Antelope Island State Park
International Dark Sky Park Designation
Application Packet

January 2017

Antelope Island State Park Night Sky Looking South by Dan Ransom

Wendy A Wilson, Assistant Park Manager

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Antelope Island State Park International Dark Sky Park Summary

Antelope Island State Park seeks designation as an IDA Dark Sky Park and aims to show within this document that the land base, while flanked on the east side by the heavily populated Wasatch Front, meets the criteria for designation as a dark sky resource.

Antelope Island State Park's visitation in 2015 was over 320,000. The opportunity for public nighttime access is available on a regular basis, with entrance gates staying open until 10:00 pm during spring, summer and fall months, and until 7:00 pm during winter months. Numerous nighttime public programs are currently offered year-round.

Despite the extensively lit Wasatch Front which flanks the entire east side of Antelope Island State Park, the west side of the island, due to the large mountain ridge blocking the view to the east, and its overall remote nature, is a wonderful dark sky resource.

Philosophy: While Antelope Island State Park does not possess superior or exemplary nighttime landscapes associated with Gold or Silver designations, it does certainly offer "people, plants, and animals a respite from a degraded nocturnal environment suitable for communicating the issue of light pollution and connecting people with the many aspects of the night sky."

We are in fact perfectly positioned to be able to have potentially major impacts on the surrounding communities and businesses through outreach, education and partnerships.

After-Dark Access: The Park's entrance gate closes automatically at 10:00 pm March 1 to November 1 and at 7:00 pm November 2 – February 28 (29). While there is a set time for the gate to close, there is no set time for visitors to leave the park. Once in, they may stay until well after dark for night sky viewing and photography. The exit gate opens automatically upon exiting. Our gates remain open even on major holidays such as Thanksgiving, Christmas and New Year's.

Artificial Light and Skyglow: From the west side of the island, Antelope Island falls somewhere in between Silver and Bronze requirements. Light domes do not typically stretch to the zenith, though horizon sky glow is visible. However, "aspects of the natural sky are still visible."

Observable Sky Phenomena: Again, from the west side of Antelope Island, many sky phenomena can be observed. The Milky Way and the Andromeda Galaxy can be readily observed, as well as satellites, and meteors.

Nocturnal Environment: Lights within the boundary of Antelope Island State Park are minimal with most areas casting only minor to moderate ground illumination. Numerous nocturnal wildlife species, including badgers, burrowing owls, bobcats, and coyotes are often found living and hunting near our buildings.

Visual Limiting Magnitude: 6.1-6.5
The limiting magnitude is the magnitude of the faintest star that can be seen. The larger the number, the fainter the star.

Ogden Astronomical Society assisted in determining the Visual Limiting Magnitude for Antelope Island State Park through the use of light pollution maps and data, and through their personal observation over several nights of presenting star parties on the Island.

Bortle Sky Class: 4
A semi-quantitative measure of the sky quality observed visually, as developed by astronomer John Bortle. Classes are whole numbers 1-9, with 1 the very best and 9 the poorest.

Ogden Astronomical Society assisted in determining the Bortle Sky Class for Antelope Island State Park through the use of light pollution maps and data, and through their personal observation over several nights of presenting star parties on the Island.

Unihedron Sky Quality Meter: 20.67
Antelope Island State Park staff used a basic Unihedron Sky Quality Meter (SQM-L) to gather data during times of new (or close) moon. Staff measured sky quality from 6 - 9 distinct sites within the park. Two (2) of those sites will be measured only once per year, due to the difficulty in accessing those areas. The average of these SQM-L measurements is 20.67. Park staff have committed to completing sky quality meter collection two to four times each year (more if possible) to monitor the quality of the night sky.

Nomination Letter

Board of Directors
International Dark-Sky Association
3224 North First Avenue
Tucson, AZ 85719

Re: IDSP Designation Antelope Island State Park (Davis County, UT)

October 1, 2016

To the IDA Board Members:

Our Northern Utah IDA chapter is exceedingly pleased to nominate Antelope Island State Park as an International Dark Sky Park (IDSP).

Antelope Island State Park is special in a way shared by no other park, certainly in the West and the U.S. and, perhaps, in the world: it sits in the middle of a vast salt lake, connected by a mostly-there, but sometimes-not, delicate causeway that crosses five miles to give access to the folks who seek its sere, wild beauty, while surrounded by an ethereal, constantly changing, blue. It's a dreamscape by day, at sunset, and, in the darkness of night on its westside facing the enormous and storied Great Basin, one can loses all boundaries between sky, land and water.

Like our North Fork Park IDSP, Antelope Island State Park is urban-adjacent: many of the Wasatch Front 2.2 million people travel that causeway (this is the second most visited state park after Dead Horse Point) seeking scenic beauty, isolation, recreation opportunities and a stunning range of wildlife. Antelope Island is home to the eponymous pronghorn antelope, bison, bighorn sheep as well as deer, coyotes, weasels, bats, owls, badgers, etc., with the vibrant bird life that comes from being part of a huge avian migration corridor.

Like North Fork Park IDSP, Antelope Island hosts the star parties of the Ogden Astronomical Society; our chapter looks forward to working with what we consider this "sister dark sky park."

We urge the IDA Board to designate Antelope Island State Park as a most unusual, highly strategic International Dark Sky Park.

Sincerely,

Janet Muir

Map of Antelope Island State Park

Google image showing proximity to major cities along the Wasatch Front:

Park map showing major points of interest, trails and roads:

Antelope Island State Park Resources

Park Resources

Antelope Island State Park, located in northern Utah, is the largest island in the one million-acre Great Salt Lake. The 28,240-acre park (100% of the island is the State 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.

Visitors often comment and are pleasantly surprised by how close Antelope Island is to the city, and yet how remote, natural and isolated the park is and feels.

The only land access to the island is via a seven-mile causeway that begins just east of Syracuse, Utah. Antelope Island measures 15 miles long and seven miles wide 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.

Antelope Island is also within 25 miles of the most heavily populated counties in Utah – Davis, Weber and Salt Lake. The island is an important local recreation source for these three counties.

Antelope Island first became a State Park in 1969 when the northern 2,000 acres were purchased by the state of Utah. In 1981, the entire island was purchased and turned over to the Division of Parks and Recreation for management. A visitor center was built in 1997, and several other amenities were constructed and/or improved over the years since including three primitive campgrounds, beach restrooms, showers and a concession-owned grill, access to the historic Fielding Garr Ranch, over 50 miles of non-motorized trails and bison corrals.

Ecology

Antelope Island 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.

Wildflowers include biscuitroot, stork's bill, sego lilies, globe mallow, penstemon, several species of primrose and others.

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.

Native plants have suffered due to the many introduced noxious weeds. The majority of these weed were introduced during its time of private ownership, however, extensive recreation use aids in the distribution of many of the seeds.

Over 40 natural fresh-water springs and seeps provide water for wildlife and vegetation on the island. The majority of the springs are found on the east side of the island. Several canyons on the island are created by springs flowing through creeks. These areas support trees such as juniper, netleaf hackberry, big tooth maple, chokecherry, box elder, Russian olive and willows.

The variety of plant life and fresh water springs supports numerous wildlife species, including mule deer, bobcat, coyote, pronghorn, black-tailed jackrabbit, cottontail rabbit, porcupine, skunk, ord kangaroo rat, meadow vole and bison. Over 250 species of birds spend all or part of their lives on and around Antelope Island, including sensitive species such as burrowing owls, short-eared owls, and grasshopper sparrows. Reptiles include sagebrush lizards, side-blotched lizards and whip-tail lizards, as well as gopher snakes, blue racers and garter snakes.

Geological Resources

The geological resources on Antelope Island are unique and expansive. Antelope Island has some of the oldest and youngest rocks in Utah. The oldest formation is the Farming Canyon Complex dating to nearly 2 billion years old.

Two-thirds of the island rock outcrops are comprised of the Farmington Canyon Complex. Most of these are classified as banded gneiss and are strikingly beautiful.

Other rock formations include the Kelly Canyon Complex dating at about 750 million years old, and Tintic Quartzite at about 500 million years old. The youngest rock is Tufa, a sedimentary rock that was deposited about 10,000-15,000 years ago when the area was covered in a vast and ancient lake, known as Lake Bonneville, evidence of which can be seen on the mountain slopes in the form of ancient shoreline benches.

Antelope Island is part of the Basin and Range District that stretches from the Wasatch Front west to the Sierra Nevada Range. It is characterized by alternating areas of raised ranges interspersed with lower valley basins. Antelope Island is part of the one of the ranges.

Human History

Evidence exists that suggests Antelope Island has been used by humans 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 Great Salt Lake from approximately 8,000 B.C. to A.D. 400.

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 Great Salt Lake.

Other groups of people, including Northwestern Shoshone, Northern Utes, and the Goshute lived in the area near Great Salt Lake. These groups also used Antelope Island for hunting and gathering activities.

The first documented European to visit the area was Jim Bridger. In the winter of 1824-1825, Bridger and several companions followed the Bear River to the edge of Great Salt Lake and assumed it was an arm of the Pacific Ocean.

In 1843, John C. Fremont extensively explored Northern Utah, including Antelope Island. Fremont published his reports and maps, and this information proved to be a significant factor in the decision of Brigham Young and LDS Church leaders to come the Rocky Mountains/Great Basin area.

Beginning in 1848 and continuing until the State of Utah purchased the island in 1981, ranchers and homesteaders took up residence on the island. During this time, the island supported thousands of cattle, horses and over 10,000 sheep.

In 1893, then owner John Dooley purchased 12 bison from William Glasmann who had purchased the animals two years earlier from a Kansas rancher. These bison were relocated to Antelope Island and became the genesis of the bison herd that roams the island today.

Natural Darkness Resource

The visual and aesthetic resources offered at the park are very important to the visitor experience. 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.

The 2004 Access Management Plan stresses protecting values of solitude, openness and ruggedness. Sightseeing and wildlife viewing were the most participated in

visitor activities listed in the 2000 and 2007 survey of park visitors. Thus, protecting the aesthetic and natural resources of the park are a high priority. And while darkness is not specifically listed as a natural resource to protect, recent support from the Division Director, Northern Region Manager and Antelope Island's current Park Manager, verify protecting darkness is one of the values the park seeks to maintain and enhance. Impacts that degrade these experiential values may also harm wildlife, plant life and soils.

Within the 2009 Resource Management Plan, under the section dealing with recommendations is the following:

> "Preserve the visual and aesthetic values of the park such as the concepts of solitude, openness and ruggedness."

Within that section is the following:

> "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."
>
> "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."

While dark sky resources are not specifically mentioned, Park Management has indicated that darkness is indeed a park resource to be protected as indicated by the letters of support included in this packet (specifically see Park Manager letter page 42).

Additionally, the Board of Parks and Recreation has recently issued a resolution regarding Dark Sky designation in Utah State Parks:

Board of Parks and Recreation Resolution
to Support Dark Sky Designation for Appropriate Utah State Parks

WHEREAS the dark skies at many of Utah's state parks are among the darkest night skies in the United States,

WHEREAS natural dark sky areas are decreasing around the country and taking steps to enhance this resource in Utah's state parks provides parks with an additional avenue to draw visitors—including during shoulder seasons,

WHEREAS many of the parks within the Utah Division of Parks and Recreation recognize and promote the value of dark skies,

WHEREAS visitors to Utah's state parks appreciate the pristine night skies we offer,

WHEREAS night sky programs offered at Utah's state parks are among the most popular interpretive programs,

WHEREAS many parks are interested in pursuing International Dark Sky Park Designation,

THEREFORE, BE IT RESOLVED that the Board of Parks and Recreation supports the efforts of parks within the Utah Division of Parks and Recreation to pursue designation as International Dark Sky Parks and to manage and enhance this resource for the enjoyment and edification of the public.

In addition, until a new Resource Management Plan is created for Antelope Island State Park, the following Addendum has been created by Utah State Parks, and supported by Board of Parks and Recreation:

Resource Management Plan Dark Sky Addendum

Background

Utah's state parks have some of the darkest, most pristine skies in the United States. Many parks are interested in enhancing and promoting this particular natural resource to enrich current visitor experience and attract new patrons. Dark sky management includes regulating outdoor night lighting fixtures to preserve and enhance the park's dark sky while promoting safety, conserving energy, saving money on electricity bills and promoting night sky programming year-round. With a solid dark sky management strategy in place, parks can pursue International Dark Sky Park Designation which is a way to certify their efforts to effectively manage this natural resource.

Current Status

Parks interested in diversifying their visitors' recreational offerings by enhancing the views of their pristine night skies and in pursuing International Dark Sky Park

Designation need to add dark sky management to their Resource Management Plans. Redoing an entire Resource Management Plan is a time-consuming and costly undertaking. Therefore, adoption of this Dark Sky Addendum by each park interested in managing their night skies at an internationally-recognized level of quality will suffice until such time as the park has cause to redo their management plan in its entirety. At such time, Dark Sky Management would be expected to be incorporated into the main body of the park's Resource Management Plan.

Board Recommendation

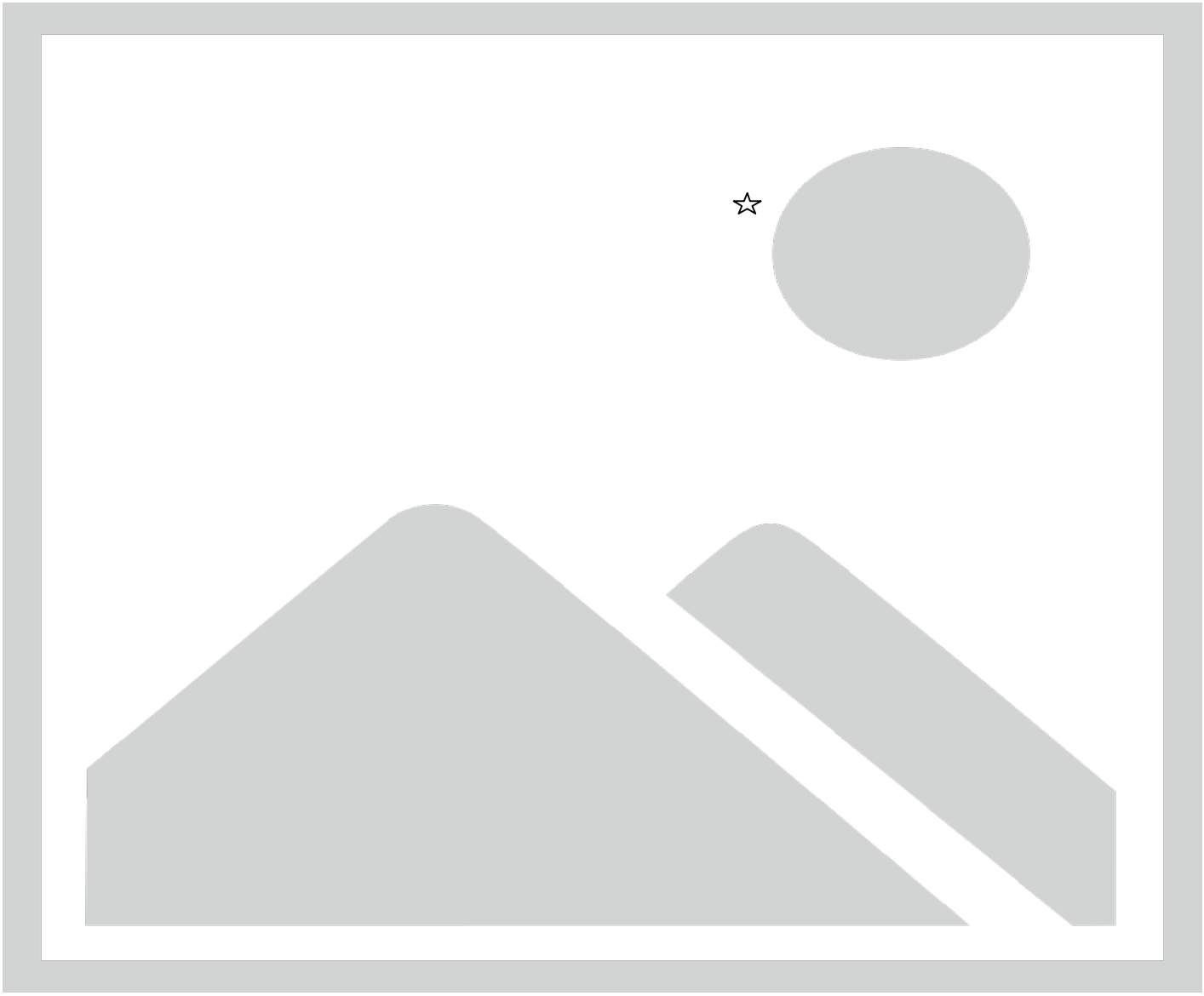
We request that the Board of Parks and Recreation approve this Dark Sky Addendum for parks pursuing International Dark Sky Park Designation as an addition to their current Resource Management Plans.

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 areas from October through June.

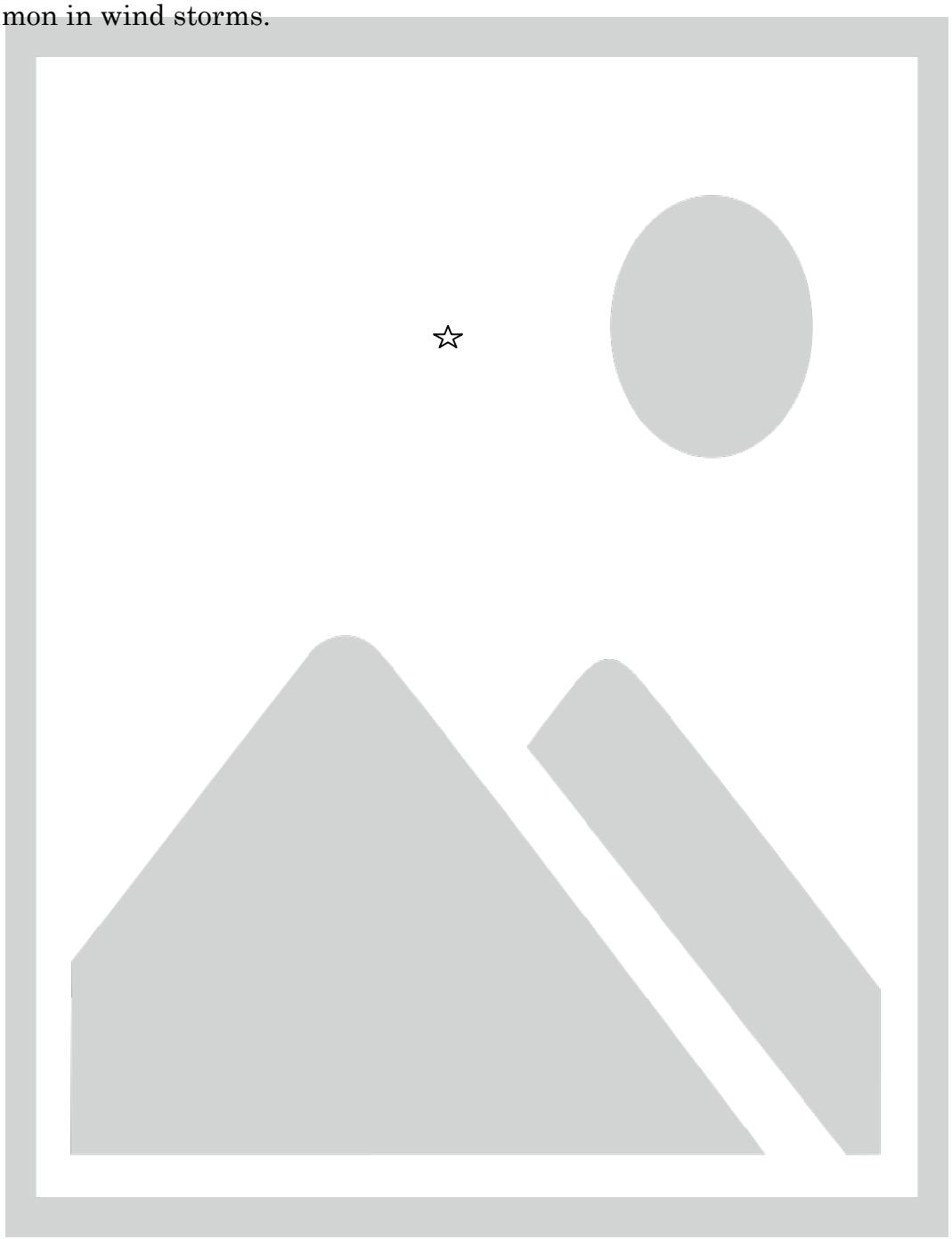
The island's precipitation is spread throughout the year, averaging more than one inch per month, except May, June and July. December is the wettest month, averaging 2.99 inches. July averages only .09 inches of precipitation. Summer temperatures vary approximately 30 F with highs around 90 F and lows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

Precipitation



Wind Speed

Wind storms kick up a lot of debris and sand from the exposed lake bed surrounding Antelope Island. Occasionally, wind speeds can reach up to 80 mph (and sometimes higher) as they move across the lake. Antelope Island's average wind speed is just under 6 mph. Lower average wind speed results in a reduction of air particles common in wind storms.

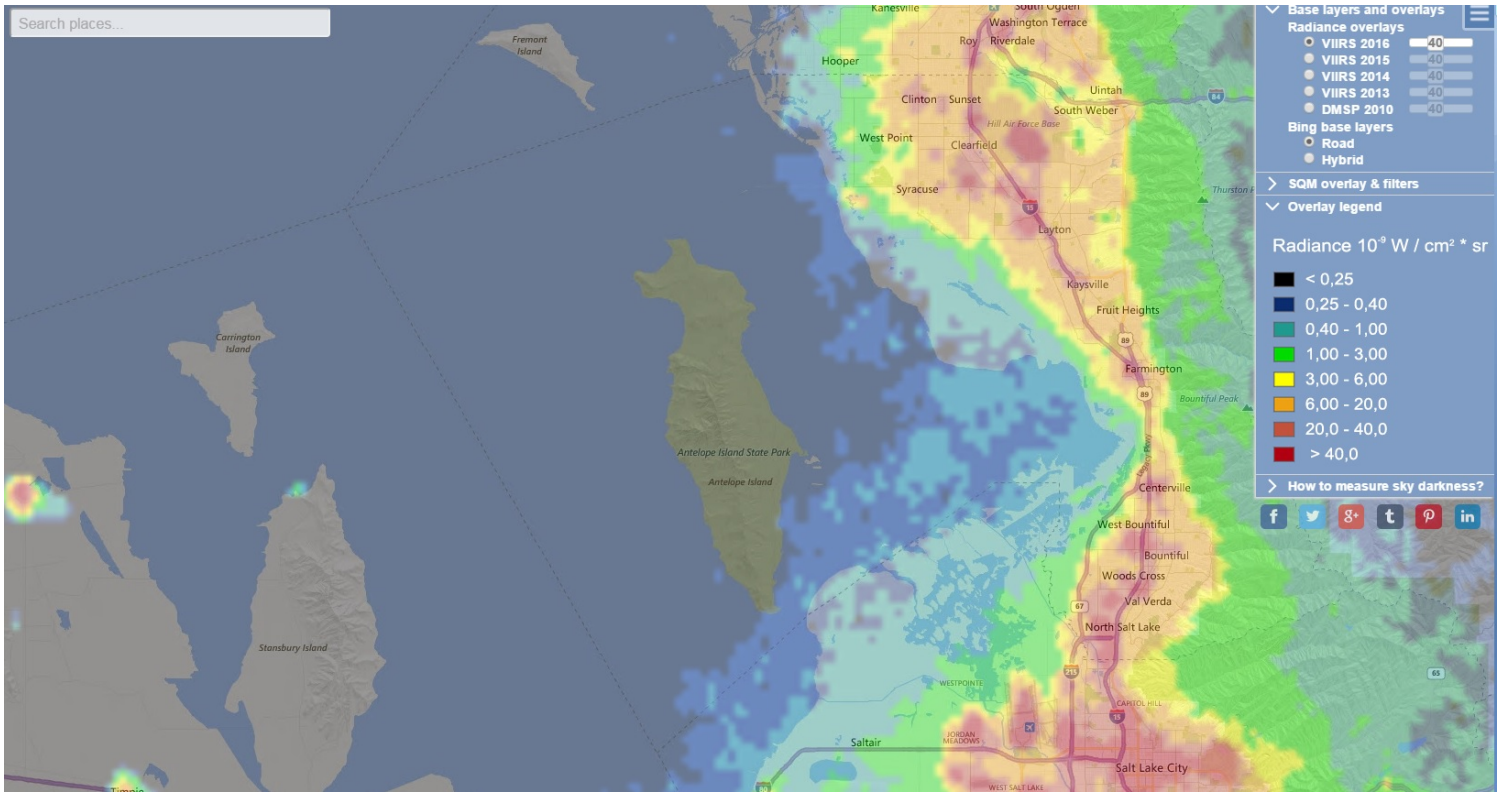


Light Pollution

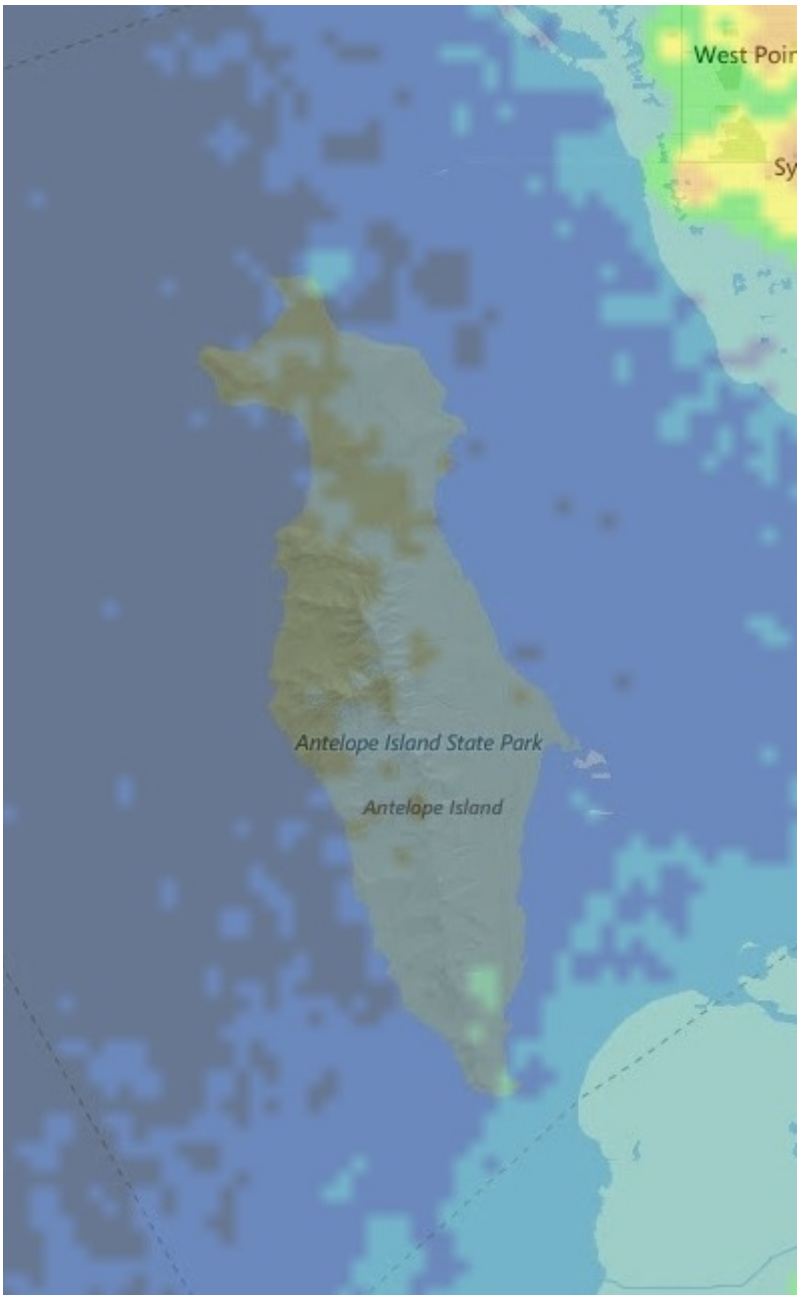
Light pollution limits the visibility of astronomical features, such as the Milky Way, nebulae and galaxies, and raises the noise on CCD astrophotography. Dark skies are important for astronomical observations, and human and wildlife health and safety.

This map shows a small excerpt from www.lightpollutionmap.info. It shows the most recent (2016) measurement of light pollution affecting Antelope Island from the Wasatch Front, and other areas around Great Salt Lake. It also shows areas of Antelope Island that are less affected by the surrounding light pollution, and indicate quality dark sky areas of the park.

It's important to note that the majority of light pollution affecting Antelope Island comes from outside sources. Minimal light pollution originates from the Park itself.



(Radiance overlay from March 2016)



(Radiance overlay from March 2015)

The map to the left shows radiance overlays from one year ago, March 2015. Note the decrease in light pollution over the Island from 2015-2016.

Lighting on Antelope Island is extremely minimal, producing very little light pollution. Only a couple of areas within the park have continual night lighting, including the public beach restrooms and the marina.

Night sky measurements were taken from 6-9 areas of the park at different times throughout the year in 2016 using a Unihedron Sky Quality Meter (SQM-L). Areas of measurement included the east side which is more affected by light pollution from the city, as well as from the darker west side, with much less light pollution impact.

Night Sky Data

Average SQM-L reading for Antelope Island State Park: 20.67

During 2016, Park Management worked with the Ogden Astronomical Society to determine the quality of the night sky at Antelope Island State Park.

Park Management took SQM-L readings over the course of the year from 6-9 sights each night. A summary of those measurements is below:

Night Sky Data – Main Data Points							
	White Rock Bay	BB #8	Grill	Ladyfinger Trail	Marina	Upper Frary	Moon Phase
	N 41º 01.506 W 112º 14.395	N 41º 02.390 W 112º 15.731	N 41º 02.901 W 112º 15.007	N 41º 03.492 W 112º 15.017	N 41º 03.643 W 112º 14.383	N 41º 59.627 W 112º 12.151	
4/9/2016	20.79	20.86	20.85	20.88	20.86	20.84	New 0%
10/25/2016	20.67	20.71	20.71	20.75	20.67	20.59	Waxing 18%
12/28/2016	20.57	20.66	20.59	20.53	20.48	Could Not Measure	New 0% Moderate Inversion/Haze

Night Sky Data – South and Backcountry Data Points				
	Lone Tree	Fielding Garr Ranch	Buffalo Scaffold Trail	Moon Phase
	N 40° 59.395 W 112° 13.323	N 40° 55.554 W 112° 10.154	N 40° 55.652 W 112° 13.245	
10/25/2016	20.70	20.51	20.59	Waxing 18%
12/28/2016	Could Not Measure	20.25	Could Not Measure	New 0% Moderate Inversion/Haze

In addition to SQM-L readings, the Odgen Astronomical Society assisted the park in determining the Visual Limiting Magnitude and the Bortle Sky Class through the use of light pollution maps and data, and through personal observation over several nights of presenting star parties on the Island.

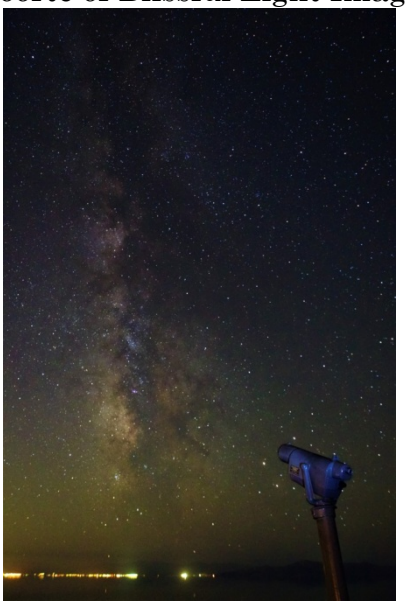
Year	SQM-L	Limiting Magnitude	Bortle Class
2016	20.67	6.1 - 6.5	4

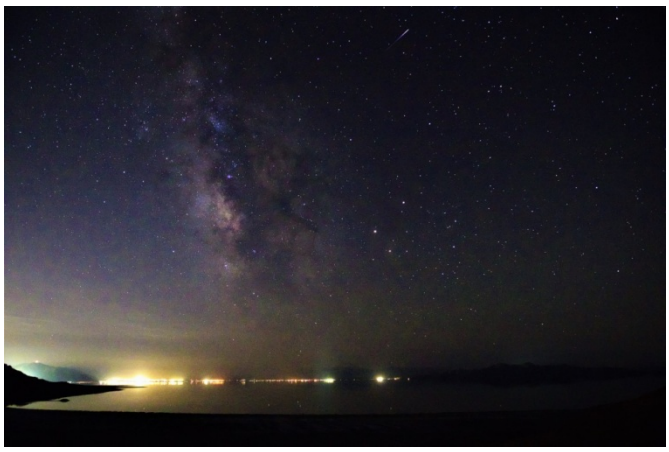
The following images were taken from the ridge between Dooley Knob and Frary Peak, an area offering very good views of both the east and west sides of the island. These images show the overall darker landscape and night sky on the west side of the island due to the prominent ridge line running north to south, blocking the majority of the west side from the city lights (taken with Nikon DSLR 5 sec exposure).

North East South

South West North

Night sky photographers often come to Antelope Island State Park for astro-photography. The following two images were captured from Buffalo Point by Jeremy Poorte of Blissful Light Images.





Looking south towards I-80, Garfield City and Lake Point City.

If designation as a Dark Sky Park is granted, the Assistant Park Manager, assisted by the Park Naturalist, will conduct ongoing sky brightness measurements two to four times per year and include that information in the annual report.

Public Leadership Project (s)

Park Management has met with Syracuse City (the gateway city to the park) and Davis County to discuss our dark sky application and efforts. Davis County Tourism has committed to helping with funding our Dark Sky brochure, outreach efforts with local business, promotions through the school district, and general promotion of Dark Skies through websites and social media.

In addition, our Assistant Park Manager has been in contact with members of Davis County Facilities Department to discuss the lighting owned by them within close proximity to the State Park, which includes the parking lights at the entrance station, as well as those at the Army Ranger Memorial. We have discussed the options of removing and/or changing out much of that lighting. Davis County has committed to find funding to retrofit those lights from metal halide bulbs to low Kelvin LED bulbs.

Syracuse City Managers were thrilled with the opportunity to meet and discuss dark skies. As a direct result of this meeting, the Syracuse City Council recently passed a resolution (see page 47) supporting our efforts in becoming an International Dark Sky Park, as well as continuing their commitment to responsible lighting through regulatory powers (see Syracuse City Outdoor Lighting Ordinance, page 30).

Park Management developed a power point presentation along with talking points to present to any organization that expresses an interest through these and other outreach efforts. The focus of the presentation is both educational and to encourage participation in dark sky activities.

The Manager and Assistant Park Manager met with Friends of Antelope Island State Park to update them about Dark Sky Resources. Friends of Antelope Island issued a letter of support and will continue to assist the park through funding various dark sky projects as they relate to improving the visitor experience at the park.

Finally, Park Staff developed a Dark Sky brochure (printing funded by Davis County Tourism) addressing light pollution and the value of dark skies. This brochure is available to park visitors and will be distributed by Davis County to several businesses and schools within the area. See brochure below

"Stars can't shine without darkness."

D.H. Sidebottom, *Fragile Truths*

Partners in Dark Sky Preservation

We would like to acknowledge Davis County, Ogden Astronomical Society and Friends of Antelope Island for their generous support; both financial and through education and outreach efforts. With their assistance we are working toward darker skies and healthier communities.

Antelope Island State Park

Dark Skies. Starry Nights.

What is Light Pollution?

Excessive use of artificial light.

Glare – visual discomfort from excessive brightness.

Urban sky glow – the brightening of the night sky from artificial light over inhabited areas.

Light trespass – light falling where it is not intended, wanted, or needed.

Enjoy the Benefits of Darker Skies

- ✓ Better night vision and safety.
- ✓ Courtesy between neighbors.
- ✓ Safe nesting areas to attract birds.
- ✓ Brilliant views of stars and the milkyway.

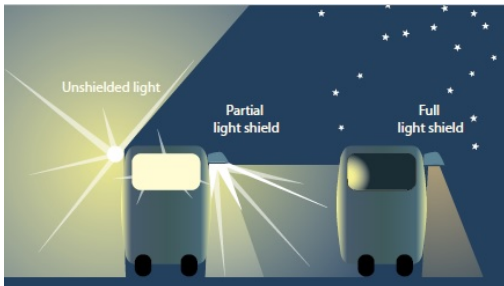
Your park fees provide for the care, protection, and enhancement of this park.

Antelope Island State Park
4528 West 1700 South, Syracuse, Utah 84075
Phone: (801) 649-5742
Utah State Parks Mission: To enhance the quality of life by preserving and providing natural, cultural and recreational resources for the enjoyment, education and inspiration of this and future generations.

Star party photo is courtesy of NPS/Chris Wonderly
Stars over Antelope Island courtesy of Blissful Light Images

Printed 01/2017

Utah State Parks



Bring Dark Skies Home

Simple steps can improve dark sky quality:

- ❑ Light only **where** you need it.
- ❑ Light only **when** you need it.
- ❑ **Shield** lights and **direct** them downward.
- ❑ Use the **minimum amount** of light necessary.
- ❑ Select **warmer white** light bulbs.
- ❑ Keep indoor light **inside.** Close blinds and curtains when lights are on at night.

When you gaze up at the night sky, can you see the Milky Way? Preserving and protecting natural resources is one of the main missions of Utah State Parks. While not often considered, natural dark skies are one of those valuable resources. Although light pollution has an impact on natural darkness, it is immediately reversible. By taking a few simple steps, we are helping to preserve dark skies and breathtaking views of millions of stars now and for the future.

A Dark Sky Exprience

People often travel great distances to see a starry night sky. However, because of Antelope Island's location away from city lights, the Park is an easily accessible location for experiencing dark skies and starry nights.

Dark Sky Lighting on the Island

Dark skies are a valuable natural resource we strive to protect now and for the future. Notice the dark sky lighting choices in the park:

- ✓ Fully shielded light fixtures.
- ✓ Lighting only where and when needed.
- ✓ Motion sensors, solar sensors, and timers.
- ✓ Amber and warm white light bulbs.

Ranger Recommended Star-gazing Locations:

Easy to drive to star-gazing hot spots:

- ❑ White Rock Bay - star party location.
- ❑ Bridger Bay Beach.

Short hike star-gazing hot spots:

- ❑ Ladyfinger Point .25 mile smooth and slightly rocky or right from the parkinglot. Rock outcrop you can venture onto.
- ❑ Baffalo Point parkinglot or .5 mile easy climb to a sweeping view of the sky.

View the Stars from Buffalo Point

Visitor Experience

Night Sky Interpretive Programs and Outreach at Antelope Island State Park include the following:

- Dark Ranger on Staff (Astronomical Society of the Pacific/Astronomy From the Group Up program).
- Ogden Astronomical Society offers monthly summer star parties.
- Park staff offers evening interpretive programs throughout the year.
- Park staff offers guided full moon, new moon, constellation and sunset hikes.
- Astrophotographers come occasionally to photograph the night sky.
- Access to the park after dark year-round for night sky viewing (see After-Dark Access, page 3).
- Developed an Antelope Island State Park brochure addressing dark skies.
- Plans to install permanent Dark Sky Interpretive information at White Rock Bay and the Visitor Center.

The following are samples of some of the astronomy/dark sky/evening programs offered at Antelope Island State Park.

January 20, 2012
Astronomy Program: The Winter Hexagon. Bright winter stars are out high in the sky, with stories just waiting to be told. The Winter Hexagon is where it all begins. Meet at 5:30 pm in the visitor center. Dress to spend time outdoors. If you bring a flashlight, be sure it has a red filter. For more information, call (801) 721-9569.

February 18, 2012
Astronomy Program: The Life of Stars. The stars we see at night are all in various stages from "birth" to "death". Come and explore the night sky as we discuss and observe the life cycle of stars. Meet at 5:30 pm in the visitor center. Dress to spend time outdoors. If you bring a flashlight, be sure it has a red filter.

June 5, 2012
Transit of Venus: Solar Viewing. Join park staff and members of the Ogden Astronomical Society for a rare event. A transit occurs when Venus passes directly between the sun and the earth. The most recent transit of Venus was in 2004. The June 5, 2012 transit of Venus will be the last time this event takes place until 2117. Stop by the Visitor Center any time after 4:30 pm until sunset to view the sun through special solar viewing glasses solar telescopes. Never look directly at the sun. For more information call (801 721-9569.

June 15, 2012
Sailing Astronomy. Meet with the Park Naturalist at 9pm at the **Great Salt Lake**

Marina for an evening learning about our starry night. This is "un-aided eye" astronomy, what you might gaze at and see while you are sailing, or sprawled out on a blanket looking up at the sky. We will talk about how big space is, the life of a star, and other night sky topics. We will then talk about and learn how to identify several summer constellations and many of the stories behind them. Park entrance fees apply. For more information call (801)721-9569.

January 11, 2013
Astronomy Program: The Solar System. Earth is just one of the many objects orbiting our sun. What else is out there and just how big is it? Join the Park Naturalist at 7 pm in the visitor center to learn all about our cosmic neighborhood. Dress to spend time outside. Park entrance fees apply. For more information call (801) 721-9569.

February 8, 2013
Astronomy Program: Life of a Star. Join the Park Naturalist at 7:00 pm in the visitor center to talk about some of the many wonders of the night sky. We'll talk about the life stages of a star, and then bundle up and head outside to find examples of those things in the cold winter sky. Dress to spend time outside. Park entrance fees apply. For more information call (801) 721-9569.

March 8, 2013
Astronomy Program: The Winter Hexagon. Bright winter stars are out high in the sky, with stories just waiting to be told. The Winter Hexagon is where it all begins. Meet at 7:00 pm in the visitor center. Dress to spend time outdoors. If you bring a flashlight, be sure it has a red filter. Park entrance fees apply. For more information, call (801) 721-9569.

April 12, 2013
Sunset Hike: Buffalo Point. Meet at the Buffalo Point Overlook parking lot at 7 pm to experience one of Great Salt Lake's breathtaking sunsets from the top of Buffalo Point, a ½-mile hike with about 600 feet elevation gain. We will talk about what lives in this desert habitat. Dress for the weather and wear sturdy shoes. Park entrance fees apply. For more information call (801) 721-9569.

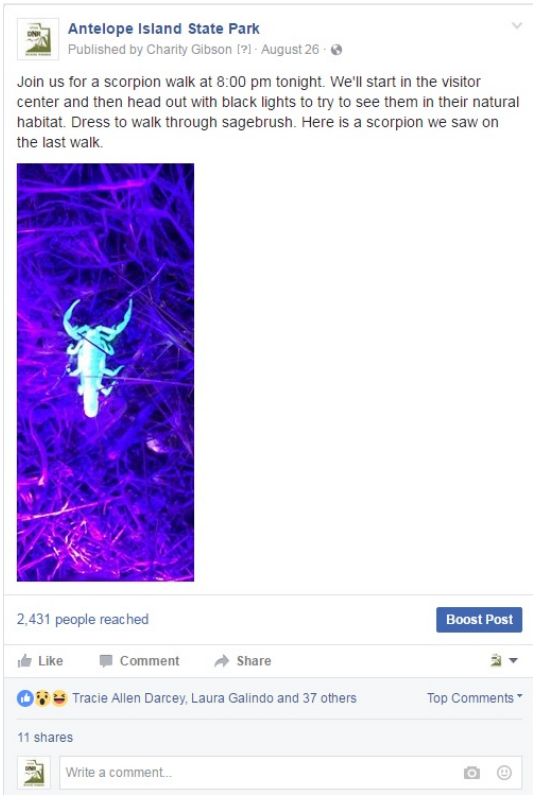
January 15, 2014
Full Moon Hike: Lakeside Trail. Join the Park Naturalist at 6 pm at the Lakeside Trailhead (Bridger Bay Campground site #8) for a 5 mile round trip hike under the light of the full moon. We will discuss nocturnal adaptations, night vision and other evening topics. Entrance fees apply. For more information, call 801-721-9569.

March 21, 2014
Astronomy Program: Hot Tub Astronomy. Enjoying the night sky does not require

telescopes, fancy equipment or vast knowledge. You can do it from the comfort of your hot tub, lawn chair, or simply lying on a blanket. Join the Park Naturalist at 8 pm in the visitor center for a discussion on the night sky followed by night sky viewing. Dress to spend time outside. Entrance fees apply. For more information, call 801-721-9569.

April 5, May 3, June 21, 2014
Star Party. Join members of the Ogden Astronomical Society in White Rock Bay as they set up telescopes for deep space viewing. Learn about globular clusters, nebulae, galaxies and more. Beginning at 6:30 pm solar scopes will be set up for viewing the sun. Deep space viewing at dark. Entrance fees apply. If you bring a flashlight, please have a red filter over it. For more information call (801) 721-9569.

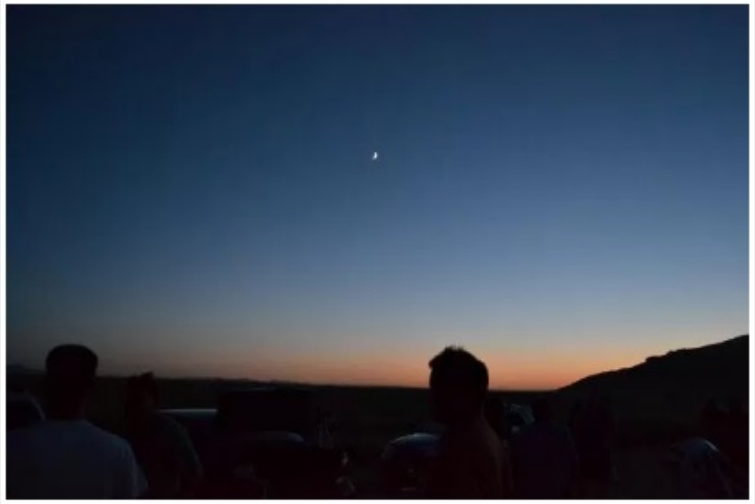
July 12, 2014
Full Moon Kayak Tour. Join park staff from 8:30 pm to 10:00 pm on a guided kayak tour under the light of the full moon. Space is limited and registration is requited at antelopeisland.utah.gov (Events). Kayak rentals are available from Gonzo Boat Rentals and Tours by calling 801-698-6288. Weather permitting. For more information call 801-721-9569.



The following is an excerpt from a blog post that was published on January 30, 2016. The full, original text can be found at https://antelopeislandandgreatsaltlake.wordpress.com/2016/01/30/dark-sky-park-2/

Dark Sky Park

ON JANUARY 30, 2016 / BY MARCY



Like most people, you probably live in a town or city that produces a lot of light pollution. Light pollution, which is "the inappropriate use of artificial light at night, is an environmental pollutant that harms our planet and robs us of the opportunity to experience the wonder of a natural night sky."

The International Dark-Sky Association (IDA) is a non-profit organization that is "dedicated to protecting the night skies for present and future generations." This association works tirelessly to educate the public and they have a program which "certifies outdoor lighting fixtures that minimize glare, reduce light trespass and protect the night sky. Thousands of products and more than one hundred manufacturers have already been approved under the FSA [Fixture Seal of Approval] program." Of importance for Antelope Island State Park this organization "help[s] parks, nature reserves and similar sites with lighting management plans and provide eco-friendly lighting options for free or at substantially discounted prices."

Wendy Wilson, Antelope Island's Assistant Park Manager, informs me that Antelope Island State Park is seeking Dark Sky Park designation. To become a Dark Sky Park, the park is working on doing a light inventory and working on their lighting master plan. The entire process could take from 1 to 2 years.

Exterior Light Management Plan

Purpose of the Light Management Plan

The purpose of this Light Management Plan is to reduce the amount of light pollution caused by Antelope Island State Park. There is little that can be done about the sprawling light pollution along the Wasatch Front. We can, however, reduce the amount of light pollution caused from within.

While considering new or expanded lighting projects, it is recommended that the Park not only consider specifications of an individual light, but also the *total* impact of new lighting projects. Though these guidelines mitigate negative impacts to the maximum practical extent, dramatic increases in installed lights will have a noticeable impact.

Lighting Applicability

Where there is an expectation by the visitor or employee of darkness and people are generally prepared for darkness (either through dark adaptation or carrying their own flashlight), lights should not be installed.

Light installation may be considered as an illumination transition on commonly used building egress points, where outdoor work may be done at night, where critical information is posted, to draw nighttime visitors to important information or safety point, where there is an identified safety hazard, or where facilities are commonly used at night.

When choosing whether to light an area, it is important to consider the cumulative effect of the action as well as if the illumination will be successful in its desired function. It is also important to consider illumination transitions; an isolated light may effectively light a small area, but will render the surrounding area less visible.

Security lighting where no patrols exist (such as a remote storage area) is often counterproductive, inviting crime without the opportunity to intercede.

Requirements

Exterior Lighting:
Except for special uses and exempt situations described elsewhere in this document, all permanent exterior lighting above 500 lumens shall be fully shielded and use proper illumination levels (see standards below). When fixtures are articulating, such as PAR floodlamps, they should have directional shields, should be aimed within 45 degrees of downward, and should not illuminate areas outside the

intended target.

Special Use Lighting:
Unshielded and partially shielded fixtures are permitted for emergency and safety situations on special use buildings (chlorinator, water pump buildings), and guidance lights at the mouth of the marina. Lights on special use buildings should only be used during emergencies and during afterhours repairs.

Lighting Standards:
Light will be used to the extent that visitors and staff are safe, but the natural darkness is not disturbed.

General Lighting Standards:

1. Is the outdoor light needed?
    a. If yes, set with timers, motion sensors, or direct on/off switches.
    b. If no, remove it or permanently disable it.
2. All outdoor lighting above 500 lumens must be fully shielded (exceptions are listed elsewhere in this document).
3. Avoid cool blue/white light greater than 3000K for permanent outdoor lighting whenever possible.
4. Warm amber lighting 2700K or lower is ideal and recommended to minimize impact on wildlife.
5. Compact fluorescent (2300K) or High Pressure Sodium is recommended unless the light is motion sensor activated, in which case incandescent or the instant start compact fluorescent bulbs can be used.
6. Metal Halide is discouraged (due to its higher costs, energy use, impact on the environment, and greater contribution to "sky glow").
(Source: darkskysociety.org/handouts/LightingPlanGuidelines.pdf)
7. Use the minimum level of lumens necessary for the situation.
    a. In most cases, 500-1500 lumens will be sufficient.
    b. Lighting should never exceed 7000 lumens, and ideally, never more than 3000 lumens.
8. Low Kelvin/Lumen amber LEDs are encouraged when using LEDs. LEDs of 3000K may be used on a limited basis for temporary or emergency lighting.

White light should be avoided as often as possible because of its impact on wildlife, vision and its scattering properties. The blue spectral components affect the circadian rhythm of plants and animals, artificially altering their biology. (Guidelines for Outdoor Lighting for Low-Impact Lighting by Robert Dick).

Under most circumstances, after buildings are closed to the public, they should have all lights turned off. Exceptions are public restrooms that are accessible after hours. In this situation, lights should be on timers whenever possible, and be amber (not blue/white) lights.

Below are the lighting guidelines for the various zones within the park.

Zone 1 Lighting:
This zone is a natural darkness/no lighting zone. All undeveloped areas of the park fall within this zone. No permanent, or removable outdoor lighting is permitted within these areas save for emergency/search and rescue situations only. Temporary, hand-held lighting, such as lanterns and flashlights is permitted. All areas of the park, not specified within another zone are Zone 1 areas.

Lighting from other zones should not trespass into Zone 1 areas.

Zone 2 Lighting:
This is a minimum lighting zone. This zone contains developed areas, but with no permanent outdoor lighting installed. These areas have an expectation of darkness after hours. Temporary, removable outdoor lighting may be used for special occasions on a limited basis, but care must be taken to ensure light trespass and glare does not occur. This Zone includes:

Campgrounds
Trailheads
White Rock Bay Event Field

Zone 3 Lighting:
This is a standard lighting zone. Areas within this zone may have permanent outdoor lighting fixtures installed for visitor/staff access and safety. When lighting is deemed necessary in these areas, motion sensors, timers or on/off switches should be used if possible to avoid constant lighting throughout the night. This Zone includes:

Park Entrance Station
Army Ranger Memorial (Davis County)
Marina
Visitor Center
Beach Restrooms/Showers
Park Headquarters
Bison Corrals/Auction Shed
Fielding Garr Ranch

Lights within Zone 3 areas should follow the General Lighting Standards listed above and avoid light trespass into adjacent areas. White lights may be permitted in these zones if lights are fully shielded and used only on very rare occasions or during emergencies (expected fewer than 2 nights per year).

Flag poles within these zones should use top down lighting if possible (see Other Situations: Flag Lighting below).

Other Situations

Flag Lighting

The preferred practice for staffed facilities is to raise and lower the American flag daily. Nationally, there are only a few federal sites where flags are intended to fly all night, such as the Tomb of the Unknown Soldier. There is a growing misconception that flags should be up all night and be lit. The Patriot Act of 1976 requires nighttime flags to be lit, but does not in any way indicate patriotic preference for leaving the flag up during darkness. Some top-down lighting solutions for flags are on the market. Efforts should be taken to consider one of these options in order to allow for full compliance of flag lighting as well as IDA regulations (Referenced from Natural Bridges Lighting Plan).

Within Antelope Island State Park, there are two flags; one at the Entrance Station and one at the Ranger Memorial. In both situations, current circumstances don't realistically allow for the flags to be lowered each night and raised each morning. Currently (2016) both flags are lit from below. Efforts will be made, in keeping with this document, to seek suitable top-down lighting options for these two areas within five years of receiving Dark Sky designation.

Exempt Lighting

1. Where OSHA states that specific lighting levels are necessary for work situations these are considered exempt from the Lighting Guidelines. However, although the lighting levels for the actual work environment must meet OSHA requirements, all measures outlined in this document must be taken to exercise best energy practices and shield the light from the surrounding environment.

2. Emergency lighting is exempt from these controls provided it is not used for routine maintenance or scheduled functions. Typically, emergency lighting is used once a year or less and is necessary for human safety in emergency or unforeseen circumstances.

3. Holiday lighting provided they are only in operation during the holiday period (November 15 – January 15). Permissible lighting is limited to string lights and similar in which no individual source exceeds 100 initial lumens, and specifically excludes floodlighting.

Controlling Laws and Ordnances

At the time of the writing of this LMP (2016), Davis County does not have lighting codes or ordinances. However, Syracuse City does have some wording within a few ordinances addressing outdoor lighting (see below). Antelope Island State Park is committed to meeting and exceeding the existing standards, and if and when Davis County adopts codes or ordinances, Antelope Island State Park is committed to meeting and/or exceeding those standards as well.

In addition, if Utah State Parks as a whole develops a system-wide policy, Antelope Island State Park will apply those standards in addition to our own.

Syracuse City Outdoor Lighting Ordinance:

10.120.070 Special provisions.

(d) Glare. No use shall permit direct or sky-reflected glare that penetrates beyond the property upon which the light source is located, whether from flood lights or from high-temperature processes such as combustion or welding or otherwise, in a manner constituting a nuisance or hazard.

10.30.030 Regulations for the use of land.

(B) Multifamily Dwellings
(4) Street, building, and parking illuminations within multifamily developments shall meet the following requirements. The preliminary plat or site plan review phase of the development process shall include the designation, spacing, and arrangement of all exterior lighting structures. The developer shall submit to the Planning Commission sufficient information, in the form of an

overall exterior lighting plan, to enable the Planning Commission to determine compliance with all applicable provisions of this title. The exterior lighting plan shall include:

(a) The standards for ensuring that site lighting projections shall not bleed onto adjacent residential properties.

(b) Site lighting that minimizes light spill into the dark night sky.

(c) Where practical, exterior lighting installations, which include timers, dimmers, sensors, or photocell controllers, that turn the lights off during daylight hours, or hours when lighting is unnecessary, to reduce overall energy consumption and eliminate excessive lighting.

(d) Fixtures and lighting systems, used for safety and security, which shall be in good working order and maintained in a manner that serves the original design intent of the system.

(e) Vegetation and landscaping maintained in a manner that does not obstruct security lighting and minimizes possible entrapment spaces. Landscaping information shall indicate mature tree size, shrubbery, and other vegetation in order to evaluate the long-term and seasonal effectiveness of lighting or screening of lighting.

(f) The proposed location, mounting height, and aiming point of all exterior lighting fixtures.

(g) Building elevations as the principal areas of illumination, and drawings of all relevant building elevations showing the fixtures, portions of the elevations or areas intended for illumination, luminance levels of the elevations, and the aiming point for any light fixture.

10.20.090 Site plan review.
(iii) Location and design of all exterior lighting. No one shall install or allow such lighting to operate in any way that permits the rays of light to penetrate beyond the property on which such light emanates.

10.28.230 Industrial landscape design.

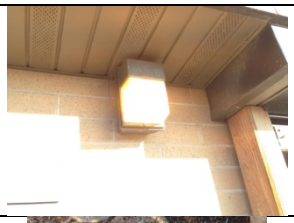
(C) Outdoor Lighting.

(1) The design and location of outdoor lighting fixtures must preclude direct glare onto adjoining property and streets in compliance with the development code. Illumination devices must be installed, directed, and shielded to confine light rays within the property.

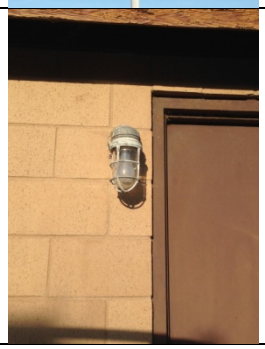
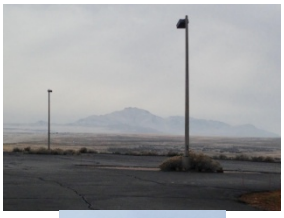
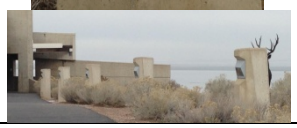
(2) Outdoor lighting (e.g., location, height, and number) must be designed to foster security. Site and building entries must have enhanced illumination to increase visibility and safety.

Exterior Lighting Inventory

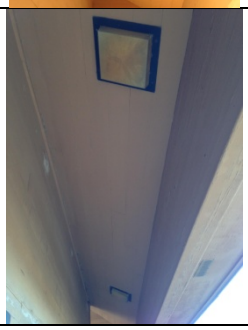
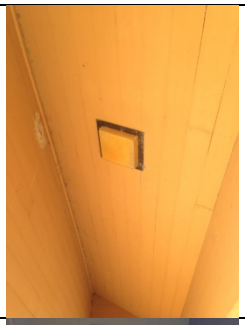
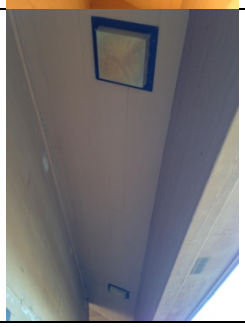
Antelope Island State Park – Light Inventory
(Currently 114 Outdoor Lights, 76 [66.67%] Conform to LMP – 1/2017)

Location	Fixture	Photo	Application	Fully-shielded	Special Purpose <500 lumens	Conformity with LMP
Entrance Station	1 – Parking Lot Lighting (Davis County Light) Metal Halide 250 - 400 MH 14,000- 20,000 K 10,500-18,500 L		Information/ Safety	Yes	No	No (Due to color temp of Metal Halide. Working with Davis Co. to replace)
	2 – Exterior Lights		Building Safety/ Information	Partially Shielded by building	No	No (To be replaced by 2018)
	1 – Flag Light		Flag Illumination	No	No	No (Top-down light consideration by 2022)
Ranger Memorial (Owned and managed by Davis County)	1 – Flag Light		Flag Illumination	No	No	No This light is never on (working with Davis County to remove it)

	1 – Flag Light		Flag Illumination	No	No	No (Top-down light consideration by 2022. Working with Davis County)
	1 – Ambiance Park Light		Grounds egress	No	No	No This light is never on (Working with Davis Co. to remove or replace it)
Marina	2 – Flood Light		Building Egress	One no, One yes, by building	No	Yes Because Set on a motion sensor (Look into fixture replacement by 2022)
	2 - High Pressure Sodium		Parking Lot Light	Yes	No	Yes

	3 – LED Solar Lights		Marina Boat Access/ Safety/ Navigation	No	Yes (red, white, green slowly flashing lights)	Yes Exempt lighting
Main Chlorinator Building	2 – Exterior Lights Halogen 28W 340 Lumens 2700 Kelvin		Safety/ Emergency Maintenance	No	No	Yes Exempt lighting
Visitor Center Parking Lot	3 - Metal Halide	 	Parking Lot Lighting/ Grounds Egress	Yes	No	Yes Never on/burned out/not needed. (To be removed or permanently disconnected by 2022)
Visitor Center	7 – Walkway Lights	 	Building Access/ Egress	Yes	Unsure. Lights are never on.	Yes Lights do not function and are not needed (To be disconnected)

	15 – Exterior Lights		Building Access/ Egress	No	No	No Only on during after dark cleaning in winter (Three to be replaced, 12 to be removed by summer 2017)
	4 – Exterior Lights		Building Access/ Egress	Yes, by building overhang	No	Yes Only on during after dark cleaning in winter (Look at replacing bulbs/fixtures by 2022)
	7 – Amphitheater Lights		Grounds Egress	Yes	No	Yes Only on occasionally during special events
Visitor Center Amphitheater	2 – Emergency Lights		Emergency/ Malfunction Indicator	No	No	Yes Exempt Lighting
Visitor Center Chlorinator Building	4 – Exterior Lights 100 W 4100 lumens 4000 Kelvin		Building Safety	Yes, by building	No	Yes (These will be removed because they are not needed)

Beach Restroom North	4 – Exterior Lights 100 W 4100 lumens 4000 Kelvin		Building Egress	Yes, by building	No	Yes (Bulbs are slightly brighter than desired. These will be replaced by 2018)
	2 – Exterior Lights 100 W 4100 lumens 4000 Kelvin		Shower Egress	Yes, by building	No	Yes (Bulbs are slightly brighter than desired. These will be replaced by 2018)
	4 – Exterior Lights 100 W 4100 lumens 4000 Kelvin		Building Safety	Yes, by building	No	Yes (These will be removed because they are not needed)
Beach Restroom South	4 – Exterior Lights 100 W 4100 lumens 4000 Kelvin		Building Egress	Yes, by building	No	Yes (Bulbs are slightly brighter than desired. These will be replaced by 2018)
	2 – Exterior Lights 100 W 4100 lumens 4000 Kelvin		Shower Egress	Yes, by building	No	Yes (Bulbs are slightly brighter than desired. These will be replaced by 2018)

Youth Facility	1 – Exterior Light Halogen 28 W 340 Lumens 2700 Kelvin		Building Egress	Yes, by buidling	Less than 500 L Not Special Purpose	Yes Used less than once a year
Gas Pump Headquarters	1- Metal Halide		Operations/ Safety/ Gas Pump Lighting	Yes	No	Yes Exempt lighting (Currently on a photocell, will be upgraded with warmer light and on/off switch by 2019)
Park Headquarters	5- Small Exterior Lights Tungsten Halogen Lamp 50w 700 L 3000K		Building egress	Yes, by overhang	No	Yes These lights are used fewer than two nights per year (Only one has a bulb and is currently used. All but one to be removed by 2019)
	3 Exterior Lights Metal Halide		Garage and doorway egress	Yes	No	No These lights are used fewer than two nights per year. (These will be retrofitted with different bulbs/fixtures by 2022)

	3 - Exterior Lights		Operations Lighting	No	No	No Used one to two weekends a year (To be replaced by 2018)
Bison Corrals Auction Shed	2- Oval Door Exterior Lights		Building Egress	No	No	No (To be replaced by 2018)
	2 - Exterior Lights Metal Halide		Operations Lighting	Yes	No	No Lights are used early in the morning two to three weekends per year. (These will be retrofitted with different bulbs/fixtures by 2022)
Bison Corrals Warming Hut	11 - Flood Lights		Operations Lighting	Yes, by building	No	Yes Lights are used early in the morning two to three weekends per year. (Replace with warmer bulb by 2022)

Fielding Garr Historic Ranch - Restroom	2 - Exterior Lights Dulux S 7 W Compact Flourescent 4100 K 400 L?		Bathroom Egress	No	No	No Lights are used one night per year (To be replaced with fully shielded light by 2022)
Ranger Residence East	1 - Porch Light CFL 14w 800 Lumens 2700 K		Building Access	Yes	No	Yes
	2 - Flood Lights		Grounds Security	No	No	No Never used (Will be removed)
	2 - Outdoor Lights 300-400 Lumens 13 W Yellow CFL Bug Light		Grounds Lighting	Top shielded	Yes	Yes
Ranger Residence West	1 - Porch Light		Building Access	Yes	No	Yes
	2 – Carriage Lights		Grounds Security	Yes, from top	No	Yes On motion sensor

	2 - Outdoor Lights		Grounds Lighting	Partially, from eves	No	No (Rarely used. Will be replaced)

Lamps of 500 lumens output and less include: 33 watt incandescent and less; 25 watt tungsten (quartz) halogen and less; 8 watt linear fluorescent and less; 10 watt compact fluorescent and less.

Letters of Support

GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Parks and Recreation
FRED HAYES
Division Director

September 8, 2016

International Dark-Sky Association
3223 North First Ave.
Tucson, AZ 85719

Dear Committee Members:

The Utah Division of Parks and Recreation, an agency of the Utah Department of Natural Resources, is proud to support and recommend the designation of Antelope Island State Park as an International Dark Sky Park.

Antelope Island State Park is located on Antelope Island, the largest island in Utah's Great Salt Lake. This unique location serves as a crown jewel of Utah's state park system, and attracts 380,000 visitors annually from around the globe. Despite being a short hour's drive from the metropolitan areas of Salt Lake City and the Wasatch Front, Antelope Island provides the visitor with a true wilderness experience.

Visitors to the Island are likely to encounter a wide variety of wildlife, including American bison, mule deer, pronghorn, shorebirds, waterfowl, and upland birds and raptors of all varieties. As the day draws to a close, visitors are treated to the most amazing sunsets to be found anywhere in the country as the sun sets over the Great Salt Lake. As darkness sets in, nocturnal inhabitants emerge from their daytime hiding places, and the night sky explodes into an array of brilliance that becomes the highlight of the park visitor's experience on the Island.

It is the Division's desire to draw more people to the Island to experience its phenomenal resources, including its amazing dark skies. It is our belief that designating Antelope Island State Park as a Dark Sky Park will help us do exactly that.

Sincerely,

Fred Hayes
Director

1594 West North Temple, Suite 116, PO Box 146001, Salt Lake City, UT 84114-6001
telephone (801) 538-7220 • facsimile (801) 538-7378 • TTY (801) 538-7458 • *www.stateparks.utah.gov*

GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of State Parks and Recreation
FRED HAYES
Division Director

To whom it may concern,

This letter is being written in support of the current efforts of Antelope Island State Park to attain a Dark Sky certification. It is important to the management of Antelope Island State Park to work toward reducing light pollution within our park. Understand that at the current time when considering new or replacement lighting projects they are individually evaluated for their impact on the night sky. While the emphasis on dark sky is not written in to our current management plan, when it is re-written and revised in the future it will be. Future management plans for the park will have a dark sky component and consideration. The management of Antelope Island State Park is committed to reducing the level of light pollution that occurs here from within the park.

Signed,

Park Manager Antelope Island State Park

1594 West North Temple, Suite 116, PO Box 146001, Salt Lake City, UT 84114-6001
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UTAH DNR STATE PARKS

GARY R. HERBERT
Governor
GREG BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of State Parks and Recreation
FRED HAYES
Division Director

May 2, 2016

TO WHOM IT MAY CONCERN:

Antelope Island State Park is seeking designation as an "International Dark Sky Park". We acknowledge that artificial lighting impacts wildlife in ways we are only beginning to understand. We are committed to maintain dark skies on the island.

Antelope Island lies within Great Salt Lake only minutes from 1.5 million people living along Utah's Wasatch Front. As human populations along the Front continue to increase, so does their night time light footprint. Dark skies are not only important to the island's wildlife, they are important for people as well. People engulfed by city lights need a dark sky opportunity where they can go to stay connected with the heavens and reflect upon their position in a marvelous universe.

We seek your International Dark Sky Park designation and anticipate that the designation will help us in our mission to maintain dark skies over Antelope Island. Thanks for your consideration.

Sincerely,

Steve Bates
Wildlife Biologist III

1594 West North Temple, Suite 116, PO Box 146001, Salt Lake City, UT 84114-6001
telephone (801) 538-7220 • facsimile (801) 538-7378 • TTY (801) 538-7458 • *www.stateparks.utah.gov*

UTAH DNR STATE PARKS

GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Parks and Recreation
FRED HAYES
Division Director

October 25, 2016

Dear IDA Board of Directors:

Antelope Island State Park preserves "Old West" wildness and wilderness with its free-ranging herds of Bison, Bighorn sheep, Pronghorn and Mule deer, its grand and ancient geology, and its preservation of ranching and cowboy cultures. Incredibly, this state park preserve is situated smack in the heart of the densely populated Wasatch Front.

Staff at Antelope Island State Park have taken great care to provide a myriad of quality night-time programs including Full Moon Hikes, Bat Programs, Scorpion Explorations, Moon-lit Kayaking, Night Bike Rides, Star Parties and other celestial observation events. These events are always well-attended and serve to educate the public about creatures who need true night to survive and the value of dark skies.

Antelope Island staff have also been in the forefront of our Utah State Parks Dark Sky Initiative. They have been working for more than two years to adjust lighting for maximum night sky enhancement, gain Dark Sky support from their affinity groups and surrounding communities, and, of course, educate the public about the importance of Dark Skies.

It is because of all these elements that I can whole-heartedly support Antelope Island State Parks' application to be designated an International Dark Sky Park.

Please do not hesitate to contact me if you desire any additional information from me on this topic.

Cordially,

Justina Parsons-Bernstein
Heritage, Interpretation and ADA Resources Manager
Utah State Parks

1594 West North Temple, Suite 116, PO Box 146001, Salt Lake City, UT 84114-6001
telephone (801) 538-7220 • facsimile (801) 538-7378 • TTY (801) 538-7458 • www.stateparks.utah.gov

Davis County Commission

Commissioner P. Bret Millburn Commissioner James E. Smith Commissioner Randy B. Elliott

January 13, 2017

IDA Board of Directors
International Dark Sky Association
3224 North First Avenue
Tucson, AZ 85719

To Whom It May Concern:

The Davis County Commission is pleased to write this letter of support on behalf of Antelope Island State Park in regards to their application in seeking designation as a Dark Sky Park. Antelope Island State Park is one of the premier parks within the Utah State Park System and is the gemstone of tourism within Davis County. Antelope Island is very unique in that literally within a 20-minute drive from our closest city, one can find themselves under clear skies free from noise and light pollution. We are excited about the added value having this designation from your organization would provide both local residents and tourists.

We wholeheartedly support Antelope Island's efforts in seeking designation as an International Dark Sky Park.

Sincerely,

James E. Smith P. Bret Millburn Randy B. Elliott

Davis County Administration Building ~ P O Box 618 ~ Farmington, Utah 84025
Telephone: 801-451-3200 ~ Fax: 801-451-3202 ~ TDD: 801-451-3228
E-mail: commissioners@daviscountyutah.gov ~ Website: www.daviscountyutah.gov

RESOLUTION R17-01

A RESOLUTION OF THE SYRACUSE CITY COUNCIL SUPPORTING THE APPLICATION FOR ANTELOPE ISLAND STATE PARK'S DESIGNATION AS AN INTERNATIONAL DARK SKY PARK.

WHEREAS The International Dark Sky Association promotes the preservation of the night sky for the benefit of natural ecosystems, wildlife, and human health through the designation of International Dark Sky Parks; and

WHEREAS The designation of International Dark Sky Park is only given to parks that possess an exceptional or distinguished quality of starry nights and a nocturnal environment that is specifically protected for its scientific, natural, educational, cultural heritage, and/or public enjoyment; and

WHEREAS The designation of Antelope Island State Park as an International Dark Sky Park is expected to increase the visitation to the park; and

WHEREAS Syracuse City has an environmental, historic, and economic connection with Antelope Island State Park and surrounding wetland ecosystems impacted by light pollution.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF SYRACUSE CITY, UTAH, AS FOLLOWS:

Section 1. General Support. Syracuse City hereby supports Antelope Island State Park in its application to become designated an International Dark Sky Park.

Section 2. Regulatory Support. Syracuse City hereby reiterates its commitment to responsible lighting through regulatory powers, specifically in sections 10.120.070, 10.30.030, 10.20.090, and 10.28.230 of the Syracuse Municipal Code, which is intended to mitigate light pollution.

Section 3. Severability. If any section, part or provision of this Resolution is held invalid or unenforceable, such invalidity or unenforceability shall not affect any other portion of this Resolution, and all sections, parts and provisions of this Resolution shall be severable.

Section 4. Effective Date. This Resolution shall become effective immediately upon its passage.

PASSED AND ADOPTED BY THE CITY COUNCIL OF SYRACUSE CITY, STATE OF UTAH, THIS 10th DAY OF JANUARY, 2017.

SYRACUSE CITY

ATTEST:

Cassie Z. Brown, City Recorder

By: T. Palmer
Terry Palmer, Mayor

Ogden Astronomical Society

IDA Board f Directors
International Dark Sky Association
3223 N. First Avenue
Tucson, AZ 85719

January 4, 2017

Dear Accreditation Members:

As an official Collaborator in the application for accreditation of Antelope Island State Park as an international Dark Sky Park, the Ogden Astronomical Society would like to express to the IDA appreciation for its efforts to preserve the night sky. Over the last several years in Northern Utah, we have lost, through growing light pollution, some of our long-time star party venues. To have a permanent dark-sky viewing area on Antelope Island State Park is highly significant, both to our membership and our outreach efforts.

We look forward to working with the extensive network of education partners (Division of Wildlife Resources, Wasatch Audubon Society, Ogden Nature Center, Hawk Watch International, Swanson's Environmental Center, ect.) that has now been assembled to promote dark-sky education through the focus of Antelope Island and generally in Northern Utah.

Sincerely

Lee Priest

Lee Priest, OAS IDA-liaison

12-30-2016

International Dark-Sky Association
3223 North First Ave.
Tucson, AZ 85719

Dear Committee Members:

The Friends of Antelope Island is proud to support and recommend the designation of Antelope Island State Park as an International Dark Sky Park. The Friends mission is to support projects that will enhance the visitors experience; it's my opinion that the dark Sky designation and dark sky resources will do just that.

In the mid to late 1960's when Davis County Commissioner Wayne Winegar ask my father, Dale T. Smedley, to put his construction company to work and assist the county in building a road out to Antelope Island; the skies were darker then than they are now, and a personal visit to the Island was only a dream. Today, the visitors' experience at Antelope Island State Park is a glorious dream come true. They enjoy: beautiful sunsets, a wide variety of wildlife, vibrant birds, the Fielding Garr Ranch, and of course park sponsored star parties. All this, coupled with an opportunity in the spring to view the snowcapped Wasatch Mountains and listen to and/or observe the brine shrimpers harvesting pink clusters of eggs off the rich blue lake, enhances one's life and is spectacular.

Like other departments and divisions state wide, Friends of Antelope Island desires to draw more people to the Island to experience its phenomenal resources and beauty including its amazing dark skies. Designating Antelope Island State Park as a Dark Sky Park will be a home run for your Association and the State of Utah.

Warmly,

Terry D. Smedley
2016 President

Friends of ANTELOPE ISLAND
P.O. Box 794
Kaysville, UT 84037-0794
Telephone (801) 451-3286
Fax (801) 451-3281
www.friendsofantelopeisland.com