



# CENTRAL IDAHO DARK SKY RESERVE **ANNUAL REPORT**

YEAR  
**03**

October 2020

*I never knew a man who felt  
self-important in the morning  
after spending the night in the  
open on an Idaho mountainside  
under a star-studded summer sky.*

Frank Church, U.S. Senator

Cover Photo –  
Tim Frazier



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## CENTRAL IDAHO DARK SKY RESERVE

### OVERVIEW – YEAR THREE

2020

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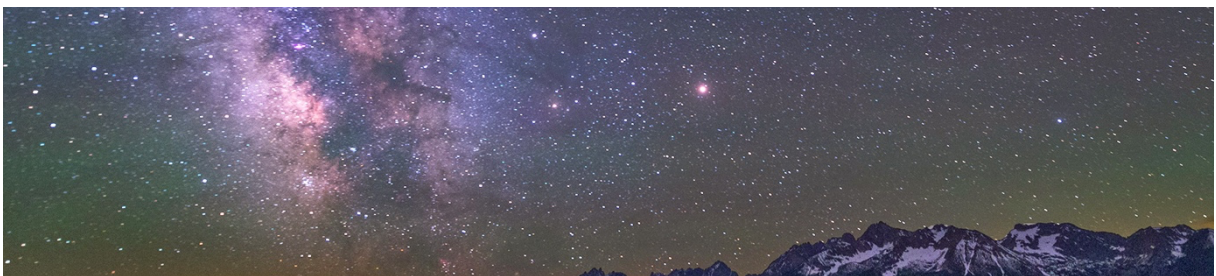
As we moved into our third year, we felt more settled as a Dark Sky Reserve. We still had lots of things to figure out but other groups were seeking our input on how to navigate their dark sky efforts. We presented a session at the IDA Annual General Meeting in Tucson about our collaborative approach. We planned to have an intern work on our lighting inventory and provide programs over the summer. Then in early March the Wood River Valley became one of the initial hot spots for COVID-19. Our plans obviously changed, as did everyone's plans and livelihoods and lives. The impacts to our operations were slight compared to the devastating impacts our community and the whole world experienced and are still experiencing. While some of our plans were scaled back or postponed, the extraordinary night sky in central Idaho provided a much-needed constant when our daily lives were turned upside down.

We continue to focus on maintaining and building a core group of dark sky advocates. Through our combined efforts, we worked to:

- Preserve and enhance the natural nighttime experience to improve quality of life
- Highlight the benefits of reducing artificial light at night
- Enhance local educational opportunities through astronomy and other dark sky related programs
- Promote our dark skies as a unique community asset and part of our local and national heritage

The Central Idaho Dark Sky Reserve was designated in December 2017, the first such Reserve in the United States. Central Idaho constitutes one of the last large 'pools' of natural nighttime darkness left in the United States. The Central Idaho Dark Sky Reserve encompasses 906,000 acres (1,416 square miles) most of which is public lands within the Sawtooth National Forest. The Reserve includes the communities of Stanley, Lower Stanley, Smiley Creek, Ketchum, and Sun Valley and portions of Blaine, Boise, Custer, and Elmore counties.

The Reserve is situated in the spectacular scenery of the Sawtooth National Recreation Area (NRA). The Reserve's dual core areas are in the heart of Sawtooth Valley and include portions of two designated Wilderness areas in addition to other public land. In 1972, Congress established the 756,000-acre Sawtooth NRA with the passage of Public Law 92-400 which sought to preserve and protect the Area's "natural, scenic, historic, pastoral, and fish and wildlife values and to provide for the enhancement of the recreation values associated therewith." Preserving the natural night sky complements all of these values and contributes to the solitude and primitive quality of the associated Wilderness areas making the Reserve a particularly good fit for this area.



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## LIGHTING

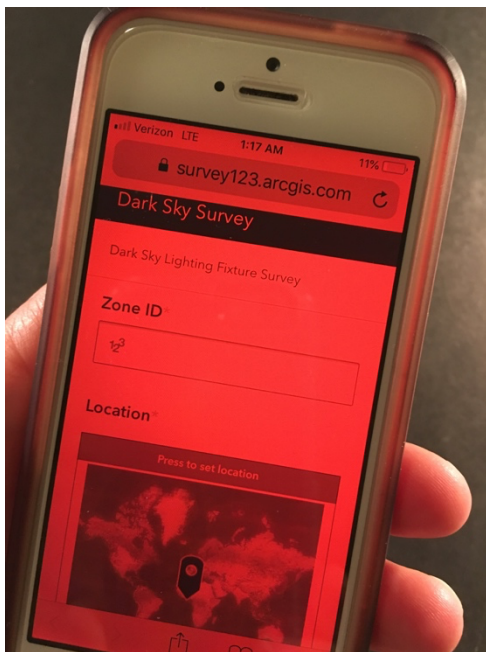
### PROJECTS AND MANAGEMENT

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Lighting within the Reserve is improving as the various jurisdictions work to ensure that new lighting is dark sky friendly and work with homeowners to address existing problem lighting. The night-time environment is remarkably dark throughout the reserve but people are becoming more informed about appropriate dark sky lighting. Most questions and complaints are related to light trespass rather than light color or skyglow. No new non-compliant lighting was installed within the Reserve to our knowledge.

#### CIDSR Intern

The Reserve hired our first ever intern in June 2020. Isabella was officially a City of Stanley employee but worked throughout the Reserve to develop a lighting inventory protocol. We had also planned for her to present some interpretive programs throughout the reserve but that did not happen due to COVID-19 restrictions.



Our original lighting inventory was conducted by numerous volunteers and included a wide range of approaches and levels of detail. Isabella worked with city and county staff to develop an inventory mechanism using Survey123 for use throughout the Reserve. Survey123 is an easy-to-use mobile app that anyone can use to gather site specific data on a smartphone or other mobile device equipped with GPS. Since it can be used by all entities within the Reserve it will provide a more consistent inventory of existing lighting.

We are currently fine tuning the survey attributes included in the Survey123/lighting inventory form. The final version should be ready for use in the coming months by city and county staff, volunteers and citizen scientists to conduct more detailed and consistent inventories of lighting throughout the Reserve.

#### STANLEY

Stanley has now converted all of its streetlights to the Lumican 2200 K lamps. The effect is dramatic. These lamps emit almost no light in the blue-white spectrum and the shielding is excellent.

The city completed the replacement of the streetlights in November 2019. They worked with Lumican, Inc. and Salmon River Electric Cooperative to analyze and install the new street lights to determine proper wattage and lumens for each light to provide proper illumination of all intersections and streets.

Most of the lights in the before images from 2013 are the bluish-white 6,500 K lamps, compared to the after image from 2019 showing the 2,200 K lamps.



BEFORE - Stanley 6500k Streetlights, 2013



AFTER - Stanley 2200k Streetlights, November 2019



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## LIGHTING

### PROJECTS AND MANAGEMENT

continued

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#### KETCHUM

Ketchum addresses lighting compliance through the building permit process. The city also uses a complaint-based model to bring other lighting up to code. Since October 2019, Ketchum Community Service Officers (code enforcement) tracked dark sky complaints at 18 properties. Of those properties, 9 are now fully in compliance, 3 have a set deadline to comply and 6 are still being monitored.



Since the adoption of the updated Dark Sky Ordinance (No. 1171) on May 15, 2017, all new construction projects and remodels/alterations that have gone through the building permit process have been required to fulfill the International Dark Skies Association minimum standards for lighting. Since October 1, 2019, 83 building permits were issued that required the installation of new dark sky compliant lighting and/or required that existing exterior lighting be brought into conformance.

The new Ketchum Fire Station 1 is currently under construction and will serve as an example to the community of how public safety and dark sky preservation can coexist.

#### SUN VALLEY

The City of Sun Valley continues to support the Central Idaho Dark Sky Reserve through education and enforcement of exterior lighting regulations. Promotional materials about the CIDSR are available to the public at City Hall and on the City website. On average, the City receives an inquiry each month from homeowners wanting to update their exterior lighting fixtures. Staff members in the Community Development Department address questions and provide information on Dark Sky compliant Lighting.

The City of Sun Valley's exterior lighting regulations were first established in 2006. Since the City of Sun Valley pledged to participate as a member of the CIDSR, in 2020 the City took action to update their exterior lighting regulations. Ordinance No. 543 was passed in September to provide an even greater level of nighttime lighting restrictions to better match the updated regulations of adjoining municipalities and to demonstrate a level of commitment of the initiative through action.

New exterior lighting regulations require that all exterior lighting not exceed a color temperature of 3000 Kelvin and further requires that all parking and area lighting in the Commercial and Public Institutional zoning district not exceed 2700 Kelvin and utilize adaptive controls to reduce output during vacant periods. The ordinance also establishes a maximum lumen allowance calculated specific to each lot's zoning district and square footage. Community Development Department staff reviewed the International Dark Sky Association's model lighting ordinance with the help of local dark sky experts to determine appropriate allowances for Sun Valley zoning districts. The ordinance also requires all lighting in the City to be brought into compliance by 2025. Community Development Department staff are working to identify non-conforming public owned lighting and have been working with City engineering staff to include new parking lot lighting fixtures in the remodel plans for City Hall's parking lot and vicinity.

The City of Sun Valley continues their enforcement efforts by requiring that all existing exterior lighting be brought into compliance before a building permit or development application approval is issued. Additionally, when the City receives a lighting complaint, the Police Department and the Community Development Department work together to investigate the issue, determine whether the lights are noncompliant, and take enforcement action. The City sent 13 lighting enforcement letters in 2020 to address complaints/questions received. All letters sent were holiday lighting violations reminding homeowners that lights must be off by 11:00 PM.

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## LIGHTING

### PROJECTS AND MANAGEMENT

continued

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The City also received and approved a design review application from the Arrowwood Condominium Association, to replace 232 exterior lighting fixtures with dark sky compliant fixtures.



## **BLAINE COUNTY**

Blaine County continues to value the dark sky as an important natural resource and works to maintain and enhance the darkness of the Reserve. To support sky quality monitoring needs of the Reserve, County Commissioners approved the purchase of two Unihedron sky quality meters which be installed in permanent locations within Blaine County.

County staff respond to all dark sky lighting complaints and questions with a goal to resolve the issues in compliance with the county ordinance and expectations. In 2020, outdoor lighting compliance letters were only sent to two properties and both owners complied with the lighting regulations. The low number of complaints may be due to an increased understanding of the lighting ordinance and the Dark Sky Reserve. Inquiries and complaints about outdoor lighting often reference the Dark Sky Reserve and reflect people's belief in its significance.

There are some ongoing challenges with fixtures that were grandfathered when the Blaine County Lighting Ordinance was enacted, but overall it is improving. Most residents contacted about problematic lighting, even if it is grandfathered, are agreeable with modifying those fixtures in a way that is less intrusive. The County continues to focus on education as the most effective strategy to gain compliance with the outdoor lighting ordinance and preserve the darkness of the Reserve. Blaine County recently sent letters to all property owners within the Central Idaho Dark Sky Reserve in unincorporated Blaine County with the purpose of educating residents, sharing self-assessment resources, and encouraging improved lighting.



## SKY QUALITY READINGS

In an effort to collect more reliable and consistent data about the central Idaho night sky, funds to purchase two Unihedron sky quality meters were requested from and approved by the Blaine County Commissioners. The meters have been ordered and we hope to have at least one of them installed before winter.

There has not been any noticeable increase in sky brightness within the reserve. Continued sky quality measurements confirm that the night sky within the reserve is exceptionally dark. While additional non-compliant lighting within the reserve would certainly diminish the darkness of the night sky, lighting from outside the Reserve boundaries might be an even bigger threat. With that in mind, reserve representatives actively reach out to surrounding communities to share information about the Reserve and how those communities can help limit outside threats to the central Idaho's pristine night sky.

The sky quality data collected this year is shown in the table and has been added to the master record of CIDSR SQM data. Even after we have permanently installed meters, we will still rely on volunteers to collect additional sky quality information at these and other designated locations throughout the reserve.



### Central Idaho Dark Sky Reserve 2020 Sky Quality Readings

Date	Time	Location	Reading	Notes
24-Oct-19	21:08	Ketchum Town Square (CC)	20	Moon not visible at time of reading
24-Oct-19	21:20	Pioneer Restaurant (CC)	18.9	Moon not visible at time of reading
24-Oct-19	21:26	Post Office (CC)	19.3	Moon not visible at time of reading
24-Oct-19	21:32	Rember St. & Bird Dr. (GR-H)	20.4	Moon not visible at time of reading
24-Oct-19	21:13	The Elephant's Perch (CC)	19.2	Moon not visible at time of reading
20-Feb-20	20:49	Ketchum Town Square (CC)	20.3	Moon not visible at time of reading
20-Feb-20	21:01	Pioneer Restaurant (CC)	19.2	Moon not visible at time of reading
20-Feb-20	21:09	Post Office (CC)	19.6	Moon not visible at time of reading
20-Feb-20	21:20	Rember St. & Bird Dr. (GR-H)	20.9	Moon not visible at time of reading
20-Feb-20	20:56	The Elephant's Perch (CC)	19.4	Moon not visible at time of reading
19-Feb-20	11:55	Dry Creek	21.9	Moon Waxing Crescent, not visible, sky clear
28-Mar-20	11:28	Stanley	21.67	Moon Waxing Crescent, not visible, sky clear
13-Apr-20	1:55	Stanley	21.95	Moon Waning Crescent, not visible, sky clear
15-Aug-20	12.08	Dry Creek	21.78	Moon Waning Crescent, not visible, sky clear

## OUTREACH MEDIA

Media interest in the Reserve has continued to be strong. We get questions from both local and national media at least once a month through our website or other contacts with requests for dark sky related stories. Most recently, we were contacted by a production team with *CBS Sunday Morning* for a story they were working on about astrophotography. The segment aired on September 13. It featured an interview with Tim Frazier at Redfish Lake in the heart of the Reserve and included interviews with other photographers in Idaho.



<https://www.youtube.com/watch?v=clvPKORDGPM>

Other print, radio and online articles that have featured the Central Idaho Dark Sky Reserve:

- [https://www.washingtonpost.com/lifestyle/travel/at-the-central-idaho-dark-sky-reserve-socially-distanced-stargazing/2020/07/09/c57fb1aa-c07f-11ea-b4f6-cb39cd8940fb\\_story.html](https://www.washingtonpost.com/lifestyle/travel/at-the-central-idaho-dark-sky-reserve-socially-distanced-stargazing/2020/07/09/c57fb1aa-c07f-11ea-b4f6-cb39cd8940fb_story.html)
- <https://www.tripstodiscover.com/places-with-low-light-pollution-for-stargazing/>
- <http://www.seattlemag.com/travel-outdoors/northern-lights-northwest-viewers-guide>
- <https://blog.sfgate.com/storystudio/visit-sun-valley/>
- <https://www.idahostatesman.com/news/local/environment/article237600569.html>
- <https://visitidaho.org/travel-tips/why-idahos-night-skies-are-the-gold-standard-for-stargazing/>
- <https://territory-mag.com/articles/keeping-idaho-in-the-dark/>
- <https://expmag.com/2020/01/stargazers-fight-to-save-the-dazzling-dark/>
- <https://www.boisestatepublicradio.org/post/idahos-dark-sky-reserve-under-threat-light-pollution>
- <https://www.space.com/international-dark-sky-preserves-night-sky-sites-tour.html>
- <https://zorone.com/2020/07/09/at-the-central-idaho-dark-sky-reserve-socially-distanced-stargazing/>
- <https://www.campendium.com/camping/dark-sky-park/>
- [https://www.postregister.com/messenger/features/clear-night-sky-adds-value-to-stanley/article\\_675a7dde-5737-5c7f-8c5b-921458346fbc.html](https://www.postregister.com/messenger/features/clear-night-sky-adds-value-to-stanley/article_675a7dde-5737-5c7f-8c5b-921458346fbc.html)



The Idaho Tourism Office often features stargazing opportunities in its statewide promotions. The 2019 Idaho [Tourism Guide](#) showcased the state's dark skies with a cover story about the Central Idaho Dark Sky Reserve, Craters of the Moon Dark Sky Park, the Dark Sky Community of Ketchum, and dark sky programming offered at Bruneau Dunes State Park.

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## OUTREACH

### PROGRAMS & EVENTS

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Since the designation of the Central Idaho Dark Sky Reserve, there has been growing interest in astronomy and dark sky related programs in the area. This year many of the planned programs and events were cancelled or rescheduled online due to COVID-19 concerns but we were still able work with several partners who provided a number of programs and events throughout the year. Over 800 people were reached through 16 events and programs. Although that is lower numbers than past years, partner organizations were nimble and creative in their efforts to offer programs that allowed for social distancing.



A **new astronomy observing group** hosted their first night of looking up on September 20. CIDSR is supporting the effort and we expect to share information about dark sky lighting options, health and ecological concerns related to artificial light at night, and other topics about the importance of minimizing light pollution – for stargazing and for the general wellbeing of life on our planet. We hope to get together once a month for informal observing and sharing information. Our first night provided amazing sky conditions for the twenty people who came out. There were five telescopes, numerous binoculars and several folks who just leaned back in their lawn chairs to look up and be amazed.

**Hailey Public Library**, one of our primary education partners, offered three Zoom presentations with local astronomer Tim Frazier and another one about Mars Rovers by the Idaho National Laboratory as part of their summer educational programs. Tim also hosted an in-person solar viewing event. The online format worked well and perhaps reached more people since they were recorded and available for viewing by people who were not able to join the live presentation.

The **Idaho Conference on Recreation and Tourism** was held in Sun Valley in October 2019 and requested a dark sky presentation. Steve Botti spoke about the broad collaborative effort that spearheaded the designation of the Reserve and supports the on-going coordination. CIDSR representatives also hosted a stargazing event in conjunction with one of the evening socials at the conference.

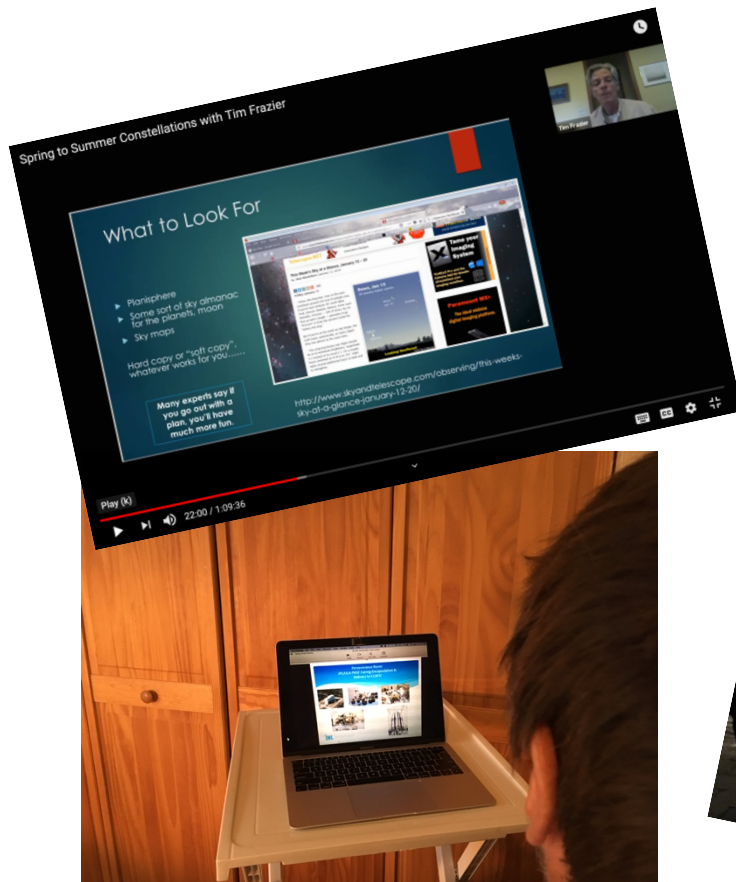
The **City of Ketchum and CIDSR hosted a Solstice Soiree** in December to celebrate all things astronomical with food and beverage vendors, live music, and guest speakers. The College of Idaho provided a pop-up planetarium that was filled to capacity for both shows. CIDSR had an exhibit set up and we were able to talk with local residents in an informal setting who may not otherwise attend formal programs. The lighting fixture board comparing the glare of older style lights and bulbs with newer dark sky friendly fixtures generated the most interest along with a close second from a new lamp display that accommodates three bulbs to show different color temperatures (2700k, 4000k and 5000k). Yet another example of the allure of simple interactive devices.

**Sawtooth Botanical Garden** asked CIDSR to provide dark sky and light pollution information for three New Moon dinners and stargazing nights over the winter. We also provided a display for a summer stargazing night at the Garden.

In addition to public events, we get occasional requests for **personal presentations** from families or small groups who are visiting the Reserve. In August, Steve Pauley hosted a small group of visitors who wanted to learn about the night sky and the Reserve. It was a birthday present for one of the attendees and in appreciation they made a generous donation to the Central Idaho Dark Sky Reserve.



## Hailey Public Library Zoom Programs



Ketchum and CIDSR Solstice Soiree

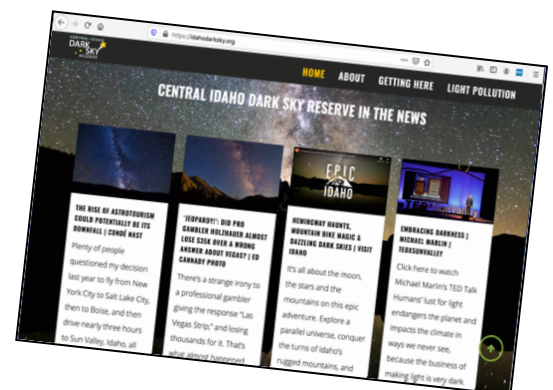
## Social Media

Visit Sun Valley is the destination marketing organization for the Ketchum/Sun Valley area and greater Wood River Valley region. These are some of the VSV touchpoints that have Dark Sky elements. The Reserve was and continues to be a top talking point in their PR efforts.

- [Summer brand video](#) that garnered nearly 3 million views through organic reach and paid distribution
- [Dark Sky Blog](#) that saw 2,000 views with an average time on page of 5:41 thus far in 2020
- [Central Idaho Dark Sky Reserve](#) page that saw 800 views with an average time on page of 2:00 so far in 2020

IDAHO DARK SKY WEBSITE [www.idahodarksky.org](http://www.idahodarksky.org)

The CIDSR website provides information about program opportunities, astronomical events, light pollution, and other reserve updates. The website received 26,500 visits by over 21,000 users in the twelve months October 2019 through September 2020. A goal for this coming year is to improve the website and post more regularly across all CIDSR social media sites in an effort to share stories and images of the Central Idaho Dark Sky Reserve. It's an important to inspire people to be advocates for the natural night sky resource both here in the heart of Idaho and in their own backyards.



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## CONSERVATION & RESEARCH

### FUNDING & OVERSIGHT

### DARK SKY COMMUNITY

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#### RESEARCH

Steve Pauley, on behalf of the Reserve, is working with Travis Longcore PhD, Associate Professor, UCLA Institute of the Environment and Sustainability, on developing a **Practicum for UCLA environmental studies** students. Travis is co-editor of the book "The Ecological Consequences of Artificial Light at Night." 2004. Travis and Steve met at a UCLA conference in 2002 where papers were presented on this same subject.

We will contract with existing satellite operators to obtain data on upward light emissions over the Reserve. Over time we hope to determine if light pollution is increasing, decreasing, or staying the same. The students will learn about light pollution, learn how to interpret satellite data, learn how to draft Dark Sky Ordinances, and work on getting ordinances passed in city and county jurisdictions.

They will also learn about the night sky, hopefully on-site here in Idaho within the reserve. It's possible that local high school students could also be involved with the project. We are in the planning stages with a presentation to UCLA students set for Oct. 2, 2020. Funding will likely be from a grant from the EW Pauley Foundation, Los Angeles.

In addition to the UCLA study, we are also working with Brian Jackson, Associate Professor teaching astronomy in the Physics Department at Boise State University to explore the possibility of starting an **Astronomer in Residence (AIR) program in the Central Idaho Dark Sky Reserve**. The idea is to host an astronomer in the area for a few weeks during which they would present public lectures and stargazing events. Depending on the time of year they could also conduct site specific research, work with student astronomers, or provide classroom presentations.

#### FUNDING & OVERSIGHT

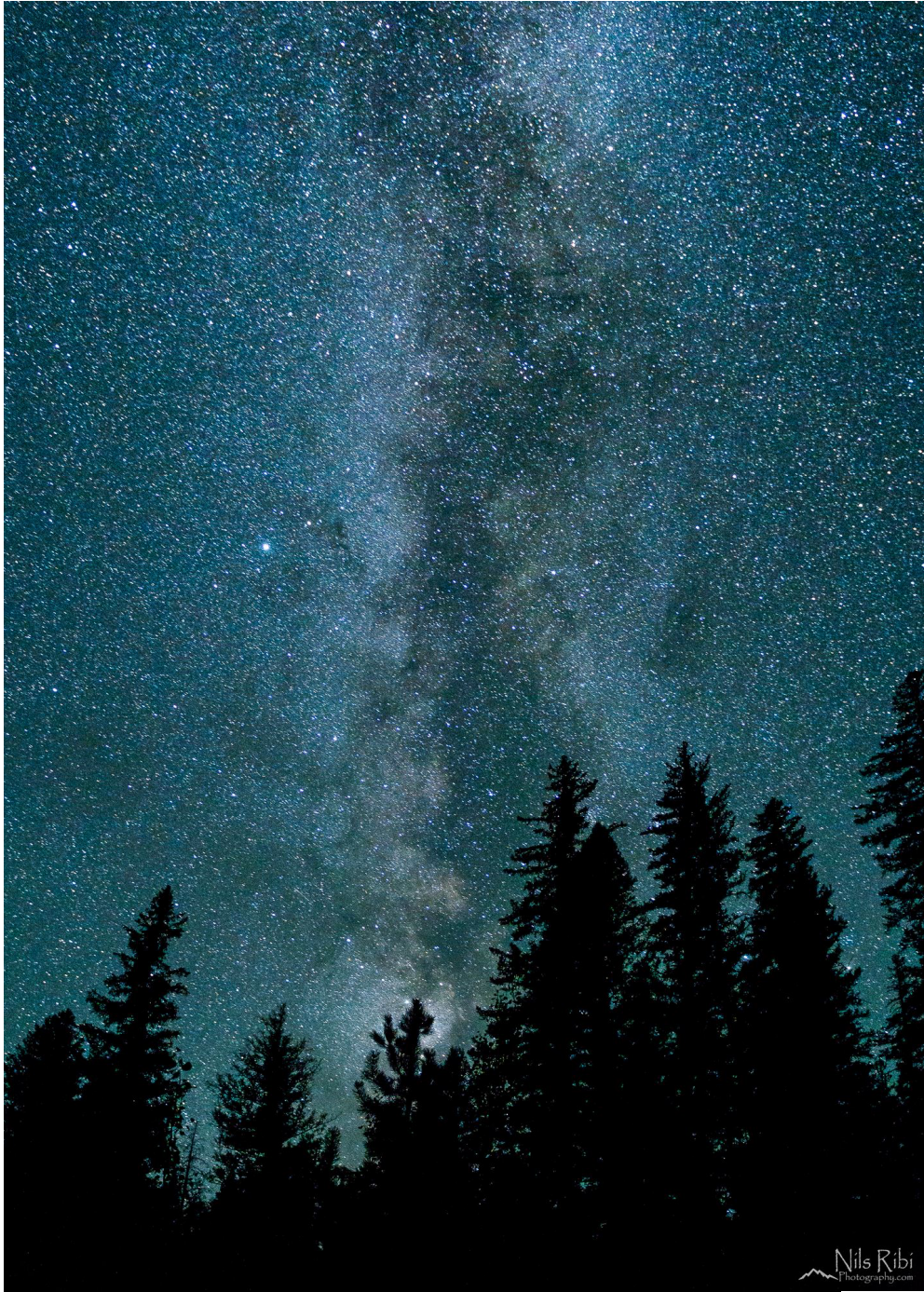
In addition to the funding provided by Blaine County for the SQM-LU units, we have received some small individual donations but do not have any new grants or other funding to report on. The Idaho Conservation League continues to be a fiscal sponsor for our group but we are in the process of **establishing the Idaho Dark Sky Alliance as a separate nonprofit** to focus on operational and program aspects within the reserve.

Local officials from Stanley, Ketchum, Sun Valley, Blaine County, and the Sawtooth National Forest continue to work together as the **Jurisdictional Oversight Group** to address dark sky matters in central Idaho. Nearly two decades of planning efforts and policy decisions by city and county leaders, local businesses and organizations, and public land managers culminated in the designation of the Reserve in 2017. Working together, these partners continue to focus on preserving the quality of the night-time environment and reducing the impact of light pollution in central Idaho.

#### DARK SKY COMMUNITY

Members of the CIDSR Planning Group (Steve Botti, Carol Cole and Kirk Flannigan) gave a presentation at the IDA Annual General Meeting in Tucson in November 2019. We shared Insights about our process of establishing a reserve with participants through stories and lessons learned. We had follow-up discussions about our process with a few groups and individuals about their efforts in the months following the AGM about our process. We also look forward to working with the *Western Night Skies Council* to share resources and learn from each other.





*Photo*  
*Nils Ribi*



YEAR  
**02**

**CENTRAL IDAHO DARK SKY RESERVE - - [www.idahodarksky.org](http://www.idahodarksky.org)**

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