

# Anza-Borrego Desert State Park

2017



Application for Dark-Sky Park Status

## TABLE OF CONTENTS

	Page
3	Nomination Letter
4	Eligibility
5	Background
7	Light Pollution Map
8	Sky Quality Meter (SQM) Readings
11	Lightscape Management Plan
16	Public Education
21	Lighting Inventory
31	Letters of Support

*"The true joy of a moonlit night is something we no longer understand. Only the men of old, when there were no lights, could understand the true joy of a moonlit night."*

*Yasunari Kawabata*



Anza-Borrego Desert State Park  
200 Palm Canyon Drive  
Borrego Springs, CA 92004

July 10, 2017

Board of Directors  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, AZ 85719

Dear Board of Directors:

As a night-sky interpreter for California State Parks who is also a member of the Borrego Springs Dark Sky Coalition and the San Diego County chapter of IDA, I recommend that Anza-Borrego Desert State Park (ABDSP) be considered for designation as an International Dark Sky Park.

Park management agrees that we have a responsibility to protect the dark skies over our landscape, not only for the health of our ecosystem, but as a human refuge from the light pollution that plagues surrounding metropolitan areas. We have worked steadily over the last several years to improve outdoor lighting in the park, making significant changes that minimize light pollution and maximize visitor experience.

This designation would secure the state park's commitment to keeping its skies dark, for the benefit of wildlife as well as amateur astronomers and nearby Palomar and Mt. Laguna observatories, and to continuing to educate the public on the importance of dark skies and appropriate outdoor lighting.

This designation would also serve to increase the impact of Borrego Springs' designation as a Dark Sky Community, as the State Park completely surrounds the town, insulating it from nearby urban areas. I know from personal experience how much impact ABDSP's night sky can make on city dwellers, having spoken with hundreds of visitors over the years, many of whom come from San Diego, Los Angeles, and Palm Springs, seeking dark skies for stargazing and perhaps their first glimpse of the Milky Way!

Thank you for your consideration of this application,

Sally Theriault  
State Park Interpreter II  
Visitor Center Manager

## ELIGIBILITY

- A) PUBLIC LANDS: Anza-Borrego Desert State Park (ABDSP or “the Park”) is the largest state park in California. With almost 650,000 acres, it comprises more land than all other California State Parks combined, and is the largest desert state park in the nation.
- B) PUBLIC ACCESS: ABDSP is fairly unique among parks in that there is no entry fee; camping fees and day-use parking fees are collected in developed campgrounds, but access to, and overnight camping in, the rest of the park is free. 500 miles of dirt roads offer fairly easy access to remote, undeveloped areas of the backcountry. The Carrizo Impact Area of the park comprises 27,000 acres where public access is prohibited due to the presence of unexploded ordnance remaining from its use as a military bombing range from 1942-1959. Another 15,000 acres are privately held as “inholdings” within the overall boundaries of the park; most of these are remotely located, without signage restricting public access.
- C) REGULAR VISITATION: The vast majority of the Park is open to the public 24 hours a day throughout the year, and receives approximately one million visitors per year. Tamarisk Grove campground is closed during the summer “off-season” to camping but not day use. Much of Coyote Canyon is closed during the summer months to provide endangered bighorn sheep with undisturbed access to water. Overnight camping is restricted in eight Cultural Preserves (total acreage 42,536), but is allowed in the other 600,000+ acres of the Park (except for Carrizo Impact Area). One of the darkest locations in the Park, nicknamed “Astronomy Road” in a nod to its use by local astronomy groups, was specifically excluded from the Little Blair Valley Cultural Preserve during development of the Park’s General Plan, in order to continue to provide vehicle access and nighttime use for amateur astronomers.
- D) EXCEPTIONALLY DARK SKIES: Though surrounded by the metropolitan areas of Los Angeles, San Diego, Palm Springs, and El Centro, ABDSP provides access to very dark skies for potentially millions of southern Californians within a two- or three-hour drive. Sky-Quality Meter readings are consistently in the range of 21.10-21.50, which should place ABDSP in the Silver Tier of Dark-Sky Parks. Visitors often come to the Park for their first look at the Milky Way, while photographers may hope for a shot at elusive auroras or zodiacal light.

*This photo of Zodiacial Light and the Milky Way was taken from a park location north of Clark Dry Lake by local photographer Dennis Mammana.*



## BACKGROUND

Anza-Borrego Desert State Park (ABDSP or “the Park”) protects nearly 650,000 acres of desert ecosystem in southern California, and two-thirds of that is afforded extra protection as designated wilderness. In addition to habitat for wildlife, the Park serves as a refuge for humans, too—offering expansive vistas, quiet solitude, and stunning night skies filled with stars. Residents of San Diego or Palm Springs can reach the Park in two hours or less, and for those coming from the Los Angeles area, a 3-hour drive brings them to a whole different world! A glance at any map of light pollution in southern California reveals that Anza-Borrego Desert State Park is truly an oasis of darkness (mostly Bortle Class 3, with a few areas Class 4), easily accessible to the millions of people who live in these metropolitan areas.

Skies directly above the Park are very dark, with minimal sky glow near the horizon line largely mitigated by mountains in most directions. Visitors are afforded amazing views of the Milky Way, and—with coaching and at the right time of year—are able to see the Andromeda Galaxy with the naked eye. The darkness of the skies over Anza-Borrego have been measured in recent years using a Unihedron Sky Quality Meter, and most readings indicate that the Park might enjoy Silver Tier status, if approved for designation as an International Dark-Sky Park.

Astronomy groups, as well as individual astronomers, photographers, and casual stargazers, have been coming to Anza-Borrego for many years, because of our very dark skies. Our cover photo comes courtesy of Adam Gordon, a 15-year-old photographer (and photography teacher!) who drags his parents to the Park frequently for late-night photo sessions under the stars. Little Blair Valley, especially, is popular, as surrounding hills serve to block out most sky glow from surrounding areas. Park management’s commitment to providing public access is illustrated by the exclusion of “Astronomy Road” from the management plan for Little Blair Valley Cultural Preserve (which calls for roadlessness and no camping), specifically so that amateur astronomy groups could continue to host overnight star parties in one of the best stargazing locations in the Park!

Anza-Borrego Desert State Park’s General Plan (2005) and Interpretive Master Plan (2015) both call for recognition, protection, and interpretation of the night sky as an important resource.

From the Vision Statement in the 2005 General Plan for Anza-Borrego Desert State Park:

*The Park is a place where silence can be found and total darkness achieved.*

And under Management prescriptions:

*Noise and artificial light will be minimized due to the lack of facilities and a low density of park visitors . . . The use of lighting, if necessary, will be subdued.*

With special attention given to Blair Valley and Little Blair Valley:

*Other significant resources that are notable to Blair Valley and Little Blair Valley are the quality stargazing opportunities in Little Blair Valley . . . ensure that FUZ II [Focused Use Zone] and associated visitor uses are regulated to minimize impacts to sensitive resources, i.e., . . . night sky.*

The night sky is recognized as one of the Park’s “Special Qualities” to be interpreted:

*Light in the desert is played to extremes . . .to the blackest night illuminated only by starlight . . . At night, the sky hosts exquisite astronomic shows of moonlight, starlight, comets, and fiery meteor showers.*

And is called out to be interpreted by a stated interpretive theme (Theme 2f):

*Provide interpretive experiences that lead to visitor understanding of the features and mythology of the night sky.*

(The Park's General Plan can be accessed via the ABDSP website:

[http://demo.parks.ca.gov/?page\\_id=21314](http://demo.parks.ca.gov/?page_id=21314))

More recently, the Park's Interpretive Master Plan (IMP) includes specific reference to dark-sky education, in Supporting Theme 3C (Dark Skies) under the Primary Theme of Inspiration:

*The Park is dedicated to protecting the desert's naturally dark skies, and to educating the public about their importance to wildlife, astronomy, and human health.*

(The Park's IMP can be accessed via the ABDSP website:

[https://www.parks.ca.gov/pages/638/files/Anza-Borrego\\_Final\\_9-25a.pdf](https://www.parks.ca.gov/pages/638/files/Anza-Borrego_Final_9-25a.pdf))

A small group of people concerned about protection of the area's dark night skies has been meeting since 2007 as the Borrego Springs Dark Sky Coalition, and our efforts to have Borrego Springs designated as a Dark Sky Community were ultimately successful in 2009. In 2007-08, a local high school student's senior project got the ball rolling for the Park as well. Since then, the Park has continued to work toward more dark-sky-friendly lighting, changing and retrofitting fixtures as time and financial resources have allowed, to the point where approximately 80% of current lighting in the Park is compliant with recommended standards.

Where "glare bombs" of extremely bright white light once caused consternation among nearby neighbors, softer orange glow now provides just enough light for park visitors and staff to find their way. This is just one example of "Before" and "After" photos that illustrate the difference that good lighting can make:



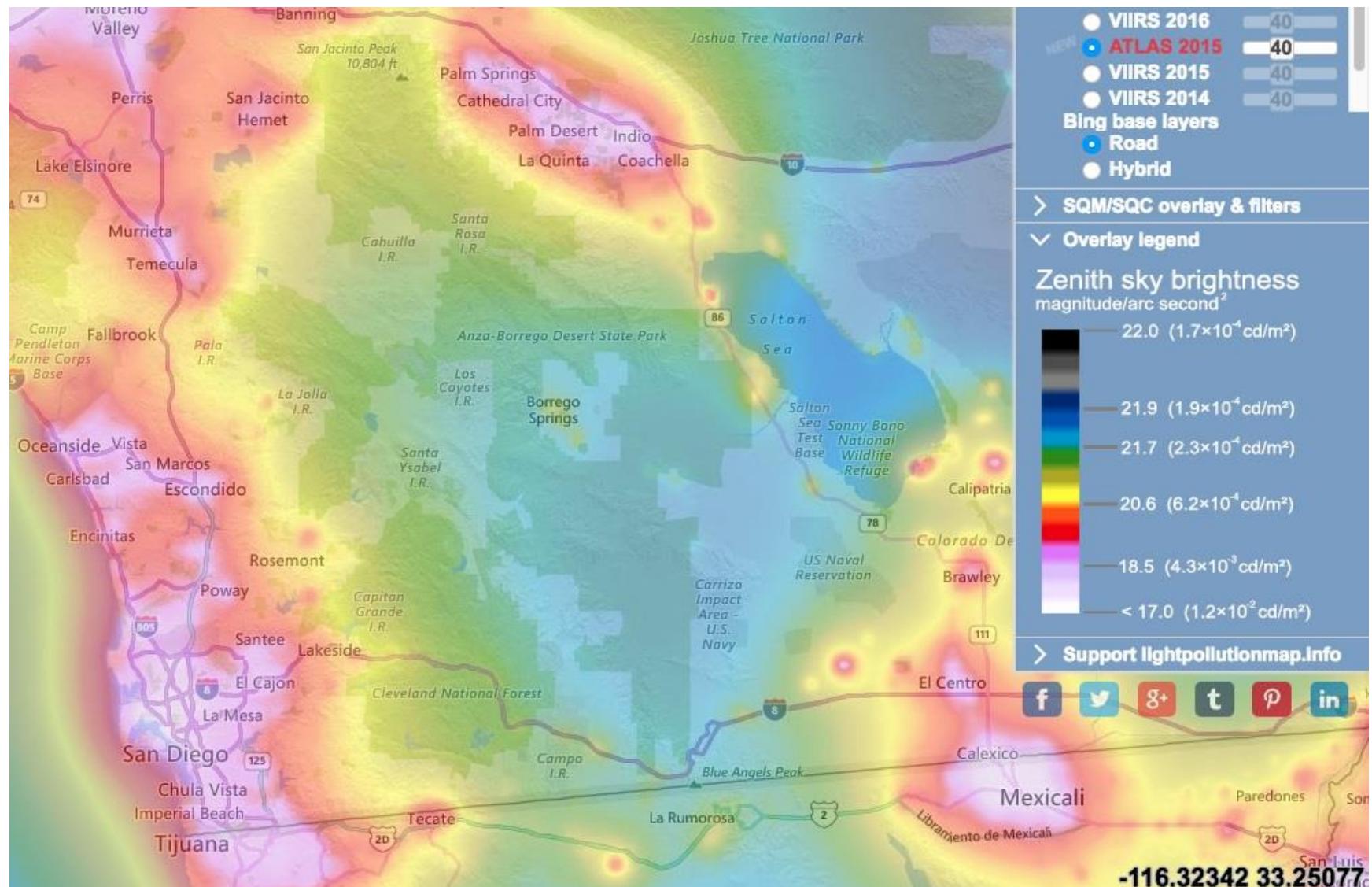
This restroom in Borrego Palm Canyon Campground had bright white wallpacks on the front and sides, which seemed too bright even from town, over a mile away, and which created glare that actually reduced visibility in the surrounding areas.



After installation of lower-wattage lamps in fully-shielded fixtures, the lights on the restroom building now provide plenty of light for campers to find their way, without light trespass into nearby campsites, or the glare that disturbed night-sky viewing, not to mention wildlife.

# ANZA-BORREGO DESERT STATE PARK: AN OASIS OF DARKNESS

(the “hole” in the center of the park’s northern end is the town of Borrego Springs, an International Dark-Sky Community)



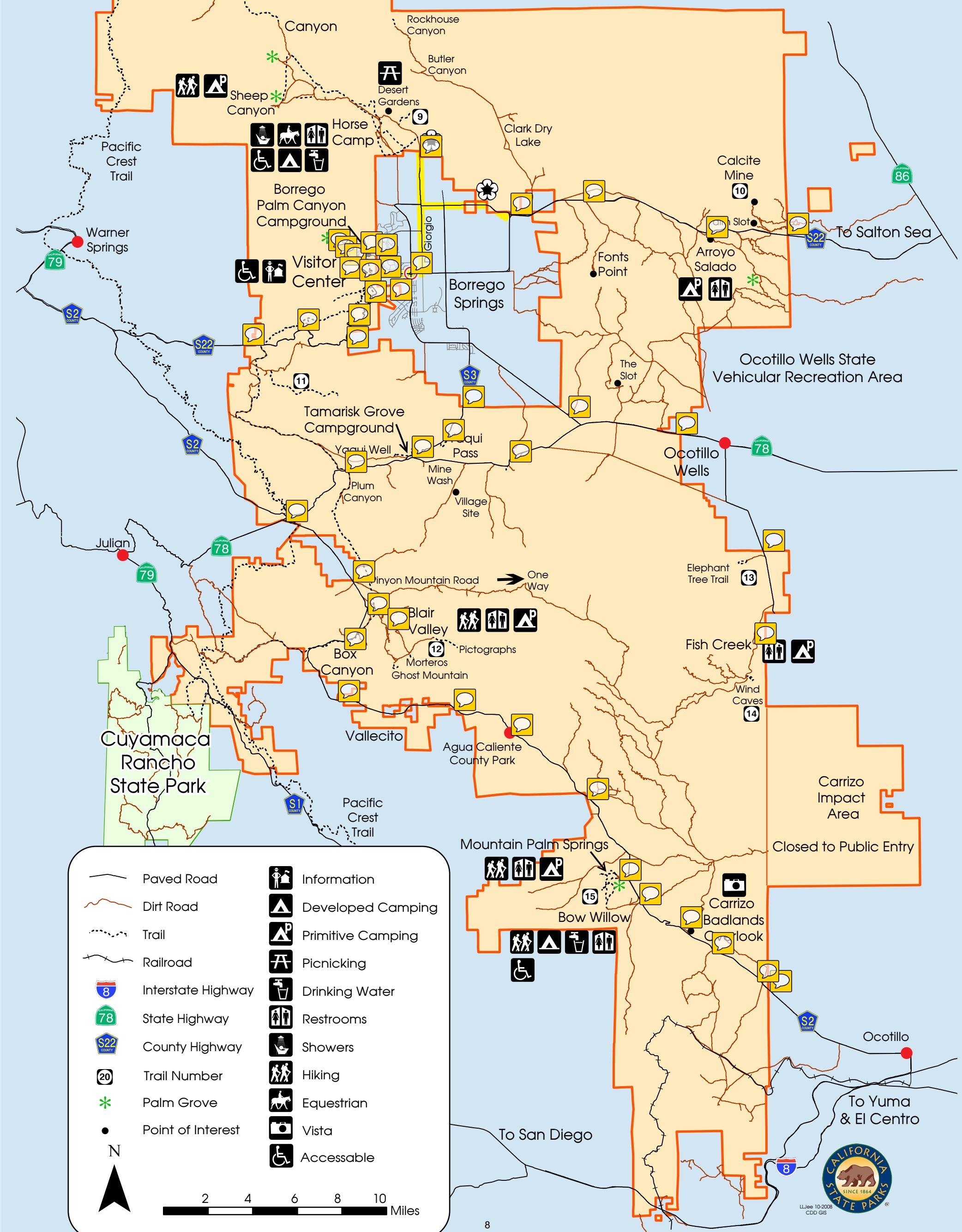
This image is a screen capture from the 2016 World Atlas of Artificial Night Sky Brightness ([www.lightpollutionmap.info](http://www.lightpollutionmap.info)). The colors are consistent with our SQM readings, and show that ABDSP is much darker than nearby urban areas. (data from 2015)

# Sky Quality Meter (SQM-L) Readings

## June/July 2017



# **ANZA-BORREGO DESERT STATE PARK**



**NIGHT SKY QUALITY SURVEY Anza-Borrego Desert State Park**

Site #	Location	Average SQM-L Reading		
		Jun 2013	Aug 2015	Jun/Jul 2017
1	Southern Boundary of ABDSP (highly lit Border patrol station)	20.64		21.22
2	Entrance to Mortero Wash, on Highway S-2	21.26		21.54
3	Entrance to Jojoba Wash, at S-2	21.53		21.36
4	Entrance to Canyon Sin Nombre, at S-2	21.41		21.34
5	Entrance to Bow Willow Camp, at S-2	21.39		21.36
6	Mt Palm Springs Primitive Camp	21.44		21.29
7	Entrance to Road to Palm Spring, at S-2	21.27		21.37
8	Entrance to Agua Caliente County Park, at S-2	21.29		21.39
9	Entrance to Vallecito County Park, at S-2	21.14		21.13
10	Just south of Butterfield Ranch, on S-2	21.42		21.17
11	Box Canyon Overlook, on S-2	21.40		21.30
12	Main Entrance to Blair Valley Primitive Camp, on S-2	21.43		21.30
13	"Astronomy Road" in Little Blair Valley	21.56		21.24
14	Entrance to Pinyon Mountain Road, on S-2	21.37		21.29
15	"Scissors Crossing" junction of Highway S-2 and Highway 78	21.38		21.50
16	Western Park Boundary, Highway S-22	21.29	21.30	21.51
17	Entrance to Culp Valley Primitive Camp, on S-22	21.14	21.38	21.39
18	"Crawford Overlook" at mile 12.5 on S-22	21.08	21.39	21.47
19	"Dry Canyon" at mile 13.5 on S-22	21.03		21.42
20	Trailhead for Borrego Palm Canyon Trail (in BPC campground)	21.02	21.44	21.50
21	Upper Comfort Station, BPC Campground	21.33		21.47
22	Maintenance Shop Area in BPC Campground	21.07		21.49
23	Hookup Loop of BPC Campground (between restrooms)	20.95		21.50
24	Entrance to Borrego Palm Canyon Campground (BPC)	21.16	21.39	21.38
25	Visitor Center Parking Area	21.04	21.33	21.46
26	District Headquarters (Rear)	20.73		21.43
27	District Headquarters (Front)	20.49	21.35	21.48
28	Park Boundary on Highway S-3, just north of Yaqui Pass	21.48		21.45
29	Yaqui Pass Primitive Camp, on S-3	21.45		21.49
30	Tamarisk Grove Campground (external lights off 2013, on 2017)	21.52		21.47
31	SDG&E Substation on Highway 78, near The Narrows (lighted)	20.68		20.69
32	Fish Creek Primitive Camp	21.42		21.23
33	Park Boundary on Split Mountain Road	21.22		21.31
34	Park Boundary near Ocotillo Wells on Highway 78	21.32		21.09
35	"Texas Dip" where San Felipe Wash crosses Borrego Springs Rd	21.46		21.28
36	PegLeg Monument on S-22	21.43		21.41
37	Fonts Wash at S-22	21.51		21.48
38	Arroyo Salado Primitive Camp	21.51		21.52
39	Eastern Park Boundary on S-22	21.44		21.52
40	State Park Employee Housing Area	21.41		21.44
41	Gas Pumps in Maintenance Area	21.49		21.52
42	Hookup Area BPC Campground (near west restroom building)	21.22		21.37
43	Sanitary Dump Station, BPC Campground	21.47		21.42
44	Christmas Circle (not in Park, but at center of town)	21.08		21.26
45	Hellhole Canyon Parking Lot, on S-22		21.45	21.51
46	ABDSP Sector Office		21.14	21.37
47	Park Boundary Coyote Canyon (lower)			21.42
48	Plum Canyon Pullout, on Highway 78 west of Tamarisk Grove			21.45
49	UC Irvine Steele/Burnand Anza-Borrego Desert Research Center			21.39

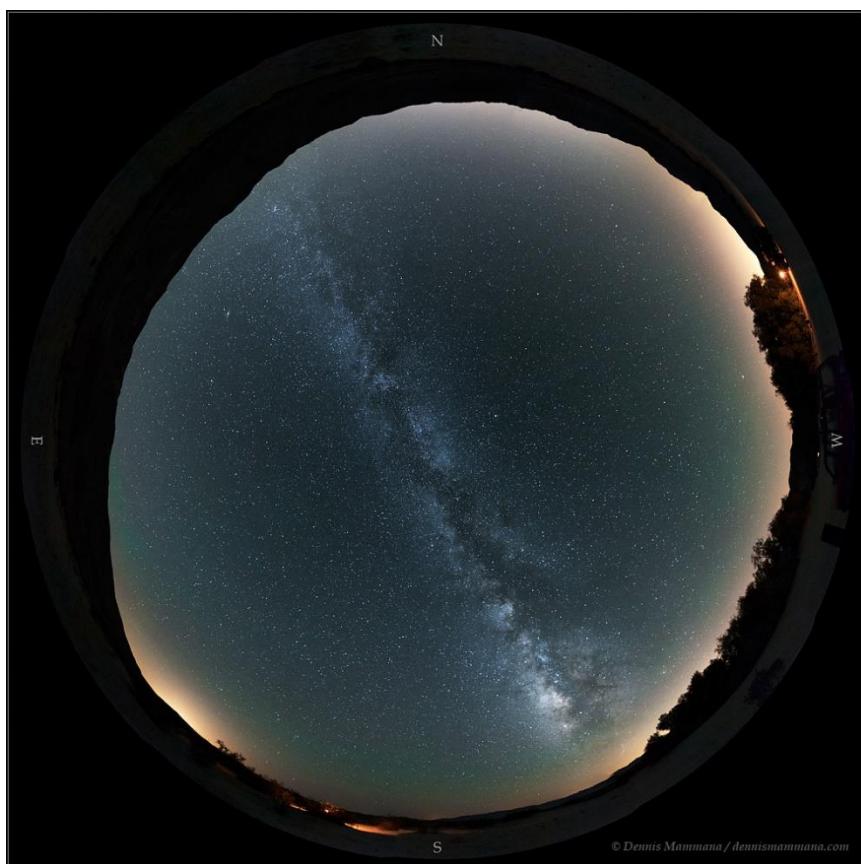
2013 Measurements were taken using a Unihedron Sky Quality Meter (SQM-L), between 10:25 pm June 10 and 2:30 am June 11, 2013 (sites 1-27), and between 9:50 pm June 11 and 1:00 am June 12, 2013 (sites 28-44). There was partial (minimal) cloudiness above, by the end of each observing period, and some sky glow to the W/SW (San Diego), to the N/NW (Palm Springs) and to the SE (El Centro).

2015 Measurements were taken using the same Unihedron Sky Quality Meter (SQM-L) after midnight on August 20, 2015, with no moon and no clouds. Most readings were “darker” than they were in 2013; some (in our most developed areas near HQ and in the campground) were almost certainly due to the installation of shielded fixtures and amber lamps in 2014.

2017 Measurements were taken using the same Unihedron Sky Quality Meter (SQM-L), after the end of astronomical twilight on moonless nights in June and July. Worth noting is the fact that the Milky Way was directly overhead during the July readings (sites 1-14 and 31-35), which may partly explain why the “Astronomy Road” reading was less dark in 2017. It was the darkest site measured in 2013, and is sheltered from almost all skyglow from distant urban areas by surrounding hills. Notable increases in darkness occurred for the District Headquarters and Campground areas, following the installation of dark-sky friendly fixtures and bulbs in 2014.

Each reading in the table represents an average of three readings, taken with the SQM-L held directly overhead.

**Future readings** will be taken on an annual basis, using the same SQM-L instrument, by a member of the interpretive staff, at the same locations. Data will be included in the required Annual Report to IDA.



While domes of light pollution from surrounding urban areas appear around the horizon, skies overhead are dark enough to afford a fine view of the Milky Way.

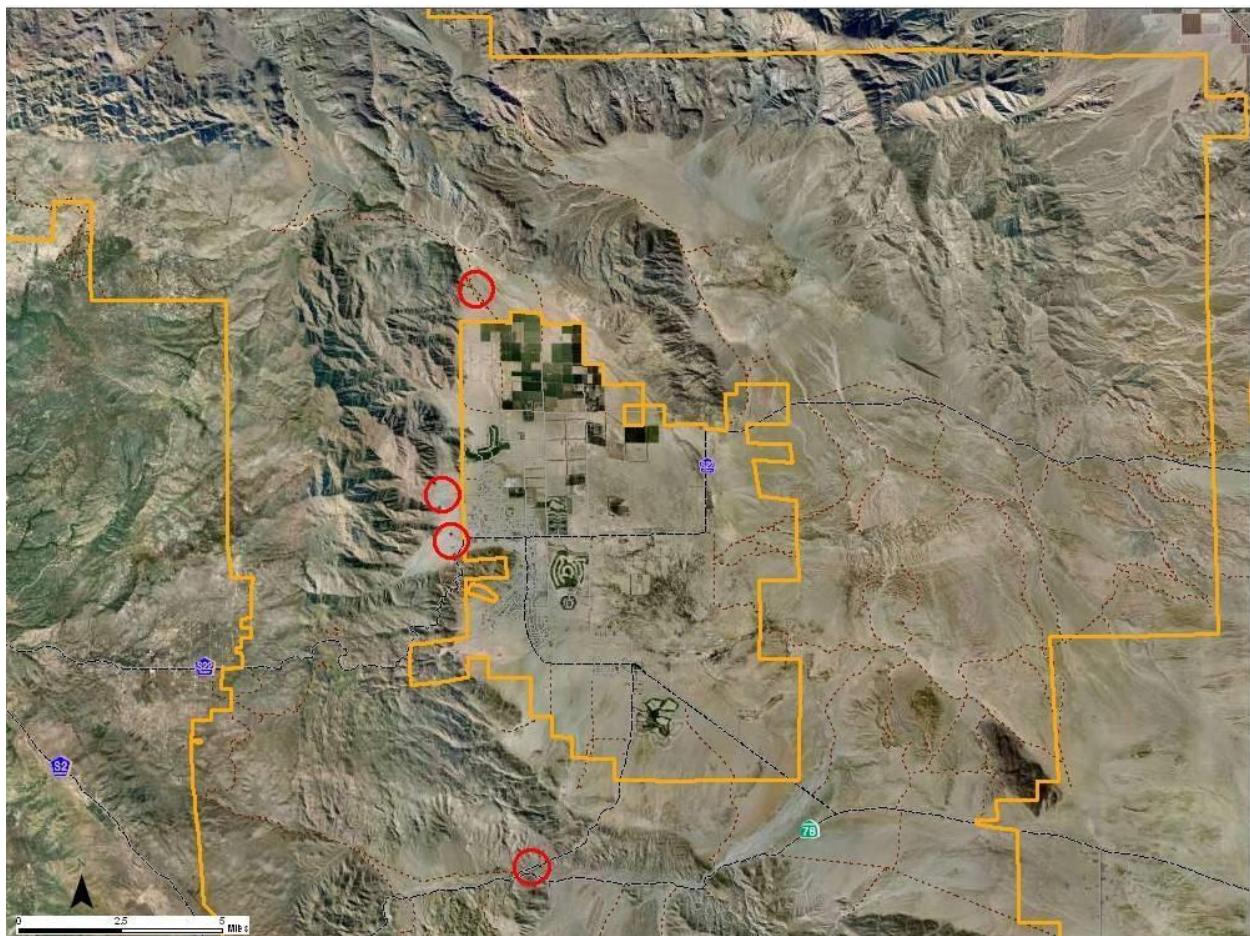
*Photo by local photographer  
Dennis Mammana, taken north of  
Clark Dry Lake.*

## LIGHTSCAPE MANAGEMENT PLAN

Anza-Borrego Desert State Park (ABDSP or “the Park”) encompasses almost 650,000 acres, with a very small percentage having any outdoor lighting at all. Many individuals as well as amateur astronomy groups come to ABDSP because of the quality of our dark night sky, and park management is committed to preserving this resource.

The purpose of this Lightscape Management Plan (LMP) is to ensure that Park lighting does not contribute unnecessarily to light pollution, and that essential lighting of park facilities is accomplished with minimal impact on wildlife and on park visitors’ and local residents’ enjoyment of the night sky.

Only four locations in the Park contain outdoor lighting, and these are all located within ten miles of the town of Borrego Springs, an International Dark-Sky Community. For the purposes of this LMP, the ABDSP Sector Office is treated as part of the District Headquarters area, as the two are adjacent, and have similar purposes and exterior lighting needs.



Outside of these four areas of development, permanent outdoor lighting is currently non-existent, and will continue to be prohibited under the Park’s LMP.

Within the four developed areas, it is the policy of the Park that outdoor light at night will only be used when the park superintendent determines that a public safety hazard exists that can only be mitigated through the use of artificial light.

Specifically, permanent exterior lighting will be guided by these overarching principles:

- 1) Artificial light at night is used only where necessary
- 2) Amber light is used instead of white; maximum color temperature of 3,000K
- 3) Shielded or Full-Cut-Off (FCO) fixtures are standard
- 4) The amount of lighting used is the minimum necessary to accomplish the intended function; in the vast majority of applications, 500 Lumens should be sufficient
- 5) Lights are turned off when not needed, utilizing timers and motion detectors wherever possible so that this happens automatically

Current lighting in the Park meets or exceeds outdoor lighting standards set forth by the State of California (2010 California Energy Code, CA Code of Regulations Title 24, Part 6, Sections 132-148) and the County of San Diego (San Diego Co. Code, Division 9—Light Pollution Code, 1998). This LMP goes further in addressing light pollution concerns, and incorporates the principles presented in “Guidelines for Outdoor Lighting for Low-Impact Lighting™” by the IDA and the Royal Astronomical Society of Canada (revised 2016).

Existing lighting in the Park has been documented and evaluated for necessity, and many changes have already been made following recommendations from staff at IDA. In considering future retrofits, or new installations where exterior lighting is determined to be necessary, lighting should conform to these guidelines.

## Guidelines for Specific Applications

**Administration Buildings:** Exterior doorways, as well as pathways to employee parking area, will be lit by shielded fixtures, or by directional amber PAR lamps aimed downward to minimize glare. Lights are controlled by motion sensors, so that they are on only when needed, and stay on only as long as necessary. Interior lights are turned off after closing.

**Public Buildings (Visitor Center):** Exterior lighting is used only when necessary, and is red, amber or yellow, as opposed to white. Walkway lights are used only during evening events, and during the winter months when necessary to allow visitors and employees safe egress from the building and travel to the parking area. Lights are controlled by a timer that is set to turn them off automatically one hour after closing, or following the conclusion of an evening event. Special red lighting is used during night-sky interpretive programs. Parking lot is not lit, except by walkway lights where the paved walkway is adjacent to disabled-person parking spots.

**Public Buildings (Campground Offices):** Exterior lighting is amber—either Full Cut-Off (Hubbell fixtures) or directional PAR lamps on motion detectors, so that only essential areas (self-pay stations, instructional/informational signs, vending machines for shower tokens) are lighted.

**Public Buildings (Restrooms):** Exterior lighting is left on at night, and is low-wattage amber and fully shielded. Individual stalls lack windows, so interior light does not escape at night.

**Private buildings (Employee Residences):** Exterior lighting is to be kept to a minimum, and is used only when necessary. Lights should be amber or yellow, and controlled by motion detectors. Window coverings at night should minimize the escape of interior light.

**Maintenance areas:** Interior lights are turned off at night. Exterior lighting is rarely used at night, and should be low-wattage amber. White fluorescent lighting is allowed under canopies over gasoline fueling stations, where lights are user-controlled and are on for only occasional, very brief periods.

**Walkways:** Walkways and trails do not have artificial lighting, with the exception of the paved walkway at the Visitor Center. Existing fixtures should be replaced with fully shielded fixtures, but until replacement, lamps should be low-wattage amber or yellow, with color temperatures not to exceed 2700K, and initial lumens less than 500, and used only as needed for safety.

**Signs:** As a general rule, park signs are not lighted, but are made with reflective material. The exception is informational signs at the entrance to campgrounds, where the information is not permanent, but changes frequently. These signs may be illuminated by fully-shielded or FCO fixtures with low-wattage amber lamps.

**Parking Lots and Roadways:** Parking lots and roadways do not have artificial lighting.

**Wilderness Areas:** Permanent artificial lighting is prohibited in wilderness areas.

Temporary exceptions to this LMP may be made at the discretion of the District Superintendent in cases where non-conforming lighting is required in an emergency or for purposes of employee or visitor safety, as long as the lighting meets the Park's overall stated goals of using only as much illumination as is necessary, for only as long as needed. If the need for special lighting persists, efforts will be made to bring the lighting into conformity with the LMP.

**Bringing Existing (Non-conforming) Lighting into Compliance:** Approximately 80% of existing park lighting is in compliance with this LMP. Exceptions are:

Walkway lights at the Visitor Center that are not fully shielded. These are older fixtures that were recently retrofitted to accept low-wattage amber lamps. As funding allows, new fully-shielded, or at least FCO, heads should be mounted to the existing poles. Until this happens, lamps will be used that keep lumens <500 per fixture. Goal is compliance within five years.

White flood lamps on the employee residence at Tamarisk Grove. This house is currently vacant, and the floods are controlled by motion detectors. White flood fixtures on residence in Borrego Palm Canyon campground. These white flood fixtures should be replaced with fully shielded amber fixtures. Goal is compliance within five years.

Two restroom buildings in the hookup section of the campground. Moving light fixtures up about 12 inches to above the level of the fascia would prevent light from escaping horizontally. Until funding allows light fixtures to be moved, amber lamps are used to keep lumens <500. Goal is compliance within five years.

Bulletin board lights near Borrego Palm Canyon campground office. Amber coverings over fluorescent tube lights cut down on glare considerably, but “roof” over the lights could be extended downward to shield the lights more effectively. Goal is compliance within ten years.

White-light fixtures under cover over maintenance yard, and at back door of maintenance office. Rarely used, so a lower priority, but these should be replaced with shielded amber lamps or amber LED fixtures (i.e., Hubbell). Goal is compliance within ten years.

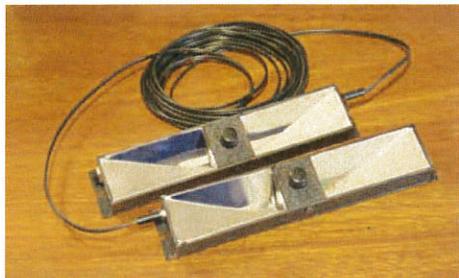
Various older fixtures on vacant employee residence in upper Borrego Palm Canyon campground. These lights are currently kept off, as the house is vacant. If this residence is put back into service, the older fixtures should be replaced with fully shielded amber fixtures. Goal is compliance within ten years (retrofit or removal, if building remains unused).

Flood fixtures at Tamarisk Grove campground amphitheater. This amphitheater has not been used in years, and lights are kept off. If used again, lamps will be shielded directional amber. Goal is compliance within ten years (retrofit or removal, if facility remains unused).

Although the current 5W lamps in the site fixtures in the hookup area of Borrego Palm Canyon campground have a color temperature of 2700K and less than 500 lumens, we are looking into alternatives that would further reduce both the lumens and the color temperature.

# Mounted "Path-Light" ECO-FRIENDLY

\$269<sup>00</sup>



## WHY NOT OTHER LIGHT FIXTURES?

### White Light

- Undermines our natural night vision
- Disrupts the biology of plants and animals
- Exacerbates impacts of glare and light trespass

### Poor Shielding

- Causes glare for approaching pedestrians
- Glare for over hundreds of meters
- Poorly defined target area
- Sprays light where it is not needed
- Light trespass impacts plants and animals

### "Hot Spot" Illumination

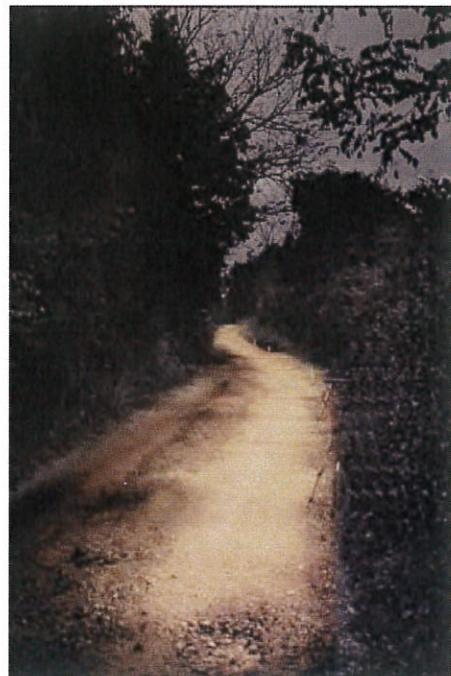
- Ruins night vision
- Limits visibility to only centre of beam
- Prevents visibility into periphery
- Small illuminated area for a given power

Flexible mounting for *Pathways, Laneways, stairways*

*Fasten under hand-railing or on bollards*

*"Daisy-chain" for long runs*

*Mount under building eves  
to highlight walkway, garden or lawn*



**Mounted Path-Light**  
(Adjustable brightness to suite application)

**RESTRICTION NOTICE:** This document contains CONFIDENTIAL INFORMATION that is PROPRIETARY to Robert S. Dick. This commercially sensitive information is being provided to the recipient solely for their own use and shall not be reproduced, disclosed or supplied, in whole or in part, to any other person without the prior written consent of Robert S. Dick.

## PUBLIC EDUCATION

Anza-Borrego Desert State Park's General Plan and Interpretive Master Plan both call for recognition and interpretation of the night sky as a unique and significant resource, and—at least since 2010—the Park has included Dark Skies education in its lineup of interpretive offerings. As the Park has worked toward becoming increasingly dark-sky friendly, an explanation of this process and its rationale has been featured in night-sky programming. New amber lighting (as well as red rope lighting during night programs) at the Visitor Center and in the campground facilitates discussion about the effects of nighttime light on living things, and about what constitutes “good” lighting, for private homes as well as for businesses and open spaces such as state parks.

Night-sky programming includes monthly stargazing programs throughout the year, with additional programs during the peak visitor months of November through April. Typically, a full-moon program is given once a month, and a stargazing program is offered near the new moon. While activity descriptions vary, according to the interpreter and what is visible in the sky, a standard advertising notice includes a reference to the fact that the program will include information about the importance of keeping Anza-Borrego's night skies dark:

**Enjoy Anza-Borrego's Dark Night Sky!                                           1 Hour**

Winter nights are perfect for Stargazing. Explore constellations and learn about the importance of dark skies everywhere. Bring binoculars if you have them, flashlight (red lens is preferable) and your imagination! Look for Park Interpreter Sally Theriault at the Borrego Palm Canyon Campfire Center.

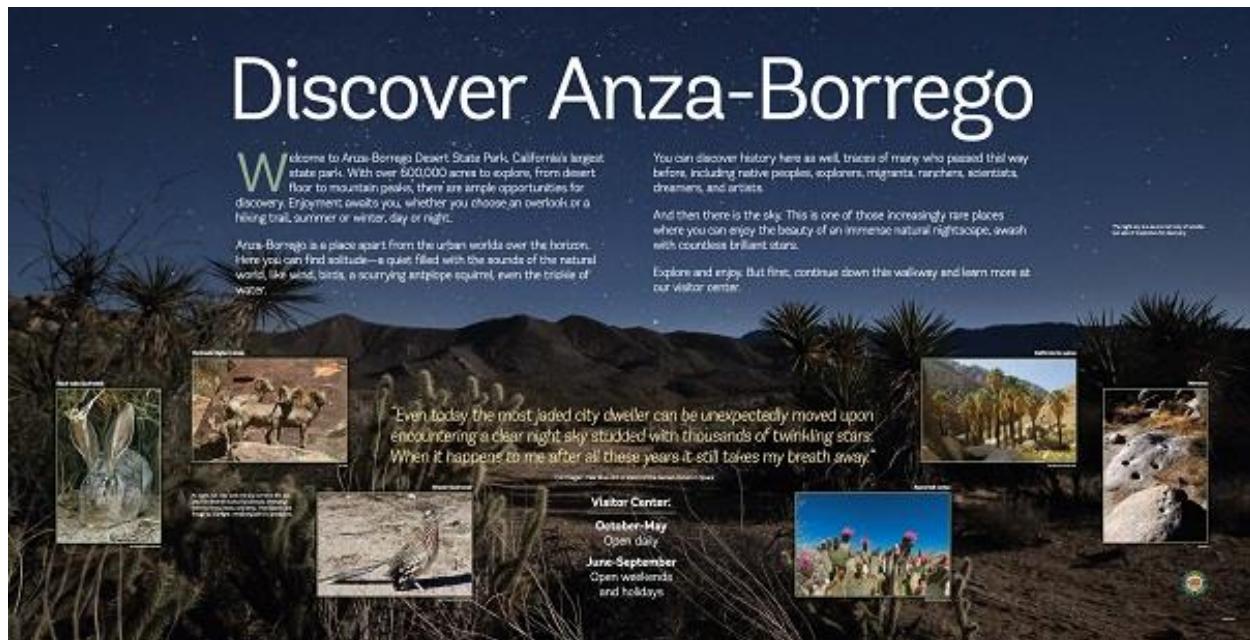
Other programs regularly offered feature eclipse information, dusk and moonlight walks, and various activities specifically about dark skies and light pollution, utilizing Globe at Night and other resources. The park's lead interpreter attended the Astronomical Society of the Pacific's "Astronomy From the Ground Up" workshop, which included lessons on dark-sky education, and has been invited into the local high school's science classroom to talk with students about light pollution and ways they can help. A powerpoint presentation was created to highlight the importance of dark skies, good lighting, and the efforts of Borrego Springs and the Park to be good stewards of this amazing resource.

Articles about the importance of Anza-Borrego's dark night skies have appeared in the latest three issues of the park's magazine, a free publication provided to park visitors. ABDSP efforts to protect and interpret its dark skies were also featured in the Summer 2015 issue of Desert Update, the newsletter of the park's cooperating non-profit organization, Anza-Borrego Foundation. The most visible lighting retrofit in the park, the installation of shielded amber lights at restrooms in the campgrounds and visitor center, is interpreted specifically at night-sky programs and is highlighted in the park magazine being published for 2018. Simple interpretive posters will appear on bulletin boards during the coming season. Printouts of IDA publications are on hand at the Visitor Center, and flyers produced by the Borrego Springs Dark Sky Coalition offer suggestions to visitors for improving their own outdoor lighting at home.

Four years ago, a scale model of the solar system was installed which reinforces the importance of the sky as one of Anza-Borrego's unique and valuable natural resources. Titled "Our Place in the Solar System" and sponsored by Oceanside Photo and Telescope, it helps park visitors get a sense of the immensity of our solar system as they walk on a 0.7-mile paved pathway from the "Sun" (at the Visitor Center) to the campground, with signs for each of the planets placed along the way. This scale model is rather unique in that the engravings representing the planets are to the same scale as their scaled distances from the sun, so even such a long walk only takes them as far as Saturn! A final sign placed at the campground end of the trail, indicates the sizes of Uranus, Neptune, and even Pluto (!), and references local landmarks approximating their scaled locations.

A new welcome panel at the Visitor Center uses a night sky photograph as the background, and includes a quote from Carl Sagan, alerting visitors to the importance of the park's dark sky:

*"Even today the most jaded city dweller can be unexpectedly moved upon encountering a clear night sky studded with thousands of twinkling stars. When it happens to me after all these years it still takes my breath away."*



Other organizations and businesses rely on our dark skies for their own night-sky programs as well. Local non-profit educational organizations offer stargazing, and several of the resorts in town advertise stargazing weekend packages, with telescopes and astronomers on hand. Dennis Mammana ([www.borregonightskytours.com](http://www.borregonightskytours.com)) is a local astronomer who makes his living providing custom night-sky experiences and teaching photography. His own photographs are featured on The World at Night's ([www.TWANight.org](http://www.TWANight.org)) website. There is no shortage of opportunities for public enjoyment of the skies over Anza-Borrego Desert State Park!

# Meteors and the Milky Way over Anza-Borrego

By Sally Theriault, State Park Interpreter II



"When you look at the stars and the galaxy, you feel that you are not just from any particular piece of land, but from the solar system." ~ Astronaut Kalpana Chawla

Have you ever seen a meteor streak through the Milky Way? For many of our visitors, Anza-Borrego Desert State Park®'s dark night sky offers their first glimpse of our galaxy! But did you know that dark skies are also important for wildlife? Scientists are discovering more links between natural light-dark cycles and the health of living things, including humans!

Our commitment to be good stewards of all of our resources, including the beautiful night sky, has prompted the Park to replace older, white lights with shielded, more dark-sky-friendly amber ones. Motion detectors and timers turn lights off when they're not needed. So enjoy our dark sky, and please let us know what you think of our efforts!



*Shielded light fixtures direct light downward, where it's needed.*

FULL MOONS	NEW MOONS
October 5, 2017	October 19, 2017
November 3, 2017	November 18, 2017
December 3, 2017	December 17, 2017
January 1, 2018	January 16, 2018
January 31, 2018	February 15, 2018
March 1, 2018	March 17, 2018
March 31, 2018	April 15, 2018
April 29, 2018	May 15, 2018
May 29, 2018	June 13, 2018
June 27, 2018	July 12, 2018
July 27, 2018	August 11, 2018
August 26, 2018	September 9, 2018
September 24, 2018	October 8, 2018
October 24, 2018	November 7, 2018
November 22, 2018	December 6, 2018
December 22, 2018	January 5, 2019
January 20, 2019	February 4, 2019
February 19, 2019	March 6, 2019
March 20, 2019	April 5, 2019
April 19, 2019	May 4, 2019
May 18, 2019	June 3, 2019
June 17, 2019	July 2, 2019
July 16, 2019	July 31, 2019
August 15, 2019	August 30, 2019
September 13, 2019	September 28, 2019

METEOR SHOWER	PERIOD OF ACTIVITY	EXPECTED PEAK
Quadrantid	Dec 28—Jan 12	January 3
Perseid	July 17—August 24	August 12-13
Orionid	Oct 2—Nov 7	October 21
Leonid	November 14—21	November 17
Geminid	December 4—17	December 14

*Meteor showers are often best viewed in the hours between midnight and dawn.*

## EMBRACE THE DARK SIDE OF ANZA-BORREGO DESERT STATE PARK

"The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.  
—Albert Einstein

I often include this favorite quote in my stargazing programs, not just because the view of the night sky over Anza-Borrego Desert State Park is so awe-(and art-)inspiring, but also because, as a Park Interpreter and as a former science teacher, I feel a responsibility to convey a sense of **What Science Is** to our visitors. Science starts with a question, and Astronomy started with our earliest ancestors, watching and wondering—asking questions and trying to make sense of the motions and patterns they observed in the heavens. Of course, they had far darker skies than we have now, and they spent much more time outdoors than we do today.

Summer is an excellent time to enjoy the dark skies of the Park: nighttime temperatures are generally mild, and the Milky Way meanders high overhead. For the next few months, three easy-to-spot planets will be found in the night sky—Venus is brighter than all but the moon, Jupiter has four moons that can be spotted in a decent pair of binoculars, and Saturn shines with a golden light all night long. A small telescope is needed to see the rings around Saturn, an excellent reason to attend one of the stargazing programs at the Visitor Center this summer! Held once a month on Saturday night, these programs are an ideal way to learn some of the constellations (and a little bit of the lore that goes along with them) as well as get a peek through our telescope at planets and other interesting features of the firmament. Check at the Visitor Center or ABF Park Store, or the Interpretive Schedule online, for dates and times. We also offer a free monthly star chart, as well as planispheres and related books for sale.

With light pollution widespread in most urban and suburban areas, dark places like Anza-Borrego have become meccas for stargazers and amateur astronomers. The Park has recently converted almost all of its lights to dark-sky-friendly fixtures to limit excess light, and amber bulbs that minimize our impact on wildlife. Scientists are continuing to learn about the negative effects of artificial lighting on the activities of animals, and are even looking at links between light pollution and human health! Longterm exposure to artificial lighting at night can suppress melatonin production, and has been associated with an increase in breast cancer risk, as well as weight gain and other health disruptions. So the next time you are in Anza-Borrego Desert State Park at night, leave the TV, cell phone and tablet screens off, and gaze heavenward instead!

By Sally Theriault, State Park Interpreter II

(this article was featured in the Anza-Borrego Foundation newsletter, **Desert Update**, Summer 2015)

## PRESERVING AND ENJOYING THE DARK SKIES OVER ANZA-BORREGO DESERT STATE PARK

"The most beautiful thing we can experience is the mysterious. It is the source of all true art and science."  
—Albert Einstein

Did you know that the first science was astronomy? Our ancestors, of course, spent much of their lives outdoors, watching and wondering, trying to make sense of the motions and patterns they observed in the heavens. Go outside at night while visiting Anza-Borrego Desert State Park, and you'll be treated to a spectacular view of the Milky Way—perhaps your first!

As light pollution renders more and more stars invisible to urban dwellers, dark places like Anza-Borrego have become meccas for stargazers and amateur astronomers. Beyond aesthetics, scientists continue to learn about the negative effects of artificial nighttime lighting on human health and on the activities of wildlife. The Park is doing its part to keep the night sky as dark as possible by shielding light fixtures and using lower-wattage bulbs wherever practical. Please let us know what you think about the value of darkness as a park resource!

Mild nighttime temperatures and mostly cloudless skies also contribute to excellent views of the desert night sky. A pair of binoculars and a guide to constellations can enhance your enjoyment of the stars.

Monthly stargazing programs are held at the State Park Visitor Center, with telescope viewing when weather permits. Dennis Mammana ([www.DennisMammana.com](http://www.DennisMammana.com)) teaches classes in Stargazing and Night Sky Photography through Anza-Borrego Foundation ([www.theabf.org](http://www.theabf.org), 760-767-0446). Star charts and related books are available at the State Park Visitor Center and at the State Park Store in The Mall.

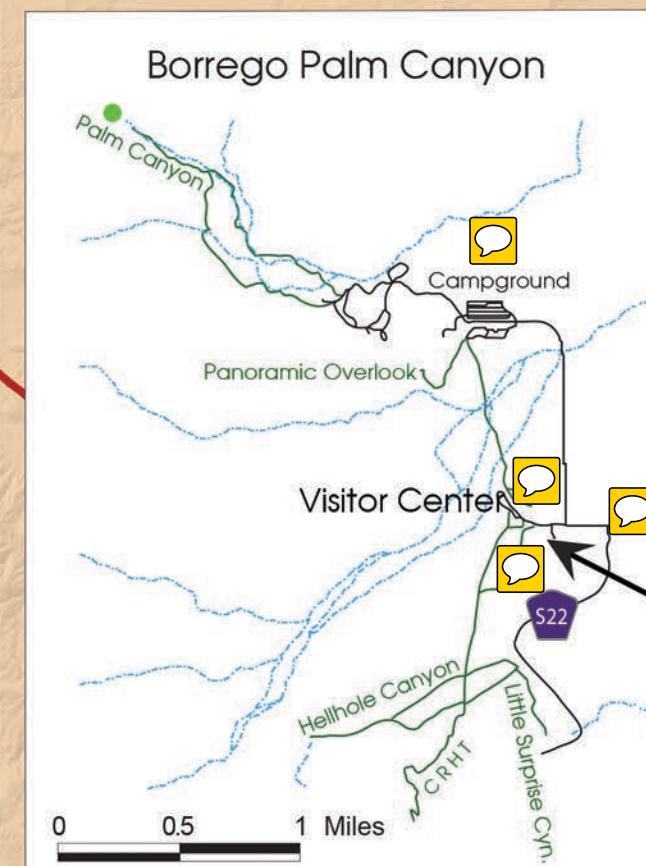
By Sally Theriault, State Park Interpreter II

(this article appeared with photos in the 2014 edition of the free ABDSP publication for visitors)

Santa Rosa - San Jacinto Mountains  
National Monument

# OUTDOOR LIGHTING LOCATIONS

## ANZA-BORREGO DESERT STATE PARK®



### Legend

- Railway
- Interstate Highway
- Paved Roads
- Primitive Roads
- Hiking Trails
- Historic Corridor
- Intermittent Stream
- Route to Flower Fields
- Flower Fields
- Spring
- Point of Interest
- Palm Grove Locations
- Developed Camping
- Primitive Camping
- Interstate Highway
- State Highway
- County Highway



© 2016 California State Parks

### Vehicle and Travel Regulations

**Vehicles:**  
All vehicles operated in the park must be street legal and on designated routes.  
Off-road travel is not permitted.  
OHVs are encouraged to visit nearby Ocotillo Wells State Vehicular Recreation Area.

**Bicycles:**  
Both primitive jeep roads and paved roads are open to bicycles but remember, bikes are excluded from all hiking trails except Coyote Canyon and Hawi-Vallecito.  
Off-trail travel is not permitted.

**Equestrians:**  
Equestrians are welcome on all primitive roads, equestrian trails in Coyote Canyon and Hawi-Vallecito, the California Riding and Hiking Trail and the Pacific Crest Trail. Remember, horses are excluded from all other hiking trails.  
Off-trail travel is not permitted.

**NOTE:** When a trail joins a primitive road, the trail will follow the road.

### McCain Valley Resource Conservation Area Bureau of Land Management

Digital elevation model with current GIS data.

## ANZA-BORREGO DESERT STATE PARK LIGHTING INVENTORY 2017

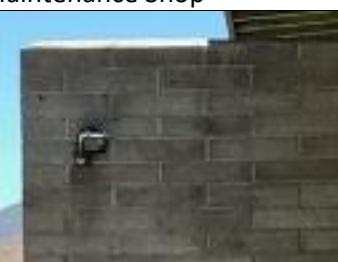
Visitor Center Area				
Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
		8, Progress Can with Par16 Amber lamp, 3W	Light Restroom Building at parking lot of Visitor Center	Yes, full cutoff, Amber
		22 total fixtures, with low-wattage lamps inside translucent lens cover: 8 are 5W Amber A-lamp (<500 lumens) and 14 are yellow LED or CFL "bug lites" (<2700K, approx. 550 lumens)	Light walkway during evening events, and for 1 hour after closing during winter months.	8 Yes/14 No. Not full cutoff, but lamps are amber or yellow, and are on for very brief periods after dark (on timer)
		17, 5W Amber A-lamp behind grille 	Light staircase, front porch, and "Bridge" overlook during evening programs	Yes, low-wattage Amber lamps; design of grille ensures that light shines down, not up
		13, 3W Par16 lamp behind grille 	Light plaza and staircase to outdoor amphitheater	Yes, low-wattage Amber lamps; design of grille directs light down, instead of up

District Office Complex ( $\leq$ 0.25 mile from the Visitor Center)				
Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
<b>Begole Archeological Research Center (BARC)</b>				
		9, Recessed can fixtures in outdoor ceiling, with 3W Par16 lamps	Used during evening events, then turned off	Yes, full cutoff with low wattage directional Amber lamps; all are recessed under eaves
<b>Colorado Desert District Administration Building (HQ)</b>				
		1, 8W Par30 Amber lamp	Lights front door and steps to parking area	Yes; low wattage directional Amber lamp on motion detector; located under overhanging eave
		4 fixtures, each with 1 8W Par 30 Amber lamp	Light back door as well as path between buildings and to parking area	Yes; low wattage directional Amber lamps on motion detectors are on only when needed for building egress
<b>Natural Resources Building</b>				
		2 fixtures, one has 2 8W Par30 Amber lamps, the other has just one	One fixture lights door and stairs; one lights employee route to parking area	Yes; low wattage directional Amber lamps on motion detectors are on only when needed for building egress

Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
Paleontology Laboratory Building				
		5 fixtures, each with one 8W Par30 Amber lamp	Light exterior doors (some with ramps, some with stairs)	Yes; directional Amber lamp(s) on motion detector; off when not needed
		Glass fixture with 3W Par16 Amber lamp	Not used often; would light a door that is not used at night	No; remove fixture, or remove glass housing which acts as a lens to scatter light
Borrego Palm Canyon (BPC) Campground Area				
Entrance Kiosk				
		1, Progress Can with Par16 lamp, 3W Amber	Lights Informational sign at entrance to campground	Yes, full cutoff, Amber, low wattage
		1, directional flood, Amber Par30, 8W	Lights Vehicle stopped at entry kiosk	Yes, Amber low-wattage, directional, motion detector

BPC Campground Office (near Entrance Kiosk)				
Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
		1, directional flood, Amber Par30, 8W	Lights rear door to kiosk at campground entrance	Yes, Amber low-wattage, directional, motion detector
		2, Amber Directional Flood lamps w/ motion detector, on campground office building	Lights Self-Pay station area and customer vehicle when pulling up to pay fees	Yes; Amber, directional, motion detector
		1, Hubbell Laredo LNC "Nano" Amber Wallpack, 7W, on campground office building	Lights front door area of campground office (token machine, informational signs)	Yes; full cutoff, Amber
		Fluorescent tubes sheathed in yellow plastic	Lights bulletin board outside of campground office	No; covered but not fully shielded; Amber color, not very bright; roof could be extended into an effective shield

Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
Lower BPC Campground Loop Comfort Stations (4 similar buildings)				
		 3 fixtures each building, with 5W Amber "A" lamps, half are located up under eaves and behind fascia	Provide nighttime lighting for campers using restrooms or showers	6 Yes/6 No: 6 fixtures are situated high enough that building itself acts to contain light; move 6 up
BPC Maintenance Area				
		1, Hubbell Laredo LNC "Nano" Amber Wallpack, 7W	Lights entry to Maintenance yard	Yes, full cutoff Amber
		2, Amber PAR-38	Lights Maintenance Work Area	Yes, Amber, Under roof, directed straight downward
		2, wallpacks, unknown type	Light Maintenance Shop vehicle bay area; covered by extensive roof area	No; while covered, white light can escape to sides (but used rarely, as staff do not work after 4 pm)

		Wallpack, unknown type	Lights "front door" area of former park residence now used as Maintenance Office	No; but not used, as maintenance staff do not generally work after 4 pm, and do not use this entry
		Unknown type; controlled by user-operated switch when employees refuel after dark	Light Gasoline Pumps	No; white, but under cover and used rarely
		Incandescent bulbs (most likely 60 watt) in flood fixture at rear entrance to maintenance office; should be replaced with directional amber lamps or a fully shielded fixture	Light rear entrance to maintenance office	No; but located under cover of eaves and rarely used, as staff generally do not work after 4 pm
Employee Residence near BPC Maintenance Shop				
		1, Floodlamp near front door	Lights employee's front door; motion detector	No; Replace with Progress Can or Amber Wallpack
		1, floodlamp under garage eaves	Light's employee's back door and backyard	No; (white light, although under eave so no uplight); replace with directional amber flood, or amber wallpack

Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
Upper BPC Campground Loop Comfort Station				
		2, Progress Can with yellow CFL “bug” lamps (to be replaced with 3W Amber Par16 lamps)	Light front of restroom building (informational sign, sink areas)	Yes, full cutoff, low-wattage, low color temperature
		2, Progress Can with yellow CFL “bug” lamps (to be replaced with 3W Amber Par16 lamps)	Light side of restroom building (doors to toilets, showers)	Yes, full cutoff, low-wattage, low color temperature
Hookup Loop of BPC Campground				
		52, candelabra-base fixture with 5W LED lamp in electrical hookup box	Light electrical outlets and circuit breakers at each of 52 hookup sites	Yes, lamps are <500 Lumens and <2700K. We are looking at options to further decrease color temperature and brightness
Employee Residence in Upper BPC Campground Loop (not in service)				
		2, white lights, one wallpack in front and one unknown fixture that aims light downward in back	Light front and back porch/door areas of vacant employee residence	No; not used as residence is not in service; will be replaced with compliant lighting if house becomes occupied again

Tamarisk Grove Campground Area				
Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
		6, Progress Cans with 3W PAR-16 Amber lamps	Light Comfort Station	Yes; full cutoff with low wattage Amber directional lamps
		1, Hubbell Laredo LNC "Nano" Amber Wallpack, 7W	Lights Stop sign and self-pay information at entrance station	Yes; full cutoff, Amber
		2, Flood Fixtures, with 1 3W Par16 Amber lamp each, with motion detectors	Light front porch of entrance station: door, informational signs, bulletin board, and interpretive window display	Yes; directional low-wattage amber lamps on motion detectors, located under eaves
		1, Hubbell Laredo LNC "Nano" Amber Wallpack, 7W	Lights shop area	Yes; full cutoff, Amber

		3, 2-lamp flood fixtures, "Defiant" white, on motion detectors; garage, back porch fixtures are located under eaves	Employee Residence Light front door and steps, garage door and driveway, and back door and back porch	No; Residence is not occupied, so lights are not regularly in use; plan is to replace with Amber wallpacks or directional floods
		2 flood fixtures with 1-2 lamps each; both have non-operational bulbs, and are switched off (campfire center is not currently being used for programs)	One fixture would light the path to the campfire center; the other would light the seating area	No, but is not currently being used; will use directional Amber LED lamps if/when campfire center is used
Vern Whitaker Horse Camp (located in lower Coyote Canyon, north of Borrego Springs)				
Building View	Fixture Closeup	Number, Description	Application	IDA Compliant?
		8, Progress Cans with 3W PAR-16 Amber lamps	Lights Restroom Building and shower token vending machine	Yes, full cutoff can fixtures with low-wattage Amber lamps
		Glass fixture, with 3W Par16 directional lamp	Lights front door of Campground office at Horse Camp	No; replace with can fixture or remove glass housing
		Total number of fixtures: 192	Compliant: 155 (81%)	Non: 37 (19%)



Anza-Borrego Desert State Park  
200 Palm Canyon Drive  
Borrego Springs, CA 92004

June 30, 2017

Board of Directors  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, Arizona 85719

Dear IDA Board:

I am happy to support the nomination of Anza-Borrego Desert State Park for consideration as an International Dark Sky Park.

The General Plan for the Park and our Interpretation Master Plan include recognition of the very dark skies over Anza-Borrego as one of our unique resources, to be protected for wildlife as well as for people, and to be interpreted for the thousands of visitors who come here every year to enjoy the night sky, solitude, and stunning vistas.

Over the last few years, park staff have invested considerable time and expense to convert over 90% of our lighting to forms that are night-sky friendly, utilizing amber lamps wherever possible, directing light downward, and making sure lights turn off when no longer necessary. We have appreciated input from IDA staff during our retrofit efforts, and will continue to work toward 100% compliance.

The Park is committed to being a “good neighbor” to the International Dark Sky Community of Borrego Springs and to nearby Palomar and Mt. Laguna observatories, and seeks to educate the public on the importance of dark skies and night-sky friendly lighting, through regular night sky interpretive programs.

We would be honored to receive this designation, and proud to support all that it represents.

Sincerely,

Kathy Dice  
State Park Superintendent III  
Anza-Borrego Desert State Park



## Borrego Springs Dark Sky Coalition

P.O. Box 310

Borrego Springs, CA 92004-0310

July 17, 2017

Board of Directors  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, AZ 85719

Dear IDA Board of Directors:

It is with much pleasure that the Borrego Springs Dark Sky Coalition supports the application of the Anza-Borrego Desert State Park to become an official IDA Dark-Sky Park. Through the park's diligent efforts, commitment to protecting the dark skies, effective outdoor lighting, and excellent educational programs, the Anza-Borrego Desert State Park serves as a model and inspiration for what our state parks can do to protect the night sky.

In July of 2009, the IDA designated the village of Borrego Springs as the second International Dark Sky Community. Eight years later, Borrego Springs remains the only IDA Dark Sky Community in California. Borrego Springs is surrounded by the 650,000-acre Anza-Borrego Desert State Park (ABDSP), which forms a buffer around the community, effectively shielding our Dark Sky Community from the lights of Southern California urban areas.

With the designation of ABDSP as a Dark-Sky Park, the entire desert region of northeastern San Diego County transforms itself into a dark-sky regional preserve, with an adjoining IDA Dark-Sky Park and IDA Dark-Sky Community, unprecedented in California. Thus, the IDA designation of ABDSP as a Dark-Sky Park will focus more attention on the Anza-Borrego Desert State Park and region, and provide millions of people living within a hundred-mile radius the opportunity to view the Milky Way, brilliant stars, and learn about preserving and protecting our precious natural resource and heritage that is the dark night sky.

Sincerely,

*Betsy Knaak*  
Betsy Knaak  
Chair, Borrego Dark Sky Coalition

# Riverside Astronomical Society, Inc.

P.O. Box 21264

Riverside, CA 92516

[www.rivastro.org](http://www.rivastro.org)

July 22, 2017

Board of Directors  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, AZ 85719-2103

Dear IDA Board Members,

The Riverside Astronomical Society enthusiastically supports the application of the Anza-Borrego Desert State Park to be designated an International Dark-Sky Park. The Anza-Borrego Desert State Park has been working for several years to retrofit their lighting to be more night-sky friendly, such as eliminating bright white lights near the park's headquarters and Visitor Center. Because the dark skies of Anza-Borrego are so pristine, our Society has presented the Nightfall Start Party at the Palm Canyon Hotel and RV Resort in Borrego Springs each Autumn, typically the last weekend in October (<http://nightfallstarparty.com/>). This Star Party is unique in that it takes place at a desert resort, with all the amenities one would expect for such a venue. The resort changes all outdoor lighting to red-light-only for the entire three-four nights of the event, augmenting the already beautifully dark night skies. This Star Party is a favorite of amateur astronomers from throughout the West and is a great event for introducing friends and family members to the beauty of the night sky. The efforts of the Anza-Borrego Desert State Park officials to improve and perpetuate the darkness of the local night sky are greatly appreciated by the amateur astronomers of Southern California. Recognizing these efforts by designating the park as an International Dark-Sky Park will provide very good publicity for the park as a place to enjoy at night as well as during the day.

Sincerely,



Richard J. Debus, President  
Riverside Astronomical Society

July 24, 2017

Board of Directors  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, AZ 85719

Re: Anza-Borrego Desert State Park

Please accept this as our letter of support for the Anza-Borrego Desert State Park's application for designation as an International Dark Sky Park. A designation most deserving given the quality of the Park's dark skies and ongoing efforts to preserve and improve the dark sky.

Borrego Springs has been an IDA designated International Dark Sky Community since 2009. We have achieved and maintained this distinction in no small part due to the protection from urban sky glow afforded us by the Anza-Borrego Desert State Park mountains and wilderness that surround our community.

This is a recommendation without reservation and of the highest caliber!

Sincerely,



Linda Haddock  
Executive Director



Anza-Borrego Foundation  
587 Palm Canyon Dr. #110  
PO Box 2001  
Borrego Springs, CA 92004

July 24, 2017

Board of Directors  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, Arizona 85719

Dear IDA Board of Directors:

Please accept this letter as full support for the nomination of Anza-Borrego Desert State Park as an International Dark Sky Park on behalf of the Anza-Borrego Foundation. Earning this designation will help to preserve the Park's magnificent night skies and diverse wildlife for our hundreds of thousands of yearly visitors.

Anza-Borrego Foundation has offered night-sky programming in the past and supports the state park's night-sky interpretive events. Our organization's mission is to protect and preserve the natural landscapes, wildlife habitat and cultural heritage of Anza-Borrego Desert State Park for the benefit and enjoyment of present and future generations.

We are excited to support the possibility of the Dark Sky Park designation and the opportunity to increase public outreach and educational offerings about the importance of dark skies.

Sincerely,

A handwritten signature in blue ink that appears to read 'Sara Husby'.

Sara Husby  
Executive Director  
Anza-Borrego Foundation



## ANZA-BORREGO DESERT NATURAL HISTORY ASSOCIATION

Connecting People, Nature & History through Education and Interpretation of the Anza-Borrego Desert Region

July 17, 2017

Board of Directors  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, AZ 85719

Dear IDA Board of Directors:

The Anza-Borrego Desert Natural History Association whole-heartedly supports the application by Anza-Borrego Desert State Park to become an IDA Dark-Sky Park.

The Anza-Borrego Desert State Park is the largest state park in the continental United States. At 650,000 acres, it is one-fifth of San Diego County. The park is located two to three hours from millions of people who cannot see the Milky Way from their city homes because of light pollution.

The park is largely undeveloped and includes vast acreage of wilderness. Its towering, protected mountain ranges serve as a barrier for light trespass from the surrounding southern California cities, safeguarding the incredible view of the night sky for park visitors and residents of the IDA Dark Sky Community of Borrego Springs.

Only a very small percentage of the park is developed, mostly in the area immediately west of Borrego Springs. There, the park has made a commitment to dark-sky outdoor lighting, changing out fixtures and minimizing lighting throughout the developed area. In addition, the park offers regular, high quality stargazing and other related educational programs about the night sky free of charge for the general public.

The Anza-Borrego Desert Natural History Association and its 2,000 members are dedicated to education and interpretation as a means to instill appreciation of the desert environment and to promote a desire to conserve and protect our natural and cultural resources. From our experience, education of the public about light pollution and good night lighting, as well as opportunities to gaze into the dark night sky, are of critical importance to efforts to protect the dark. Therefore, we believe the IDA designation of Anza-Borrego Desert State Park as a Dark-Sky Park is a very positive step toward protection of the dark night sky.

Sincerely,

*Betsy Knaak*  
Betsy Knaak  
Executive Director

Jim Wilson, Board Chair, Joyce Anderson, Reena Deutsch, Sandy Huff,  
Betsy Knaak, Executive Director, Joe Migliore, Jackie Spacek, John Stephenson, Marcy Yates

**ABDNHA IS A 501C3 EDUCATIONAL, NONPROFIT CORPORATION, ESTABLISHED 1971.**  
ABDNHA, P.O. Box 310, Borrego Springs, CA 92004-0310 \* (760) 767-3052 \* abdnha2@att.net \* [www.abdnha.org](http://www.abdnha.org)

**EXPLORE DESERT WONDERS**  
OVER 600,000 ACRES OF DESERT NIGHT SKIES

FONTS POINT:  
SEE THE  
BORREGO BADLANDS  
UNDER THE  
MILKY WAY

# ANZA-BORREGO DESERT STATE PARK

CALIFORNIA'S LARGEST STATE PARK    EST. 1933

