

Kissimmee Prairie Preserve State Park International Dark Sky Annual Report October 1, 2017- September 30, 2018

General Information

Kissimmee Prairie Preserve State Park, hereafter referred to as KPPSP or Preserve

- Current information for the site IDA contact(s):

KPPSP office number: 863-462-5360

** Katie Ferguson, Park Services Specialist, Katharine.Ferguson@dep.state.fl.us

Alex Creager, Park Manager, Alex.Creager@dep.state.fl.us

Jen Benson-Hughes, Environmental Scientist I, Jennifer.BensonHughes@dep.state.fl.us

Steve Smith, Friends of Kissimmee Prairie Preserve member, steve11255@aol.com

- Estimate number of site visitors in the last year. Of those, how many participated in dark-skies programming? 30,089 people visited the Preserve during the fiscal year (July 2017-June 2018). 18,484 were campers. The Preserve offers an Astronomy Pad for people that are specifically here for observing the night skies; over 1,234 people have reserved and camped in the Astro Pad area (5 sites) with over 421 reservations. Unfortunately, the report for the Astro Pad numbers use different dates than the visitation and general camper reports, so they are not as comparable as we would like them to be. The dates of the Astro Pad report are from January 1, 2018- December 31, 2018. Notice that the end date is in December so we expect the number to increase.

The important take home message is **since the designation in 2016, there has been an increase of 14,000 visitors!!**

Lighting in the Preserve

- Were any new lighting projects completed this year? If so, describe.

No new projects or improvements

- Is any lighting within the Park/Reserve non-compliant with the LMP (as permitted at the time of IDA designation)? If so, what is the plan to bring the remainder into compliance within the allowed window of time?

As per our application: there are 11 lights that do not comply with the LMP. Last year 2 other noncompliance lights were corrected. We have 2.5 more years to comply fully with the LMP. Most of our fixtures are easy fixes. Parshield flood light shields and wall-mounted canister fixtures need to be purchased and installed. Flood lights that no longer work (or not necessary) need to be removed. An electrician was contracted in October 2018 to improve a couple lights in the Preserve. These lights will be on next year's report.

- Was any new territory added to the Park/Reserve? If so, does any lighting on it comply with the LMP? If lighting on new territory doesn't comply, is there a plan to bring it into compliance?

No new territory was added to the Park.

Lighting in Communities

- Were any changes made to local/municipal outdoor lighting policy in the past year? If so, describe and include text of any code language added or changed.

Not to our knowledge; although they are considering changes. The mayor of th

e city of Okeechobee is a regular camper to the Preserve and is a proponent of dark sky friendly lights. He has been in contact with the county and city code developers.

- Were there any new municipal lighting installations (or similar, large-scale installations on commercial property) built in the last year to show as examples built to your dark sky-friendly code?

There are plans for Okeechobee County to install street lights at bus stops along the road that leads to the Preserve in an effort to improve safety for school children. It is our understanding that they will be dark sky friendly. The Preserve is in talks with the county commissioner that proposed the idea to ensure the lights will not impair night viewing and will be safe for drivers and the children.

Sky Quality in the Preserve

- Were sky quality data taken in the past year? If possible, include a table or figure showing the information.

Yes, see the Table below. We had a few issues with the automated Unihedron equipment and software again this year. This is one major reason we asked the Friends of Kissimmee Prairie Preserve to help with the equipment, software, and the data. The table below was created by them. They created a protocol (attachment: KPP_Meter_Protocol) for the Unihedron and have been diligently keeping it running, recording data, and delivering the data in a usable format to the staff. The dates below are around the new moon, which would show the darkest skies.

Observation Date (MM/DD/YY)	Local Observation Time (HH:MM) [24hr]	Latitude in decimal degrees, DD.DDDDD	Longitude in decimal degrees, DDD.DDDDD	Comments on Location	Sky Quality Meter Reading	Sky Quality Meter Serial #	Estimate Cloud Cover (clear or clouds over 0, 1/4, 1/2, 3/4 of sky)	Comments on Sky Conditions	Additional Comments
10/10/17	23:00	27.58472	-81.04553	Astropad	21.59	4282	Autonomous		SQM-LU-DL
10/11/17	23:00	27.58472	-81.04553	Astropad	21.56	4282	Autonomous		SQM-LU-DL
10/12/17	23:00	27.58472	-81.04553	Astropad	21.60	4282	Autonomous		SQM-LU-DL
10/13/17	23:00	27.58472	-81.04553	Astropad	21.64	4282	Autonomous		SQM-LU-DL
10/14/17	2:00	27.58472	-81.04553	Astropad	21.59	4282	Autonomous		SQM-LU-DL
07/06/18	22:00	27.58472	-81.04553	Astropad	21.60	4282	Autonomous		SQM-LU-DL
07/07/18	1:50	27.58472	-81.04553	Astropad	21.37	4282	Autonomous		SQM-LU-DL
07/07/18	23:30	27.58472	-81.04553	Astropad	21.72	4282	Autonomous		SQM-LU-DL
07/08/18	23:00	27.58472	-81.04553	Astropad	21.76	4282	Autonomous		SQM-LU-DL
07/09/18	22:54	27.58472	-81.04553	Astropad	21.83	4282	Autonomous		SQM-LU-DL
07/10/18	22:40	27.58472	-81.04553	Astropad	21.86	4282	Autonomous		SQM-LU-DL
07/11/18	22:55	27.58472	-81.04553	Astropad	21.64	4282	Autonomous		SQM-LU-DL
07/14/18	22:45	27.58472	-81.04553	Astropad	21.76	4282	Autonomous		SQM-LU-DL
07/14/18	4:50	27.58472	-81.04553	Astropad	21.72	4282	Autonomous		SQM-LU-DL
07/17/18	2:55	27.58472	-81.04553	Astropad	21.57	4282	Autonomous		SQM-LU-DL
07/18/18	4:55	27.58472	-81.04553	Astropad	21.70	4282	Autonomous		SQM-LU-DL
07/19/18	4:40	27.58472	-81.04553	Astropad	21.75	4282	Autonomous		SQM-LU-DL
07/20/18	3:25	27.58472	-81.04553	Astropad	21.57	4282	Autonomous		SQM-LU-DL
09/01/18	21:05	27.58472	-81.04553	Astropad	21.52	4282	Autonomous		SQM-LU-DL
09/03/18	21:10	27.58472	-81.04553	Astropad	21.52	4282	Autonomous		SQM-LU-DL
09/06/18	3:18	27.58472	-81.04553	Astropad	21.80	4282	Autonomous		SQM-LU-DL
09/06/18	21:15	27.58472	-81.04553	Astropad	21.43	4282	Autonomous		SQM-LU-DL
09/08/18	4:00	27.58472	-81.04553	Astropad	21.73	4282	Autonomous		SQM-LU-DL
09/10/18	2:00	27.58472	-81.04553	Astropad	21.66	4282	Autonomous		SQM-LU-DL
09/12/18	3:40	27.58472	-81.04553	Astropad	21.58	4282	Autonomous		SQM-LU-DL
09/13/18	1:05	27.58472	-81.04553	Astropad	21.60	4282	Autonomous		SQM-LU-DL
09/15/18	2:00	27.58472	-81.04553	Astropad	21.72	4282	Autonomous		SQM-LU-DL

- Did sky brightness increase over the previous year? Decrease?

It is similar, but I do not see any 22 or 23 readings were not uncommon in the past few years. The average reading according to last year's data is 21.27 but this number also includes full moons. The recent data is distressing and may indicate a downward trend in the darkness in this area.

We need to compare "like with like" data. We will put more effort in tracking the new moon readings and making graphs that show the results, so we can use them in presentations and to advocate for the night sky in the surrounding communities.

- Is a permanently mounted sky monitor installed, or are there plans to install one?

Yes we have the autonomous UNIHENDRON DQM-DU-DL installed near the Astro Pad on the Preserve as of 9/1/2016. The Citizens Support Organization (Friends of Kissimmee Prairie Preserve) that helps the Preserve has taken responsibility for the Unihedron in May 2018. It was deemed that the staff at the Preserve needed assistance with maintaining and obtaining data from the Unihedron. The Friends of KPP have at least 2 astronomy-minded individuals on their board and understand the importance of the designation, therefore they are happy to help us with the Unihedron. They also updated the protocol and smooth-lined the data retrieval/interpretation process.

Conservation and Research in the Preserve

- Any ongoing conservation and/or research programs at the site? If so, who runs them, and what are the goals?

No research programs are ongoing related to the dark night sky other than dark sky measurements with the Unihedron. Most research is related to the federally endangered Florida grasshopper sparrow.

- Are there any new research results to report? Have any been published this year?

None.

Funding

- Currently administering any grants related to dark-skies programming? If so, describe. No

- Were any new grants won this year? No

- Are there plans to apply for any future grants? Not at this time, but we will be opportunistically looking. Since our Friends of KPP is more involved, we may be able to find some grants and apply.

Arts and Culture

- Is any programming ongoing or planned blending the arts/culture with dark skies? If so, describe. It has been discussed to have an astronomy photography program for the visitors. The Friends of KPP or an astronomy group would be instrumental in the program.

Outreach

- Were any new programs begun this year?
No **new** programs.

- Programs at KPPSP that highlight the dark sky?

1. "Prairie Days and Prairie Nights" (second annual) occurred on February 2018. Two hundred and thirty-three people attended the event; almost triple the number of last year's event of 80 people.
2. One or two Astronomical Societies held their annual programs at the Astro Pad on the Preserve and 20-30 members attended.
3. New astronomy signs were made by the Florida Park Service and installed in December 2017. The signs specifically address our need to protect the viewing conditions for our visitors. One sign states "Stars Up, Lights Down. Turn off high beams beyond this point" and was positioned 1.3 miles before visitors reach the campground. Another sign states "Welcome to the Red Light District" and has the astronomy rules listed (no white lights allowed) and was placed at the entrance to the Astro Pad. Another new sign directs people to the Astro Pad, but was struck by a vehicle and needs to be replaced (not pictured). Photographs of signs below.



4. Astronomy Programs by 2 resident volunteers at KPPSP that donated 223 hrs over 3.5 months:
 - Star Gazing for Beginners: 9 adults 4 children
 - Daily/Nightly presentations: approximately 300 people attended

- If so, are they complete or ongoing?

“Prairie Days and Prairie Nights” is an annual event. We will be continuing our night sky interpretation programs. **We have 2-3 resident volunteers scheduled this winter to conduct astronomy programs** daily (weather permitting) and we hope to have a few staff presenters as well. Astronomy groups are usually helpful and welcome campers over to their Astro Pad sites, but this data is not recorded.

- Are statistics available (e.g., how many visitors served, donations, etc.).

See above for visitor numbers.

The Dark Sky Fund through the Friends of KPP is at \$250.93. The Friends of KPP help support the interpretation and resource management efforts at the Preserve. We plan on either ordering new panels for education and outreach or dark sky friendly lights.

Community and Media Relations

- Any new media coverage you would like us to know about? May include e.g., PDFs as attachments
 - 7/28/2018 Florida State Parks: <https://www.floridastateparks.org/learn/dark-sky-designation>
 - 8/27/2018 Florida State Parks: <https://www.floridastateparks.org/parks-and-trails/kissimmee-prairie-preserve-state-park>
 - 4 out of the 8 scrolling photographs are night sky. We noticed something that needs to be updated (once our Designation is reinstated): “This Park is Recognized by: The Florida Birding Trail” AND International Dark Sky Association.
 - 1/19/2018 Orlando Weekly: <https://photos.orlandoweekly.com/20-secluded-florida-camping-spots-where-you-can-actually-see-the-stars/?slide=1&kissimmee-prarie-fl-stateparks>
 - 5/5/2018 Space Tourism Guide: <https://spacetourismguide.com/best-places-stargazing-orlando/>
 - 4/16/2018 Sky and Telescope: https://www.reddit.com/r/spaceporn/comments/8bylxo/kissimmee_prairie_preserve_state_park_4673x4948/
 - 12/27/2017 The Real Florida Connection: <https://content.govdelivery.com/accounts/FLDEP/bulletins/1c802fe>
 - 7/12/2018 Go Pet Friendly: <https://blog.gopetfriendly.com/22-best-dark-sky-parks-for-pet-friendly-camping/>
 - *****4/22/2018 The Astro Geeks: https://www.theastrogeek.com/dark_sky_journal/kissimmee-prairie-preserve-state-park/4/2018**
 - They come out every year and always do a good blog about their visit. They do both landscape and night time object photography.
 - <https://www.jacksonville.com/news/columnists/mark-woods/2017-12-23/mark-woods-bright-stars-are-right-our-back-yard>
 - 12/23/2017 The Florida Times-Union, Jacksonville.com: <https://www.skyandtelescope.com/astronomy-blogs/astronomy-holidays-stargazing-tour/10-dark-sky-parks-in-the-u-s-you-need-to-visit/>
 - 4/13/2018 OARS: <https://www.oars.com/blog/8-cool-places-camp-perseid-meteor-shower/>
 - 3/26/2018 The Road Slowly Traveled blog: <https://theroadslowlytraveled.com/kissimmee-prairie-preserve-state-park-okeechobee-fl/>
 - Blog mentions the Astro Pad and the policy of no white lights
 - *****7/10/2018 National Public Radio WMFE 90.7: <http://www.wmfe.org/intersection-stargazing-in-florida/88988>**
 - Interview with Derek Demeter, director of the Seminole State College planetarium**
 - 12/12/2017 Orange Blossom Bride: <https://www.orangeblossombride.com/inspiration/starry-night-elopement/>
 - 5/18/2018 South Florida National Parks Camera Club: <http://www.sfnpc.org/calendar1/2018/5/18/possible-camping-trip-kissimmee-prairie-preserve-state-park>
 - Many other blogs....
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- Any engagement with local governments, community organizations, or private landowners in the past year to report?

Mentioned previously in this report: see Lighting in Communities.

During the recent Land Management Review in September 2018, Jen Benson-Hughes spoke with the South Florida Water Management District’s representative about the lights at a water control structure on the Kissimmee River that is visible from the Preserve. We (SFWMD and KPPSP) will be looking into making these lights better.

Other Things to Note:

- New Unit Management Plan for KPPSP (attached to email). We have not received the final document; this is the draft that was approved by the Legislature. Below is where dark sky is mentioned in the document; **pages are referenced as the PDF pages** not the actual pages:

- Pg 10 in the Natural section
- Pg 22 Park Significance section
- Pg 80 Special Natural Features section
- Pg 109 Planned Use of Adjacent Lands section
- Pg 111 Natural Features section
- Pg 123 Objective: Develop 3 interpretive, educational, and recreational programs section
- Pg 124 Objective: Improve and/or repair 10 existing facilities and 20 miles of trail/road
- Pg 133 Park Administration and Operations section
- Pg 160 KPPSP Advisory Group Members and Report; Paul Gray (Audubon Florida)
- Pg 161 KPPSP Advisory Group Members and Report; Audrey Kuipers (Okeechobee Soil and Water Conservation District)
- Pg 162 KPPSP Advisory Group Members and Report; John Strenth (Florida Fish and Wildlife Conservation Commission, Law Enforcement)
- Pg 163 KPPSP Advisory Group Members and Report; Dowling Watford (Okeechobee Historical Society and Mayor of the City of Okeechobee)
- Pg 164 KPPSP Advisory Group Members and Report; Brent Bonner (Avon Park Air Force Range)
- Pg 184 KPPSP Advisory Group Members and Report; Staff Recommendations
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- St George Island State Park is looking to become a Dark Sky Park and got in touch with us. We referred them to the IDA webpage and gave them contact information.
- Satellite Beach, FL recently (10/12/2018) contacted us – we will be working with them to help them with their efforts to make the night time healthier and safer. They asked if we could do a presentation. No date is set at this time.

Our Plans for this Coming Year (not set in stone):

- Determine new lights in the area that are impacting the Preserve's night environment and contact the owners.
- Touch base with the local electric companies.
- Fix five lighting fixtures in the Preserve.
- Add light blocking curtains to all the windows of the 2 residences in view of the Astro Pad.
- Create a dark sky interpretive handout for campers at the Preserve.
- Improve and update our dark sky interpretive panels.
- Reach out to other dark sky advocates in the state.
- Have our Interpretive Chair apply for the Sky Ranger workshop to increase her abilities to create great night sky programs.
- Collect more accurate data, more often, from the permanently mounted Unihedron.
- Use the Unihedron data in presentations to advocate for dark skies in the area.

Thank you for continuing to advocate for healthy night skies.
If you have any recommendations or comments, please let us know.

Written by: Jen Benson-Hughes 10/26/2018

Collaborated with: Katie Ferguson (Interpretive Chair), Daniel Willis (former Park Manager), Frank Verello (Volunteer Coordinator), and Natalie Carlson (Administrative Assistant), and Steve Smith (Friends of KPP member).