consider constructing the Pickleweed boardwalk trail mentioned in the Access Plan.
  - Upgrade facilities by adding pavilions and restroom facilities to group sites.
- **Measures to be used to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems**
    - Exit surveys indicate that visitor satisfaction goals are not being met for this zone.
    - Undesirable social trails are rehabilitated and the creation of new social trails is curtailed.

## 7. Ranch Road Zone

This zone runs on both sides of the road to the Fielding Garr Ranch. It begins at the Marina Zone and ends at the ranch. It includes the areas east of the road to the lake edge, and some of the foothills to the west of the road. It does include the Mulberry Grove and Frary Homestead.

- **Visitor activities**
  - Vehicle parking.
  - Sightseeing.
  - Picnicking.
  - Wildlife viewing.
  - Hiking trails and access.
  - Road biking.
  - Mountain biking trails and access.
  - Equestrian access.
  - Special events (such as road bike rides and races and equestrian).
- **Desired visitor experiences**
  - Easy wildlife viewing.
  - Use of quality facilities and amenities while enjoying the activities listed above.
  - Easy access to backcountry trails.
- **Recommended concessions**
  - Guided horse, biking and hiking tours.
- **Recommended facility improvements and development, and additional visitor opportunities**
  - Create wildlife viewing areas by using treatments such as occasional mowing, planting desirable forage

species, or developing water sources to draw wildlife into easy viewing range.

- Renovate the historic ponds on east side for wildlife use and viewing. Include boardwalks and interpretive media for wildlife viewing opportunities.
  - As mentioned in the recommendations for the Entrance Station and Causeway Zone, investigate need for bike lanes on paved roads.
  - Add pullouts and wayside attractions to this zone for picnicking, interpreting park resources, and wildlife and scenic viewing. Investigate short loop trails or boardwalks from some of these pullouts where appropriate (such as near the ponds mentioned above). Review access plan for appropriate expanded opportunities (pull-outs and waysides). Place benches, tables and shade at some sites.
  - Investigate allowing more public access to the Mulberry Grove and Frary Homestead sites as outlined in the 2004 Access Management Plan.
- **Measures to be used to determine when park management must act to reduce impacts to resources or visitor experiences, or to**



**solve public safety or other problems**

- Exit surveys indicate that visitor satisfaction goals are not being met for this zone.
- Natural and cultural resources are monitored. If monitoring shows that resources are being negatively impacted from the recommendations in this plan, park management will take steps to limit, end, or reverse the impacts on resources depending on severity.

## **8. Fielding Garr Ranch Zone**

This zone includes the Fielding Garr Ranch and immediately surrounding area, including the historic ranch buildings, day-use facilities, parking lots and restrooms.

- **Visitor Activities**
  - Experiencing the life of pioneer Utah.
  - Picnicking.
  - Parking.
  - Hiking access.
  - Road biking.
  - Mountain biking access.
  - Sightseeing.
  - Wildlife viewing.
  - Equestrian use.
  - Concession (Wildlife Safari and horse tours).
  - Education and visitor programs.
  - Special events and group activities.
  - Limited camping for round-up and other special events.

- **Desired visitor experiences**
  - Experience early Utah ranch life.
  - Easy wildlife viewing.
  - Use of quality facilities and amenities while enjoying the activities listed above.
  - Opportunity through concessionaire for guided and unguided trail rides, guided wildlife viewing trips, food and snack services.
  - Easy access to trails that offer a variety of lengths and difficulty in the front and backcountry, and some that offer interpretive experiences.
- **Recommended Concessions**
  - Guided horse, biking and hiking tours.
  - Food service and small store offering pre-prepared or packaged food, or fresh, if health codes can be met without full utilities. The food service building should be historical looking to match ranch buildings, and could be placed at the back of the parking lot built into the hillside. Restrooms could be included in this building, eliminating the need for the current restroom building and limiting the impact on the viewshed. The Fielding Garr Ranch Interpretive and Site Plan sanctions a food concession. This plan suggests placing a concession building at the far end of the lawn area and

to use white cinder block construction to match other buildings. The Ranch plan also suggests placing restrooms built into the hill on the west side of the parking lot.

- **Recommended facility improvements and development, and additional visitor opportunities**

- Devise system to direct visitors to where wildlife can currently be viewed.
- Formalize the park's guideline to manage group use at the ranch area. Currently the park requires groups of 50 or more to make reservations to use the ranch area. The guideline allows for group use based on the availability of park staff, the size of the group, if group activity is during normal operating hours or after-hours, if access to historic buildings is desired and whether other types of impacting activities, such as catering, are associated with the requested use. The restrictions on groups were put in place to protect the experiences and safety of visitors, and cultural resources.
- Provide food service concession as described in the recommended concessions section above.
- Continue to allow limited overnight group use for

special events such as the annual bison roundup.

- **Measures to be used to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems**

- Exit surveys indicate that visitor satisfaction goals are not being met for this zone.
- The park will follow state and Division guidelines and laws for cultural resources protection.
- Continually monitor the ranch structures for condition and impacts from visitor use. If monitoring indicates problems exist with these structures, the park staff (with help from outside experts, if necessary) will identify and implement corrective measures. The building preservation plan, Appendix C in the Ranch Interpretive and Site Plan, should be used to guide the staff in maintaining ranch structures.

## **9. Backcountry Zone**

The Backcountry Zone includes all remaining island lands. It is by far the biggest management zone.

- **Visitor Activities**
  - Hiking.
  - Mountain biking.
  - Sightseeing.
  - Wildlife viewing.

- Equestrian use.
  - Primitive backcountry camping.
  - **Desired visitor experiences**
    - Experience feelings of isolation, ruggedness, remoteness and quietness.
    - Easily view island wildlife.
    - Enjoyable trail experiences.
    - Meet physical challenges.
  - **Recommended Concessions**
    - Guided horse, biking and hiking tours.
  - **Recommended improvements, development and opportunities**
    - Continue to implement the 2004 Access Management Plan to develop trail and backcountry camping opportunities, while concentrating on minimizing wildlife/visitor conflicts through trail and facility design, and visitor education.
    - Determine if boat-in camping should be allowed at water levels below 4202 feet. At this lake level, the campsites may be so far from the shoreline that they are inaccessible to boaters.
  - **Measures to be used to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems**
- Exit surveys indicate that visitor satisfaction goals are not being met for this zone.
  - Staff will monitor resource impacts related to increased backcountry visitor use, and will develop plans or management actions to reduce impacts and restore resources as necessary.
  - Conflicts between visitors and wildlife will be monitored, and if necessary, management actions will be developed and implemented to minimize or eliminate conflicts.

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## Conclusion

This plan is a blueprint to help implement the planning team's recommendations. As such, it outlines the initial steps to be taken in concert with park visitors, local communities and other interested users to: properly develop facilities to meet diverse visitor needs; ensure adequate staffing and funding; protect the scenic and natural resources of AISP; enhance the park's impact on the community, and state and local economies; and educate visitors and community members about the park and its resources.

The recommendations contained in this plan conform to the team's mission of providing visitors a wide variety of safe and satisfying recreation experiences. The plan's recommendations effectively address the current needs for facility development, resource protection, park operations, land management, and cooperative efforts. However, it is crucial that adequate funding be received to implement these goals and accommodate visitor needs.

The plan's success is dependent upon the continued support of stakeholders. Stakeholders must continue their efforts to support park improvements, 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 continues as the plan is 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 Division. Any such changes will include input from park visitors, local citizens, community leaders, park management, and other stakeholders with interests relevant to the operation and maintenance of the park.

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## **Maps**

<b>Map 2</b>	<b>Antelope Island State Park and Vicinity</b>	<b>Page 57</b>
<b>Map 3</b>	<b>Access Management Plan Map North</b>	<b>Page 59</b>
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<b>Map 5</b>	<b>Resource Management Zones</b>	<b>Page 63</b>

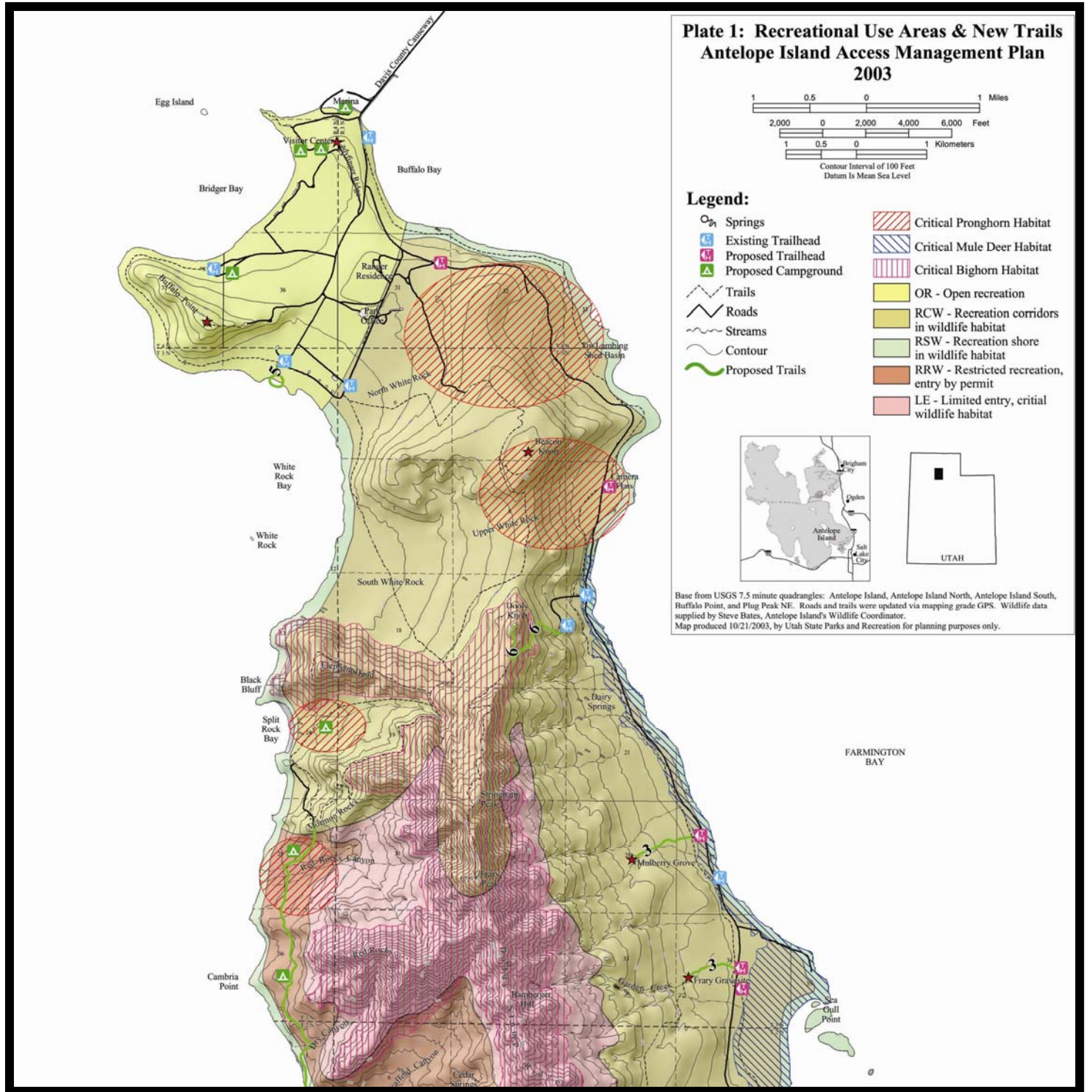
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# Map 2 – Antelope Island State Park and Vicinity



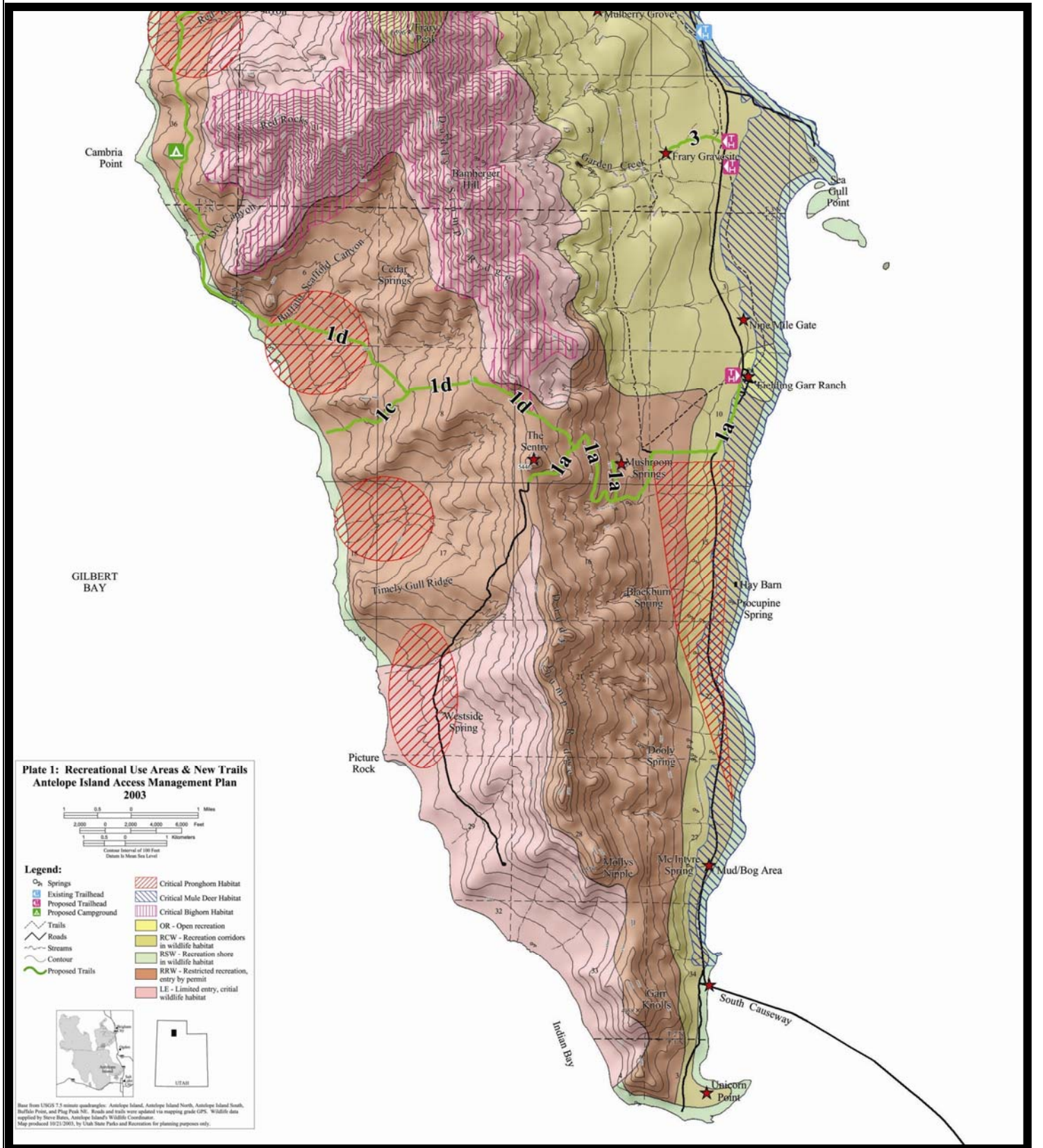
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# Map 3 – 2004 Access Management Plan Map North



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# Map 4 – 2004 Access Management Plan Map South



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## **Appendices**

**Appendix A: Summary of Public Comments and Responses**

**Appendix B: Summary of 2001 Wildlife Management Plan Update**

**Appendix C: Summary of 2004 Access Management Plan**

**Appendix D: 1997 Fielding Garr Ranch Interpretive and Site Plan**

**Appendix E: 2007 Comprehensive Interpretive Plan**

**Appendix F: Zoological and Botanical Checklists for Antelope Island State Park**

**Appendix G: Zoological and Botanical Checklists for Antelope Island State Park**

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## **Appendix A**

### **Summary of Public Comments and Responses**

In March 2009, this plan was released to the public for review and comment. During March and April 2009, the plan was made available to the general public by placing an electronic version on the Division of Utah State Parks and Recreation website. Hardcopies were made available to the public at Antelope Island State Park, the Department of Natural Resources building in Salt Lake City and the Davis Area Convention and Visitors Bureau office in Layton, Utah. Comments were accepted by e-mail or in writing to the Division's planning section. Comments were received from three individuals, a Davis County Public Works employee and two private citizens. The following is a summary of comments received regarding the draft RMP. Each comment is summarized below and is followed by the Division's corresponding response.

#### **Comment: Development of a Southern Causeway: (two comments)**

One individual was disappointed that the plan does not recommend that a southern causeway be developed to provide access directly from Salt Lake County. He states that a closer, more convenient route to the island from the south would encourage more people to visit the park. Another respondent stated that under no circumstances should a southern causeway be considered. He lists negative impacts to wildlife and the island's character as reasons for not developing a southern entrance to the park.

#### **Response:**

The planning team did discuss the concept of a southern causeway to the island. While some on the team felt these ideas should be explored, they decided by consensus that due to compelling wildlife and other natural and cultural resource concerns, the park should take a cautious approach to increasing access. The team recommended that the park continue implementing the 2004 Access Management Plan (AMP), and then assess any impacts to park resources. After assessing the impacts from increasing public access as outlined in the AMP, the park should move ahead to plan for additional changes in access, including a southern causeway and more vehicular access. The executive summary from the AMP is included as Appendix C.

**Comment: Vehicular Access to the Island’s West Side (one comment)**

One respondent expressed his disappointment that the plan does not recommend vehicular access to the island’s west side. He explains that the vistas from the west side are spectacular and that only those able and willing to hike or ride a horse can view them.

**Response:**

As with the southern causeway, the planning team did discuss developing vehicular access to the west side of the island. For the same reasons listed in the response to the southern causeway comments, the team recommended implementing the AMP, then possibly increasing public access, including additional vehicular access, after considering the results of the AMP implementation.

**Comment: Lodging Developed on the Island’s West Side (one comment)**

A comment suggesting a motel/hotel in the west central coastal area of the island was received.

**Response:**

The team considered many lodging options for the park, but determined that for the life of this RMP, public lodging improvement would only be considered for the Bridger Bay campground and the marina area. Other public lodging facilities could be evaluated when additional access is considered.

**Comment: Hunting in the Park: (two comments)**

A respondent stated that if a hunt is allowed to control wildlife populations, the harvesting of animals should be done by professional hunters (as is the policy of the National Park Service). He further states that under no circumstances should members of the public be allowed to thin the herds. In another comment he requests that the existing bison hunt be stopped because he considers it not a “fair chase” or sporting hunt.

**Response:**

The RMP adopts the recommendation in park’s wildlife management plan that allows hunting as a management tool of last resort after other means have failed to keep wildlife populations below the carrying capacity of their range. Park biologists and managers, in consultation with Division of Wildlife Resources biologists, will determine when using this tool is necessary to control wildlife numbers. It will be the Board of Utah State Parks and Recreation’s responsibility to approve any recommendation to allow hunting, and the method used for the hunt. The park’s wildlife management plan left the future of the historic bison hunt up to park managers. The plan states that due to the “strong political implications” of the historic limited bison hunt; the park’s wildlife manager will have discretion in all bison management recommendations, including the need for a bison hunt. The resource management planning team agreed with this approach.

**Comment: Ecosystem Education: (two comments)**

A comment was received stating that the plan fails to address partnering with local schools and advocacy groups to encourage a better understanding of the GSL ecosystem, and the island's role in that system.

**Response:**

The RMP approves the park's comprehensive interpretive plan as the guiding document for education and interpretive activities at the park. In that plan (summary included in the RMP as Appendix E), the identified interpretive themes include: the island provides an isolated reserve where range and wildlife can be managed, preserved, studied and viewed in an appropriate setting to enhance our understanding and enjoyment of Utah's natural history; the island is a place to observe the wonder of all the resources that Great Salt Lake provides for migratory and nesting birds, providing necessary food and shelter for millions of birds; the island presents an outdoor classroom for study of Utah geology, especially for the basin and range formation that creates the island and Great Salt Lake. The interpretive plan directs considerable educational and interpretive attention towards school groups and outreach efforts towards other groups using park staff as well as community and other volunteers.

**Comment: Northern Causeway Maintenance and Effect on Lake: (two comments)**

A comment was received asking if any studies been conducted related to the impact of the causeway on GSL and whether the culverts are allowing a sufficient amount of water to transfer between the two sections of the lake, and who is responsible for maintaining the causeway and its two culverts. An additional comment was received from the Davis County Public Works director asking that language explaining Davis County's role in funding and maintaining the northern causeway.

**Response:**

At least one study has been done to determine how the northern causeway affects the lake. Though the study determined that water did flow through the causeway culverts, the lake's Farmington Bay is less salty than the rest of the lake.

Funding to repair the causeway after the flooding of the early 1980s was provided by the Utah Legislature, largely due to the efforts of several key legislators and Davis County. Davis County, through an agreement with the state, is responsible for maintaining the causeway, including the culverts. Antelope Island State Park collects an additional fee earmarked to help support causeway maintenance. Text explaining Davis County's role with the causeway has been added to the RMP.

**Comment: Bridger Bay Campground Improvements: (one comment)**

One respondent believed that the Bridger Bay campground should be expanded at some point in the near future, and recommended drinking water be made available in the campground and hookups be added to some sites.

**Response:**

The RMP does recommend additional campsites at Bridger Bay, some with full hookups (this would require making water available in the campground).

**Comment: Additional Facilities along Ranch Road: (one comment)**

A comment was received suggesting additional rest facilities for bike riders along the Ranch Road.

**Response:**

The RMP does recommend additional pullouts and waysides with benches, tables and shade along the Ranch Road. These can be used by bicyclists for resting, picnicking and other activities.

**Comment: Visitor Satisfaction Measure: (one comment)**

One respondent took issue with the measure that would trigger management action if less than 85 percent of visitors were satisfied with their experiences in a particular zone. This measure was listed in each zone, and the respondent believed it to be too repetitive. He also thought that 85 percent may be an unrealistic goal.

**Response:**

The planning team felt this measure is an important element of the plan, and will help the park staff to determine if they are successfully meeting visitor needs. The latest visitor survey (2007) indicated that 89 percent of visitors were satisfied or very satisfied with their overall experience at the park. The planning team recommended completing additional surveys to determine satisfaction levels in each zone. The park will use this information to set visitor satisfaction goals for each zone to track trends and to determine when corrective action might be needed.



## **Appendix B**

### **Antelope Island Wildlife Management Plan**

#### **Issues and Recommendations Summary and Implementation Plan**

##### Issue Area/Issues

##### Recommendations

##### ***Systems Approach***

- ***Need to Identify Areas of Inter-Species Relationships (Overlap) and Facilitation***
  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:
    - Species habitats and distributions.
    - Habitat - composed of slope, vegetation, soils, and competing species overlap.
    - Relate vegetation maps to diets of wildlife to identify areas used by specific species; Identify wildlife utilization of less desirable plant species.
  
- ***Determine Island Bio-Diversity Goals***
  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.
  
- ***Need to Restore the Island's Soil Fertility***
  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.
  
- ***Need to Restore the Island's Sage-Steppe Community to a More Natural Condition***
  1. ***Lowland*** – The desired future condition of the island lowland areas will have the following attributes:
    - Basin big sage with a mixed grass understory as the dominant community type.
    - Mountain big sage with a blue bunch wheatgrass understory should dominate north facing slopes.
    - Islands of three-awn and sand dropseed are interspersed throughout the community.
    - 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.
    - Bare ground accounts for less than 20% of the community.
    - A diversity of plant species exist with at least 5 shrubs, 8 grasses and 15 forbs.
    - Spring developments exist where necessary to protect the resource with free- flowing seeps elsewhere creating scattered pockets of lush vegetation.
    - 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:
  - Mountain big sage with a blue bunch wheatgrass understory is the dominant community type among the scattered rock outcrops.
  - Interspersed pockets of juniper
  - 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.
  - Bare ground accounts for less than 15% of the community.
  - A diversity of plant species exist with at least 5 shrubs, 8 grasses and 20 to 30 forbs.
  - Riparian zones are productive and stable with a woody overstory.
  - 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:
  - Mountain big sage with a blue bunch wheatgrass understory is the dominant community type among the talus slopes and scattered rock outcrops.
  - Pockets of low sage are interspersed throughout - 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.
  - Bare ground accounts for less than 15% of the community.
  - A diversity of plant species exist with at least 5 shrubs, 8 grasses and 25 to 40 forbs.
  - Headwater and riparian zones are productive and stable.
  - 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.

- ***Habitat Monitoring***

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.

- ***Exotic Species***

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.

- ***Island Re-Vegetation***

1. Develop a map - in an overlay format - that includes the following attributes:
  - vegetation types
  - soils
  - critical wintering areas for wildlife
  - lambing/fawning areas
  - bird nesting and critical foraging habitat
  - zones of visitor impact
  - monitor island vegetation improvements through satellite imagery showing changes over specified climate cycles
  - coordinate appropriate vegetation analyses through time using photo transects, crew analysis or other appropriate means.

**HABITAT  
MANAGEMENT**

- ***Fire Management***

1. Create a suppression plan with associated agencies (Division of Forestry, Fire and State Lands and local communities). Plan elements will include:
  - Development and implementation of a prescribed burning plan;
  - Green-stripping in appropriate areas to create a vegetation buffer zone; and
  - 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:
  - Repair existing rods and provide additional rods as needed.
  - GPS and map rod locations.
  - 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.

- ***Island Re-Vegetation***

1. Develop a map - in an overlay format - that includes the following attributes:
  - vegetation types
  - soils
  - critical wintering areas for wildlife
  - lambing/fawning areas
  - bird nesting and critical foraging habitat
  - zones of visitor impact
  - monitor island vegetation improvements through satellite imagery showing changes over specified climate cycles
  - 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.

- 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.
    - Evaluate both the desirability and the utility of the proposed vegetation.
    - Utilize benefit-cost analysis to assess project feasibility/efficiency.
    - Special consideration should be given to re-seeding projects in:
      - burned areas
      - target areas for conversion
      - areas essential/critical for wildlife habitat
      - green strips for fire control
    - 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.
    - Seed selection should be based on the following criteria:
    - determine whether seed type should be native or non-native
      - timing of planting activities (time of year)
      - capacity the plant has to replace nitrogen back to system
      - 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.

- ***Management of Visitor Impacts***

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.

- **Water Resource Development**

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.

**WILDLIFE MANAGEMENT**

**Hunting (all species, except bison)**

1. Limited hunting may be used as a management tool for the health of wildlife populations and their habitats when other management control options have not been effective (Wildlife Plan amended by Board of Utah State Park and recreation in June 2009).

**Ungulate Species – Bison**

- **Bison Management**

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.
2. Reduce/restructure the herd size to establish a more natural composition and alleviate marketing pressures.
  - Recommend a target ratio of 1 bull to 4-5 cows.
  - Sell younger age classes, keeping older animals to be viewed.
  - 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.

- **Bison Round-Up**

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.

- **Bison Hunting**

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.

- **9<sup>th</sup> Allele Genetics**

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.

- ***Bison Carrying Capacity***

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.
  - Utilize the current Wildlife Technical Committee recommendation of 550 animals until further notice.

**Ungulate Species – Deer**

- ***Accurate Information Regarding Island Deer Populations is Needed***

1. Identify specific survey needs; Gather classification data (e.g., herd size, age classes, ratio of males/females, distribution, etc.).
  - 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.

- ***Recreational Impacts on Deer Populations***

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.
  - 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.

**Ungulate Species – Pronghorn**

- ***Survey Island Pronghorn Populations***

1. Identify specific survey needs; Gather classification data.
  - Implement an on-going monitoring program with emphasis on recruitment/fawn survival and utilize data to determine sustainable pronghorn population and associated carrying capacity.
  - Research should also determine the interrelationships with other species.
  - Identify critical seasonal habitat areas.
2. Maintain sustainable populations for the purpose of viewing, education, and research.
3. Consider other opportunities for introduction/transplant.
  - Coordinate such efforts with UDWR and other entities, including Wyoming Game and Fish.

- ***Excessive Pronghorn Predation Rates***

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.

**Ungulate Species –  
Bighorn Sheep**

- ***Fully Implement Bighorn Sheep Management Plan***
  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.
  
- ***Survey Island Bighorn Populations***
  1. Identify specific survey needs; Gather classification data.
    - Implement an on-going monitoring program and utilize data to determine sustainable bighorn population and associated carrying capacity.
    - Research should also determine the interrelationships with other species.
    - Identify critical seasonal habitat areas.
  2. Maintain sustainable populations for the purpose of viewing, education, transplant and research.
    - Management of the bighorn population should be a higher priority because it is not found in many other areas of the state.
    - Island bighorn should continue to serve as a nursery for cooperative transplant to other herds and areas.
    - 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).
  
- ***Enhance Bighorn Viewing Opportunities***
  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.

**Avian Issues**

- ***Comprehensive Planning Needed for Avian Management***
  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.
    - Utilize this research to prioritize species for the development of management objectives; Identify associated, sustainable management goals and implement accordingly.
  
- ***Potential Introduction of Avian Species***
  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.
- ***Systems-Based Approach to Avian Management***
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.
- ***More Direction Needed Regarding Avian Management Policies***
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.
- ***Breeding Habitat for Migratory Bird Species***
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.
    - 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.

## **Small Mammals**

- ***Inventory Small Mammal Populations***
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

## **Predators**

- ***Inventory Island Predator Populations***
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).

## **Reptiles, Amphibians, Fish**

- ***Identify Status of Reptiles, Amphibians and Fish***
1. Review existing species lists; Conduct presence/absence surveys.
  2. Continue cooperative effort with UDWR to maintain a least chub population on the island



**Threatened and Endangered Species**

- ***Explore the Possibilities of Utilizing Antelope Island as a Mitigation Preserve to Enhance Threatened Species***
  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.

**FUNDING, STAFFING AND POLICY ISSUES**

- ***Enhance Funding Base***
  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.
- ***Effectively Respond to Politically-Based Initiatives***
  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.
    - Staff will work with Division management, user groups or other relevant partners to identify strategies and goals.
- ***Interagency Coordination***
  1. Enhance cooperative wildlife/habitat management efforts between State Parks and UDWR by more frequent contact with each agency's respective governing board.
    - Provide progress reports to each board as plan elements are implemented.
    - 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.
    - 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.
    - Utilize Bison Roundup as an opportunity to host/reach those interested in wildlife/habitat issues.
- ***Park Boundaries Uncertain***
  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.
- ***Lake Level Fluctuation***
  1. Advocate implementation of policies set forth in the 2000 Great Salt Lake Comprehensive Management Plan and Decision Document.

- ***Revisit Shed Antler Collection Policies***
  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.
    - If collection program is feasible, develop criteria to prevent conflict with management goals or regulatory requirements concerning shed antlers.
    - Present recommendations to the State Parks Board for discussion.
  
- ***Avoid Duplication of Effort***
  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.
  
- ***Avoid Duplication of Effort***
  1. Review current policies to determine if restrictions are commensurate with the level of wildlife/habitat protection required.
    - Evaluate and “zone” critical areas; determine which potential recreation activities are appropriate within each zone; map accordingly.
    - Adhere to Wildlife Management Plan and associated goals established therein.

**RECREATION  
MANAGEMENT AND  
PROGRAMS**

- ***Managing Recreational Development***
  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.
  
- ***Enhance Wildlife Viewing Opportunities***
  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.
    - Such opportunities may include: back-country permits; interpretative programs; species tours based upon wildlife/habitat issues; programs for birding, ungulates, predators, etc.
    - 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.

- ***Minimization of Visitor Impacts on Wildlife/Habitat***
  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.
    - 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.

**EDUCATION AND INFORMATION**

- ***Interpretive Strategy to Encourage Wildlife Viewing***
  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.
    - Ensure that the public has easy access to documented interpretive programs, signs, brochures, volunteer efforts, Internet links, etc.
  
- ***Better Education Efforts Needed With Implementation of Prescribed Burn Activities***
  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.

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## **Appendix C**

### **Executive Summary of Antelope Island State Park Access Management Plan 2004**

In early 2003 Division representatives met with community stakeholders to initiate an access management planning effort for Antelope Island State Park. The planning process was based on public input and involvement. The Antelope Island Access Management Planning Team, a citizen-based team representing community leaders, interested users, local residents, subject matter experts and agency representatives, was at the core of the process. A subcommittee of agency representatives and subject matter experts was formed to aid in the process. The recommendations contained in this document represent several months of work by the team.

The plan provides recommendations founded upon mission and vision statements developed by the planning team. The mission of the Antelope Island State Park Access Management Planning Team is to develop a comprehensive access management plan that defines visitor opportunities, emphasizes the protection of resources, and preserves the values of solitude, openness and ruggedness.

The Antelope Island State Park Access Management Planning Team was chartered to evaluate the feasibility of opening the island to broader public access. The team accomplished this goal by first; developing procedures and guidelines by which access will be evaluated; and second, considering specific access issues deemed feasible by this process.

With all access recommendations, the following factors were considered:

- Determination of the limits of acceptable change to maintain the island's solitude, openness and ruggedness
- Identification of the appropriate level of management required for each activity along with a determination of revenue needs, costs and available resources
- Impacts upon flora, fauna, cultural/historic resources
- Inhibiting the spread of noxious weeds and fire danger
- Visitor safety issues
- Ensuring consistency with previous planning efforts
- Visitor education information and interpretation needs and opportunities
- Ensure that proposed development complements the island's natural and cultural features
- Ensure that recommendations do not merely duplicate existing opportunities before the whole Island is considered for greater access
- Minimize user conflicts and promote responsible use
- Partnerships, user groups, and stakeholders should be part of the decision-making process

These objectives are geared toward improving and expanding access to the park, improving the park's recreational opportunities, protecting its resources and providing the visitor with a safe, enjoyable experience. Achievement of these objectives will require the continued support of users, legislative and community leaders, and the Division of Parks and Recreation.

Team members followed a process to determine the feasibility and adoption of proposed actions. The process can be outlined as follows: a recreation subcommittee composed of team members was formed and asked to develop specific issues; the issues were placed into a matrix format and scored against 23 criteria identified in the vision; the issues were then evaluated for feasibility and approved for adoption by subject matter experts. The planning team issued several specific recommendations in support of the plan's mission and vision statements and considerations. Eight issue areas form the basis of the team's recommendations. The issue areas with accompanying recommendations are outlined as follows:

### General Park Access

- If staffing levels allow, the main gate should open at 6:00am and close at 10:00pm, April through September; 8:00pm, October and March; 7:00pm, November and February; 6:00pm, December and January.
- Visitors should leave the park when the gate closes, following State Park guidelines.
- Park management should assess whether staff should stay later to assist late arriving campers to their reserved campsites.
- Park management needs to establish guidelines for what events are approved for the Fielding Garr Ranch and Visitor Center. Any "after-hours" activities must be sanctioned events. Staff must host ranch activities. Park managers should also consider approved after-hours events for the *entire* Park, not just at the Visitor Center or Ranch.
- The nine-mile gate, located just north of the Ranch, will be open only when staff, including certified volunteers, are there. Additional funding/staff would be required if the gate were to remain open additional hours.

### Closures on Trail Systems

- Maintain the annual seasonal closures on the Mountain View Trail due to pronghorn fawning from the north trailhead to the Frary Peak trailhead for approximately one month between May 15 and June 16 (actual dates may vary).
- Maintain the closure of the Frary Peak Trail from April 20 to the Memorial Day weekend (approximately) for bighorn lambing and also to help mitigate various law enforcement problems if necessary.
- Once new trails are identified and approved for access, define needed closures as appropriate.

- Park management, at their discretion, should close trails during muddy conditions, flood periods or where use may result in damage or safety hazards. If possible, staff will identify other existing, alternative trails for use during such closures.
- Consult state risk management and develop guidelines for trail closure when the probability of lightning is high. Signage, commensurate with guidelines, should be considered.
- Consider periodic trail closures when reconstruction might require temporary closure.

### Access along the Southern Tip Road

- Resolve the problematic mud-“bog” area on the road to Southern Tip/Unicorn Point near McIntyre Springs.
- Establish a trailhead at the overflow, gravel-parking area for the Fielding Garr Ranch. Use the trailhead for one year, monitoring the effects on the Fielding Garr Ranch. After one year, examine the feasibility of moving the trailhead further south. The goal is to provide access to users of all ability levels without large-scale development. The trails will be open to hikers, bicyclists and equestrians. Continue concession van tours.

### Provision of Open Access Areas

- Maintain current policies providing open access, defined as on or off-trail use without permit, for the north 2,000 acres and southern portion on Buffalo Days (one-day event) and the Buffalo Round Up (four days). Staff will identify and designate other areas for open access by permit. Enhance staff to more effectively manage these events.

### New Trail Opportunities

Proposed trails were based on the spatial categories concept adopted by the team. In this spatial categories concept, provision of access (defined as hiking, bicycling and equestrian use) is contingent upon the degree of impact to resources within a given area. Simply meaning that the team took critical and sensitive wildlife habitat into consideration when deciding which areas should be opened to public access.

Similarly, archeological/cultural surveys and mitigation must be considered when opening new trail sections. Park management will design and implement a permit system for southern/backcountry trail use.

Specific trail opportunities were proposed:

Note that all users must stay on trails

- 1a) Develop a trail segment from ranch to the Sentry on existing dirt road from ranch; appropriate actions should be taken to secure and protect the Mushroom Springs site. No access should be provided to the Mushroom Springs site unless specified in an interpretive plan for the site. Mitigation efforts to protect the site should be instituted.

- 1c) Provide access along trail segment from ranch to “Y” in existing road below Sentry that leads toward Buffalo Scaffold Canyon and forks toward the Westside shore.
- 1d) Consider equestrian access and evaluate impacts on trail segment from ranch to “Y” in existing road below Sentry that leads to Buffalo Scaffold Canyon and forks northward passing by Buffalo Scaffold Canyon, Dry Canyon, Red Rocks Canyon, Mormon Rocks and Split Rock Bay and connects to the existing Split Rock trail system. Evaluate safety issues prior to opening to the general public.
- 3) Develop trail spurs from the existing Mountain View Trail to Frary and Mulberry Grove sites contingent on completion of an interpretive plan that outlines protective measures for archeological/ historic sites and other resources.
- 5) Develop a marsh/pickleweed boardwalk/interpretive walk (for foot traffic only) near White Rock Bay group campsites.
- 6) Develop a trail to Dooley Knob utilizing the existing Frary Peak Trailhead. The trail would be for hiking only.

## **Camping**

- Examine the feasibility of a walk-in tent site/camping area on the north end of the beach below the Visitor Center versus other sites.
- Expand the existing Bridger Bay Campground considering development of a second loop.
- Examine allowing overnight campers to use of the buffalo corrals to corral their horses during their visit.
- Provide boat camping in the marina.
- Implement a permit system/process for overnight boaters’ parking.
- Perform a feasibility study for campsites on the north trail system and lakeside (see Plate 1) before these sites are considered for backcountry campsites. The purposed locations for these campsites are at Split Rock Bay, near Red Rocks Canyon and Cambria Point and Buffalo Scaffold Canyon near the “Old Cowboy Campsite”/Cedar Springs area.
- Park management will be responsible for deciding which special events are held near Fielding Garr Ranch, and if camping will be allowed in conjunction with the events.

## **Archeological/Historic Site Access**

- Develop a comprehensive Antelope Island Interpretive Plan that adequately protects cultural and historic sites as outlined in the Division’s MOU with State History, which states that any new development, including trails, will have a cultural survey completed and any necessary mitigation efforts approved by State History.
- Perform a survey, management plan and other management guidance prior to allowing public access to new sites, including the following:



- Frary Grave Site
- Headbanger Cave
- Mushroom Springs Site
- Mulberry Grove Area with visitors routed away from Garden Creek
- Stone Corral Site, include wayside exhibits
- Unicorn Point
- Mormon Rocks

### Proposed Facilities Development

- Expand the Visitor Center to include more conference rooms, meeting space and storage space.
- Improve the current information pullouts on the eastside road to provide better visual/interpretive information.
- Construct formal trailheads at places where the Mountain View Trail intersects the eastside road (near Camera Flats, for example).

## Access Plan Implementation

### Phase I

#### **1. Issue: General Park Access**

General park access should follow division guidelines for park operation hours unless authorization for variance is given. The Access Plan recommends that visitors leave the park when the park's main gate closes. In the past, authorization was given to open the park's main gate at 7:00 a.m. and close it at dark (30 minutes after sunset). The Access Plan recommends opening the gate at 6:00 a.m. and closing it using a staggered schedule. The plan also recommends the park stay open later to assist incoming late campers as needed and to consider after-hours park activities and events.

#### **Recommendation/Implementation:**

- A. The park will open park main gate at 7:00 a.m. on a year round basis until such time park visitation warrants opening at 6:00 a.m.
- B. The parks main gate will close at 10:00 p.m. May through August; 9:00 p.m. September and April; 8:00 p.m. October and March; 7:00 p.m. November and February; and 6:00 p.m. December and January.
- C. Park management will provide access for after hours activities at the Ranch, Visitor Center and other areas of the park as staff time allows.

#### **2. Issue: Closures on Trail System**

The current management plan for the existing trail system identifies temporary and seasonal closures for a number of the trails. These closures correspond to the calving, lambing and fawning seasons of the varied wildlife

that populate the island. As new trails are opened, the park management should determine the appropriate temporary closures if necessary.

**Recommendation/Implementation:**

- A. The park will maintain current temporary and seasonal trail closures for the existing trail system and evaluate how to implement similar closures for the new, proposed trails.

**3. Issue: Stabilize Existing Road Surface near McIntyre Springs**

The road surface on the south island road near McIntyre springs has a problematic mud-bog area due to water run off/seepage from the nearby spring area, making it virtually impassible.

**Recommendation/Implementation:**

- A. The park will improve the road alignment by the installation of a culvert and channels to ensure the stability of the existing roadway in such a way as not to impact the adjacent springs.

**4. Issue: Access along the South Island Road**

Access along the south island road from the Fielding Garr Ranch to Unicorn Point has been limited for the general visitor. The public has expressed an interest in increased access to the southern tip of the island. Presently, access along the south island road has been limited to guided tours by the park concessionaire. It is recommended that the park open the road for hiking, biking and horseback riding, utilizing a permit process when the Fielding Garr Ranch is open and staffed.

**Recommendation/Implementation:**

- A. The park will utilize the gravel parking lot area at the Fielding Garr Ranch as a trailhead for access to the south island road and other new trail developments south of the ranch. (Note: use of the parking lot for road/trail access parking will be monitored for one year to determine if there are any negative impacts on ranch operation.)
- B. The park concessionaire will still be allowed to offer the limited guided tours along the south island road. The park will examine the feasibility of opening the south island road to general hiking, biking and horseback riding.

**5. Issue: Open Access**

Open access has been allowed on the northern 2,000 acres and the southern portion of the island during the annual Buffalo Roundup Horse Ride and for the Buffalo Days Horse Ride. All other access has been limited to trail use.

**Recommendation/Implementation:**

- A. Maintain current open access on the northern 2,000 acres.
- B. Access to the southern portion of the island will be limited to Buffalo Days and the Annual Buffalo Roundup.
- C. Establish four additional special open-access events during the year.

**6. Issue: New Trail Opportunities**

Proposed additional trails should be opened to allow access to the southern portions of the park. Park management will design and implement a permit system for southern/backcountry trail use.

**Recommendation/Implementation:**

**A. Trail development:**

- 1. *Dooley Knob Spur Trail* - Develop trail to *Dooley Knob* by utilizing existing roads and the existing Frary Peak trailhead upon completion of the archeological survey and clearance. Trail will be appropriately signed and marked for hiking only.
- 2. *Sentry Trail* - Develop trail to the *Sentry* by utilizing existing roads and the gravel parking lot at the Fielding Garr Ranch upon completion of the archeological survey and clearance. Trail will be appropriately signed and marked and the park will implement a back county permit system. Permits will be available at the Fielding Garr Ranch.

**B. Archeological Survey clearance and soil erosion study:**

- 1. *Buffalo Scaffold Trail* - Complete the archeological survey and the soil erosion study for the *Buffalo Scaffold Trail*. This trail is an extension of the *Sentry Trail*, utilizing existing roads below the Sentry toward Buffalo Scaffold Canyon and forks to the west side shore.
- 2. *Frary Homestead Cultural Site Trail* - Complete the archeological survey of the trail spur from the existing *Mountain View Trail* to the Frary Homestead Cultural Site. Trail will be will be appropriately signed and marked for use as identified in the Antelope Island Interpretive Plan.
- 3. *Mulberry Grove Cultural Site Trail* - Complete the archeological survey of the trail spur from the existing *Mountain View Trail* to the Mulberry Grove Cultural Site. Trail will be appropriately signed and marked for use as identified in the Antelope Island Interpretive Plan.

## **7. Issue: Camping - Provide boat camping in the marina**

Visitors often leave their vehicles parked in the marina parking lot overnight while they camp on their boat, either in the marina slip or on the lake. These vehicles have created some concern for the park staff in that the location of the owners is often unknown. Usually, the owners have only paid for day-use and are now in the park after hours. The division has a boat camping policy and this should be followed to provide control for these vehicles.

### **Recommendation/implementation:**

- A. Camping onboard vessels and parking of vehicles overnight in the Marina area should be allowed using current division guidelines and fee schedule.

## **8. Issue: Archaeological/Historic Site Access**

There are certain requirements that must be considered for archaeological and historic sites. The division should conduct the appropriate archaeological survey and develop a comprehensive interpretive plan for Antelope Island. The plan should establish goals, objectives, interpretive needs and methods to protect the cultural and historic sites. The interpretive plan should consider and outline management guidance prior to allowing public access to new sites, including the following: Fielding Garr Ranch, Frary Homestead, Headbanger Cave, Mushroom Springs, Mulberry Grove Area, Stone Corral Site, Unicorn Point and Mormon Rocks.

### **Recommendation/Implementation:**

- A. The division should form a citizen-based team to assist in the development of a comprehensive interpretive plan for the park. This plan should provide park management with the necessary recommendations for the appropriate use and access to the island's archaeological and historic sites.

## **Phase II**

### **1. Issue: New Trail Opportunities**

Proposed additional trails should be opened to allow access to the southern portions of the park. Park management will design and implement a permit system for southern/backcountry trail use.

### **Recommendation/Implementation:**

- A. *Buffalo Scaffold Trail* - Upon completion and approval of the archeological survey and the soil erosion study for the *Buffalo Scaffold Trail*, develop and sign the trail extension from the *Sentry Trail* utilizing existing roads below the Sentry toward Buffalo Scaffold Canyon and forks to the west side shore.

B. *Frary Homestead Cultural Site Trail* - Upon completion and approval of the archeological survey of the trail spur from the existing *Mountain View Trail* to the Frary Homestead Cultural Site, develop the connecting trail and appropriately sign and mark for use and as identified in the Antelope Island Interpretive Plan.

C. *Mulberry Grove Cultural Site Trail* - Upon completion and approval of the archeological survey of the trail spur from the existing Mountain View Trail to the *Mulberry Grove Cultural Site*, develop the connecting trail and appropriately sign and mark for use as identified in the Antelope Island Interpretive Plan.

## **2. Issue: New Camping opportunities**

The park should consider providing additional camping opportunities in other areas of the park not presently developed for camping. Areas for consideration should be primitive camping areas for backcountry users, equestrian, boat camping and walk-in tent/camping site on the north end of the island.

### **Recommendation/Implementation:**

#### A. Primitive backcountry camping

1. Complete archeological survey, soil erosion and feasibility study for primitive backcountry camping along the *Buffalo Scaffold Backcountry Trail* at Split Rock Bay, Lakeside near Red Rock Canyon, Lakeside near Cambrian Point and Buffalo Scaffold Canyon near the “Old Cowboy Campsite”/Cedar Springs area.

#### B. Walk-in tent/camping

1. Complete archeological survey and soil erosion and feasibility study for walk-in tent/camping area on the north end of the beach below the Visitor Center.

## **Phase III**

### **1. Issue: New Trail Opportunities**

Proposed additional trails should be opened to allow access to the southern portions of the park. Park management will design and implement a permit system for southern/backcountry trail use.

### **Recommendation/Implementation:**

#### A. *Buffalo Scaffold Backcountry Trail*

1. Upon completion and approval of the archeological survey soil erosion and feasibility study for the *Buffalo Scaffold Backcountry Trail* the park

should develop the trail extension from the *Sentry Trail* utilizing existing roads below the Sentry toward Buffalo Scaffold Canyon and forks northward passing by Buffalo Scaffold Canyon, Dry Canyon, Red Rock Canyon, Mormon Rocks and Split Rock Bay and connect to the existing Split Rock Trail system.

2. The trail will be appropriately signed and marked for use as identified in the Antelope Island Interpretive Plan and feasibility study.
3. The park will implement a backcountry permit system. Permits will be available at the Fielding Garr Ranch and/or the Visitor Center.

## **2. Issue: New Camping Opportunities**

The park should consider providing additional camping opportunities in other areas of the park that are not presently developed for camping. Areas for consideration should be primitive camping areas for backcountry users, equestrian, boat camping and walk in tent/camping site on the north end of the island.

### **Recommendation/Implementation:**

#### **A. Primitive backcountry camping**

1. Upon competition and approval of the archeological survey, soil erosion and feasibility study for primitive backcountry camping along the *Buffalo Scaffold Backcountry Trail* at Split Rock Bay, Lakeside near Red Rock Canyon, Lakeside near Cambrian Point and Buffalo Scaffold Canyon near the “Old Cowboy Campsite”/Cedar Springs area, the park should develop primitive camping areas as identified in the archeological, soil erosion and feasibility studies.
2. The park will implement a backcountry permit system. Permits will be available at the Fielding Garr Ranch and/or the Visitor Center.

#### **B. Walk-in tent/camping**

1. Upon competition and approval of the archeological survey, soil erosion and feasibility study for walk-in tent/camping area on the north end of the beach below the Visitor Center; the park should develop walk-in camp sites as identified in the archeological, soil erosion and feasibility studies.

## **3. Issue: Proposed Facilities Development**

To better accommodate park visitors, new facilities should be considered and existing facilities should be improved and updated.

## **Recommendation/Implementation:**

### **A. Visitor Center**

1. The Visitor Center doesn't have enough space to provide both a conference room and a room for video presentations. The Visitor Center should be expanded to include, but not be limited, to a conference room, exhibit space, additional offices, meeting space and storage space for artifacts and merchandise for resale.

### **B. Bridger Bay Campground**

1. The Bridger Bay Campground needs to be improved and expanded to include: additional camp sites, shade shelters, water facets, flush rest rooms w/showers and group area.

### **C. Interpretive Boardwalk**

1. Develop a marsh/pickleweed boardwalk/interpretive walk for foot traffic only near White Rock Bay.

### **D. Eastside Road Developments**

1. Develop trailhead at Mountain View Trail road crossing.
2. Renovate current interpretive pullouts along the eastside road to provide better visual and interpretive information.

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## **Appendix D**

### **1997 Fielding Garr Ranch Interpretive and Site Plan – Site Planning Section**

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#### **Site Planning**

##### **Overall Desired Goals and Experiences:**

The team identified the following overarching site planning goals:

- The site's preservation, development and interpretation will enhance, not alter its current authentic sense of isolation and pure ranch life flavor..
- All preservation, development and interpretation will be as minimal as possible and in keeping with the tone of a working, isolated ranch scene.
- The buildings and the site will be as accessible as possible without compromising integrity of the historic fabric or the scene.
- Interpretation will generally be a self-guided approach emphasizing the major themes augmented by special events and programs which will illuminate the secondary and tertiary themes.
- The visitor experience will be a fun, non-formal one providing a variety of experiences that conveys a sense of ongoing history and the changes through time in ranch life and will also preserve the site.
- All elements will ensure minimal impact on overall park operations.

##### Site Development Goals

- Buildings should be stabilized, preserved and upgraded for public access, but with as little change as possible.
- The site should be developed to facilitate a self-guided interpretation program with adequate spaces for alternative programming.
- Visitor services should be developed which further preserve the site and its sense of authenticity and that are low maintenance. This includes parking lot orientation area, trails, restrooms, and concession area.

All site development must preserve:

- The important views
  - “oasis” scene from on top of hill overlooking the site
  - View through the ranch road (center) across the lake and the mountains

- emphasizes island life.
  - View to the South across the lake to downtown SLC and the mountains
  - View from the lawn to the island spine, bison and other wildlife.
- The important natural features
  - spring
  - marshes
  - ranch area trees
- Historic structures
- Archaeological sites
- Authenticity - the feeling of remoteness, isolation, quiet spaces, as if ranch family and workers just left.

All site development will be based on the site's mission statement, their interpretive value and ability to efficiently and effectively serve the visitor and the preservation of the site.

#### Carrying Capacity

The planning team feels strongly that the number of visitors on the site will determine the degree to which the authentic experience, and thus the principles of this plan, can be maintained. It is also apparent that site preservation and numbers of visitors are directly related. The team suggests that a carrying capacity be established for the site and a management strategy developed which will enforce whatever limits are developed.

#### Site Development Plan

- Parking:** Paved 75 car unit located SE of water storage and west of blacksmith shop. Cut into the contour of the hill. Unpaved parking will be maintained on the west side of the road to accommodate overflow parking, and buses, motor homes, and other large size vehicles that can congest traffic in the paved parking lot and introduce noise and air pollution at the ranch site. Access from the parking will guide visitors directly into the interpretive entrance feature.
- Restrooms:** Subterranean - either into the hill on the west side of the parking lot.
- Entrance:** Visitors will be funneled from the parking lot into the ranch through the interpretive entrance feature. They will be subtly made aware of the site's main themes - agriculture, daily ranch life and natural resources. They will then enter the site through an original gate on the traditionally used road into the site.
  - Orientation feature-The feature will be welcoming and obvious, thus drawing people to it; provide a general orientation to the park's themes; be graphic, durable, fit into the landscape.

**Circulation:** Once inside the ranch gate, located adjacent to the blacksmith shop, visitors will be subtly directed using a natural looking hardened path and appropriately placed derelict farm machinery to the rebuilt barn lean-to. In the lean-to they will be presented with an orientation to the site's three main interpretive loops,

- Family and everyday life loop, which highlights the ranch house, bunk house, spring house and ranch yard. The everyday domestic life story will be told using an interpretive guide, special programs, and living history.
- Natural resources loop that includes a trail beginning near the current garden and running through the marsh, alongside the lake and then returning to the starting point through the once field/now grassland littered with derelict agricultural equipment. Using signs and the guide, the loop will describe through time the interplay between the natural environment and the people.
- Agricultural/ranching economy loop highlighting the shearing barn, blacksmith shop, silo, corrals and stables. Through the guide, signs, and living history this loop will explore the story of the mechanization of agriculture and general agricultural history of the site.

#### Special Event

**Spaces:** Spaces for group presentations will exist in the ranch yard in front of the ranch house, in the corral area, and in the shearing barn.

**Pathways:** All pathways within the site gate will be developed using a material replicating compacted site dirt. Pathways outside of the site's gate may be concrete or asphalt. A hardened pathway through the ranch yard will be developed to preserve the lawn. The natural resource trail should be made ADA accessible at least in part.

**Hub:** The roadway area that will be defined by the barn lean-to, the blacksmith shop, the ranch gate, the lawn fence, and the current garden is considered the site's hub. Minimal development and only visitor orientation should exist in this area. The view through this area as visitors enter the site is one of the most critical to maintain.

**Concessions:** A concession building of concrete block will be placed on the south end of the fenced picnic area.

#### Other site issues

- Any barriers or signs, etc. should be made to fit into the scene i.e., look like ranch

equipment, etc. things organic to the site.

- Any new developments-buildings-should be made to look modern and yet should fit into the landscape.
- All visual intrusions from the ranch gate west should be behind a line formed west from the south side of the blacksmith shop. All visual intrusions should stay north of that line.

The lawned picnic area will remain as it is. It serves a valuable site protection and visitor service function.

#### Historic Preservation

See attached building preservation plan in appendix C. In addition, the rock lean-to known to have existed alongside the shearing barn until the early 1980's will be rebuilt. It will be used as a site storage facility, as well as, the main orientation center for visitors. Its rustic rock wall exterior will hide modern exhibits and orientation materials.

#### Electricity

Electricity is currently available only through the use of a generator at the site. Electricity generated by solar cells is possible, but its use should be limited to needs in the orientation center and restroom. Any cell placement should adhere to the overall site and interpretive goals articulated in this plan.

#### Historic Object Collections

Appropriate climatic conditions for housing and exhibiting rare or one-of-a-kind artifacts does not exist on this site. Therefore, only those types of objects that are not rare or one-of-a-kind, that may be used in demonstrations or otherwise handled or sat on by visitors will be collected. Reproductions, modern equivalents and older objects of nominal value will comprise the bulk of the collection. The only exception will be objects recovered by archaeologists or donated to the park, which are originally from the site and can be utilized in exhibits at the park's visitor center. All such artifacts will be curated by the curator of collections at This Is The Place State Park (as long as that person is a state employee), or the next closest state park collections curator, or other appointed individual. The park will not actively collect original artifacts beyond what is reasonably expected to be exhibited. The donors of all other original artifacts should be encouraged to donate the material to another appropriate state park curation facility, or the Utah Division of State History. Antelope Island State Park will not operate a curation facility.

#### Furnishings

All buildings will be furnished with usable, expendable objects which best reflect the interpretive story of each building. Furnishing the site with objects from the ranches

20th century history allows the greatest flexibility and ease in reflecting the changes in life at the site throughout time. The team has lovingly termed their intended furnishing plan as the "DI approach". Utilizing objects purchase at thrift stores, as well as, old equipment scattered throughout the park a sense of the sparseness of live and the adaptive reuse and recycling of materials will be conveyed to visitors. It will also allow for a more hands-on visitor experience.

The opportunity for interpreting the widest range of time periods exist in the ranch life loop and furnishings there could easily encompass all periods and should remain the most flexible. All furnishings must be based on an interpretive plan for each building, as well as, on the site-wide interpretive plan.

The interpretive plans for each building will be ongoing and based on historical research.

#### Management Issues

- As noted, the grassy picnic area serves a valuable function and should be maintained.
- All repairs should be handled as outlined in the restoration guide and in a manner consistent with the site's history. Reusing materials, repairing by hand, rough cut and unfinished are not only acceptable they are encouraged.
- Large group use ie., family reunions, boy scout outings, LDS ward parties, etc. should be scheduled sparingly and is generally discouraged. The sense of authenticity at the site is greatly impacted, as is the site itself, by this type of use.

Once the paved road is finished this type of activity should be limited and camping eliminated. The impact to the visitor experience and the site becomes great and access from designated camp areas greatly increased.

- Use of the barn as a group use facility is discouraged. It may be used as a staging area for hosting groups for the purpose of experiencing the site, but not as a facility to be rented out to groups unattended by park staff. This type of use would create carrying capacity issues, intrude with general public use of the site, be difficult to manage, and is not in keeping with the premise outlined in this site plan.
- Overall maintenance should be such that visitor safety is ensured, but should enhance the authentic qualities outlined in this plan. Therefore, a highly manicured, well-kept, appearance is not appropriate. Ongoing maintenance work in progress should be viewed as interpretation . All maintenance issues - trash cans, etc. should reflect the mission statement.

- Livestock - The committee recommends a portion of the corrals be utilized to keep the horses of the concessionaire. This will provide similar benefits as keeping other domestic livestock at the site. Horses will provide other sensory elements to the experience beyond that of the interpretive methods. Other livestock may be included on a limited basis for short-term, special program related events.

# Appendix E

## 2007 Antelope Island State Park

### Comprehensive Interpretive Plan Matrix

#### Potential Locations for Interpretive Opportunities

The group discussed potential in-park and off-site locations where interpretive communication with visitors could occur.

##### In-Park Locations

- Alfalfa Fields
- Barrow Sites
- Beaches
- Beacon Knob
- Bison Corrals
- Black Burn Springs
- Buffalo Point
- Camp Ground
- Daddy Stump Ridge
- Dairy Springs
- Elephant Head
- Frary Peak
- Frary Grave Site
- Garden Creek Pond
- Gate House
- Head Banger Cave
- Lady Finger
- Lake Side Trail
- Marina
- Mulberry Trees
- Mushroom Spring
- Nine Mile Gate
- Office

- Ranch
  - Ranger Memorial
  - Sea Gull Point
  - Sentry
  - Split Rock
  - Stone Corrals
  - Tin Lambing Shed
  - Trail Heads
  - Trout Ponds
  - Unicorn Point
  - Visitors Center/ Amphitheater
  - Weed areas
  - White Rocks Bay
  - Wild Fire Areas
- Off-Site Locations**
- Web Site
  - Schools, universities (formal and non-formal education)
  - Community sites requesting interpretive presentations

### **Potential Personal and Non-Personal Interpretive Services**

The group discussed potential personal and non-personal interpretive services that could be used to communicate themes, both in-park and off-site.

#### **Potential Personal Services**

- Concessionaires
- Demonstrations
- Guided Hikes
- Informal Interpretation
- Jr. Ranger Programs
- Lectures
- Living History
- Out Reach
- Ranger Guided talks/walks/bikes/boats
- Slide Presentations
- Special activities & presentations
  - After-hours opens house
  - Workshops w/public
  - Research symposia
  - Public lecture series/seminars
  - Special events (March for Parks)
  - Storytelling
  - Culture groups
  - Artists in Residence Program
- Volunteer Training**

#### **Potential Non-Personal Interpretive Services**

- Audio tours or other tapes
- Books
- Brochures
- CD-ROM
- Directional Signs
- Exhibits
- Jr. Ranger Booklet
- Maps
- Radio
- Resell Items
- Self-guided trail markers and publication
- Student Packets
- Teachers Guide
- Telescopes
- Video
- View Tubes
- Wayside Exhibits
- Web Site
- Wild Life Viewing Guides



## BRAINSTORMING

Notes regarding brainstorming symbology in the  
Program Overview

### Abbreviations —

AF---Alfalfa Fields  
B---Beaches  
BBS---Black Burn Springs  
BC---Bison Corrals  
BK---Beacon Knob  
BP---Buffalo Point  
BS---Barrow Sites  
CG---Camp Ground  
CA---Causeway  
CO---Concessionaires  
DS---Dairy Springs  
DSR---Daddy Stump Ridge  
EH---Elephant Head  
FGS---Frary Grave Site  
FP---Frary Peak  
GCP---Garden Creek Pond  
GH---Gate House  
HBC---Head Banger Cave  
LF---Lady Finger  
LST---Lake Side Trail  
M---Marina  
MS---Mushroom Springs  
MT---Mulberry Trees  
NMG---Nine Mile Gate

R---Ranch  
RM---Ranger Memorial  
S---Sentry  
SC---Stone Corrals  
TH---Trail Heads TP---Trout Ponds  
VC---Visitors Center/ Amphitheater  
WRB---White Rocks Bay  
RM---Ranger Memorial  
FS---Frary Site  
UP---Unicorn Point  
SGP---Sea Gull Point  
WA---Weed areas  
WFA---Wild Fire Areas  
TLS---Tin Lambing Shed  
MS---Mushroom Spring  
SR---Split Rock

**Antelope Island State Park**  
**DRAFT Desired Future Interpretive Program — Program Overview**

**INTERPRETIVE AUDIENCES**

**PRIMARY INTERPRETIVE THEMES**

A: Antelope Island provides an isolated reserve where range and wildlife can be managed, preserved, studied and viewed in an appropriate setting to enhance our understanding and enjoyment of Utah's natural history.

1: General Audience <i>(Includes...)</i>	2: Recreation <i>(Includes...)</i>	3: Trail users <i>(Includes...)</i>	4: Schools <i>(Includes...)</i>	5: Commercial <i>(Includes...)</i>
<ol style="list-style-type: none"> <li>1. Brochure at GH, VC, R, O Web, offsite</li> <li>2. Video at VC, BC, outreach</li> <li>3. Exhibits at VC, R</li> <li>4. Wayside at TH, MT, TP, DS, BP, LF, S, BBS, MS</li> <li>5. Radio park wide</li> <li>6. Concessionaires park wide</li> <li>7. Jr. Ranger Booklet at VC, R</li> <li>8. Website internet</li> <li>9. Books, Resell at VC</li> <li>10. Guided Hikes trail system</li> </ol> <p>Trail Guides at VC, GH, R, O, TH, website, internet</p> <p>CD Rom at VC, offsite</p> <p>Wildlife Viewing Guide at VC, R, GH, O, CO, TH</p> <p>Audio park wide</p> <p>View tubes at LF</p> <p>Maps at GH, VC, R, O, CO</p> <p>Lectures outreach, park wide</p> <p>Slide Presentation at VC, R, outreach</p> <p>Special Programs park wide</p> <p>Informal park wide</p> <p>Demonstrations park wide</p>	<ol style="list-style-type: none"> <li>1. Brochure at GH, VC, R, O, website, offsite</li> <li>2. Video at VC, BC, Outreach</li> <li>3. Exhibits at VC, R</li> <li>4. Wayside at TH, MT, DS, BP, LF, S, BBS, MS</li> <li>5. Radio park wide</li> <li>6. Concessionaires park wide</li> <li>7. Jr. Ranger Booklet at VC, R</li> <li>8. Website internet</li> <li>9. Books/Resell at VC</li> <li>10. Guided Hikes trail system</li> </ol> <p>Trail Guides at VC, GH, R, O, TH, website, internet</p> <p>CD Rom at VC, offsite</p> <p>Wild Life Viewing Guide at VC, R, GH, O, CO, TH</p> <p>Audio park wide</p> <p>View tubes at VC, BP, LF, R, MT</p> <p>Maps at GH, VC, R, O, CO</p> <p>Lectures outreach, park wide</p> <p>Slide Presentation at VC, R, offsite</p> <p>Special Programs park wide</p> <p>Informal park wide</p> <p>Demonstrations park wide</p>	<ol style="list-style-type: none"> <li>1. Trail Guides at VC, GH, R, O, TH, CO, website, internet</li> <li>2. Brochure at GH, VC, R, O, CO, website, offsite</li> <li>3. Wayside at TH, MT, DS, BP, LF, S, BBS, MS</li> <li>4. Wildlife Viewing Guide at VC, R, GH, O, CO, TH</li> <li>5. Radio park wide</li> <li>6. Website internet</li> <li>7. Maps at GH, VC, R, O, CO</li> <li>8. Books, Resell at VC</li> <li>9. Guided Hikes trail system</li> <li>10. Special Programs park wide</li> </ol> <p>Audio park wide</p> <p>View tubes at LF</p> <p>Informal park wide</p> <p>Demonstrations park wide</p>	<ol style="list-style-type: none"> <li>1. Student Packet at VC, R</li> <li>2. Teacher Guide at VC, R</li> <li>3. Lectures outreach, park wide</li> <li>4. Video at VC, R</li> <li>5. Exhibits at VC, R</li> <li>6. Website internet</li> <li>7. Special Programs park wide</li> <li>8. Demonstrations park wide</li> <li>9. Wayside at TH, BP, LF</li> <li>10. Informal park wide</li> </ol> <p>Trail Guides at R, VC, GH</p> <p>CD Rom at VC, offsite</p> <p>Audio at VC, R</p> <p>Books, Resell at VC</p>	<p>Website internet</p> <p>Informal park wide</p>

Interpretive themes	General Audience	Recreation Audience	Trail User Audience	School Audience	Commercial Audience
<p><b>B: Antelope Island is a place to observe the wonder of all the resources that Great Salt Lake provides for migratory and nesting birds, providing necessary food and shelter for millions of birds.</b></p>	<ol style="list-style-type: none"> <li>1. Bird List at VC, R, O, TH, GH, CO, offsite</li> <li>2. Wildlife Viewing Guide at CO, VC, R, O, TH, GH, offsite</li> <li>3. Brochure at VC, R, O, GH, CO, offsite</li> <li>4. Video at VC, R, outreach</li> <li>5. Exhibits at VC, R</li> <li>6. Concessionaires park wide</li> <li>7. Lectures park wide, outreach</li> <li>8. Guided Hikes trail system</li> <li>9. Slide Presentation at VC, R, offsite</li> <li>10. Jr. Ranger Booklet at VC, R</li> </ol> <p>Wayside at MT, LF, BBS, EH, CA</p> <p>Radio park wide</p> <p>Website internet</p> <p>CD Rom at VC, offsite</p> <p>Audio park wide</p> <p>View tubes at VC, SR, LF</p> <p>Maps at GH, VC, R, O, CO</p> <p>Books, Resell at VC</p> <p>Special Programs park wide</p> <p>Informal park wide</p> <p>Demonstrations park wide</p>	<ol style="list-style-type: none"> <li>1. Bird List at VC, R, O, TH, GH, CO, offsite</li> <li>2. Wildlife Viewing Guide at VC, CO, R, O, TH, GH, offsite</li> <li>3. Brochure at VC, R, CO, O, GH, offsite</li> <li>4. Video at VC, R, outreach</li> <li>5. Exhibits at VC, R</li> <li>6. Concessionaires park wide</li> <li>7. Lectures park wide, outreach</li> <li>8. Guided Hikes trail system</li> <li>9. Slide Presentation at VC, R, offsite</li> <li>10. Jr. Ranger Booklet at VC, R</li> </ol> <p>Wayside at MT, LF, BBS, EH, CA</p> <p>Radio park wide</p> <p>Website internet</p> <p>CD Rom at VC, offsite</p> <p>Audio park wide</p> <p>View tubes at VC, SR, LF</p> <p>Maps at GH, VC, R, O, CO</p> <p>Books, Resell at VC</p> <p>Special Programs park wide</p> <p>Informal park wide</p> <p>Demonstrations park wide</p>	<ol style="list-style-type: none"> <li>1. Bird List at VC, R, O, TH, GH, offsite</li> <li>2. Wildlife Viewing Guide at VC, CO, R, O, TH, GH, offsite</li> <li>3. Brochure at VC, R, CO, O, GH, offsite</li> <li>4. Wayside at MT, LF, CA, BBS, EH,</li> <li>5. Guided Hikes trail system</li> <li>6. Concessionaires park wide</li> <li>7. Informal park wide</li> <li>8. Books, Resell at VC</li> <li>9. Special Programs park wide</li> <li>10. View Tubes at LF</li> </ol> <p>Radio park wide</p> <p>Website internet</p> <p>Audio park wide</p> <p>Maps at GH, VC, R, CO, O, offsite</p> <p>Demonstrations park wide</p>	<ol style="list-style-type: none"> <li>1. Student Packet at VC, R</li> <li>2. Teacher Guide at VC, R</li> <li>3. Lectures at VC, R, outreach, park wide</li> <li>4. Video at VC, R</li> <li>5. Exhibits at VC, R</li> <li>6. Wayside at CA, LF</li> <li>7. Website internet</li> <li>8. Special Programs park wide</li> <li>9. Demonstrations park wide</li> <li>10. Informal park wide</li> </ol> <p>Trail Guides at R, VC, website</p> <p>CD Rom at VC, offsite</p> <p>Audio at VC, R</p> <p>View tubes at LF</p> <p>Books, Resell at VC</p>	<p>Website internet</p> <p>Informal park wide</p>

Interpretive Themes	General Audience	Recreation Audience	Trail User Audience	School Audience	Commercial Audience
<p><b>C: The Fielding Garr Ranch, with its dwelling, used continuously for 133 years, provides a unique opportunity to view and understand the history of ranching and desert agriculture in Utah.</b></p>	<p>1. Exhibits at R, VC  2. Brochures at R, VC, GH, CO, O, website, offsite  3. Informal park wide  4. Special Program park wide  5. Demonstrations/Live Interpretation at R, VC  6. Lectures park wide  7. Concessionaires park wide  8. Jr. Ranger at VC, R  9. Website internet  10. Radio park wide  Waysides park wide  Video at VC, R  Trail Guide at VC, R, GH, O  CD Rom at VC  Audio at park wide  View tube at R, waysides  Guided Hike park wide  Out Reach offsite  Maps at VC, R, O, GH  Directional Signs at R  Books Resell at VC  Slide Presentation at VC, R</p>	<p>1. Exhibits at R, VC  2. Brochures at R, VC, GH, CO, O, website, offsite  3. Informal park wide  4. Special Program park wide  5. Demonstrations/Live Interpretation at R, VC  6. Lectures at park wide  7. Concessionaires at park wide  8. Jr. Ranger at VC, R  9. Website internet  10. Radio park wide  Waysides at R, GCP, MT, TP, FS, DS, SGP, park wide  Video at VC, R  Trail Guide at VC, R  CD Rom at VC  Audio park wide  View tube at R  Guided Hike park wide  Outreach offsite  Maps at VC, R, O, GH  Directional Signs at R  Books Resell at VC  Slide Presentation at VC, R</p>	<p>1. Brochures at R, VC, GH, O, website, offsite  2. Trail Guide at VC, R  3. Concessionaires park wide  4. Website at internet  5. Waysides at R, GCP, MT, TP, FS, DS, AF, SGP, BBS, SC, TL, MS, DSR, UP, HBS  6. Radio park wide  7. Maps at VC, R, O, GH, website  8. Guided Hikes trail system  9. Informal park wide  10. Books, Resell at VC  Special Programs park wide  View Tubes at R, waysides  Audio park wide  Demonstrations park wide</p>	<p>1. Student Packet at VC, R  2. Teacher Guide at VC, R  3. Lectures at VC, R, outreach  4. Exhibits at VC, R  5. Website at internet  6. Self Guided Programs at R  7. Wayside at GCP, MT, TP, DS, AF, BS, UP, SGP, BBS, SC, TLS, MS, BK, DSR, HBC  8. Special Programs park wide  9. Demonstrations park wide  10. Informal park wide  Trail Guides at R, VC  CD Rom offsite  Audio at VC, R  View tubes at R, waysides  Books, Resell at VC  Video at R, VC, outreach</p>	<p>Website internet  Informal park wide</p>

Interpretive Themes	General Audience	Recreation Audience	Trail User Audience	School Audience	Commercial Audience
<p><b>D: Antelope Island provided enough of a haven that it has been occupied, as a human habitation for thousands of years, yet has remained isolated enough that the evidence of habitation has remained well preserved.</b></p>	<p>1. Exhibits at R, VC  2. Brochures at R, VC, O, GH, website  3. Informal park wide  4. Special Program park wide  5. Demonstrations/Live Interpretation at R, VC  6. Lectures park wide  7. Concessionaires park wide  8. Jr. Ranger at VC, R  9. Website internet  10. Radio park wide  Waysides at R, GCP, MT, TP, FS, DS, AF, SGP, S, BBS, SC, TL, MS, HBC, DSR  Video at VC, R  Trail Guide at VC, R, O, GH, website  CD Rom at VC  Audio park wide  View tube at R, SR, waysides  Guided Hike park wide  Out Reach offsite  Maps at VC, R, O, GH, website  Books Resell at VC  Slide Presentation at VC, R</p>	<p>1. Exhibits at R, VC  2. Brochures at R, VC, O, GH, website  3. Informal park wide  4. Special Program park wide  5. Demonstrations/Live Interpretation at R, VC  6. Lectures park wide  7. Concessionaires park wide  8. Jr. Ranger at VC, R  9. Website internet  10. Radio park wide  Waysides at R, GCP, MT, TP, FS, DS, AF, SGP, S, BBS, SC, TL, MS, HBC, DSR  Video at VC, R  Trail Guide at VC, R, O, GH, website  CD Rom at VC  Audio park wide  View tube at R, SR, waysides  Guided Hike park wide  Out Reach offsite  Maps at VC, R, O, GH, website  Books Resell at VC  Slide Presentation at VC, R</p>	<p>1. Brochures at R, VC, O  2. Trail Guide at VC, R  3. Concessionaires park wide  4. Website internet  5. Waysides at R, GCP, MT, TP, FS, DS, AF, SGP, S, BBS, SC, TL, MS, HBC, DSR  6. Radio park wide  7. Maps at VC, R, O, GH, website  8. Guided Hikes trail system  9. Informal park wide  10. Books, Resell at VC  Special Programs at park wide  View Tubes at R, SR, waysides  Audio park wide  Demonstrations park wide</p>	<p>1. Student Packet at VC, R  2. Teacher Guide at VC, R  3. Lectures at VC, R, outreach,  4. Exhibits at VC, R  5. Website at internet  6. Self Guided Programs at R  7. Wayside GCP, MT, TP, DS, AF, BS, LF, UP, SGP, FGS, BBS, SC, TLS, MS, BK, DSR, SR  8. Special Programs park wide  9. Demonstrations park wide  10. Informal park wide  Trail Guides at R, O, VC, GH, website  CD Rom offsite  Audio at VC, R  View tubes at R, SR, waysides  Books, Resell at VC  Video offsite</p>	<p>Website at internet  Informal at parkwide</p>

Interpretive Themes	General Audience	Recreation Audience	Trail User Audience	School Audience	Commercial Audience
<p><b>E: Antelope Island presents an outdoor classroom for study of Utah geology, especially for the basin and range formation that creates the island and Great Salt Lake</b></p>	<p>1. Exhibits at R, VC  2. Brochures at R, VC, O, GH, TH, website, offsite  3. Informal park wide  4. Lectures park wide  5. Concessionaires park wide  6. Jr. Ranger at VC, R  7. Website internet  8. Waysides at S, VC, BP, BK, FP, SR, LST, EH  9. Guided Hike park wide  10. Maps at VC, R, O, GH, TH, website  Radio park wide  View tube at BP, EH  Special Program park wide  Video at VC, R  Trail Guide at VC, R, O, GH, website, TH  CD Rom at VC, offsite  Audio park wide  Books Resell at VC  Slide Presentation at VC, R, outreach</p>	<p>1. Exhibits at R, VC  2. Brochures at R, VC, O, GH, TH, website, offsite  3. Informal park wide  4. Lectures park wide  5. Concessionaires park wide  6. Jr. Ranger at VC, R  7. Website internet  8. Waysides at S, VC, BP, BK, FP, SR, LST, EH  9. Guided Hike park wide  10. Maps at VC, R, O, GH, TH, website  Radio park wide  View tube at BP, EH  Special Program park wide  Video at VC, R  Trail Guide at VC, R, O, GH, website, TH  CD Rom at VC, offsite  Audio park wide  Books Resell at VC  Slide Presentation at VC, R, outreach</p>	<p>1. Brochures at R, VC, O  2. Trail Guide at VC, R  3. Concessionaires at park wide  4. Website at internet  5. Waysides at BP, LST, VC, FP, SR, S, EH  6. View Tubes at BP, VC  7. Maps at VC, R, O, GH, TH, website  8. Guided Hikes trail system  9. Informal park wide  10. Books, Resell at VC  Radio park wide  Special Programs park wide  Audio park wide  Demonstrations park wide</p>	<p>1. Student Packet at VC, R  2. Teacher Guide at VC, R  3. Lectures at VC, R, outreach,  4. Exhibits at VC, R  5. Website internet  6. View tubes BP  7. Waysides at BP, LST, EH, SR, VC  8. Guided Hikes trail system  9. Maps at VC, R, O, GH, TH, website  10. Informal park wide  Special Programs park wide  Trail Guides at R, VC, O, GH  CD Rom at VC, offsite  Audio at VC, R  Books, Resell at VC  Video at VC, R, outreach</p>	<p>Website internet  Informal park wide</p>

Interpretive Theme	General Audience	Recreation Audience	Trail User Audience	School Audience	Commercial Audience
<p><b>F: Antelope Island provides an atmosphere for participation in all the recreational and sightseeing activities traditionally associated with islands and does it in the unique setting of a salt lake in the middle of the desert just a short distance from a major urban population.</b></p>	<ol style="list-style-type: none"> <li>1. Exhibits at VC, R</li> <li>2. Video at VC, R, outreach</li> <li>3. Brochures at R, VC, O, GH</li> <li>4. Website internet</li> <li>5. Waysides at R, SC, M</li> <li>6. Concessionaires park wide</li> <li>7. Informal park wide</li> <li>8. Radio park wide</li> <li>9. Maps at VC, R, O, GH</li> <li>10. Books Resell at VC</li> </ol> <p>Lectures park wide Jr. Ranger at VC, R Guided Hike park wide Special Program park wide Trail Guide at VC, R, O, GH Slide Presentation at VC, R</p>	<ol style="list-style-type: none"> <li>1. Exhibits at VC, R</li> <li>2. Video at VC, R, outreach</li> <li>3. Brochures at R, VC, O, GH</li> <li>4. Website internet</li> <li>5. Waysides at R, SC, M</li> <li>6. Concessionaires park wide</li> <li>7. Informal park wide</li> <li>8. Radio park wide</li> <li>9. Maps at VC, R, O, GH</li> <li>10. Books Resell at VC</li> </ol> <p>Lectures park wide Jr. Ranger at VC, R Guided Hike park wide Special Program park wide Trail Guide at VC, R, O, GH Slide Presentation at VC, R</p>	<ol style="list-style-type: none"> <li>1. Brochures at R, VC, O, GH, website</li> <li>2. Trail Guide at VC, R, O, GH, website</li> <li>3. Concessionaires park wide</li> <li>4. Website internet</li> <li>5. Waysides at R, SC, M</li> <li>6. Maps at VC, R, O, GH, website</li> <li>7. Informal park wide</li> <li>8. Trail Guides at TH, G, R, VC, O, website</li> <li>9. Books, Resell at VC</li> <li>10. Radio park wide</li> </ol> <p>Special Programs park wide Audio park wide Demonstrations park wide Guided Hikes trail system</p>	<ol style="list-style-type: none"> <li>1. Student Packet at VC, R</li> <li>2. Teacher Guide at VC, R</li> <li>3. Exhibits at VC, R</li> <li>4. Website internet</li> <li>5. Wayside at TH, SC, R, M</li> <li>6. Maps at VC, R, O, GH, website</li> <li>7. Informal park wide</li> <li>8. Trail Guides at R, O, VC, GH, website</li> <li>9. Video outreach</li> <li>10. Books, Resell at VC</li> </ol> <p>Special Programs park wide CD Rom at VC, offsite Audio at VC, R Lectures at VC, R, outreach,</p>	<p>Website internet Informal park wide</p>

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# Appendix F

## Antelope Island Animal and Plant Checklists

### MAMMALS

#### **BATS**

- Townsend's Big-eared Bat—*Corynorhinus townsendi*
- Mexican Freetail Bat—*Tadarida brasiliensis*
- Hoary Bat—*Lasiurus cinereus*
- Little Brown Myotis—*Myotis lucifugus*
- Big Brown Bat—*Eptesicus fuscus*
- Western Pipistrelle—*Pipistrellus hesperus*
- California Myotis—*Myotis californicus*
- Long-legged Myotis—*Myotis volans*

#### **UNGULATES**

- California Bighorn Sheep—*Ovis Canadensis*
- Rocky Mountain Mule Deer—*Odocoileus hemionus*
- American Bison—*Bison bison*
- Pronghorn—*Antilocarpa americana*

#### **LAGOMORPHS**

- Blacktail Jackrabbit—*Leupus californicus*
- Mountain Cottontail—*Sylvilagus nuttallii*

#### **RODENTS**

- Deer Mouse—*Peromyscus maniculatus*
- Ord's Kangaroo Rat—*Dipodomys ordi*
- Porcupine—*Erethizon dorsatum*
- Rock Squirrel—*Spermophilus variegates*
- Meadow vole—*Microtus pennsylvanicus*
- Yellow-bellied Marmot—*Marmota flaviventris*

#### **FELINES**

- Bob Cat—*Lynx rufus*

#### **CANINES**

- Coyote—*Canis latrans*
- Kit Fox—*Vulpes macrotis*
- Red Fox—*Vulpes vulpes*

#### **MUSTELIDS (WEASLE-LIKE)**

- Longtail Weasle—*Mustela frenata*
- Striped Skunk—*Mephitis mephitis*
- Badger—*taxidea taxus*

#### **MISCELLANEOUS MAMMALS**

- Raccoon—*Procyon lotor*

### BIRDS

#### **Status Codes**

- P = Permanent Resident
- W = Winter Resident
- T = Transient / Migrant
- S = Summer / Nesting
- S(T) = Summer with increased numbers in migration
- T(S) = Transient with some throughout winter
- O = Observed Once

#### **Symbols:**

- \* Observed at Fielding Garr Ranch site
- = Primarily along causeway
- # Species for which documentation requested.

#### **Swans, Geese & Ducks**

- \_\_ Snow Goose . . . . . T
- \_\_ Ross's Goose . . . . . T
- \_\_ Canada Goose . . . . . \* P
- \_\_ Tundra Swan . . . . . T
- \_\_ Wood Duck . . . . . T
- \_\_ Gadwall . . . . . S
- \_\_ American Wigeon . . . . . T
- \_\_ Mallard . . . . . \* P
- \_\_ Blue-winged Teal . . . . . T
- \_\_ Cinnamon Teal . . . . . \* S
- \_\_ Northern Shoveler . . . . . \* P
- \_\_ Northern Pintail . . . . . \* T
- \_\_ Green-winged Teal . . . . . \* T
- \_\_ Canvasback . . . . . = T
- \_\_ Redhead . . . . . = T
- \_\_ Ring-necked Duck . . . . . = T
- \_\_ Greater Scaup . . . . . = T
- \_\_ Lesser Scaup . . . . . = T(W)
- \_\_ Harlequin Duck # . . . . . = T(W)
- \_\_ Surf Scoter . . . . . = T(W)
- \_\_ White-winged Scoter . . . . . = T(W)
- \_\_ Black Scoter # . . . . . = T(W)
- \_\_ Long-tailed Duck . . . . . = T(W)
- \_\_ Bufflehead . . . . . = T(W)
- \_\_ Common Goldeneye . . . . . = T(W)
- \_\_ Barrow's Goldeneye . . . . . = T(W)
- \_\_ Common Merganser . . . . . = T(W)
- \_\_ Red-breasted Merganser . . . . . = T(W)
- \_\_ Ruddy Duck . . . . . = T(W)

#### **Pheasants, Grouse & Quail**

- \_\_ Chukar . . . . . P
- \_\_ Ring-necked Pheasant . . . . . \* P

**Loons**

\_\_Common Loon . . . . . = T

**Grebes**

\_\_Pied-billed Grebe . . . . . P  
\_\_Horned Grebe . . . . . = T  
\_\_Eared Grebe . . . . . = T  
\_\_Western Grebe . . . . . = T  
\_\_Clark's Grebe . . . . . = T

**Pelicans & Cormorants**

\_\_American White Pelican . . . . . \* S  
\_\_Double-crested Cormorant . . . . . S(T)

**Bitterns, Egrets & Herons**

\_\_Great Blue Heron . . . . . \* P  
\_\_Great Egret . . . . . S  
\_\_Snowy Egret . . . . . S  
\_\_Cattle Egret . . . . . S  
\_\_Black-crowned Night-Heron . . . . . \* S

**Ibises & Spoonbills**

\_\_White-faced Ibis . . . . . \* S

**Vultures**

\_\_Turkey Vulture . . . . . \* S

**Hawks & Falcons**

\_\_Osprey . . . . . T  
\_\_Bald Eagle . . . . . \* W  
\_\_Northern Harrier . . . . . \* P  
\_\_Sharp-shinned Hawk . . . . . \* T  
\_\_Cooper's Hawk . . . . . \* T  
\_\_Swainson's Hawk . . . . . S  
\_\_Red-tailed Hawk . . . . . \* P  
\_\_Rough-legged Hawk . . . . . W  
\_\_Golden Eagle . . . . . P  
\_\_American Kestrel . . . . . \* P  
\_\_Merlin . . . . . \* W  
\_\_Peregrine Falcon . . . . . \* P  
\_\_Prairie Falcon . . . . . P

**Rails & Cranes**

\_\_Virginia Rail . . . . . \* P  
\_\_Sora . . . . . \* T  
\_\_American Coot . . . . . \* P  
\_\_Sandhill Crane . . . . . \* T

**Plovers & Sandpipers**

\_\_Black-bellied Plover . . . . . = T  
\_\_American Golden-Plover . . . . . = T  
\_\_Snowy Plover . . . . . S  
\_\_Semipalmated Plover . . . . . T  
\_\_Killdeer . . . . . \* P  
\_\_Mountain Plover # . . . . . O  
\_\_Black-necked Stilt . . . . . \* S  
\_\_American Avocet . . . . . \* S(T)  
\_\_Greater Yellowlegs . . . . . \* T

\_\_Lesser Yellowlegs . . . . . \* T  
\_\_Willet . . . . . \* S  
\_\_Wandering Tattler # . . . . . T  
\_\_Spotted Sandpiper . . . . . T  
\_\_Whimbrel . . . . . T  
\_\_Long-billed Curlew . . . . . \* S  
\_\_Hudsonian Godwit # . . . . . = O  
\_\_Bar-tailed Godwit # . . . . . = O  
\_\_Marbled Godwit . . . . . \* T  
\_\_Ruddy Turnstone # . . . . . T  
\_\_Red Knot . . . . . T  
\_\_Sanderling . . . . . = T(W)  
\_\_Semipalmated Sandpiper . . . . . T  
\_\_Western Sandpiper . . . . . T  
\_\_Least Sandpiper . . . . . T  
\_\_White-rumped Sandpiper # . . . . . = O  
\_\_Baird's Sandpiper . . . . . T  
\_\_Pectoral Sandpiper . . . . . T  
\_\_Dunlin . . . . . = T  
\_\_Curlew Sandpiper # . . . . . = O  
\_\_Short-billed Dowitcher . . . . . T  
\_\_Long-billed Dowitcher . . . . . T  
\_\_Wilson's Snipe . . . . . P  
\_\_Wilson's Phalarope . . . . . = T  
\_\_Red-necked Phalarope . . . . . = T  
\_\_Red Phalarope . . . . . = T

**Gulls, Terns, & Alcids**  
\_\_Parasitic Jaeger # . . . . . = T  
\_\_Franklin's Gull . . . . . \* S  
\_\_Little Gull # . . . . . = T  
\_\_Bonaparte's Gull . . . . . = T  
\_\_Mew Gull . . . . . = T(W)  
\_\_Ring-billed Gull . . . . . \* P  
\_\_California Gull . . . . . \* P  
\_\_Herring Gull . . . . . = W  
\_\_Thayer's Gull . . . . . = W  
\_\_Glaucous Gull . . . . . = W  
\_\_Sabine's Gull . . . . . = T(W)  
\_\_Caspian Tern . . . . . T  
\_\_Forster's Tern . . . . . S  
\_\_Black Tern . . . . . T

**Doves & Pigeons**

\_\_Rock Pigeon . . . . . \* P  
\_\_Eurasian Collared-Dove . . . . . \* O  
\_\_White-winged Dove . . . . . \* O  
\_\_Mourning Dove . . . . . \* P

**Owls**

\_\_Barn Owl . . . . . \* P  
\_\_Great Horned Owl . . . . . \* P  
\_\_Snowy Owl # . . . . . O  
\_\_Burrowing Owl . . . . . S

\_\_ Long-eared Owl . . . . . \* T(W)  
 \_\_ Short-eared Owl . . . . . S  
**Goatsuckers**  
 \_\_ Common Nighthawk . . . . . \* S  
 \_\_ Common Poorwill . . . . . \* S  
**Hummingbirds**  
 \_\_ Black-chinned Hummingbird . . . . . \* S  
 \_\_ Broad-tailed Hummingbird . . . . . \* S  
 \_\_ Rufous Hummingbird . . . . . \* T  
**Woodpeckers**  
 \_\_ Lewis's Woodpecker . . . . . \* T  
 \_\_ Red-naped Sapsucker . . . . . \* T(W)  
 \_\_ Downy Woodpecker . . . . . \* P  
 \_\_ Northern Flicker . . . . . \* P  
**Flycatchers**  
 \_\_ Olive-sided Flycatcher . . . . . \* T  
 \_\_ Western Wood-Pewee . . . . . \* T  
 \_\_ Willow Flycatcher . . . . . \* T  
 \_\_ Hammond's Flycatcher . . . . . \* T  
 \_\_ Gray Flycatcher . . . . . \* T  
 \_\_ Dusky Flycatcher . . . . . \* T  
 \_\_ Cordilleran Flycatcher . . . . . \* S(T)  
 \_\_ Say's Phoebe . . . . . \* S  
 \_\_ Ash-throated Flycatcher . . . . . \* T  
 \_\_ Western Kingbird . . . . . \* S  
 \_\_ Eastern Kingbird . . . . . \* S  
 \_\_ Scissor-tailed Flycatcher # . . . . . O  
**Shrikes**  
 \_\_ Loggerhead Shrike . . . . . \* P  
 \_\_ Northern Shrike . . . . . W  
**Vireos**  
 \_\_ Plumbeous Vireo . . . . . \* S  
 \_\_ Cassin's Vireo . . . . . \* T  
 \_\_ Warbling Vireo . . . . . \* S  
 \_\_ Philadelphia Vireo # . . . . . \* T  
 \_\_ Red-eyed Vireo . . . . . \* O  
**Jays & Crows**  
 \_\_ Black-billed Magpie . . . . . \* P  
 \_\_ American Crow . . . . . \* P  
 \_\_ Common Raven . . . . . \* P  
**Larks**  
 \_\_ Horned Lark . . . . . \* P  
**Swallows**  
 \_\_ Tree Swallow . . . . . \* T  
 \_\_ Violet-green Swallow . . . . . \* T  
 \_\_ Northern Rough-winged Swallow . . . \* T  
 \_\_ Bank Swallow . . . . . \* T  
 \_\_ Cliff Swallow . . . . . \* S(T)  
 \_\_ Barn Swallow . . . . . \* S(T)  
**Titmice, Verdin & Bushtit**  
 \_\_ Black-capped Chickadee . . . . . \* P

**Nuthatches & Creepers**  
 \_\_ Red-breasted Nuthatch . . . . . \* T  
**Wrens**  
 \_\_ Rock Wren . . . . . S  
 \_\_ House Wren . . . . . \* S  
 \_\_ Winter Wren . . . . . \* T  
 \_\_ Marsh Wren . . . . . \* S  
**Kinglets**  
 \_\_ Golden-crowned Kinglet . . . . . \* T  
 \_\_ Ruby-crowned Kinglet . . . . . \* T(W)  
**Gnatcatchers**  
 \_\_ Blue-gray Gnatcatcher . . . . . \* S  
**Thrushes**  
 \_\_ Western Bluebird . . . . . \* T  
 \_\_ Mountain Bluebird . . . . . T  
 \_\_ Townsend's Solitaire . . . . . \* T(W)  
 \_\_ Veery # . . . . . \* T  
 \_\_ Swainson's Thrush . . . . . \* T  
 \_\_ Hermit Thrush . . . . . \* T(W)  
 \_\_ American Robin . . . . . \* P  
 \_\_ Varied Thrush . . . . . \* O  
**Thrashers**  
 \_\_ Northern Mockingbird . . . . . \* P  
 \_\_ Sage Thrasher . . . . . \* S(T)  
**Starlings**  
 \_\_ European Starling . . . . . \* P  
**Pipits**  
 \_\_ American Pipit . . . . . \* T(W)  
**Waxwings & Phainopepla**  
 \_\_ Cedar Waxwing . . . . . \* T(W)  
**Warblers**  
 \_\_ Orange-crowned Warbler . . . . . \* S(T)  
 \_\_ Nashville Warbler . . . . . \* T  
 \_\_ Virginia's Warbler . . . . . \* T  
 \_\_ Yellow Warbler . . . . . \* S  
 \_\_ Chestnut-sided Warbler # . . . . . \* T  
 \_\_ Magnolia Warbler # . . . . . \* O  
 \_\_ Black-throated Blue Warbler # . . . . \* O  
 \_\_ Yellow-rumped Warbler . . . . . \* P  
 \_\_ Black-throated Gray Warbler . . . . . T  
 \_\_ Townsend's Warbler . . . . . \* T  
 \_\_ Yellow-throated Warbler # . . . . . \* O  
 \_\_ Black-and-white Warbler . . . . . \* T  
 \_\_ American Redstart . . . . . \* T  
 \_\_ Northern Waterthrush . . . . . \* T  
 \_\_ MacGillivray's Warbler . . . . . \* S(T)  
 \_\_ Common Yellowthroat . . . . . S  
 \_\_ Wilson's Warbler . . . . . \* T  
 \_\_ Yellow-breasted Chat . . . . . \* T  
**Tanagers**  
 \_\_ Western Tanager . . . . . \* S(T)

**Sparrows**

- \_\_ Green-tailed Towhee . . . . . \* T
- \_\_ Spotted Towhee . . . . . \* S(T)
- \_\_ American Tree Sparrow . . . . . \* W
- \_\_ Chipping Sparrow . . . . . \* T
- \_\_ Brewer's Sparrow . . . . . S
- \_\_ Vesper Sparrow . . . . . \* S(T)
- \_\_ Lark Sparrow . . . . . \* S
- \_\_ Sage Sparrow . . . . . T
- \_\_ Savannah Sparrow . . . . . \* S
- \_\_ Grasshopper Sparrow . . . . . S
- \_\_ Fox Sparrow . . . . . \* T
- \_\_ Song Sparrow . . . . . \* P
- \_\_ Lincoln's Sparrow . . . . . \* T
- \_\_ White-throated Sparrow . . . . . \* T(W)
- \_\_ Harris's Sparrow . . . . . T(W)
- \_\_ White-crowned Sparrow . . . . . \* T(W)
- \_\_ Dark-eyed Junco . . . . . \* T(W)
- \_\_ McCown's Longspur # . . . . . O
- \_\_ Lapland Longspur . . . . . T
- \_\_ Snow Bunting . . . . . W

**Grosbeaks & Buntings**

- \_\_ Black-headed Grosbeak . . . . . \* S
- \_\_ Blue Grosbeak . . . . . \* T
- \_\_ Lazuli Bunting . . . . . \* T
- \_\_ Indigo Bunting . . . . . O

**Blackbirds & Orioles**

- \_\_ Red-winged Blackbird . . . . . \* P
- \_\_ Western Meadowlark . . . . . \* P
- \_\_ Yellow-headed Blackbird . . . . . \* S(T)
- \_\_ Brewer's Blackbird . . . . . S(T)
- \_\_ Common Grackle . . . . . \* T
- \_\_ Brown-headed Cowbird . . . . . \* S
- \_\_ Bullock's Oriole . . . . . \* S

**Finches**

- \_\_ Gray-crowned Rosy-Finch . . . . . W
- \_\_ House Finch . . . . . \* P
- \_\_ Pine Siskin . . . . . \* T(W)
- \_\_ Lesser Goldfinch . . . . . \* T(W)
- \_\_ American Goldfinch . . . . . \* T(W)
- \_\_ Evening Grosbeak . . . . . \* T(W)

**Weaver Finches**

- \_\_ House Sparrow . . . . . \* P

## PLANTS

c= cultivated, n=noxious, I=introduced

### **Trees and Shrubs**

___ bigtooth maple	
___ boxelder	
___ netleaf hackberry	
___ alderleaf mountain mahogany	
___ black hawthorn	
___ Russian olive	N
___ velvet ash	
___ honeylocust	C
___ Utah juniper	
___ white mulberry	I
___ white poplar	I
___ Fremont cottonwood	
___ black chokecherry	
___ smooth sumac	
___ skunkbush sumac	
___ black locust	C
___ rugosa rose	C
___ Wood's rose	
___ weeping willow	C
___ corkscrew willow	C
___ Siberian elm	C
___ blue elderberry	
___ common lilac	C
___ saltcedar	N
___ five-stamen tamarisk	
___ Oriental arborvitae	C
___ white sagebrush	
___ big sagebrush	
___ fourwing saltbrush	
___ shadscale saltbrush	
___ Watson's brickelbush	
___ yellow rabbitbrush	
___ Peking cotoneaster	C
___ rubber rabbitbrush	
___ spiny hopsage	
___ broom snakeweed	
___ rockspirea	
___ hollyleaved barberry	C
___ creeping barberry	
___ brittle prickly pear	
___ mugo pine	C
___ biennial cinquefoil	
___ greasewood	

### **Graminoid**

___ crested wheatgrass	I
___ thick-spiked wheatgrass	
___ tall wheatgrass	I
___ western wheatgrass	
___ bluebunch wheatgrass	
___ foxtail wheatgrass	
___ purple threeawn	
___ riggut brome	I
___ soft brome	I
___ cheatgrass	I
___ Nebraska sedge	
___ clustered field sedge	
___ saltgrass	
___ barnyardgrass	I
___ common spikerush	
___ basin wildrye	
___ blue wildrye	
___ Russian wildrye	
___ sheep fescue	
___ foxtail barley	I
___ wall barley	I
___ arctic rush	
___ Torrey's rush	
___ perennial ryegrass	I
___ scratchgrass	
___ witchgrass	I
___ common reed	
___ bulbous bluegrass	I
___ Kentucky bluegrass	
___ Sandberg bluegrass	
___ annual rabbitsfoot grass	I
___ chairmaker's bulrush	
___ sand dropseed	
___ needle and thread	
___ Indian ricegrass	
___ brome fescue	I
___ rat-tail fescue	I

### **Forb/Herb**

___ fragrant white sand verbena	I
___ common yarrow	
___ false agoseris	
___ bigflower agoseris	
___ tapertip onion	
___ Brandegee's onion	
___ pale madwort	

___ desert madwort	I	___ largeflower hawksbeard	
___ tumbling pigweed	I	___ bearded cryptantha	
___ redroot amaranth	I	___ roundspike cryptantha	
___ flatspine bur ragweed		___ longstalk springparsley	
___ annual ragweed		___ gypsyflower	N
___ fiddleneck		___ twolobe larkspur	
___ low pussytoes		___ western tansymustard	
___ Holboel's rockcress		___ woodland draba	
___ perennial rockcress		___ mountain draba	
___ mouseear cress	I	___ Carolina draba	
___ lesser burdock	N	___ spring draba	
___ Fendler's sandwort		___ smooth horsetail	
___ King's sandwort		___ tall annual willowherb	
___ flatbud pricklypoppy		___ fringed willowherb	
___ spider milkweed		___ spreading fleabane	
___ showy milkweed		___ Navajo fleabane	
___ garden asparagus	C	___ nodding buckwheat	
___ western aster		___ cushion buckwheat	
___ Beckwith's milkvetch		___ redstem stork's bill	I
___ browse milkvetch		___ western wallflower	
___ smallflowered milkvetch		___ yellow avalanche-lily	
___ Utah milkvetch		___ ribseed sandmat	
___ spear saltbrush	I	___ thickstem aster	
___ neglected balsamroot		___ yellow fritillaria	
___ arrowleaf balsamroot		___ stickywilly	
___ fivehorn smotherweed		___ velvetweed	
___ sego lily		___ shy gilia	
___ Booth's evening primrose		___ cottonbatting plant	
___ shepard's purse	I	___ manyflower stickseed	
___ whitetop	N	___ Jessica sticktight	
___ northwestern Indian paintbrush		___ spotted stickseed	
___ lesser Indian paintbrush		___ common sunflower	
___ disc mayweed	I	___ hairy false goldenaster	
___ Fremont's goosefoot		___ littleleaf alumroot	
___ crossflower	I	___ jagged chickseed	I
___ oxeye daisy	I	___ ballhead waterleaf	
___ feverfew	C	___ black henbane	N
___ Canada thistle	N	___ German iris	C
___ Utah thistle		___ Dyer's woad	N
___ bull thistle	N	___ povertyweed	
___ lanceleaf springbeauty		___ summer cypress	
___ Rocky Mountain beeplant		___ prickly lettuce	I
___ maiden blue eyed Mary		___ flatspine stickseed	
___ tiny trumpet		___ common duckweed	
___ pale bastard toadflax		___ mountain pepperweed	
___ field bindweed	N	___ clasping pepperweed	I
___ Canadian horseweed		___ bitterroot	
___ tapertip hawksbeard		___ dalmatian toadflax	N
___ Modoc hawksbeard		___ prairie flax	

___bulbous woodland-star		___western poison ivy	
___smallflower woodland-star		___yellow salsify	
___corn gromwell		___puncturevine	N
___fernleaf biscuitroot		___white clover	I
___Gray's biscuitroot		___broadleaf cattail	
___tailcup lupine		___stinging nettle	
___largeflower skeletonplant		___moth mullein	I
___African mustard		___common mullein	
___common mallow	I	___bigbract verbena	
___horehound	I	___water speedwell	
___black medick	I	___twolobe speedwell	
___alfalfa	I	___common periwinkle	C
___white sweet-clover	I	___northern bog violet	
___yellow sweetclover	I	___rough cocklebur	I
___oblongleaf bluebells		___weakleaf yucca	C
___slender phlox		___Garrett's firechalice	
___seep monkeyflower		___foothill deathcamas	
___miner's lettuce			
___watercress	I		
___catnip	I		
___coyote tobacco			
___tufted evening primrose			
___crownleaf evening primrose			
___Hooker's evening primrose			
___pale evening primrose			
___flat-top broomrape			
___clustered broomrape			
___Palmer's penstemon			
___spearshape phacelia			
___threadleaf phacelia			
___longleaf phlox			
___wooly plantain			
___common plantain	I		
___longhorn plectritus			
___prostrate knotweed	I		
___spotted ladysthumb	I		
___lemon scurfpea			
___alkali buttercup			
___curveseed butterwort	I		
___curly dock	I		
___prickly Russian thistle	I		
___small burnet	I		
___flaxleaf plainsmustard			
___Columbia ragwort			
___sleepy silene			
___tall tumbledustard	I		
___goldenrod			
___scarlet globemallow			
___common dandelion	I		

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## **Appendix G**

### **Public Scoping Information**

This list below was compiled from information generated at two public scoping meetings (May 15 and 30, 2007) and a resource management planning team meeting (May 16, 2007) by using an exercise where the participants identified and prioritized the strengths, weaknesses, opportunities and threats for Antelope Island State Park. Items are listed in priority ranking with prioritization points in parentheses. This information was used by the AISP planning team as a basis for discussion of issues and the development of recommendations for the RMP. Though each of these items was thoroughly discussed by the team, not all were addressed in the plan. Some of the items, such as a southern causeway and additional vehicular access, should be revisited after the access plan is implemented and impacts assessed.

#### **Strengths of AISP**

- Wildlife preservation and viewing opportunities (62)
- Quality natural area in close proximity to population center, yet feeling of remoteness (39)
- Muscle powered recreation opportunities (24)
- Variety of activities available on the island (21)
- Outdoor classroom – educational, interpretive and research opportunities (wildlife, lake, plants, history) (17)
- Great place for people of all ages and abilities to experience nature and recreate (enjoying views, GSL, wildlife, etc.), unique environment – natural and peaceful, Unique collection of resources (17)
- History and education opportunities (island history and Garr Ranch) (11)
- Wilderness aspects (9)
- Strength of community partnerships – CVB, Davis County, local chamber of commerce, user and volunteer groups (9)
- Variety of trails offered (8)
- Restricted motorized access to most of Island (7)
- Potential to increase revenue from visitors (6)
- Brings tourists/visitors to the area and strengthens local economies (5)
- Attitude and knowledge of management staff and volunteers (4)
- Scenic Westside of island (2)
- Historical/cultural resources – Ranch, Native American sites, early state history (1)

#### **Weaknesses of AISP**

- Facilities too small or outdated (for example: campsites, picnic sites, limited utilities, marina, visitor center is too small for all functions, etc.) (59)
- Insufficient funding to provide essential facilities, staff, etc. (31)
- Need to improve the marketing and information functions to increase public awareness and perception of the park (28)
- First and last impression (improvements needed to make the entrance station and marina areas more attractive) (18)

- Concessions – facility and food services need to be improved, inconsistent open hours (17)
- Limited access on Island – beyond gate to Ranch, some other areas (12)
- Inadequate skilled staff/too dependent on volunteers (12)
- Trail management (some issues between equestrians, hikers, mountain bikers and wildlife) (12)
- Utilities and conveniences are inadequate (9)
- Insufficient revenue from visitors (5)
- Bicyclists frequently block traffic lanes on causeway (4)
- Lack of trees from wildfire and cutting (3)
- Poor campground location (3)
- Uncontrollable factors – water level, heat, bugs and perception of island as “buggy”

### **Opportunities for AISP**

- Improvements to interpretive and education opportunities (eco-education, directed or guided, enlarge visitor center), including developing facilities and utilities to allow and enhance educational opportunities – cooperation with universities, research, outdoor classrooms (52)
- Enhanced marketing (tourism, recreation, world class venue) – public relations (update website) (45)
- Expand and interconnect trail system (20)
- Establish island as a wildlife preserve (19)
- Expand visitor center to include meeting rooms, restaurant, etc., or develop these facilities (16)
- Increased recreation opportunities during park open hours – boardwalks, backcountry camping, nature hikes, concessions, etc. (13)
- To provide an “American west” experience (11)
- Provide better access to Island (new roads, trails and activities) (9)
- Improved access to the south end of the island by road, even if it is a primitive dirt road (9)
- Enhance wildlife viewing opportunities through such things as range improvements (9)
- Continued flexibility to allow current activities (8)
- Wider variety of concession services (7)
- Go green with improvements and renovations (6)
- GPS self-guided educational tours (bring the ranger with you) (6)
- Provide road access to west side of Island (6)
- Hunting (5)
- Provide a southern causeway (4)
- Expanded hours at the visitor center and Garr Ranch during recreation season (4)
- Widen park access road (Antelope Drive) (3)
- Expansion of trails and interpretive/educational opportunities that do not negatively affect the ecosystem (1)

### **Threats to AISP**

- Allowing the hunting of wildlife (62)
- Over-development of the park and outside growth and pressure towards short-sighted development (49)
- Natural resource threats – wildfire, erosion, noxious weeds, pollution (30)
- Policy makers (some decisions out of park management's hands) (22)
- Overuse of the backcountry and/or uncontrolled open access (20)
- Inappropriate development or activities (including hunting) (19)
- Noxious weeds (10)
- Attitudes that may not seriously consider other options (9)
- ATV and four-wheeler use of trails (7)
- Lack of ecosystem guidelines (7)
- Improving road and access to south end of Island (6)
- No-see-ums (1)
- Too many activities

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