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# nightscape

A PUBLICATION OF THE INTERNATIONAL DARK-SKY ASSOCIATION

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# From the Executive Director

Dear Members,

As IDA approaches its 25th anniversary, we are taking stock and focusing on the future. IDA's challenges and opportunities have grown at the same time the economy has stalled. We are doing everything we can to meet our goals, but with much less financial support.

Late last year, we developed a comprehensive work plan for 2012 that I would like to share with you. We have looked at many potential projects and have chosen the ones that we think will make the biggest difference for the long term.

The Parks and Protected Area (PPA) program stands out as a project that has tremendous support from you, and one for which the great success of the National Park Service (NPS) cooperative agreement will allow us to build upon. Please see page 2 for details. Thanks to your generosity, our fall appeal mailing in support of the PPA was a smashing success and raised more than any single appeal in IDA history. We were also able to secure a grant from The Fred Maytag Family Foundation to supplement the appeal. We'll keep you updated on our progress.

Our second major project this year is to work with communities to educate planners and local governments about the new IDA/IES Model Lighting Ordinance (MLO). We presented one training seminar last fall and are planning to have 3 to 4 more in 2012. Speaking engagements are on our schedule at many upcoming conferences to raise awareness of the MLO among planners, cities, and the general public. We have recently finished the first draft of the MLO Lite, which is designed for smaller communities. After some validation, we will be looking to work closely with several towns and cities this year on a pilot test of the MLO Lite.

Thirdly, the Suburban Outreach Sites (SOS) program is designed to help raise awareness of light pollution while simultaneously promoting astronomy outreach to communities. By partnering with astronomy clubs across the world, we hope to bring children of all ages and their parents to sites within easy access of major cities to engage in an on-going program to educate attendees about the problems of light pollution and how to improve outdoor lighting. Depending on the level of funding that we receive, we will look toward developing a small pilot SOS program with at least a dozen sites – or many more if funding can be secured.

We are committed to dramatically expanding the SkyMonitor™ program this year by adding a second-generation monitoring device. Please see page 6 for details. The next generation Night Sky Brightness Monitor (NSBM) will enable dark sky advocates to become citizen scientists by installing NSBMs in their backyards and communities to continuously monitor the night sky. We are also exploring the development of a NSBM that can be used on a moving vehicle to map an entire town in a few of nights. By regularly mapping large areas, communities will be able to document changes in the quality of the night sky over time. Our ambition is to have permanent NSBMs installed throughout a city before a lighting ordinance is enacted, enabling them to track and document the city's improvements from the very beginning.

In closing, thank you for supporting IDA with your service and your contributions. With your continued support, we are making a difference.

Thank you,



Bob Parks, Executive Director



The mission of the International Dark-Sky Association (IDA) is to preserve and protect the nighttime environment and our heritage of dark skies through environmentally responsible outdoor lighting. IDA was incorporated in 1988 as a tax-exempt 501(c)(3) nonprofit organization. (FIN 74-2493011)

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**On the Cover** Photo of Big Bend National Park in Big Bend Region, Texas, was taken by IDA Board Member Tyler Nordgren in February 2012.

# PARKS AND PROTECTED AREAS PROGRAM

# On the Horizon

PHOTO CREDIT: JIM RICHARDSON

**IDA's unique partnership with the National Park Service is promising exciting results**

**W**ork on lighting upgrades in nine national parks is wrapping up with innovative design recommendations that will protect wildlife and nocturnal habitats while providing safety and security for overnight visitors, as well as for those attending evening events. IDA plans to release "best practice" outdoor lighting design standards for parks and natural environments in mid-2012.

This important work presents a natural opportunity to expand two of IDA's primary objectives: to conserve the natural night sky through International Dark-Sky Places designations and to extend outreach to adjacent communities to encourage lighting ordinances and lighting upgrades. IDA's new initiative, the Parks and Protected Areas Program (PPA), does just that.

One goal of the PPA program will be to expand the International Dark-Sky Places (IDSP) initiative through targeted outreach that identifies potential IDSP candidates, assesses current lighting conditions and develops plans to improve each site's lighting. Funding, generously provided by donors, will allow IDA to provide lighting equipment that ensures the site meets the high standards required for IDSP certification.

Part of this initiative will include the placement of the next generation of a SkyMonitor™, night sky brightness monitoring system. These devices will collect data in real time that will document current lighting conditions and track the impact that the lighting improvements are having on sky quality. (See box on page 5 for more details.)

IDA plans to expand outreach into adjacent communities where there are rich opportunities to utilize the Model Lighting Ordinance (MLO). In October, IDA held the first MLO training workshop in Seattle with the assistance of IDA Northwest Chapter Leader Dave Ingram. IDA Board member Nancy Clanton presented the MLO training package to lighting designers, members of city councils, city planners and code enforcers, civic activists, and amateur astronomers. Additional workshops are planned for the first half of 2012. The PPA program will help target communities that will benefit the most from such events.

As always, grassroots outreach is crucial to any widespread effort to increase awareness of and interest in the night sky. To bolster this effort, IDA plans to unroll the Suburban Outreach Sites (SOS) initiative at the Northeast Astronomy Forum (NEAF) in April. IDA will partner with local astronomy clubs to promote local stargazing and light pollution

education events. This project will identify safe, publicly accessible areas with moderately dark skies in or around urban centers, making the night sky available to a wide variety of audiences.

Meanwhile, the three latest International Dark-Sky Places have both developed outreach programs that engage the entire community.

## IDSPlaces

### Ways to count stars

Observatory Park in Ohio, Exmoor National Park in England, and Big Bend National Park in Texas unroll long-term plans for night sky guardianship.

#### **OBSERVATORY PARK GEAUGA COUNTY, OHIO**

An overcast sky in Geauga County did not dampen the enthusiasm of the 1,500 people attending Observatory Park's dedication on August 20, 2011, when it announced its full status as an International Dark-Sky Park (IDSPark). The park earned provisional dark sky status during construction in 2008 for its ambitious plans for lighting, education, and conservation. Observatory Park is the first park of the Geauga Park District to apply for full IDSPark status and the first ever to receive provisional status.

The idea for Observatory Park began with the donation of a 25" telescope and a small parcel of land. Several years later, the park acquired nationally recognized Nassau Observatory and the land adjacent to it. Ironically, Nassau Observatory was moved from Cleveland to Geauga County in 1957 due to increasing light pollution, but has not been used since the early 1990s due to its continued spread. The finished park hosts an observatory, two telescopes, and permanent astronomy-themed exhibits on a 1,034-acre preserve in Monteville Township. It will also feature astronomy-inspired interactive sculptures, a live-feed seismograph and weather station, and five telescope pads with electrical outlets.

The telescope in the central plaza will be open for public events includ-

ing star parties, celestial occurrences, and collaborations with local groups and non-profit organizations.

Numerous universities, the Great Lakes Science Center, the Cleveland Museum of Natural History, and local astronomy organizations and school districts have contributed to Observatory Park's programming.

As IDA Executive Director Bob Parks puts it, "The park's exceptional lighting plan represents the pinnacle of thoughtful design and embodies the ideals of conservation that are apparent throughout the park's facilities." All park lighting is fully shielded and task specific. LED fixtures in the public event center and parking lot have source controls to adjust automatically, dimming during a full moon, and more than two-dozen pine trees border the parking lot to shield stargazers from incoming headlights.

Terry McGowan, lighting designer and former member of the IDA Board of Directors, adds "The lighting was designed to be a prototype of what outdoor lighting can now do to reduce existing sky glow without compromising safety and function." Facilities also utilize living roofs, solar panels, and waterless sanitation.

Observatory Park is also a host site of one of the first IDA Night Sky Brightness Monitors. Information from the SkyMonitor™ will allow park managers to make long-term measurements of the brightness of the sky over the park to ensure its continued

protection. The monitor, developed by the IDA through a grant from the National Science Foundation, provides unprecedented educational opportunities to be administered locally by Observatory Park.

#### **EXMOOR NATIONAL PARK SOMERSET AND DEVON COUNTIES, ENGLAND, UNITED KINGDOM**

Exmoor National Park in south-eastern England – designated as the world's second International Dark-Sky Reserve on October 8, 2011 – is also the site of ongoing survey efforts to monitor sky quality. The 267 square mile (691 square kilometer) park has a keen interest in protecting its tranquil nightscape. The park has been collecting photographic and sky quality meter data since 2009 in an ongoing attempt to determine sky quality and gauge protection efforts. It is also the proposed site of an All Sky Camera, a monitoring device similar in operation and purpose to the Night Sky Brightness Monitor.

In 2009, Exmoor's astronomy programs really took flight. Stargazing outings, night hikes, and indoor and outdoor astronomy events were incorporated into park schedules. One of the only buildings in the park's core zone will be used to host astronomy nights for schoolchildren and other park visitors.

However, Exmoor's excellent recording of sky brightness and varied

CONTINUES ON PAGE 4

*Over 1,500 people attended Observatory Park's dedication on August 20, 2011.*



PHOTO CREDIT: ROY KAEELIN

## On the Horizon

CONTINUED FROM PAGE 3

outreach programs are not the only reasons it was designated as the world's second International Dark-Sky Reserve. This prestigious designation, not awarded since 2007, requires outreach to protect a core "dark zone" of an astronomical resource. Exmoor is widely acknowledged as having England's darkest skies, and has engaged numerous settlements within the park boundary to make sure they remain so.

The 31-square mile (81 square kilometer) core zone features minimum human habitation but maximum open land access and points of interest. Scenic features include Bronze Age burial mounds, a site of Special Scientific Interest at Dunkery Horner Wood National Nature Reserve, and the deserted medieval settlement of Hoccombe Coombe.

In Exmoor, as in Scotland's Galloway Forest Park (site of a 2009 IDSPark designation), residents and businesses have responded to the call to reduce obtrusive light. The park-wide lighting plan offers examples of shielded fixtures that make good outdoor lighting choices easy.

In the buffer areas, the Exmoor National Park Authority (ENPA) continues to work with park residents and management of Somerset and Devon Counties. The Exmoor designation

was a cooperative effort between parish councils, park management, and national interests like the Campaign to Protect Rural England and other land and wildlife trusts.

Emma Dennis, landscape officer for the ENPA, writes: "We are certain that this [designation] will facilitate the conservation and enhancement of dark skies and promote the benefits of this activity."

### **BIG BEND NATIONAL PARK BIG BEND REGION, TEXAS**

In December 2011, IDA added a nighttime jewel to the ranks of its IDSParks with the Gold Tier designation of Big Bend National Park (BBNP). The park protects 1,250 square miles (3,238 square kilometers) of Chihuahuan Desert with low scrub, open vistas, and craggy buttes that are blanketed at nightfall by a sky virtually free of artificial light.

Big Bend National Park is the largest International Dark-Sky Places designated by IDA. It is also the darkest. Measurements taken by the National Park Service Night Sky Team show that BBNP is the darkest park in the continental United States.

Extensive sky quality monitoring efforts since 2003 have yielded valuable data, much of which can be extrapolated for use in other sky monitoring situations. The near virgin skies offer a rare opportunity to create baseline measurements of actual sky

**Aided by a generous Best Practices grant by Musco Lighting, the entire park was retrofitted. The lighting changes have delighted both visitors and staff, have eliminated sky glow in BBNP's Chisos Basin...**

brightness vs. anthropogenic light (light pollution) as well as measure differences in air quality. Because nights are so dark, measurements taken from BBNP's Emory Peak were able to show specific threats that would be otherwise indiscernible. In 2007 dozens of unshielded lights were detected from

*Exmoor Castle in Exmoor National Park is another wonderful sight for visitors to enjoy while stargazing.*



*IDA Executive Director Bob Parks presenting an award to National Park Service Superintendent Bill Wellman at the Big Bend dedication on February 4, 2012.*

the small towns of Study Butte and Terlingua.

BBNP is using this data to collaborate with the National Park Service to develop “Interim Outdoor Lighting Guidelines,” a long term, sustainable doctrine with intended application in numerous national parks.

Aided by a generous Best Practices grant by Musco Lighting, the entire park was retrofitted. The lighting changes have delighted both visitors and staff, have eliminated sky glow in BBNP’s Chisos Basin, and have slashed energy usage. Energy used to light the Chisos Basin has dropped by an incredible 98 percent!

The clear skies, temperate nights and vast undeveloped space of the Big Bend region have enticed astronomers for years. Protection efforts were initiated in the 1970s by the McDonald Observatory, an important research center located about 140 miles from BBNP. The movement has gained momentum recently, helped by Chambers of Commerce, in regional towns which have begun to promote the region’s vivid skies as a recreational asset. In 2009, the development of Sierra la Rana near Alpine became an IDA Development of Distinction for its thoughtful lighting and thriving stargazing culture. Ongoing efforts by Gil Barteel, vice president of development for Sierra la Rana, in collaboration with the McDonald Observatory and other dark sky advocates, have resulted in the adoption of stringent lighting protection in the cities of Alpine and Van Horn. In June 2011 the unprecedented Texas House Bill 2857 passed to become law, protecting skies within a radius of 57 miles around the McDonald Observatory.

Regional culture continues to grow. October is Alpine’s “Dark Sky Month,” featuring stargazing events and dark sky forums. The Texas Star Party, the largest ongoing star party in the United States, is held in the Big Bend region in April.

In 2012, BBNP will help extend this culture through collaborations with McDonald Observatory and the “Teacher Ranger Teacher” program that brings science learning outdoors.

## THE ROAD TO CHANGE

# Homer Glen, Illinois

The Village of Homer Glen, Illinois became the world’s fourth International Dark-Sky Community on November 21, 2011. Located 30 miles southwest of Chicago, Homer Glen’s proximity to a major city presented large challenges, but also valuable opportunities to raise awareness on the negative effects of wasteful outdoor lighting.

A primary goal of the International Dark-Sky Places program is to improve sky quality relative to an area, and Homer Glen has worked hard to provide a respite to the famously excessive lighting of Chicago. Sky glow prohibits astronomical quality skies, but Homer Glen’s statewide leadership and education campaign for smart lighting policy has earned the recognition of this prestigious award.

Work in Homer Glen is – hands down – the initiator of the dark sky movement for the entire state of Illinois. The township, incorporated in 2001, passed the first stand alone lighting ordinance in Illinois in 2007. Outdoor lighting improvements in Homer Glen have influenced lighting plans in other communities, including Arlington Heights and the Village of Compton Hills.

With a motto of “Community and Nature in Harmony,” Homer Glen’s stringent dark skies policy is a vital part of their identity. A group of citizens started the Illinois Coalition for Responsible Outdoor Lighting (ICROL), an advocacy group that is striving for outdoor lighting changes throughout Illinois. A major victory was achieved in 2010 with the adoption of SR 0884, a statewide resolution that “expresses the support of the House of Representatives for improved night preservation practices in the state of Illinois and encourages municipalities and state agencies to research and adopt suitable outdoor lighting practices.”

Homer Glen is a consistent supporter of Lights Out! events, and its participation in the 2008 Earth Hour attracted the support of then-Lieutenant Governor Pat Quinn, who commended Homer Glen during a ceremony held jointly by representatives of IDA and the World Wildlife Fund.

*Village ‘founding father’ Debra Briggs poses with one of 184 drop lens streetlights replaced under the Homer Glen lighting ordinance.*





PHOTO CREDIT: SCOTT KARDEL

A Night Sky Brightness Monitor installed at Palomar Observatory near San Diego.

# The Global Night Sky Monitoring Network

IDA started development of the SkyMonitor™ program in 2008. At that time, the only commercially available option for providing measurements of the night sky's brightness was through the use of Unihedron's Sky Quality Meter (SQM). The goal of the program was to produce the most accurate device available and to continuously measure the night sky. Dan McKenna came to IDA with an idea for the Night Sky Brightness Monitor (NSBM) that he was developing at the Vatican Observatory. The project was initially funded through IDA by the late Chris Walker, a major donor of IDA. Don Davis became the project manager. The NSBM is an autonomous device that provides continuous and long-term measurements of the night sky through a solar-powered, calibrated photometer. The data from the monitor is sent to IDA over the internet and stored in a publicly accessible database. After prototyping and field testing the NSBM, Don Davis approached the National Science Foundation (NSF) for a grant to build them. In 2009, IDA

***With this new tool we can now collect the most accurate and detailed information on night sky brightness available.***

received a grant from NSF to build the initial ten units and to provide professional observatories with them. With additional funding IDA was able to build a total of 25 monitors in the first production run. By late spring of this year all of the units will be operational and sending continuous data from across the globe.

With this new tool we can now collect the most accurate and detailed information on night sky brightness available. However, in order to collect

enough data to be comprehensive we will need to deploy thousands of monitors. At \$7,000 per model, the NSBM is too expensive to be within the reach of most individuals or smaller institutions. It has become obvious that a second tier of more affordable devices must be developed to increase the total number of NSBMs in the world and increase our understanding of light pollution across the globe.

To plan this expansion strategy, IDA formed a Global Night Sky Monitoring committee last year. IDA has invited individuals that have had extensive experience using various types of monitors to help guide us as we form a plan for the next generation of night sky brightness monitoring. The committee is evaluating other devices and developing the criteria for what a device should do to be included in the program. One of the issues being discussed is how to ensure that the data is accurate, so part of the committee's goal will be to develop calibration standards. Another issue is to develop a common data interchange format so that the SkyMonitor™ network can use the data from any device that is included in the project. IDA is currently talking to several manufacturers to see if they can produce a new monitor that meets the criteria of the committee.

As we determine what the next generation of SkyMonitor™ will be, it has become obvious that the device must have a price point that is low enough to be within reach of our members and individual advocates. By doing so we will empower citizen scientists to become involved and to make a real difference. Focusing the energy of all dark sky advocates globally, we may be able to dramatically accelerate the process of getting thousands of monitors in place.

Another evolving option for monitoring is to measure the night sky brightness from a moving vehicle. Several trials using devices equipped with GPS receivers have been undertaken in Europe in the last couple years. The results are impressive, with thousands of samples being taken over a period of several nights. This allows

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## IN MEMORIAM

# LOOKING TO THE STARS



## Christopher W. Walker



***Chris is best known to the dark sky movement for his longtime support of IDA and as funder for some of its major initiatives ...***

**R**eal estate developer, lawyer, inventor, and philanthropist Chris Walker passed away August 31, 2011. He is survived by his wife and two children.

As CEO and founder of Walker and Company, he developed thirteen office buildings, primarily in Reston, Virginia. He was intimately involved in the design of his buildings and saw quality outdoor lighting as an essential part of the design esthetic. This interest drew him to become an early advocate and supporter of the Virginia Outdoor Lighting Taskforce.

Chris is best known to the dark sky movement for his long-time support of IDA and as funder for some of its major initiatives, including the Model Lighting Ordinance and the opening of the Office of Policy and Government Affairs in Washington, D.C. However, his primary contribution to IDA was his generous investment of time and energy to help it achieve its full potential. Over the last twenty years he was a director, officer, and trusted advisor to IDA.

Chris' early contributions catapulted IDA from a mostly volunteer organization to a working office with paid staff in the late 1990s. He supported research and development of the Night Sky Brightness Monitor, a pioneering technology to automatically measure sky quality in a remote location and compile the data in a central database. This technology could revolutionize the methodology for sky brightness measurement and allow a comprehensive database to be compiled for the first time.

In addition to his unparalleled generosity to IDA, Chris served as chief editor of *Visibility by Design*, a simplified and common sense guide to outdoor signage and sign lighting. His firm belief in the possibilities of applied technology led to a role as a visionary in many disparate fields, and has prompted advancements in molecular medicine, the use of wireless technology in public transportation, fitness equipment, and even computer dating.

His curiosity and bold innovation will be missed by IDA and many other beneficiaries of his vision and generosity.

# INTRODUCING...

## SkyMonitor™ IDA

SkyMonitor™IDA is making plans for a worldwide rollout of the most accurate tool yet developed to measure how humanity has been artificially brightening the night sky.

A fleet of Night Sky Brightness Monitors (NSBMs) will be deployed in typically dark sky environments including astronomical research installations, environmentally sensitive areas, and dark sky preserves. The machines will provide continuous, long-term measurements of how sky quality is changing over the areas where they have been deployed. The devices are sensitive enough to measure temporary increases and decreases in sky brightness from intermittent large sporting events and lighting curfews taking effect each night, to long-term effectiveness of ordinances designed to limit light pollution.

IDA patron Chris Walker (see page 7) funded the initial development of the project and the National Science Foundation provided funding for the construction and deployment of the first twenty-five NSBMs. IDA has made it a priority to find more funding for additional SkyMonitors™ in order to create the largest network and database of sky quality information that the world has ever seen.

The NSBMs are linked together to form the SkyMonitor™ network, for which IDA will serve as the central information clearinghouse. The data will reveal “the big picture” in terms of overall trends in sky glow and even the efficacy of an individual site’s night sky protection efforts. This information will also provide researchers access to years of historical information critical to understanding the environmental and human impacts due to the brightening of the night sky over much of the world.

Research is already linking light at night to a variety of environmental problems. Satellite measurements, principally performed by the Defense Meteorological Satellite Program, provide a view from above, but the SkyMonitor™ Network is the first organized effort to study sky glow from the ground. The new network will further solidify IDA’s role as the world’s leading authority on light pollution.

PHOTO CREDIT: SCOTT KARDEL

## Monitoring Network

CONTINUED FROM PAGE 7

an individual or small team to map an entire city very quickly. The possibility of taking a regular “snapshot” of the condition of the night sky would be invaluable to planners, as it could easily show trends and identify areas that are improving or degrading. Coupled with the passage of an effective lighting ordinance, the results of outdoor lighting standards could be accurately measured.

It is also possible to use this mobile monitoring approach in the air; equipping aircraft to conduct surveys of cities or other areas to establish baseline night sky brightness data. This method also provides the ability to look up and down at the same time, and from different altitudes. This may allow us to develop a much better understanding of sky glow and its relationship to the atmosphere. IDA is currently in discussion with a company to use this approach to document conditions over parks and protected areas.

Another piece of the monitoring puzzle is the incorporation of the US Defense Meteorological Satellite Program (DMSP) data, showing the planet at night from space. The Earth Observation Group at NOAA National Geophysical Data Center is able to analyze this data and provide radiance calibrated composite measurements of night sky brightness for the entire world. If IDA raises \$75,000 NOAA would compile data from 1996 to the present, creating an invaluable historical record of night sky brightness. This data could also be correlated against the measurements being made from the ground and the air to increase the accuracy of the measurements from space.

It is becoming clear that there isn’t one “best” solution. The best approach will be to use all of the available methods in a coordinated effort to develop a comprehensive database of night sky brightness that can be effectively utilized by advocates, researchers, governments, and planners as a basis for sound environmental policy. IDA will fund the upgrade of the current SkyMonitor web site to begin making this possible.



# The 11th Annual European Symposium

**O**n October 6-8, 2011 the annual European Symposium for the Protection of the Night Sky (ESPNS) was held in Osnabrück, Germany. The symposium is organized each year by a local IDA chapter or affiliated association in collaboration with IDA Europe. It has become “the place to be” for everybody interested in light pollution. Participants and speakers are not only dark sky advocates, but also representatives of local governments, and a mixed group of scientists and lighting designers. This year the conference was organized by Andreas Hänel, Director of the Museum Am Schöllerberg Planetarium. The event attracted participants from 17 different countries who came from 3 continents. There were 45 sessions that offered the opportunity to learn from many different points of view and to understand the problem of light pollution from a global perspective. Programming was punctuated with social events to encourage friendly discussion between participants and speakers.

The event in 2011 was surely not an exception to tradition. Participants were offered excursions to megalithic tombs, a local observatory with a 60cm reflector, museum tours, and friendly dinners. Again this year, the sessions were also available over the internet, and about 20 participants attended virtually.



Participants from around the globe at the 11th Annual European Symposium.

Collection and standardization of sky brightness data formed a central discussion. A special session before the symposium’s official opening addressed how to successfully compile information collected using different methods and instruments to form an accurate overall picture of sky brightness. One of the most urgent conclusions was the need for a database where all data could be aggregated and available over the internet. Currently, the majority of data is being collected using the Unihedron Sky Quality Meter (SQM). During a working dinner that followed, participants were able to calibrate their SQMs using a homemade reference device. This was followed by a guided tour of the museum and their impressive digital planetarium.

Discussion during the next day centered on the relationship between lighting and society, with a special focus on how to change culture to create sustainable lighting solutions. Experiences and activities from Australia, Japan, and Poland were presented along with an evaluation of studies about the relationship of crime and traffic safety and lighting.

The importance of planning was thoroughly examined, starting with a presentation on calculation tools and software that could estimate the impact of lighting for new public projects to help local governments plan lighting in urban areas. The last session of the day featured how a city’s master plan for lighting can be used as a tool to evaluate the success of lighting techniques in a city, which can in turn be applied to other cities to help reduce light pollution globally. The topic continued the next day with a discussion of how billboards are contributing to light trespass and advice to help guide local governments on how to control billboard lighting to reduce its negative effects on the community.

Several recent breakthroughs in environmental and ecological research were brought to light during the symposium, including the results of the ‘Verlust de nacht’ project in Berlin which found that polarized light pollution is a cause of

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## 2011 ES AWARDS

The awards ceremony held on the last day is a much beloved tradition venerating luminaries in dark sky protection. Once again the ceremony of 2011 recognized inspiring people and accomplishments.

### EUROPEAN LIGHTING DESIGN AWARD

Hilde Crevits, Flemish minister for mobility and traffic infrastructure. Crevits switched off highway lighting in the Flanders region of Belgium, only lighting locations with a high traffic density or that are otherwise dangerous. This practice is ground breaking, with an expected cost reduction of two million euro per year. The minister received this award on Oct. 15, 2011 during the 16th Annual Belgian Night of Darkness.



IDA Board Member  
Martin Morgan-Taylor

### THE GALLILEO AWARD FOR OUTSTANDING EFFORTS TO REDUCE LIGHT POLLUTION IN EUROPE

This award was proudly presented to IDA Board member Martin Morgan-Taylor. Martin is a very active consultant on light pollution to the UK’s Department of Environment, Food, and Rural Affairs and developed legislation on light nuisance and planning guidance regulations. He also helped other organizations, including the Campaign to Protect Rural England, and was actively involved in the IDSPark designations of Galloway Forest Park (IDSPark, 2009); Sark Island (IDSCommunity, 2011); and Exmoor National Park (IDSReserve, 2011).

# New Astronomical League Program Confronts Light Pollution

by John Jardine Goss, Astronomical League Vice President

Once when I was speaking against bad outdoor lighting at a local city council meeting, one of the council members interrupted me by saying, “Hey, let me tell you about my neighbor’s light!” Then, the other members chimed in telling their own stories. At that point, I realized that bad lighting is a problem that affects nearly everyone – including our elected officials.

If no one likes bad outdoor lighting, then why does it still exist? Why did it require an interested citizen speaking about a topic that affected nearly everyone in the room before the city council would discuss the problem?



Night sky enthusiasts who complete the DSA program receive this nifty lapel pin.

Many people who have an interest in the effects of light pollution simply are not voicing their concerns. Other people, not familiar with the issue, never look up and are quite unaware of the night sky, while some folks think that bright, misdirected lighting is normal.

Lovers of the night sky often remain silent about the slow degradation of true night. Wouldn’t it be great if all stargazers, including the 15,000 members of the Astronomical League, spoke up? How long would the problem persist if that happened?

The Astronomical League offers over thirty “Observe Clubs” that highlight different aspects of the night sky, from visually exploring the moon and distant planets to observing glittering star clusters and dim galaxies. The League recently introduced a new program quite unlike any of its others. It just might be its most important.

Since many IDA members also belong to astronomy clubs, this program also offers a great opportunity to strengthen the connection between organizations and build collaboration opportunities.

The Dark Sky Advocate program (DSA) requires participants to confront light pollution through a series of activities that help address the problem in their communities. It guides them to speak up and to affect change.

## ACTIVITIES THAT CONFRONT LIGHT POLLUTION

The program is divided into twenty activities spread throughout several categories which teach the individual how light pollution affects them personally and how it affects our society as a whole.

- **Amateur astronomy** – To emphasize the dramatic impact that sky glow has on amateur astronomy, individuals are instructed to study telescopically the same celestial objects from both city and rural sites. Often, it becomes woefully clear to them how brightening sky glow really is killing visual astronomy.

- **The good and the bad** – Although bad lights seem to be everywhere, there are plenty of good lights. The DSA candidate is not only asked to take pictures of good and bad lights but is also requested to take the process one step further by writing letters commending the owners of the good while politely asking the owners of the bad to upgrade their fixtures.
- **Presentations** – Many members of the non-stargazing public don’t realize that light pollution impacts them. For the problem to be solved, it is essential that they be educated on the issue. The DSA candidate is guided to give informative presentations to various civic groups, community organizations, and government officials. IDA materials are always free to download for public distribution. One great outcome of discussing light pollution is that once people have been shown the problem, they will not be able to keep from noticing the bad lighting around them. They will likely point out the good – and especially the bad – to their friends.
- **Economic Costs** – One aspect that really connects with the public is their personal cost of unshielded lighting. Participants calculate the annual cost of operating a standard unshielded dusk-to-dawn fixture and then compare that value with one from a low wattage, shielded unit. The latter appears quite the bargain even when the former features “free” installation.
- **Health and Environmental Concerns** – How many birds are killed each year due to bad lighting? How does inappropriate outdoor lighting, that occurs all night every night, affect the well being of people? The candidate investigates these and other questions and reports on the potentially shocking answers.

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People are encouraged to use humor in their presentations. For example, you may include a photo of bad lighting and comment, “Why use only one bad light when three will suffice?”

# IDA Chapter News

## IDA NORTHWEST IS NEXUS OF REGIONAL DARK SKY ACTIVITY

A screening of the documentary film “The City Dark” opened the Table Mountain Star Party (TMSP) for over 200 attendees. The event featured beautiful skies in a location 23 miles north of Ellensburg, WA and 6400 feet above Sea Level. The IDA/Dark Skies Northwest chapter leader, David Ingram, offered viewers a few introductory comments before the screening and then moderated a 15-minute question and answer session after the film. All in attendance were quick to offer “two thumbs up.”

The next day, Ingram made a 45 minute presentation to 30 TMSP attendees on the 30 year growth of artificial light pollution, how light pollution is negatively impacting our night time environment, and what can and is being done to slow down, and in some cases reverse, the advance of light pollution. Ingram offered summary descriptions of the IDA’s most recent advances including the approval of the Model Lighting Ordinance, the successful International Dark-Sky Places program, and the announcement of the Suburban Outreach Sites (SOS) program.

The events at Table Mountain describe just one aspect of Ingram’s dark sky activities. Throughout the fall, he has been doggedly meeting with city planners, public land managers, and industry representatives throughout Montana, Idaho, and Washington to support projects on conservation, observatory construction, and the future of digital billboards in cities such as Seattle. He was also a key organizer of IDA’s first Model Lighting Ordinance training workshop, held in Seattle in late October.

## Astronomical League

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There is one final exercise that needs mentioning – one that addresses what may be light pollution’s most important talking point.

- **Crime and Safety** – In many people’s eyes, the whole lighting issue boils down to a fear of crime. It’s been said many times that most crime occurs in the daytime. Is that really true? One of this section’s activities encourages DSA candidates to contact their local law enforcement agencies for their statistics.

When I contacted my county sheriff’s department, the detective I spoke with could not recall a single recent night-time residential break-in. They all occurred in the day when the homeowner was away. Then she said, “Let me tell you about my neighbor’s ridiculous driveway lighting.”

Indeed, bad lighting affects nearly everyone and it will continue to do so until we all speak out. A complete description of all the DSA activities can be accessed on the Astronomical League’s website: [www.astroleague.org/observing](http://www.astroleague.org/observing).



*Dark sky presentations are an easy way to educate an interested audience on the effects of light pollution.*

## IDA SANTA BARBARA SUPPORTS TEEN’S STAR PARTY

IDA salutes Ojai Valley eighth grader Erin Rush, who coordinated “Dark Skies & Starry Nights,” an educational event to support the Ojai lighting ordinance proposed by the Ojai Valley Green Coalition.

“When I arrived in Ojai, the first thing I noticed was how dark it is at night,” says Erin, who moved from Park City, Utah a year ago. “I saw the beautiful twinkle of stars filling the summer night sky, right over my house. I thought about how lucky Ojai is to have such a beautiful night sky. Then it hit me: the night sky isn’t any more beautiful in Ojai than in Park City, it’s just easier to see!”

Erin decided to promote awareness locally by throwing a star party preceded by a screening of the documentary film, “The City Dark.” She enlisted the help of Gail Topping, initiator of Ojai’s proposed outdoor lighting ordinance, the Ojai Valley Green Coalition, the Santa Barbara County IDA Chapter leader, Nancy Emerson, and the Santa Barbara Astronomical Unit Outreach Committee chairperson, Chuck McPartlin, who involved his telescope team. (All three are members of IDA.)

About 150 people attended the October event, including Erin’s headmaster and 20 middle school classmates. The headmaster announced at school on Monday that he and the facilities manager were beginning work on a light reduction plan for the K-12 school’s two campuses. Grassroots action at its finest!

## IDA ARKANSAS ASSISTS STATEWIDE DARK SKY LEGISLATION EFFORT

Arkansas State Representative Stephen Meeks, a strong proponent of dark sky legislation, asked for support of a statewide bill to regulate light pollution in his keynote address to the Central Arkansas Astronomical Society (CAAS) at their meeting on 10 September 2011. CAAS is an organizational member of IDA and the state’s largest astronomy club. The meeting (devoted to dark sky protection issues) started with the PowerPoint presentation “Protecting the Night Environment” by Jim Fisher, IDA’s Arkansas Chapter Leader and CAAS President.

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# Chapter News

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Rep. Meeks introduced House Bill 1171, which would have become the “The Arkansas Nighttime Environment Protection Act,” to the Arkansas General Assembly in spring 2011. Although HB 1171 did not pass this year, Rep. Meeks described its introduction as “an important first step towards a comprehensive state law” regulating light pollution.

If enacted, the bill would address publicly funded lighting, billboard lighting, plus roadway lighting. (The current Arkansas law, the Shielded Outdoor Lighting Act, only addresses lighting funded by municipalities.) The legislation would also make light trespass unlawful in Arkansas and ban the installation of new mercury vapor lights.

Rep. Meeks characterized his nighttime environment protection legislation as a “true bi-partisan effort” that, if enacted, could help save tax dollars while also protecting the environment and conserving energy. He said he sees dark sky protection legislation as an important ingredient in achieving improved government efficiency through energy savings realized by efficient lighting.

Fisher pledged that both CAAS and the IDA Arkansas Chapter would fully support Rep. Meeks’ important efforts to pass comprehensive nighttime protection legislation in the coming year.

## IDA COLORADO PLATEAU ORGANIZES TWO-DAY STARFEST

IDA Colorado Plateau (Utah) leader Kate Magargal reports on the Heritage Starfest she organized with Annette Lamb:

“In 2011, the second annual Heritage Starfest was held at the Wayne County Community Center in Bicknell, Utah. Activities began on Friday, September 30, with 4H Club activities. Youth and their families played games and made crafts to learn about astronomy and the night sky.

After dark, participants ran or walked a 5-kilometer Dark Sky course. The 4H Club had constructed luminaires to illuminate the route. Everyone got a course “skymap” showing constellations to look for when facing different directions. Cloudy conditions added to the challenge, with clear patches of sky briefly revealing constellations.

*Arkansas State Representative John Meeks presents his dark sky legislation proposal to eager listeners at a Central Arkansas Astronomical Society meeting.*



The sky cleared with perfect timing as the Dark Sky 5k came to a close. Participants braved the cold to glimpse Jupiter, star clusters, galaxies, and more.

The following day’s activities began with a screening of “The City Dark.” More 4H activities and a farmer’s market continued through the afternoon, followed by an International Dark-Sky Association Colorado Plateau Chapter presentation connecting the night sky and IDA mission with our shared heritage.

As dark settled, a campfire was lit, providing a cozy area for participants to hear local historian and storyteller Steve Taylor. Steve shared stories about how historic explorers, who used celestial navigation, encountered the area, and how their activities and the experiences of the pioneers are connected to modern place names.

After clouds threatened rain for most of the day, the sky once again cleared after dark. Salt Lake Astronomical Society volunteers provided a free raffle, handing out books and planispheres to young stargazers. Participants remained until the very early morning to take advantage of the telescopes.”

The Heritage Starfest was a team effort by several community groups. The project was initiated by the Wayne County Business Association (WCBA) and the International Dark-Sky Association Colorado Plateau Chapter (IDACP). The Utah State University extension 4H club, Salt Lake Astronomical Society, Wayne Theater, and Entrada Institute all contributed time, talent, and materials.

Approximately 200 people attended. Results of a post-event survey showed that while most participants lived in the area, some out-of-town visitors were drawn to the festivities. The survey indicated that word of mouth and newspaper ads were the most effective elements of an advertising campaign that also included a website, posters, track cards placed in several counties, and the Heritage Starfest float (which graced two county parades.) It appears that the Heritage Starfest is quickly becoming a valuable Wayne County fixture.



*Meteorite collector and HSF organizer Linton Rohr shares his “space rocks” at the HSF.*

PHOTO COURTESY OF ANNETTE LAMB

## European Symposium

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several negative consequences to insects and other night animals. Researcher Gerhard Eisenbeis raised many questions in his presentation on LEDs and insects. He has discovered that some LEDs containing a lot of blue light have less impact on insects than some other types of light. This evidence is puzzling because insects typically have a high reaction to blue light. Eisenbeis intends to continue studying the matter.

Impact on birds was addressed in two interesting talks; one was about the research done by the team of Bart Kempenaer on the impact on song birds (to be followed up by further research this year); and the other on the impact of lighting, particularly lighting of wind farms, on migrating birds, done by Jan Blew.

Next year promises to repeat this tradition of sharing the very latest knowledge on light pollution with engaged colleagues in a beautiful setting. The 2012 European Symposium will be held 13-15 September in Bielsko-Biala, Poland. More information will be available online at: [http://www.ciemnieniebo.pl/index.php?option=com\\_content&task=view&id=201&Itemid=31](http://www.ciemnieniebo.pl/index.php?option=com_content&task=view&id=201&Itemid=31)

All 2011 presentations of this symposium can be downloaded in PDF format from the symposium website: [http://www.lichtverschmutzung.de/symposium\\_2011/program.php](http://www.lichtverschmutzung.de/symposium_2011/program.php)

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