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Date: September 15, 2011  
Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: International Dark Sky Reserve Application

Dear IDA Directors:

As Core Administrator of what we sincerely hope will become the "Hopewell Big Woods International Dark Sky Reserve," I write today to formally make application for that designation. I have been chosen to carry and readily accepted the title of Core Administrator, based on my unique role with respect to this application and as it relates to this part of Pennsylvania.

I am Coordinator of the Hopewell Big Woods Project, which is described elsewhere in the accompanying Application. I am President of the Friends of Hopewell Furnace, also within the Hopewell Big Woods and likewise described elsewhere in the accompanying Application. I hold a PhD in Forest Ecology and Forest Soils from Yale University and serve as Senior Director of Science at Natural Lands Trust, a 60-person conservation organization, and am one of the lead sponsors of the Hopewell Big Woods Project and the State's Schuylkill Highlands Conservation Landscape Initiative.

The Pennsylvania Outdoor Lighting Council, IDA's Pennsylvania Chapter, is an active partner in the Hopewell Big Woods Project. They have made me clearly aware of the goals of the Dark Sky Reserve designation and the obligations that go along with it. Stan Stubbe and I have toured the Core area to assess the current state of outdoor lighting and to consider steps for remediation.

As a biologist I am sensitive to the impacts of light at night on plants and animals. As I considered the IDA goals for a Reserve, it became readily apparent that your aims and those of the Hopewell Big Woods Project and the Schuylkill Highlands Initiative are well aligned. As an example, one of the elements within Hopewell Big Woods and Schuylkill Highlands



Initiative that we strive to foster is continuity of habitat, which allows nocturnal creatures to move about freely throughout the region. Providing a continuous environment of darkness at night within the Hopewell Big Woods and Schuylkill Highlands allows nocturnal creatures the protection they need to safely move about in their habitat. Similarly, the maintenance of dark skies will help protect the Federally-listed endangered species that exist within the Schuylkill Highlands.

It is my intention and the intention of the other Hopewell Big Woods Partners to work closely together with the PA Outdoor Lighting Council to facilitate the achievement of the commitments expressed and implied with the granting of the International Dark Sky Reserve designation. Your serious consideration of our application will be greatly appreciated. If you have any questions or concerns, please don't hesitate to be in contact. In the meantime, we await your response.

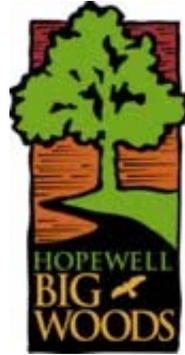
Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "James F. Thorne", written over the word "Sincerely,".

James F. Thorne

cc.



## **INTERNATIONAL DARK-SKY RESERVE PROGRAM**

# **APPLICATION FOR PROPOSED HOPEWELL BIG WOODS DARK-SKY RESERVE**

**PENNSYLVANIA OUTDOOR LIGHTING COUNCIL**

**PA Chapter of International Dark Sky Assn.**

**[www.polcouncil.org](http://www.polcouncil.org)**

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# HOPEWELL BIG WOODS INTERNATIONAL DARK SKY RESERVE APPLICATION

## INTRODUCTION

The Pennsylvania Outdoor Lighting Council, POLC, PA Chapter of the International Dark Sky Association, hereby makes application to the Board of Directors of the International Dark Sky Association, IDA, to request that the area in southeastern Pennsylvania known as the Hopewell Big Woods and a portion of the area known as the Schuylkill Highlands, be designated as an International Dark Sky Reserve, hereafter to be referred to in this application as the “Hopewell Big Woods International Dark Sky Reserve.”

Throughout the contents of this application we will endeavor to demonstrate to your satisfaction that the designated area is worthy of the International Dark Sky Reserve designation, in terms of the distinctive existing environmental quality of the area, the steps that have already been taken to control light pollution, steps in process, steps that are planned to be taken and the importance of such a designation on the health of the area’s natural and human environment and the night sky.

## HISTORY OF LIGHTING IN THE PROPOSED AREA

To understand and appreciate the current status of the level of light pollution in the Hopewell Big Woods and surrounding area, it is essential to be aware of the significant impact of the role of the PA Outdoor Lighting Council over the past 15+ years.

The PA Outdoor Lighting Council, POLC, was founded in 1995 by a group consisting mainly of amateur astronomers, wanting to make a difference by bringing the problem of light pollution to the attention of the citizens of Southeastern PA. In June of 2006, POLC became a section (later renamed “chapter”) of IDA and thereby took on a wider role as protector of the night skies across Pennsylvania.

In 2001 the POLC participated in an effort to promote legislation that would require that all state agencies engage in responsible outdoor lighting practices. POLC members provided testimony at the state level and obtained support from local legislators. The measure gained unanimous approval in the House of Representatives but was never brought for vote by the State Senate. Despite the fact that the measure was never officially enacted, the publicity gained for the dark-sky cause was judged to be significant and well worth the effort.

POLC’s charter is: “To promote the use of outdoor-lighting practices that foster effective task visibility, safety and security, while protecting the environment, citizens and the night sky from light pollution, through public education and facilitating the creation and enforcement of effective municipal outdoor lighting ordinances.”

The POLC created and maintains a website, [www.polcouncil.org](http://www.polcouncil.org), which contains in-depth resources about responsible outdoor lighting, with particular focus on the needs of municipal entities. The website is kept up-to-date and has a prominent link to the IDA website.

To amplify its light-pollution abatement abilities, visibility, commitment and stature, the POLC has become an active partner with 3 influential and supportive movements and agencies: Hopewell Big Woods Partnership, Schuylkill Highlands Initiative Partnership and PA Department of Conservation and Natural Resources iConserve Partnership.

With the rationale that effective ordinances can control much of the abusive commercial lighting during the planning stage rather than after the fact, the POLC early on created a series of model lighting ordinances based on the structure of the PA Municipalities Planning Code. Three ordinances were made available, one for inclusion in zoning ordinances, one for inclusion in subdivision and land development ordinances and a third stand-alone ordinance. One of the POLC members was also a member of a municipal planning commission and utilized that affiliation and expertise to assure that appropriate ordinance language was employed. All model versions are kept up-to-date with enhancements and to accommodate changes in technology. The first such ordinance was enacted by a municipality in 1996 and to date over 40 Pennsylvania municipalities have adopted one or more versions of the ordinance, the majority in Southeastern PA, where development has been most extensive. Eight of the 11 municipalities within the International Dark Sky Reserve Core have enacted and enforce a version of the POLC model lighting ordinance. Those ordinances have unquestionably had a marked positive impact on controlling light pollution and keeping the night sky over the Hopewell Big Woods as it is today.

To promote the adoption of lighting ordinances, over the past 10 years the POLC developed and has conducted a series of 11 lighting workshops at the county level for municipal officials and others involved in the ordinance preparation, adoption and implementation process. Additionally, presentations have been made at 2 annual Pennsylvania Planning Association state-wide conferences and at the annual conference of the PA State Association of Township Supervisors. Presentations have been made to municipal environmental advisory councils, municipal parks and recreation boards and other municipal groups as well as to non-municipal environmentally oriented organizations. To promote the optimum enforcement of the lighting regulations, the POLC also developed and conducts lighting workshops for code enforcement personnel. To promote citizen education on light pollution issues, the POLC frequently participates in local and regional environmental events and has informative table-top displays.

Brochures created by the POLC to inform citizens about the problems and solutions surrounding light pollution have been created and distributed over the years. The POLC has recently been awarded a grant from Natural Lands Trust and the PA Department of Conservation and Natural Resources to produce and distribute a brochure to promote light-pollution abatement in the context of the proposed Hopewell Big Woods Dark Sky Reserve.

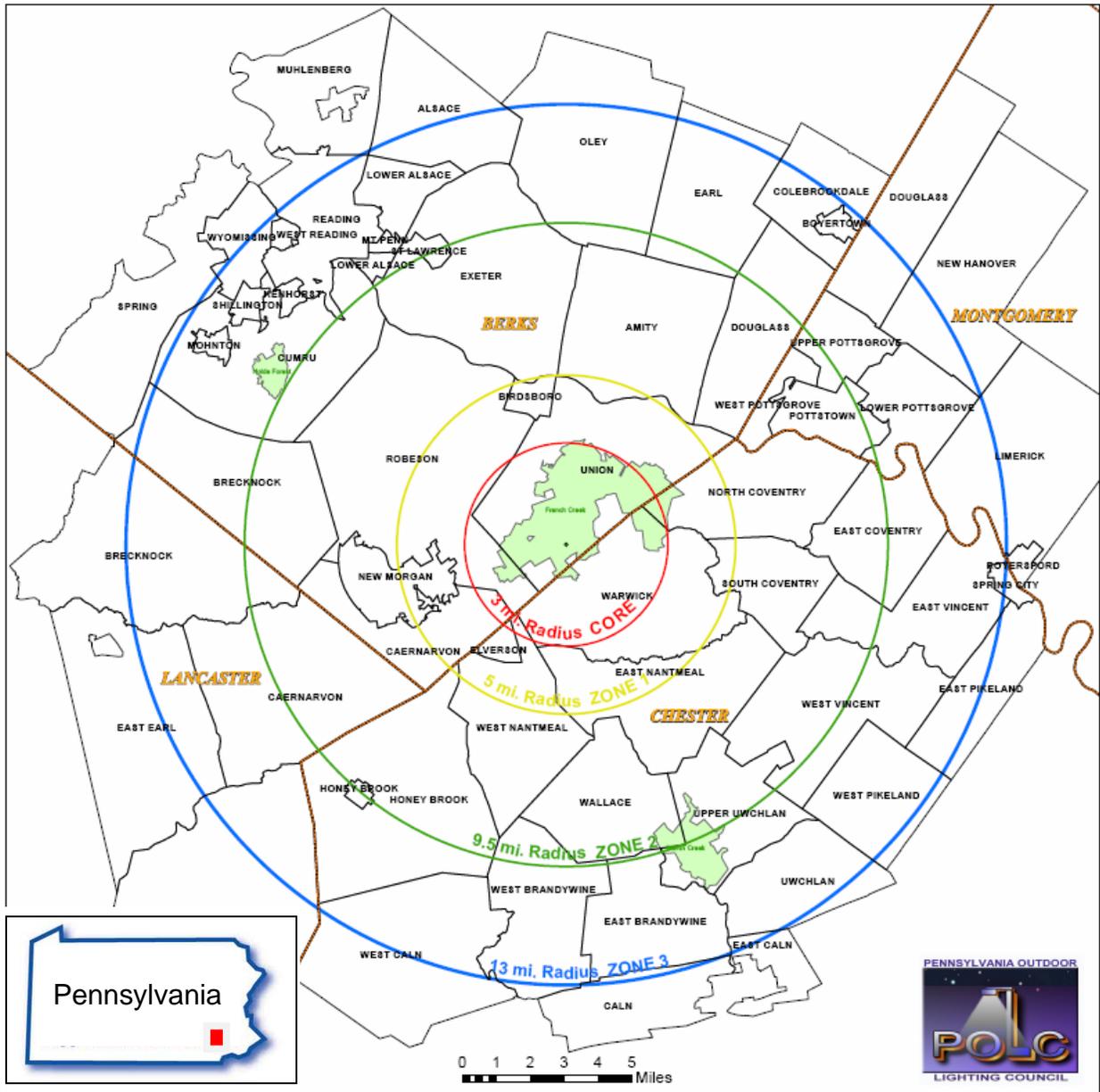
The main thrust of this preceding background information is to demonstrate that the current condition of the skies over and around the proposed Reserve area, while far from perfect, is in very large part the result of over 15 years of concerted effort on the part of the POLC in promoting the adoption and enforcement of effective lighting ordinances and educating the public to be good stewards of the night sky.

Although we will demonstrate that further steps toward light-pollution abatement are being and will be taken, we wish to emphasize that what has already been done in that direction must not be overlooked or taken for granted. The granting of IDSR status will acknowledge the significant efforts made to date but more importantly will serve as an essential catalyst so that we may hold our ground and move forward with even more dramatic achievement in the years to come.

# RESERVE AREA DESCRIPTION

## RESERVE AREA OVERVIEW

The proposed Hopewell Big Woods International Dark Sky Reserve in Southeastern PA, consists of a Core of 28.3 square miles, and zones of primary, secondary and tertiary protection as depicted below.

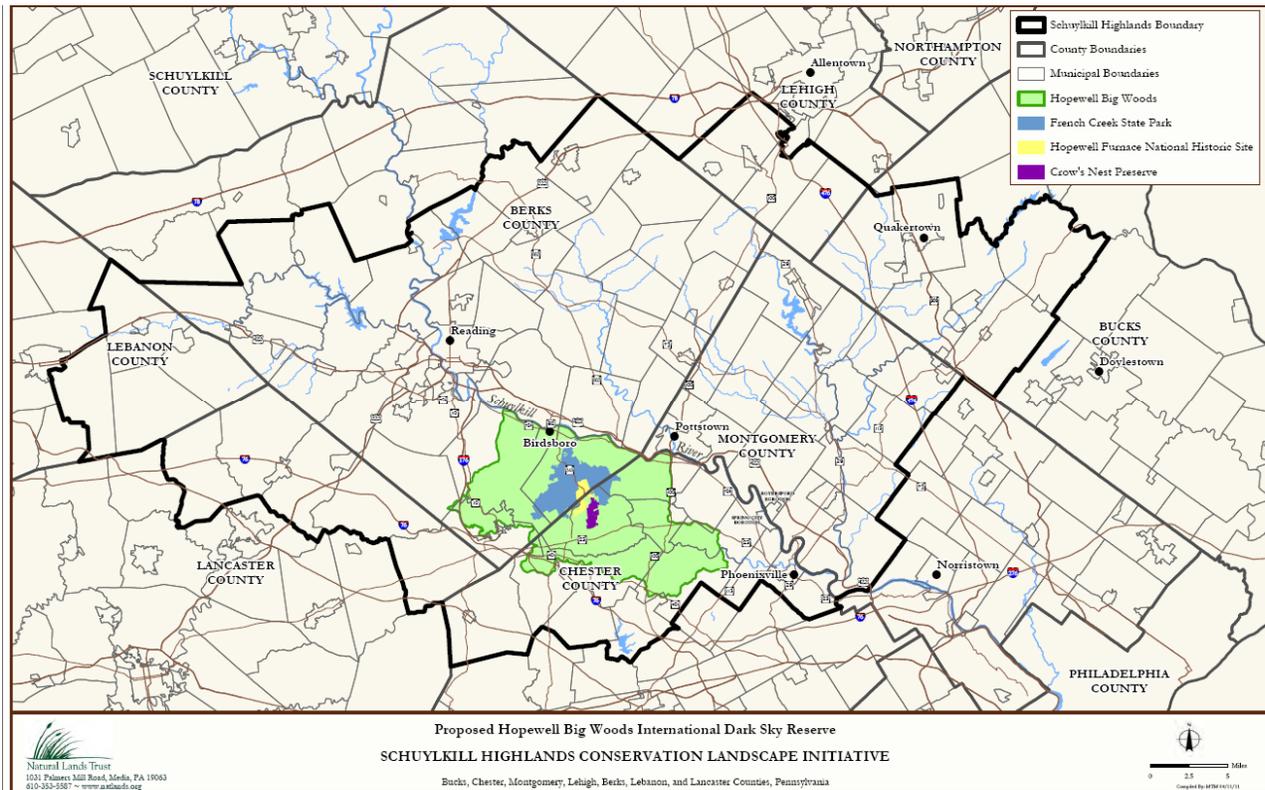


The overall area proposed for the Hopewell Big Woods International Dark Sky Reserve designation sits within a large expanse of land known as the Schuylkill Highlands. Within the Schuylkill Highlands is an area known as the Hopewell Big Woods. The

Hopewell Big Woods is relatively rural and where existing and potential lighting abuses can be fairly easily controlled. The overarching Schuylkill Highlands has several metropolitan areas where coming to grips with existing light pollution will be a greater challenge.

## SCHUYLKILL HIGHLANDS

The Schuylkill Highlands Conservation Landscape Initiative is a place-based strategy for natural resource stewardship and advocacy in key landscapes where there are strong natural assets and local readiness and support for land conservation, locally-driven planning, and community economic revitalization efforts. PA Department of Conservation and Natural Resources and partners work closely with communities on such issues as creating walking and biking trails, encouraging sustainable development, protecting greenways, protecting habitat by reducing forest fragmentation and conserving land. The Schuylkill Highlands Conservation Landscape Initiative integrates the inspiration and action of many local, county and state government partners, land trusts, and nonprofit organizations. The partnership devotes its attention and expertise to protecting and preserving this critical landscape in a manner that will enable its vibrant sustainable economic future. The partners have a deep commitment to working together in certain places of unsurpassed natural resource value. The POLC is a Schuylkill Highlands Partner.



The Schuylkill Highlands contains the following distinctions:

- Largest unbroken forest between Washington DC and New York City.
- 61 of the 128 miles of the Schuylkill River.
- 660 miles of exceptional value and high quality streams, provide 1.75 million people drinking water.
- Schuylkill River Trail.
- High concentration of cultural sites.
- 3 National Parks, 5 State Parks
- 5 Important Bird Areas.
- 8.5% of the 926,689 total acres are protected.
- Federally threatened species and critical habitat areas for wildlife.

The region also contains a number of large habitat areas that have been called out for protection by county planning agencies, state agencies and private conservancies. Hopewell Big Woods is perhaps the largest and best known, but the Oley Hills, Unami Forest, Neversink Mountain, and Swamp Creek Corridor are other well-known examples.

Within the Schuylkill Highlands are portions of 7 PA counties: Berks, Bucks, Chester, Lancaster, Lebanon, Lehigh and Montgomery and 4 extensive urban areas: Phoenixville, Pottstown, Quakertown, and Reading.

## HOPEWELL BIG WOODS

The Hopewell Big Woods is a 73,000 acre 110 square mile part of Pennsylvania that Natural Lands Trust and the PA Department of Conservation and Natural Resources wish to have preserved and protected from further uncontrolled development. It encompasses the last large, unbroken forest left in southeastern Pennsylvania. It is one of the most important natural areas in the region. It is an exceptional resource with hundreds of plant and bird species, pristine forest, unique wetlands and clean streams providing open space, drinking water, and unique scenic, cultural and natural resources. It is greatly valued as an asset for public recreation.

The Hopewell Big Woods Partnership, led by a land conservation organization known as Natural Lands Trust, consists of a group of over 30 government agencies, private non-profits and municipal entities. The Partnership seeks to conserve at least 4,000 acres of old growth, 15,000 acres of unbroken forest and the watersheds supported by this forest. The POLC is a Hopewell Big Woods Partner.

Portions of the Hopewell Big Woods are situated in Berks and Chester Counties. It encompasses, among other things, French Creek State Park, Hopewell Furnace National Historic Site, Natural Lands Trust's Crow's Nest Preserve and PA State Game Lands No. 43. These venues are described below.

## CORE DESCRIPTION

The core of the Hopewell Big Woods Dark Sky Reserve is an area identified by drawing a circle with a 3-mile radius whose point of origin is the location of the Administration Building at French Creek State Park.

Contained within the Core's 28.3 square miles is Pennsylvania State Game Lands No. 43, US Dept. of Interior Hopewell Furnace National Historic Site, Natural Lands Trust's Crow's Nest Preserve and a portion of the Hopewell Big Woods, all of which are restricted from further development. Hopewell Big Woods has been described above.

French Creek State Park – The Park is a 7,730-acre site under the direction and management of the PA Department of Conservation and Natural Resources. Within the park are camping, hunting, fishing, boating, hiking, swimming and other recreational facilities. It is used by local astronomy groups in collaboration with park personnel throughout the spring, summer and fall for public star parties where visitors learn to appreciate the wonders of the night sky. Lighting within the Park is limited to full-cutoff luminaires. Park management is committed to preserving the night sky over the facility and endorses the creation of the Hopewell Big Woods International Dark Sky Reserve. A letter of support from the Park manager is included with the application.

Hopewell Furnace National Historic Site – This Federal facility is under the control of the US Department of Interior. It is an 848-acre restoration of the early iron industry venue that conducts events throughout the year commemorating life in those early times. Site lighting is well controlled and extinguished when the facility is closed. Although the facility is not typically open during hours of darkness, Berks County Amateur Astronomical Society hosts star parties there. Site management is committed to preservation of the night sky and a letter of endorsement from the facility manager endorsing the creation of the Hopewell Big Woods International Dark Sky Reserve is included with the application.

Crow's Nest Preserve – This 612-acre area of farmland, woodlands, wetlands and preserved open space, owned and maintained by Natural Lands Trust, is protected against further development and serves as an environmental education facility. Outdoor lighting is limited and carefully controlled with motion detectors and shielding. Preserve management is committed to preservation of the night sky and has endorsed the creation of the Hopewell Big Woods International Dark Sky Reserve in the form of a letter contained with this application.

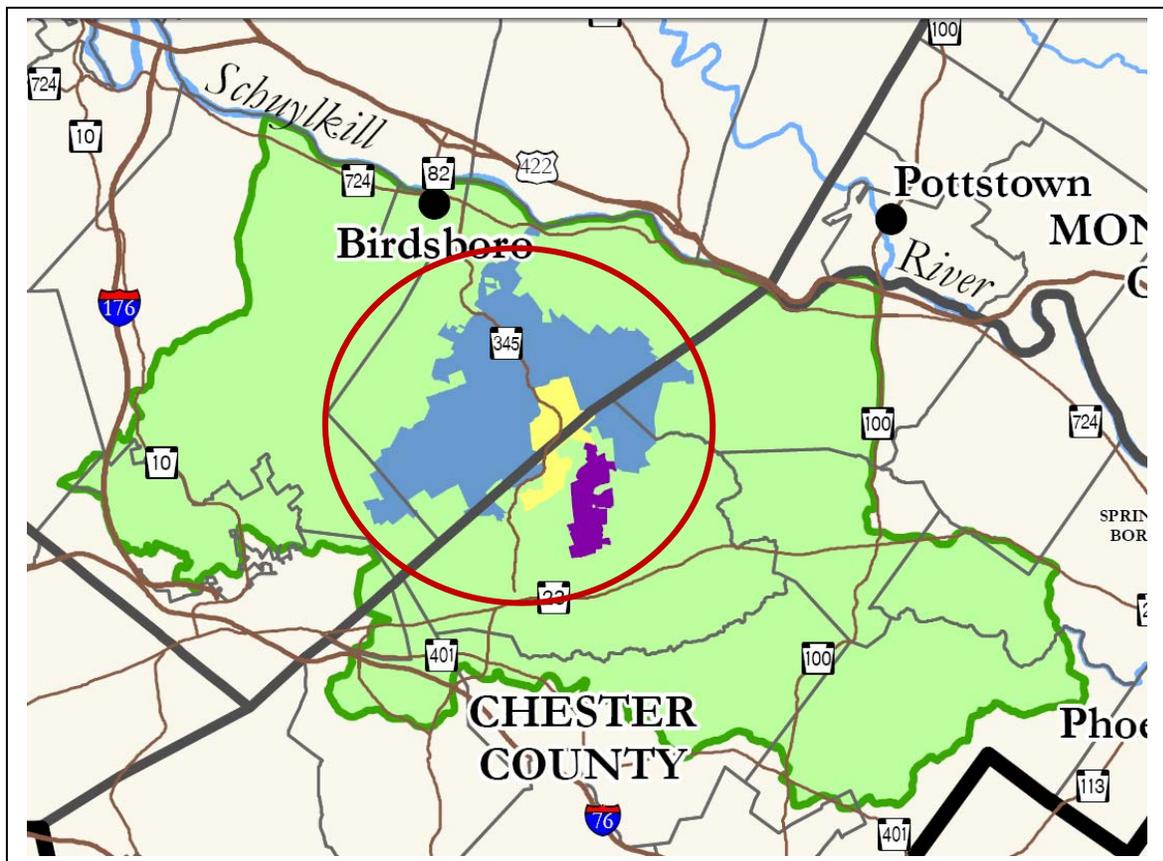
PA State Game Lands No. 43 – This mostly forested facility operated by the Pennsylvania Game Commission encompasses an area of 1,800 acres, a part of which is within the Core and part in Zone 1, where it serves as an effective buffer to protect the Core. There is no lighting within the bounds of State Game Lands 43. A gun range in this area of protected land is a location that is used extensively by amateur astronomers for observing.

Core Communities – Two small communities exist within the Core: Geigertown and Warwick. Geigertown has a population of approximately 130 and 50 households. Lighting at the local industries, churches and fire hall are in need of corrective action. Warwick is a residential setting.

Core Municipalities – Portions of 8 municipalities lie within the designated Core area. Of the 8 municipalities within the Core, 5 have adopted and actively enforce one or more versions of the POLC outdoor lighting ordinance.

- Caernarvon Township, Berks Co.
- East Nantmeal Township, Chester Co.
- Elverson Borough, Chester Co.
- North Coventry Township, Chester Co.
- Robeson Township, Berks Co.
- Union Township, Berks Co.
- Warwick Township, Chester Co.
- West Nantmeal, Chester Co.

Core Area Map



- |   |   |   |                          |
|---|---|---|--------------------------|
|  | Hopewell Furnace National Historic Site |  | NLT Crow's Nest Preserve |
|  | French Creek State Park                 |  | Hopewell Big Woods       |

## PERIPHERY DESCRIPTION

The periphery, an area of over 500 square miles, is divided into 3 zones, each with more or less consequence with respect to protecting against light pollution within the Core: Zone 1 is the area of primary protection, which has the smallest population density and is closest to the Core, in which the most stringent measures will be applied to minimize impact upon the Core. Zone 2 is an area of secondary Protection, with a higher population density and less direct impact on the Core. Zone 3 is furthest from the Core and has the highest population density.

### Zone 1

This area of primary protection is bounded by a circle with a 5-mile radius and contains 50.26 square miles. Its primary function is to provide protection to minimize light pollution within the Core. 9 of the 14 municipalities within Zone 1 have and enforce their dark-sky friendly ordinances.

Noteworthy Sites – There are a number of venues within Zone 1 that are cultural or recreational in nature. Of note is Joanna Furnace, a 13.8-acre complex that features an iron furnace that operated between 1792 and 1901. It is privately owned and on the National Register of Historic Places. Steps have been taken to restore and maintain the appearance as it was in earlier times, including the lighting. Efforts are underway to have the site lighting be typical of that which existed in earlier times.

Warwick County Park was the site of Chesmont Astronomical Society's annual StarFest. The 538 acre park is typically closed during hours of darkness and there is no lighting on the site.

Coventry Woods is a 627 acre nature preserve owned by North Coventry Township. There is no lighting within the preserve.

Woody's Woods is a 250 acre nature preserve owned by South Coventry Township. There is no lighting within the preserve. .

### Zone 2

This area of secondary protection lies between the outer boundary of Zone 1 and a circle whose radius is 9.5 miles from the center of the Core. This zone was established to fulfill requirements contained in IDA acceptance criteria. It consists of 205 square miles and contains portions of 32 municipalities, including Pottstown Borough.

### Zone 3

This tertiary protection Zone serves as the outer line of defense for Core protection. Contained within Zone 3, along with rural areas and open space, are communities with relatively high populations, extensive commercial operations and industries and include the City of Reading, Uwchlan Township, Limerick Twp. and a portion of West Whiteland Township.

## RESERVE AREA STATISTICS

### Core and Periphery

	<u>Sq. Miles</u>	<u>Population</u>	<u>Per Sq. Mile</u>
Core:	28.26	4,566	161
Periphery:	502.60	394,848	
Zone 1	50.26	16,715	332
Zone 2	204.96	109,040	532
Zone 3	247.38	230,257	931
Total:	530.86	400,314	

### Core Properties

	<u>Sq. Miles</u>	<u>Population</u>
French Creek State Park – Union Twp.	12.1	0
Hopewell Furnace Nat. Hist. Site – Union Twp.	1.3	2
NLT Crow's Nest – Warwick Twp.	0.9	11
PA State Game Lands 43 – Warwick Twp.	2.8	0
Other (See below)	11.2	4,553
Total:	28.3	4,566

### Core Municipalities – (3-Mile Radius)

	<u>Sq. Miles</u>	<u>Population</u>
Caernarvon, Berks	0.57	306
East Nantmeal	.05	1
North Coventry Twp	0.27	144
Robeson Twp.	3.28	659
Union Twp., Berks	13.59	2,007
Warwick Twp.	10.27	1,356
Total:	28.26	4,566

### Zone 1 Municipalities – (5-Mi. Radius)

Amity	0.89	607
Birdsboro	1.34	5,061
Caernarvon Berks	3.44	1,567
East Nantmeal	5.20	573
Elverson	0.96	1,165
Exeter	0.04	42
Honey Brook	0.05	16
New Morgan	2.15	27
North Coventry.	3.52	2,009
Robeson Twp.	10.91	2,303
South Coventry.	0.99	330
Union Twp.	9.00	1,348
Warwick Twp	7.89	1,041
West Nantmeal	3.87	627
TOTAL	50.26	16,715

Zone 2 Municipalities – (9.5 Mi. Radius)

	<u>Sq. Miles</u>	<u>Population</u>
Amity	17.64	11,976
Birdsboro	0.03	102
Brecknock Berks	8.42	2,163
Caernarvon (Berks)	4.91	2,236
Caernarvon (Lancaster)	12.11	2,506
Cumru	6.43	4,602
Exeter	18.32	19,036
Douglass (Berks)	8.17	2,139
Earl	1.39	321
East Brandywine	0.21	125
East Coventry	5.67	3,429
East Nantmeal	11.15	1,229
East Vincent	3.13	1,566
Honey Brook Borough	0.19	686
Honey Brook	14.28	4,357
Lower Pottsgrove	0.15	230
New Morgan	3.59	44
North Coventry	10.00	5,704
Oley	1.67	251
Pottstown	4.16	18,703
Reading	0.01	129
Robeson	20.00	5,100
South Coventry	6.85	2,274
St. Lawrence	0.32	654
Union (Berks)	0.80	120
Upper Uwchlan	6.27	5,895
Wallace	11.94	3,457
Warwick	0.83	110
West Brandywine	2.30	1,281
West Nantmeal	9.31	1,508
West Pottsgrove	2.33	3,874
West Vincent	9.67	2,525
TOTAL	204.96	109,040

Zone 3 Municipalities – 13 Mi. Radius

Alsace	5.00	1,541
Boyertown	0.77	4,055
Brecknock (Berks)	8.73	2,245
Brecknock (Lancaster)	12.78	3,719
Caernarvon Lanc.	10.83	2,242
Caln	0.66	1,013
Colebrookdale	4.39	2,635
Cumru	14.05	10,060

	<u>Sq. Miles</u>	<u>Population</u>
Douglass (Berks)	4.46	1,167
Douglass (Montco)	4.18	2,782
Earl	10.87	2,512
East Brandywine	11.01	6,611
East Caln	0.38	507
East Coventry	5.30	3,207
East Earl	6.57	1,732
East Pikeland	4.05	3,200
East Vincent	10.43	5,221
Exeter	6.23	6,472
Honey Brook	10.73	3,274
Honey Brook Borough	0.28	1,027
Kenhorst Borough	0.58	2,877
Limerick	6.24	4,972
Lower Alsace	4.78	4,475
Lower Pottsgrove	7.82	11,829
Mohnton	0.76	3,043
Mount Penn	0.43	3,106
Muhlenberg	0.01	22
New Hanover	3.82	1,919
Oley	14.80	2,225
Reading	7.85	67,742
Pottstown	0.82	3,674
Royersford	0.01	40
Salisbury	7.43	1,960
Shillington	0.96	5,273
Spring	0.16	239
Spring City	0.33	1,348
St. Lawrence	0.56	1,155
Upper Pottsgrove	4.00	4,216
Upper Uwchlan	5.67	5,332
Uwchlan	8.96	15,494
Wallace	0.00	1
West Brandywine	10.31	5,752
West Caln	10.17	4,117
West Pikeland	8.87	3,581
West Reading	0.59	4,212
West Vincent	7.82	2,042
Wyomissing	1.89	4,388
TOTAL	247.38	230,257

## AMATEUR ASTRONOMY WITHIN THE RESERVE

There are 4 formal amateur astronomy groups active within the Hopewell Big Woods/Schuylkill Highlands region:

Berks County Amateur Astronomy Society – 70 members  
Chesmont Astronomical Society – 60 members  
Chester County Astronomy Society – 50 members  
Delaware Valley Amateur Astronomy – 145 members

The Pennsylvania Outdoor Lighting Council works closely with these groups. Three POLC Board members are members of one or more of those organizations.

The groups depend heavily on the availability of local dark observing sites to avoid having to drive for 5 hours to Cherry Springs State Park:

One of the activities of these groups is to hold events that allow young people to stargaze using club-members' telescopes and to answer the myriad of questions that the view of the heavens inspires. These events are held in the Core at French Creek State Park, in Zone 3 at Marsh Creek State Park and Spring Township, Berks County.

Chesmont Astronomical Society holds an annual event called "StarFest," which has had attendances as high as several thousand. The event features a presentation by a prominent astronomy expert and a setup of several dozen scopes. Attendees come from local venues as well as from other locations in Southeastern PA and Delaware. For many past years StarFest was held at Warwick County Park in Zone 1. The 2011 event was held within the Core, at Hopewell Furnace National Historic Site. During that event, the Pennsylvania Outdoor Lighting Council made a presentation on the proposed International Dark Sky Reserve.

## POLC MODEL LIGHTING ORDINANCE

One of the central and most productive POLC efforts over the past 15+ years has been the creation and promotion of a set of dark-sky friendly model lighting ordinances. There are three versions: one for Subdivision & Land Development ordinances, one for Zoning ordinances and one for stand-alone ordinances. These models are updated as new technology and approaches arise.

Main Ordinance Features – The model lighting ordinances all contain the same basic elements:

- Applicability
- Criteria/Illuminance Levels
- Luminaire Types
- Aiming and Shielding
- Installation

Plan Submission Requirements  
Nonconforming Lighting  
Compliance Monitoring

Municipalities tailor the language to meet their unique needs.

Ordinance Promotion – In Pennsylvania, except in very rural regions, lighting laws are created, maintained and enforced at the municipal rather than the county or state level. Thus promotion of ordinance creation must be aimed at the local level. Every municipality has at least a nuisance clause that regulates against excessive glare but to get municipal leaders to enact and enforce a comprehensive ordinance often requires an education process. To that end, the POLC has conducted 11 county-wide lighting workshops for municipal officials, i.e., supervisors, councilors, managers, code officers, planning commission members and municipal engineers and has conducted programs at programs held by PA Planning Association, PA State Association of Supervisors, Environmental Advisory Committees, etc. These workshops have resulted in the passage of over 40 municipal lighting ordinances and heightened awareness of the need to control light pollution.

Ordinance Enforcement – One of the members of the POLC is a lighting consultant who works daily with municipalities within the proposed Reserve reviewing developers' lighting submissions for lighting ordinance compliance and conducting post-installation inspections for approved-plan conformance. This has resulted in judicious ordinance enforcement.

Communities with POLC Ordinances – The following municipalities within the proposed Hopewell Big Woods Dark Sky Reserve have adopted and actively enforce one or more versions of the POLC Model Lighting Ordinance:

	<u>Municipality</u>	<u>Zones</u>
1.	Amity Township	Core, 1,2
2.	Birdsboro Borough	1,2
3.	East Coventry Township	3
4.	East Nantmeal Township	1
5.	East Pikeland Township	3
6.	East Vincent Township	2, 3
7.	Exeter Township	1, 2, 3
8.	North Coventry Township	Core, 1, 2
9.	Robeson Township	Core, 1, 2
10.	South Coventry Township	1, 2
11.	St. Lawrence Borough	2
12.	Union Township	Core

13.	Upper Uwchlan Township	2, 3
14.	Uwchlan Township	3
15.	Wallace Township	2
16.	Warwick Township	Core, 1, 2
17.	West Brandywine Township	2, 3
18.	West Pikeland Township	3
19.	West Vincent Township	2, 3
20.	West Whiteland Township	3

See Appendix A for a version of PA Outdoor Lighting Council's Model Lighting Zoning Ordinance. It is tailored to the kinds of rural and suburban communities that are typical of those that exist in the Hopewell Big Woods region.

#### AWARENESS/PROMOTION PROGRAMS

While light-pollution legislation might be politically acceptable for commercial, industrial and institutional applications, in order to alter the residential mindset, education is the most acceptable and effective method. The following means are used to inform and motivate the general public with respect to the ill-effects of light pollution and what can be done to reduce or eliminate it.

Brochures – POLC has created several informative brochures that are used at such venues as science and environmental expos. Using funds received from a grant from the PA Department of Conservation and Natural Resources, POLC has created a handout brochure with an environmental focus, which describes the consequences of irresponsible lighting on human and environmental health and the importance of maintaining the dark skies over the Hopewell Big Woods Dark Sky Reserve. See Appendix D for a copy of one of the brochures.

Municipal Publications – POLC has in the past and will continue to offer articles about light pollution abatement for insertion in municipal newsletters.

Municipal Government Ordinance Presentations – POLC will continue to make presentations at the state, county and local municipal level promoting the importance of effective lighting ordinances and ordinance enforcement to elected officials, code enforcement personnel, environmental advisory councils, planning agencies and park and recreation boards.

Environmental Presentations – Table-top displays and presentations to environmental groups will continue to be offered and conducted to appeal to that sector of the public that influences positive environmental change.

Newspaper Publicity – Articles in local newspapers are and will continue to be used to inform the public about light pollution and what they can do to be a part of the dark-sky movement.

## Recent Publicity Examples

# Public Invited To View The Night Sky

## Starfest Moves To Hopewell Furnace

By Francine Fulton

Each year, hundreds of local residents anticipate the Starfest event at Warwick County Park, which gives people an opportunity to view the night sky through powerful telescopes owned

by members of the Chesmont Astronomical Society (CAS).

This year, Starfest 2011 will be held at a new venue - Hopewell Furnace National Historic Site. The event will take place on Saturday, Aug. 27, from 4 p.m. to midnight. Admission and parking will be free, but donations will be requested.

According to event organizers, the change of location is designed to

See **Sky** pg 6



The Chesmont Astronomical Society will present Starfest 2011 on Saturday, Aug. 27, beginning at 4 p.m. at Hopewell Furnace National Historical Site. Organizers include (from left) Chris Fessett, Starfest committee member; Rob Cordivari, chairman of Starfest; Stan Stubbe, president of the Pennsylvania Outdoor Lighting Council; and Marty Howe, club president.

promote an effort to make the Hopewell Big Woods a "Dark Sky Reserve" through the efforts of the Pennsylvania Outdoor Lighting Council (POLC) and the International Dark-Sky Association (IDA). The goal of POLC is to minimize outdoor lighting, which not only preserves the night sky but can save on energy costs as well. More information about the POLC

can be found at [www.polcouncil.org](http://www.polcouncil.org).

Starfest will open at 4 p.m. for solar observing and telescope setup. "A Kids Corner" will feature educational activities for children from 6 to 7 p.m.

From 7 to 7:30 p.m., Stan Stubbe, POLC president, will explain the Hopewell Big Woods Dark Sky Reserve program. Karl Krasley, CAS founder, will then present a program about the society, now in its 25th year, from 7:30 to 8:15 p.m.

Keynote speaker Dr. H. John Wood of NASA's Goddard Space Flight Center will present a talk from 8:20 to 9:15 p.m. "He will show some of the greatest images that the Hubble (Space) Telescope ever took," said Rob Cordivari, Starfest chairperson. "He will talk about the science behind the images."

Observing of the night sky will take place from 9:15 to midnight. "A key feature will be the '10-Object Row,'" Cordivari said. "We pick out 10 of the most beautiful, unique deep sky objects (such as) globular clusters, galaxies, supernova remnants and double-stars. People can get in line and go down the row and see (them through the telescopes) object by object."

There will be door prizes given away throughout the course of the evening, donated by Celestron, Explore Scientific, Orion and others. The grand prize will be awarded at approximately 9:15 p.m.

Cordivari said people of all ages are invited to come to attend Starfest, including those new to the hobby. Those with telescopes are invited to bring them along, and those considering purchasing a telescope are also invited to come to get advice.

The Chesmont Astronomical Society meets at the National Penn Bank on 23 in Bucktown. Meetings generally feature information about astronomy, club and occasional guest speakers. In addition to meetings, club members frequently observe the night sky at several locations throughout

the area, including Marsh Creek State Park in Eagle, where monthly star parties are offered to the public. A complete calendar of meetings and star parties is available on the club's website at [www.chesmontastro.org](http://www.chesmontastro.org).

Starfest is the club's biggest event each year. "(Starfest) encompasses

the whole essence of what the Chesmont Astronomical Society is about - sky observing, public outreach and dark-sky preservation," Cordivari said.

Hopewell Furnace National Historical Site, 2 Mark Bird Lane, Elverson, is located off Route 345 and Hopewell Road. Club members request that attendees only bring

flashlights, which they will cover with cellophane. Families are also welcome to bring lawn chairs or blankets for seating. Snacks or dinner can be brought to the event. The rain/doud date for Starfest 2011 is Aug. 28. Information on event cancellations or rescheduling will be updated throughout the day on the club's website.

YOUR COMMUNITY

# Berks planners back dark nights

The Berks County Planning Commission has voted 7-1 to support the Pennsylvania Outdoor Lighting Council's efforts to establish the Hopewell Big Woods International Dark Sky Reserve.

According to county officials, the council is a non-profit volunteer organization established in 1995 to protect the night sky from light pollution through proper outdoor lighting.

The group has worked with municipalities such as Union, Robeson and Exeter in creating and enforcing lighting ordinances, and educating residents about good lighting practices.

The council is a chapter of the International Dark Sky Association, Tucson, Ariz., and needs letters of support from state and county agencies, municipalities and environmental organizations to get the so-called Hopewell Big Woods area designated a Dark Sky reserve.

Officials discussed zones, the core of which is the state park, and expanding out to include portions of Montgomery, Chester and Lancaster counties.

The furthestmost zone includes Reading.

"We are exacting nothing on anybody in terms of restrictions. ... We have no power to cause anything to happen but educate people," council President Stan Stubbe said.

Planning commission Chairman Joseph Griffin was sympathetic.

"The theft of the night sky is probably one of the most egregious environmental deeds that have ever been done," he said, adding, "The IDSA is fighting a losing battle. I mean, God bless them, I certainly think we should give them a letter of recommendation."

James C. McCarthy voted no.

"I don't have any issue with it; I just don't think we should be looking at it," he said.

In other business Wednesday, the board voted unanimously to approve sewer plan updates for Upper Tulpehocken and Marion townships and Adamstown, and a Lower Heidelberg Township on-lot management ordinance.

— By Keith Smoker

## MONITORING PROGRAM

A monitoring program of sky conditions within the Hopewell Big Woods was established in 2010. It is being maintained by the POLC on an on-going basis. Periodic SQM readings are taken to follow the evolution of light pollution in the Core of the IDSR. The following individuals participate:

Barry Johnson (BJ), POLC, IDA, IES, Delaware Valley Amateur Astronomers  
 Chris Fessett (CF), Chesmont Astronomical Society  
 Janet Romer (JR), Chesmont Astronomical Society, Delaware Valley Amateur Astronomers  
 Lou Behrman (LB), Chesmont Astronomical Society  
 Stan Stubbe (SS), POLC, IDA, IES, CIE, IEEE

Core readings are taken periodically at the following locations:

FCSP = French Creek State Park, Elev. 525'  
 SGL43 = PA State Game Lands No. 43 gun range, Elev. 820'

Peripheral readings are taken at the following locations:

WNT = West Nantmeal Township Park  
 NF = Nolde Forest  
 PAL – Police Athletic Field , Upper Pottsgrove

Monitoring locations will be expanded to cover other selected locations within the core as well as within the peripheral area.

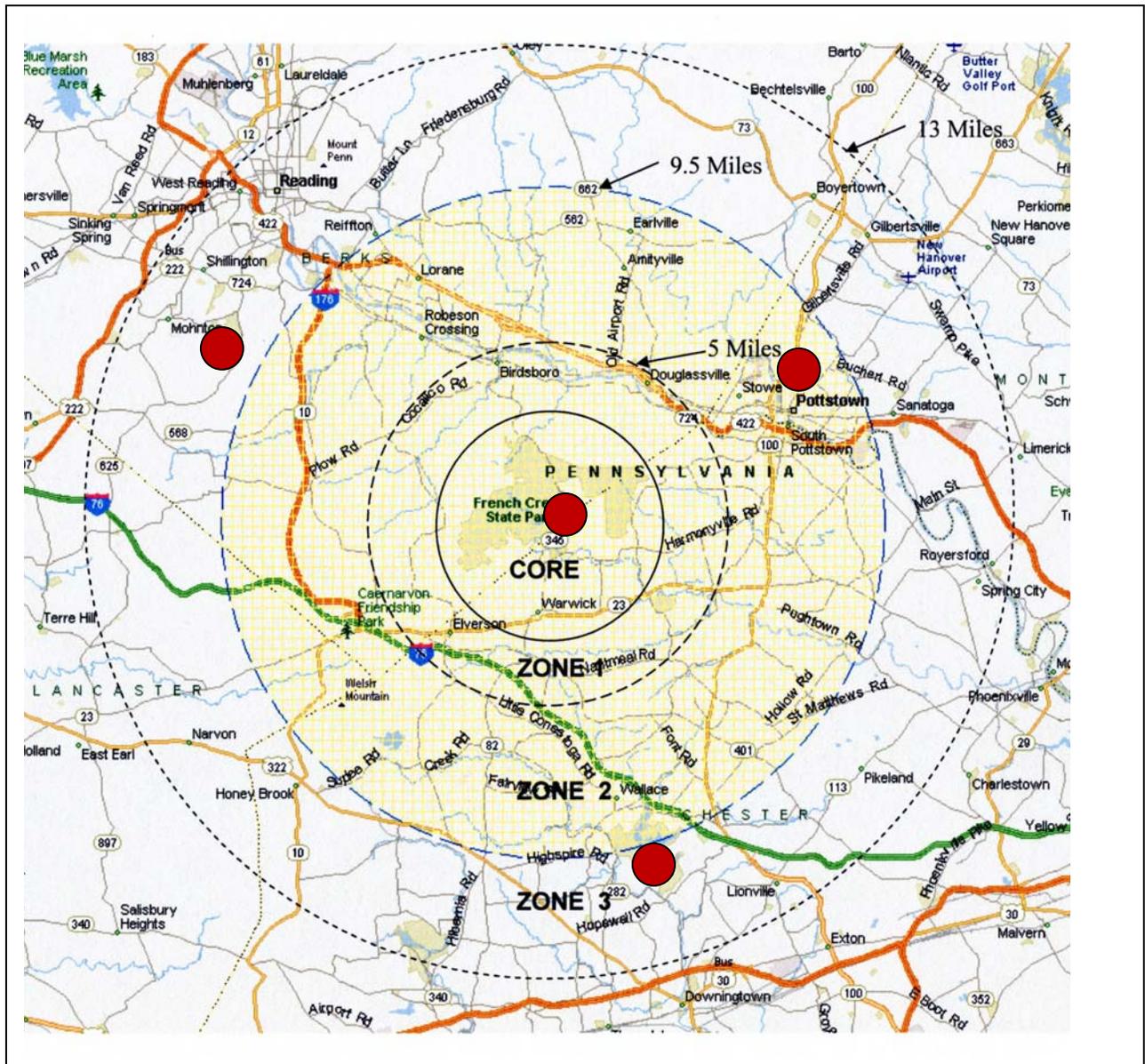
Below is a log of SQM readings recorded since start of the process.

### SQM READINGS LOG

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>By</u>	<u>MPSAS</u>	<u>NELM</u>	<u>Schaaf</u>
05/29/10	10:00	DS1	LB	20.4	5.76	4
07/03/10	10:30	FCSP	LB	20.21	5.63	3
09/08/10	10:25	FCSP	SS	20.12	5.57	3
10/01/10	12:30	FCSP	SS	20.34	5.72	3
10/02/10	12:03	FCSP	LB	20.34	5.72	3
11/10/10	8:45	SGL43	BJ	19.88	5.42	3
03/02/11	10:30	FCSP	SS	20.22	5.64	3
06/02/11	10.00	FCSP	JR	19.78	5.34.	3
07/02/11	11:00	FCSP	LB	20.18	5.61	3

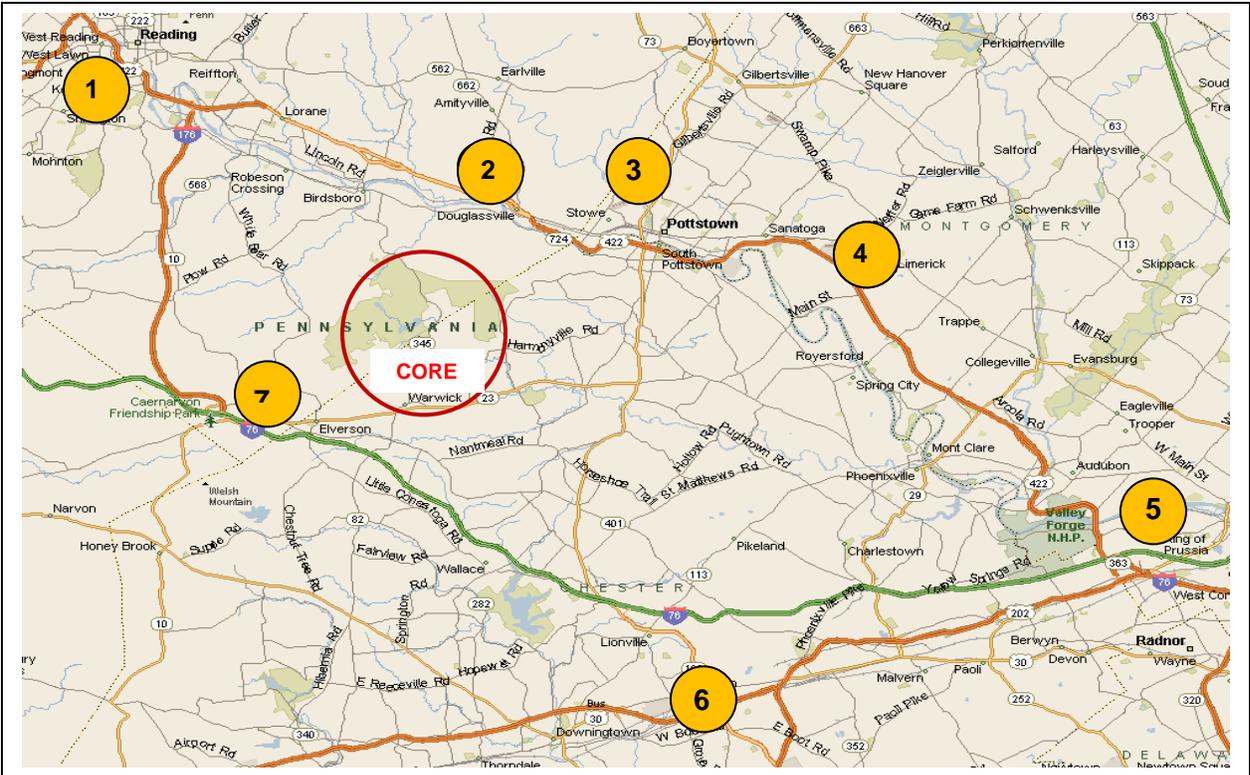
Readings taken to date within the designated Core locations indicated a Schaaf Class of between 3 and 4. Light domes exist to the northwest, northeast, east and south of FCSP and SGL43.

### Monitoring Sites



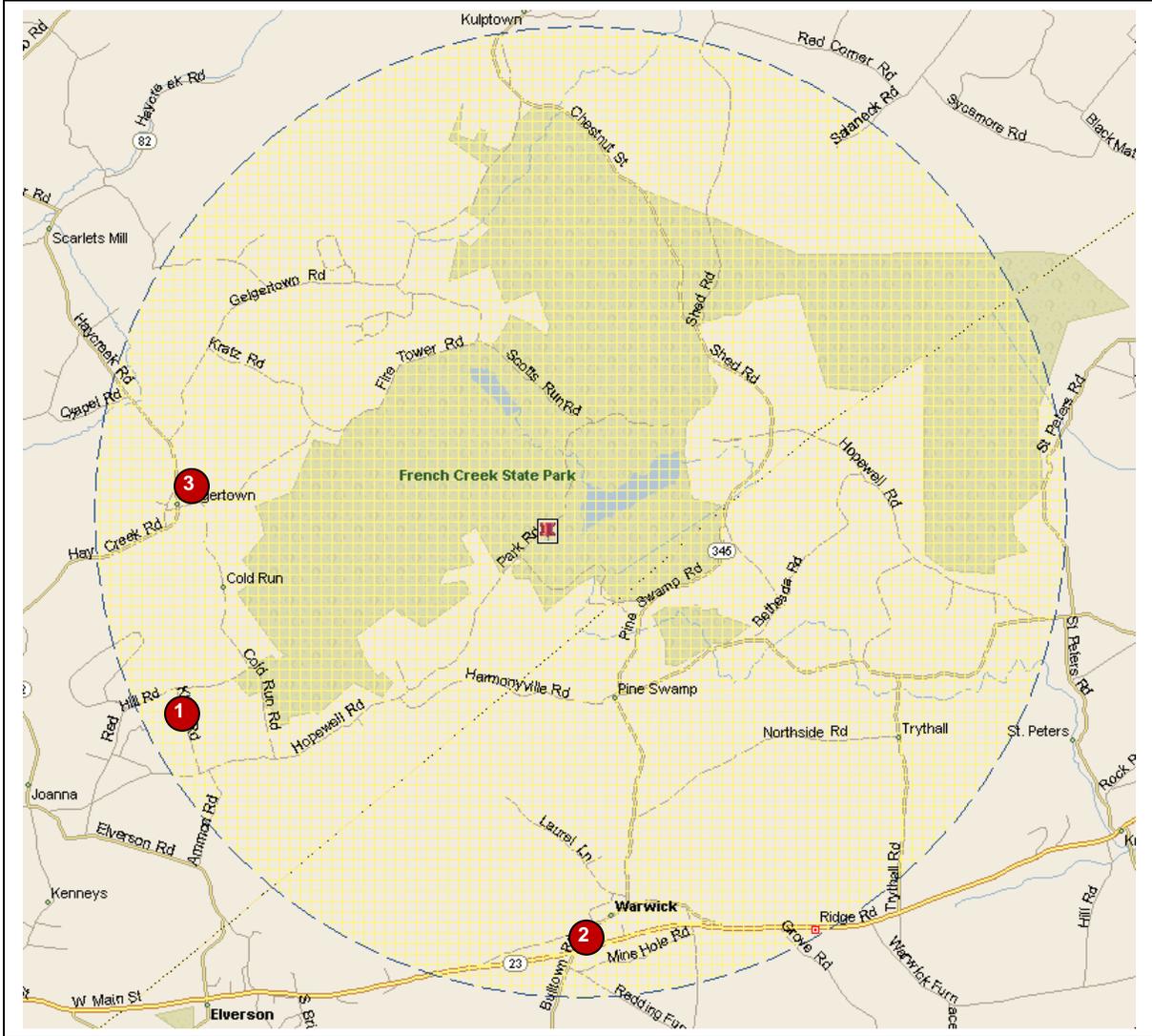
# THREATS TO CORE DARK SKY QUALITY

## Periphery and Beyond



1. City of Reading, Zone 3
2. Amity Township/Douglasville, Zones 1&2
3. Pottstown Area, Zone 2
4. Limerick Township, Beyond Zone 3
5. King of Prussia, Beyond Zone 3
6. Exton/Eagle Area, Zone 3 and beyond
7. Morgantown, Zone 3

## Threats From Within Core



The following facilities within the Core are known threats to the skies over the Core.

1. Feed Lot Farm at the western edge of the Core employs several dusk-to-dawn barn lights mounted on silos and other tall structures to illuminate this all-night operation. The POLC will approach the facility owner to suggest that shielding be utilized where possible to minimize uplift impact.
2. D'Ambrosio Dodge automobile dealership, at the southern edge of the Core, is lighted largely by full-cutoff luminaires. There are, however, building-mounted luminaires that project a portion of their output above the horizontal. POLC will approach the facility owner and encourage them to provide appropriate shielding, aiming and after-hours shut off of the offending luminaires.
3. Shirey's Trucking, Geigertown, utilizes a dozen or more barn lights and street lights to illuminate their extensive equipment salvage yards. POLC will approach the

owner and encourage the use of appropriate luminaire shielding and late-night shutoff

The balance of the uses in the Core are by and large residential. The POLC will conduct an education campaign to encourage residents and businesses to shield their lighting, use low-wattage lamps and employ late-night automatic shut-off.

## REMEDIATION PROGRAM

Although little light pollution is generated from within the core and positive steps have resulted in control of light pollution in the periphery, without question, there are many sources of existing light pollution and doubtless many more could crop up over time. POLC has a plan to deal with such existing and potential threats.

Along with the previously mentioned awareness/education programs and further promotion of effective lighting ordinances, POLC is developing an application to apply for a grant to cover the cost of purchasing and distributing remediation devices such as timers, shields and reflectors, to offer to those willing to install them. To maintain a sense of commitment, recipients will be asked to contribute a small amount to the cost of the devices. These devices will include:

- Twist-lock photocell/timers for late-night shut off of dusk-to-dawn barn lights
- Retrofit reflectors for dusk-to-dawn barn lights
- Half shields for dusk-to-dawn barn lights
- Interval- timer replacement wall switches to control outdoor lighting
- Motion sensors to control outdoor lighting
- Wall switches with location setting for automatic turn-on and turn-off to control outdoor lighting
- Top shields for PAR lamps



## SUPPORT LETTERS

Letters of endorsement and support were sent by 33 entities, including Federal and State legislators, municipal officials, astronomy groups, large-land holders and other organizations located within the Core and Zones 1 – 3. The letters provide important evidence that the authors and signatories are aware of the proposed Reserve designation and have documented their support of it and demonstrated their confidence that the PA Outdoor Lighting Council has earned their trust and confidence.

The support letters are located in Appendix C

### Legislators (6)

- State Representative Curt Schroder
- State Representative Tim Hennessey
- State Representative Mark Gillen
- State Senator Andy Dinniman
- State Senator John Rafferty
- US Congressman Jim Gerlach

### Municipalities (11)

- Birdsboro Borough Council
- City of Reading, Mayor
- East Nantmeal Township Board of Supervisors
- East Vincent Township Board of Supervisors
- North Coventry Township Board of Supervisors
- Robeson Township Board of Supervisors
- South Coventry Township Board of Supervisors
- Union Township Board of Supervisors
- Warwick Township Board of Supervisors
- West Nantmeal Township Board of Supervisors
- West Vincent Township Board of Supervisors

### County Agencies (4)

- Berks County Parks and Recreation Commission
- Berks County Planning Commission
- Chester County Parks and Recreation
- Chester County Planning Commission

Astronomy Groups (3)

Berks County Amateur Astronomical Society

Chesmont Astronomical Society

Delaware Valley Amateur Astronomers

Other Interested and Involved Entities (9)

Crow's Nest Preserve Manager

PA Department of Conservation and Natural Resources

French Creek State Park Manager

Hay Creek Watershed Association

Hopewell Furnace National Historic Site, Dept. of Interior

Horse-Shoe Trail Conservancy

Federation of Northern Chester County Communities

Schuylkill Highlands Conservation Landscape Initiative

Schuylkill River National and State Heritage Area Director

## RESPONSE TO IDA ELEGIBILITY CRITERIA

- A. *The core of the IDSR must be a public or a private land protected for scientific, natural, educational, cultural, heritage and/or public enjoyment mission*

The great majority of the core is public land: (Pa Dept. of Conservation & Natural Resource's French Creek State Park; US Dept. of Interior's Hopewell Furnace National Historic Site and PA Game Commission's State Game Lands No. 43, which are all protected for natural, educational, cultural, heritage and public enjoyment. Crow's Nest Preserve, also in the Core, is private land owned and operated by Natural Lands Trust and is open to the public for hiking and other recreational activities and at which educational nature programs are conducted throughout the year.

- B. *The core of the IDSR is encouraged to provide the opportunity for public nighttime access. A section of designated land (preferably within or near the core) may meet this requirement for a portion of time AND; They must then define appropriate areas of protection outside the core.*

French Creek State Park, Hopewell Furnace National Historic Site and PA State Game Lands 43 provide opportunity for public nighttime access for amateur astronomy.

- C. *The core of the IDSR must have identified the sources of light pollution through calculations, maps, photographs or any other proper method AND clearly identify actual and future threats to the sky quality.*

On the assumption that large metropolitan areas as far away as 200 miles will adversely impact the quality of the night sky within the proposed Hopewell Big Woods Dark Sky Reserve, this could suggest the need to perform the impossible task of potentially involving many large metropolitan areas in the Northeast.

From a more practical perspective, and much closer to home, there are light domes surrounding the Core in all directions, including, Reading to the northwest, Exton to the south, King of Prussia and Pottstown to the East and Morgantown to the southwest.

The core, a 28.26 square mile, 18,989 acre area containing French Creek State Park, Hopewell Furnace National Historic Site, a portion of State Game Lands 43 and NLT's Crow's Nest Preserve, contains no significant foreseeable threats to sky quality from within.

Well defined existing and potential threats outside the core, within Zones 1, 2 and 3, include H&K, Birdsboro, Mascaro race tracks in Union and Amity Townships, Upland Square Shopping Center in West Pottsgrove, Pottstown Boro, Morgantown Crossing, the City of Reading, and Coventry Mall.

- D. *The peripheral area must be a minimum of 700 km<sup>2</sup> (435 miles squared) around the core (roughly equivalent to a 15 km/9.5 mile radius) OR an area sufficient to mitigate 80% of current and expected future light pollution threats.*

The designated peripheral area has a radius of 13 miles from the center of the core and comprises 531 square miles.

- E. *Core of the IDSR must have an outstanding dark sky resource relative to the population it serves and have local, regional and/or national significant dark sky resources. Core night sky quality must fit in one of the three tier qualifications Gold, Silver, or Bronze.*

Population Served: French Creek State Park had 845,000 visitors in 2010. Hopewell Furnace National Historic Site had over 60,000 visitors in 2010, for a total of 905,000 for the two sites. No figures were available for how many hunters and other visitors accessed State Game Lands 43 but it can be assumed that during the many hunting seasons, such facilities were heavily frequented. The visitors come from within the Hopewell Big Woods Reserve, from surrounding communities and metropolitan areas such as Philadelphia, Pottstown, and Reading, as well as from locations around the world. From the perspective of providing a venue for people in the surrounding communities to visit and learn about the adverse impacts of light pollution and the beauty of a star-filled sky, the populations within Zones 1 thru 3, according to the 2010 National Census, are as follows:

	<u>Inhabitants</u>
Zone 1	16,715
Zone 2	109,040
Zone 3	230,257
Total	356,012

Core Sky Quality: Based on sky quality readings taken within the Core and documented elsewhere in this Application, the proposed Hopewell Big Woods Reserve fits into Bronze Tier, Schaaf 3.

## RESPONSE TO IDA MINIMUM REQUIREMENTS

- A. *Regulation or lighting guidelines should be adopted by the communities to a proportion corresponding to at least 80% of population AND 80% of designated area of protection within the entire IDSR (core and periphery). The regulation should address all private and public owners of communities within the area of protection. Some exceptions may apply but are subject to IDA approval. In general though, the following minimum standards apply*
- 1. Any lighting fixtures containing lamps emitting 1000 lm or more shall use fully shielded fixtures emitting no light at or above the horizontal, AND;*
  - 2. The type of lamp (color, efficiency, technology) to be used has been considered by carefully choosing appropriate energy efficiency technology and methods for minimizing impact to wildlife, stargazing activities, and nocturnal scenery, AND;*
  - 3. The appropriate amount of lighting is being used when it needs to be used for specific areas and tasks ; - Standards may be more restrictive when close to the core and less restrictive when farther from the core;*

The Lighting Guidelines can be found in Appendix B.

- B. *Land and community commitment to dark skies and landscape management, as shown by:*
- 1. The importance of dark skies/natural darkness and the benefits of good lighting should be part of the core's interpretation and outreach programs and of International Dark Sky Reserve Designation Program, IDA 5 communities' outreach publications. If the core typically provides ranger interpretive programs (National parks, Wilderness Area, etc.) then dark skies should be one of the central themes communicated through on-site interpretations. If interpretive programs are not typically offered, then publications, flyers, press releases, media, or other means of outreach are appropriate.*  
  
French Creek State Park staff has as one of its themes dark sky preservation and this is reflected in park issued flyers.
  - 2. Two-thirds (67%) of existing outdoor lighting fixtures within the core conforms to the regulation (or an alternative fraction approved by the IDA Board).*  
  
All of the exterior lighting within French Creek State Park, State Game Lands 43, Hopewell Furnace National Historic Site and Crow's Nest Preserve conforms to the regulation.
  - 3. Almost all lighting, (95%) within the core must conform, or must commit to conform within 5 years after the certification is delivered.*  
  
All of the exterior lighting within French Creek State Park, State Game Lands 43, Hopewell Furnace National Historic Site and Crow's Nest Preserve conforms to the regulation.

4. *Communities must have examples of conforming lighting installations relative to the population it serves, both on roadway and on different private sites (industries, stores, public services, Etc.) – Each participating municipality (excluding businesses, residences and partners without installed lighting) should have completed at least one highly visible demonstration project with night sky friendly lighting (should include more than 10 lighting fixtures) for each 5000 citizens and/or; - Approximately 10% of total installed fixtures within the Reserve be retrofitted or brought into compliance with the appropriate regulation or guideline and/or, - Approximately a 15% reduction of light pollution is measured/modeled at zenith in the core by doing a before/after measurements or modeling, results of awareness, regulation and/or lighting fixture retrofit. .*

Examples of conforming lighting installations exist in all communities that have enacted the POLC model lighting ordinance.

5. *Participating communities must have a program, either through education, economic incentives, permitting, or regulation, to encourage all new outdoor lighting fixtures to conform to the relevant regulation or guidelines for night sky friendly lighting.*

Regulation in the form of dark-sky ordinances is the first line of defense, with strong emphasis further placed on compliance and retrofitting.

- C. *A measurement program must be maintained either by the core manager or by any other public or private organization (university, research center, IDA's section, etc) to follow the evolution of light pollution in the core of the IDSR.*

IDA PA Chapter maintains records to monitor and document light pollution evolution

- D. *Acknowledgement of the protected area, by higher than community level (county/province/etc), in a perspective that dark skies are an important scientific, natural, cultural, or scenic resource value as evidenced by the inclusion in official documents (politics, protocols, management plans, etc) for long term planning.*

The accompanying support letters attest to the commitment of official county and state entities. In Pennsylvania, regulations are created and enforced at the municipality level. Local and state legislators have little influence over municipal legislation. Therefore, that is where the POLC has concentrated its effort to encourage ordinance creation and enforcement.

- E. *Once established, the core must erect and maintain a sign indicating International Dark Sky Reserve (or similar approved verbiage) designation along roadway entrance, along a footpath entrance if no roadway exists, or a visitor contact center. Sign should include IDA IDSR text and logo.*

Such a sign would be proudly displayed by French Creek State Park and Hopewell Furnace National Historic Site.

- F. *Communities within the IDSR will receive a certificate verifying the community as a part of the IDSR. Those who wish to erect a sign will have to address a letter to IDA referring them as a part of the IDSR and giving specific examples of their*

*engagement (lighting fixture replacement, outreach program, etc). International Dark Sky Reserve Designation Program, IDA 6*

APPENDIX A

POLC Model Lighting Ordinance

# PENNSYLVANIA OUTDOOR LIGHTING COUNCIL



## MODEL OUTDOOR LIGHTING ORDINANCE

### FOR INCLUSION IN

### ZONING ORDINANCES

This Model Lighting Ordinance is intended to be placed in the zoning ordinance as a separate section covering lighting in all zoning districts in the municipality. If there are special or unique lighting requirements for a particular zoning district that do not apply to other districts, it is recommended that they be included in that district's or an overlay district's requirements. As a model, it is recommended that it be modified as appropriate to suit the municipality's unique needs.

## OUTDOOR LIGHTING

- A Purpose – To require and set minimum standards for outdoor lighting to:
2. Provide for and control lighting in outdoor public places where public health, safety and welfare are potential concerns
  3. Protect drivers and pedestrians from the glare of non-vehicular light sources
  4. Protect neighbors, the environment and the night sky from nuisance glare and light trespass from improperly selected, placed, aimed, applied, maintained or shielded light sources
  5. Promote energy efficient lighting design and operation
  6. Protect and retain the intended visual character of the various Municipality venues
- B. Applicability
1. All uses within the Municipality where there is interior or exterior lighting that creates a nuisance or hazard as viewed from outside, or exterior lighting that creates a nuisance when viewed from inside, including but not limited to, residential, commercial, industrial, public and private recreational/sports and institutional uses, and sign, billboard, architectural and landscape lighting.
  2. The Municipality may require lighting be incorporated for other uses, applications and locations or may restrict lighting in any of the above uses or applications when health, safety and welfare are issues.
  3. The glare-control requirements herein contained apply to lighting in all uses, applications and locations.
  4. Temporary seasonal decorative lighting is exempt from all but the glare-control requirements of this Ordinance.
  5. Emergency lighting, as may be required by any public agency while engaged in the performance of their duties, or for illumination of the path of egress during an emergency as described in NFPA 75 and NFPA 101, are exempt from the requirements of this Ordinance.
- C. Definitions
1. Footcandle – Unit of light density incident on a plane (assumed to be horizontal unless otherwise specified), and measurable with an illuminance meter, a.k.a. light meter.
  2. Full Cutoff – Attribute of a luminaire from which no light is emitted at or above a horizontal plane drawn through the lowest light-emitting portion of the luminaire and no more than 10% of the lamp's intensity is emitted at or above an angle 10° below that horizontal plane, at all lateral angles around the luminaire. A full-cutoff luminaire, by definition, also is "fully shielded."
  3. Fully Shielded – Attribute of a luminaire from which no light is emitted at or above a horizontal plane drawn through the lowest light-emitting portion of the luminaire.
  4. Glare – Excessive brightness in the field of view that is sufficiently greater than that to which the eyes are adapted, to cause annoyance or loss in visual performance and visibility, so as to jeopardize health, safety or welfare
  5. Illuminance – Quantity of incident light, measured in footcandles
  6. Light Trespass – Light emitted by a luminaire or installation, which is cast beyond the boundaries of the property on which the lighting installation is sited.
  7. Lumen – As used in the context of this Ordinance, the light-output rating of a lamp (light bulb).

8. Shielded – A luminaire from which no direct glare is visible at normal viewing angles by virtue of its being properly aimed, oriented, and located and properly fitted with such devices as shields, barn doors, baffles, louvers, skirts or visors.

D. Criteria

1. Illumination Levels – Lighting, where required by this Ordinance, or otherwise required or allowed by the municipality or other applicable jurisdiction, shall have illuminances, uniformities and glare control in accordance with the recommended practices of the Illuminating Engineering Society of North America (IES), unless otherwise directed by the Municipality.
2. Luminaire Design
  - a. Luminaires shall be of a type and design appropriate to the lighting application and shall be aesthetically acceptable to the Municipality.
  - b. For the lighting of predominantly horizontal surfaces such as, but not limited to parking areas, roadways, vehicular and pedestrian passage areas, merchandising and storage areas, automotive-fuel dispensing facilities, automotive sales areas, loading docks, cul-de-sacs, active and passive recreational areas, building entrances, sidewalks, bicycle and pedestrian paths, and site entrances, luminaires shall be aimed straight down and shall meet IESNA full-cutoff criteria. Luminaires with an aggregate rated lamp output not exceeding 500 lumens, e.g., the rated output of a standard non-directional 40-watt incandescent or 10-watt compact fluorescent lamp, are exempt from the requirements of this paragraph. In the case of decorative street lighting, the Municipality may approve the use of luminaires that are fully shielded or comply with IES cutoff criteria rather than full cutoff.
  - c. For the lighting of predominantly non-horizontal surfaces such as, but not limited to, facades, landscaping, signs, billboards, fountains, displays and statuary, when their use is specifically permitted by the Municipality, luminaires shall be shielded and shall be installed and aimed so as to not project their output into the windows of neighboring residences, adjacent uses, past the object being illuminated, skyward or onto a public roadway. Luminaires with an aggregate rated lamp output not exceeding 500 lumens, e.g., the rated output of a standard non-directional 40-watt incandescent or 10-watt compact fluorescent lamp, are exempt from the requirements of this paragraph.
3. Lamps – Light sources shall have a color temperature rating that does not exceed 3700° Kelvin.
4. Control of Glare
  - a. All lighting shall be aimed, located, designed, fitted and maintained so as not to present a hazard to drivers or pedestrians by impairing their ability to safely traverse and so as not to create a nuisance by projecting or reflecting objectionable light onto a neighboring use or property.
  - b. Directional luminaires such as floodlights and spotlights, when their use is specifically approved by the Municipality, shall be so shielded, installed and aimed that they do not project their output into the windows of neighboring residences, adjacent uses, past the object being illuminated, skyward or onto a public roadway or pedestrian way. Floodlights installed above grade on residential properties, except when motion-sensor actuated, shall not be aimed out more than 45° from straight down. When a floodlight creates glare as viewed from an adjacent residential property, the floodlight shall be required to be reaimed and/or fitted with a shielding device to block the view of the glare source from that property.
  - c. Illumination for signs, billboards, building facades and/or surrounding landscapes for decorative, advertising or aesthetic purposes is prohibited between 11:00 p.m.

and dawn, except that such lighting situated on the premises for a commercial establishment may remain illuminated while the establishment is actually open for business, and until no more than one-half hour after closing. Such lighting shall be automatically extinguished using a programmable controller.

- d. "Barn lights," aka "dusk-to-dawn lights," when a source of glare as viewed from an adjacent property, shall not be permitted unless effectively shielded as viewed from that property.
- e. The use of floodlights and wall-mounted luminaires (wall packs) shall not be permitted to illuminate parking areas unless it can be proven to the satisfaction of the Municipality that the employment of no other means is possible.
- f. Parking facility and vehicular and pedestrian-way lighting (except for safety and security applications and all-night business operations), for commercial, industrial and institutional uses shall be automatically extinguished no later than one-half hour after the close of business or facility operation. When safety or security lighting is proposed for after-hours illumination, it shall not be in excess of twenty-five (25) percent of the number of luminaires or illumination level required or permitted for illumination during regular business hours. When it can be demonstrated to the satisfaction of the Municipality that an elevated security risk exists, e.g., a history of relevant crime, an appropriate increase above the twenty-five (25) percent limit may be permitted.
- g. Luminaires shall be automatically controlled through the use of a programmable controller with battery power-outage reset, which accommodates daily and weekly variations in operating hours, annual time changes and seasonal variations in hours of darkness. The use of photocells is permitted when in combination with the programmable controller to turn luminaires on at dusk and also for all-night safety/security dusk-to-dawn luminaire operation when such lighting is specifically approved by the municipality. The use of motion detectors is permitted.
- h. Vegetation screens shall not be employed to serve as the primary means for controlling glare. Rather, glare control shall be achieved primarily through the use of such means as cutoff luminaires, shields and baffles, and appropriate application of luminaire mounting height, wattage, aiming angle and luminaire placement.
- i. The illumination projected from any use onto a residential use shall at no time exceed 0.1 footcandle, measured line-of-sight at any time and from any point on the receiving residential property.
- j. The illumination projected from any property onto a non-residential use shall at no time exceed 1.0 initial footcandle, measured line-of-sight from any point on the receiving property.
- k. Except as permitted for certain recreational lighting and permitted elsewhere in this paragraph, luminaires shall not be mounted in excess of twenty (20) feet above finished grade of the surface being illuminated. Luminaires not meeting full-cutoff criteria, when their use is specifically allowed by the Municipality, shall not be mounted in excess of 16' AFG. Mounting height shall be defined as the distance from the finished grade of the surface being illuminated to the optical center of the luminaire. Where proposed parking lots consist of 100 or more contiguous spaces, the Municipality may, at its sole discretion, based partially on mitigation of potential off-site impacts, allow a luminaire mounting height not to exceed 25' AFG. For recreational lighting maximum mounting height requirements, refer to "Recreational Uses" elsewhere in the Ordinance.
- l. Only the United States and the state flag shall be permitted to be illuminated past 11:00 p.m. Flag lighting sources shall not exceed 7,000 aggregate lamp lumens

per flagpole. The light source shall have a beam spread no greater than necessary to illuminate the flag and shall be shielded so the light source (lamp and reflector) is not visible at normal viewing angles.

- m. Under-canopy lighting for such applications as gas/service stations, hotel/theater marquees, fast-food/bank/drugstore drive-ups, shall be accomplished using flat-lens full-cutoff luminaires aimed straight down and shielded in such a manner that the lowest opaque edge of the luminaire shall be below the light source and its light-directing surfaces, at all lateral angles around the luminaire. The average maintained illumination in the area directly below the canopy shall not exceed 20 initial footcandles and the maximum shall not exceed 30 initial footcandles.

5. Installation

- a. Electrical feeds for lighting standards shall be run underground, not overhead and shall be in accordance with the NEC Handbook.
- b. Poles supporting luminaires for the illumination of parking areas and located within the parking area or directly behind parking spaces, or where they could be hit by snow plows or wide-swinging vehicles, shall be suitably protected by being placed a minimum of five (5) feet outside paved area or tire stops, or placed on concrete pedestals at least thirty (30) inches high above the pavement, shielded by steel bollards or protected by other Municipality-approved means.
- c. Pole mounted luminaires for lighting horizontal tasks shall be aimed straight down and poles shall be plumb.
- d. Poles and brackets for supporting luminaires shall be those specifically manufactured for that purpose and shall be designed and rated for the luminaire and mounting accessory weights and wind loads involved.
- e. Pole foundations shall be designed consistent with manufacturer's wind load requirements and local soil conditions involved.

6. Maintenance – Luminaires and ancillary equipment shall be maintained so as to always meet the requirements of this Ordinance.

7. Billboards and Signs – The lighting of new or relighting of existing billboards and signs, whether from an internal or external lighting source, shall require a Building Permit, which shall be granted when the Municipality is satisfied that excessive illumination, light pollution, glare and light trespass have been adequately mitigated, and shall be subject to the following requirements:

- a. Externally illuminated billboards and signs shall have luminaires mounted at the top of the billboard or sign and aimed downward. The luminaires shall be designed, fitted and aimed to shield the lamp and its reflective surfaces from off-site view and to place the light output onto and not beyond the sign or billboard. Lighting shall be by linear fluorescent unless it can be demonstrated to the satisfaction of the Municipality that equal or more superior results with respect to glare, light trespass and light pollution control can be achieved with another source.
- b. At no point on the face of the sign or billboard and at no time shall the illumination exceed 30-vertical footcandles during hours of darkness.
- c. Internally illuminated signs shall have a dark field and light message. The aggregate output of the light sources shall not exceed 500 initial lamp lumens per square foot of sign face per side.
- d. Channel letter signs shall have dimming capability to allow adjustment of sign brightness when required by the Municipality to accommodate local ambient conditions.

- e. The illumination of billboards shall be limited to commercial and industrial zoning districts and the illumination of billboards within 400' of a residential use shall not be permitted.
- f. Off-premises billboards and signs shall be extinguished automatically by a programmable controller, with astronomical and semiannual time-change control and spring or battery power-outage reset, by no later than 11:00 each evening until dawn, except that signs for establishments (not companies) that operate or remain open past 11:00 p.m. may remain lighted no later than ½ hour past the time of the close of the establishment.
- g. Rotating, traveling, pulsing, flashing or oscillating light sources, lasers, beacons, searchlights or strobe lighting shall not be permitted.
- h. LED billboard and sign lighting shall only be permitted in commercial and industrial districts, shall be static, shall not be allowed to operate between 11:00 p.m. and dawn when located where visible from a residential district or use, and shall not be located within 1,000 feet of an approaching interchange or traffic-merging lanes. Except for time and weather signs, the digital message shall not be permitted to change more than once each hour. During hours of darkness, the LED output shall be automatically reduced to a brightness level that does not create glare. The sign or billboard nighttime brightness shall be capable of being further dimmed if the municipality requires a reduction in brightness when the lighting is judged to create a nuisance or hazard.
- i. The use of highly reflective signage that creates nuisance glare or a safety hazard shall not be permitted.

E. Residential Development Luminaire Placement

1. For residential developments where lot sizes are or average less than 20,000 square feet, if the Municipality so directs, street lighting shall be provided at:
  - a. the intersection of public roads with entrance roads to the proposed development,
  - b. intersections involving proposed public or non-public major-thoroughfare roads within the proposed development,
  - c. the apex of the curve of any major-thoroughfare road, public or non-public, within the proposed development, having a radius of 300 feet or less,
  - d. cul-de-sac bulbs
  - e. terminal ends of center median islands having concrete structure curbing, trees and/or other fixed objects not having breakaway design for speeds of 25 m.p.h. or greater,
  - f. defined pedestrian crossings located within the development,
  - g. Where lot sizes permit the parking of less than three (3) vehicles on the residential lot, thereby necessitating on-street parking.
  - h. At other locations along the street as deemed necessary by the Municipality
2. In residential developments with lots of less than twenty thousand (20,000) square feet, where five (5) or more common contiguous parking spaces are proposed, such spaces shall be illuminated.
3. In multi-family developments, common parking areas of 4 spaces or greater shall be illuminated.

F. Recreational Uses – The nighttime illumination of outdoor recreational facilities for such aerial sports as baseball, basketball, soccer, tennis, track and field, and football typically necessitate higher than normally allowed luminaire mounting heights and aiming angles, utilize very high-

wattage lamps and potentially produce unacceptable levels of light trespass and glare when located near residential properties. Permission to illuminate such facilities shall be granted only when the Municipality is satisfied that the health, safety and welfare rights of nearby property owners and the municipality as a whole have been properly protected. When recreational uses are specifically permitted by the Municipality for operation during hours of darkness, the following requirements shall apply:

1. Race tracks and such recreational venues as golf driving ranges and trap-shooting facilities that necessitate the horizontal or near horizontal aiming of luminaires and projection of illumination, shall not be permitted to be artificially illuminated.
2. Recreational facilities for basketball, baseball, football, soccer, miniature golf, tennis or track shall not be illuminated if located within a residential district or sited on a nonresidential property located within 1,000 feet of a property containing a residential use.
3. Sporting events shall be timed to end at such time that all lighting in the sports facility, other than lighting for safe exit of patrons, shall be extinguished by ten (10:00) p.m., regardless of such occurrences as extra innings or overtimes.
4. The Municipality reserves the right to limit the number of illuminated sporting events per week or season.
5. Maximum mounting heights for recreational lighting shall be in accordance with the following:
 

a.	Basketball	20'
b.	Football	70'
c.	Soccer	70'
d.	Lacrosse	70'
e.	Little League Baseball	
	(1) 200' Radius	60'
	(2) 300' Radius	70'
f.	Miniature Golf	20'
g.	Swimming Pool Aprons	20'
h.	Tennis	20'
i.	Track	20'
6. To assist the Municipality in determining whether the potential impacts of proposed lighting have been suitably managed, applications for illuminating recreational facilities shall be accompanied not only with the information required under Section G. below but also by a visual impact plan that contains the following:
  - a. Plan views containing a layout of the recreational facility and showing pole locations and the location of residences on adjoining properties.
  - b. Elevations containing pole and luminaire mounting heights, horizontal and vertical aiming angles and luminaire arrays for each pole location
  - c. Elevations containing initial vertical illuminance plots at the boundary of the site, taken at a height of 5' line-of-sight
  - d. Elevations containing initial vertical illuminance plots on the windowed facades of all residences facing and adjacent to the recreational facility. Such plots shall demonstrate compliance with the light trespass and glare control requirements of this Ordinance.
  - e. Proposed frequency of use of the facility during hours of darkness on a month-by-month basis and proposed time when the sports lighting will be extinguished.
  - f. A narrative describing the measures proposed to achieve minimum off-site disturbance.

- G. Plan Submission – Where site lighting is required by this Ordinance, is otherwise required by the Municipality or is proposed by Applicant, lighting plans shall be submitted for Municipality review and approval for Subdivision & Land Development, Conditional Use, Variance, Building Permit and Special Exception applications. The submitted information shall include the following:
1. A plan or plans of the site, complete with all structures, parking spaces, building entrances, traffic areas (both vehicular and pedestrian), existing and proposed trees, and adjacent uses that might be adversely impacted by the lighting. The lighting plan shall contain a layout of all proposed and existing luminaires, including but not limited to area, architectural, building entrance, canopy, soffit, landscape, flag, sign, etc., by location, orientation, aiming direction, mounting height, lamp, photometry and type.
  2. A 10'x10' illuminance grid (point-by-point) plot of maintained horizontal footcandles overlaid on the site plan, plotted out to 0.0 footcandles, which demonstrates compliance with the light trespass, illuminance and uniformity requirements as set forth in this Ordinance or as otherwise required by the Municipality. When the scale of the plan, as judged by the Municipality, makes a 10'x10' grid plot illegible, a more legible grid spacing may be permitted.
  3. Light-loss factors, IES candela test-filename, initial lamp-lumen ratings and specific lamp manufacturer's lamp ordering nomenclature, used in calculating the plotted illuminance levels
  4. Description of the proposed equipment, including luminaire catalog cuts, photometrics, glare reduction devices, lamps, on/off control devices, mounting heights, pole foundation details, pole protection means and mounting methods.
  5. Landscaping plans shall contain luminaire locations, demonstrating that the site lighting and landscaping have been coordinated to minimize conflict between vegetation and intended light distribution, both initially and at vegetation maturity
  6. When requested by the Municipality, Applicant shall also submit a visual-impact plan that demonstrates appropriate steps have been taken to mitigate potential consequences of on-site and off-site glare and to retain the intended character of the Municipality. This plan may require the inclusion of initial vertical footcandle values at specific off-site venues, e.g., bedroom windows of adjacent residential uses.
  7. Plan Notes – The following notes shall appear on the Lighting Plan:
    - a. Post-approval alterations to lighting plans or intended substitutions for specified lighting equipment on the approved plan shall be submitted to the Municipality for review and approval prior to installation. Requests for substitutions shall be accompanied by catalog cuts of the proposed equipment that demonstrate the proposed substitution is equal to or exceeds the optical quality and maintainability of the specified luminaires; and accompanied by a lighting plan, including a point-by-point plot, which demonstrates that proposed substitutions will result in a lighting design that equals or exceeds the quality of the approved plan.
    - b. The Municipality reserves the right to conduct post-installation inspections to verify compliance with Ordinance requirements and approved Lighting Plan commitments, and if deemed appropriate by the Municipality, to require remedial action at no expense to the Municipality.
    - c. All exterior lighting, including building-mounted lighting, shall meet IESNA full-cutoff criteria unless otherwise specifically approved by the Municipality.
    - d. Installer shall notify Municipality to arrange for inspection and approval of all exterior lighting, including building-mounted lighting, prior to its installation.

H. Compliance Monitoring

1. Safety Hazards

- a. If the Municipality judges a lighting installation creates a safety hazard, the person(s) responsible for the lighting shall be notified and required to take remedial action.
- b. If appropriate corrective action has not been effected within fifteen (15) days of notification, the Municipality may take appropriate legal action.

2. Nuisance Glare and Inadequate Illumination Levels

- a. When the Municipality judges an installation produces unacceptable levels of nuisance glare, skyward light, excessive or insufficient illumination levels or otherwise varies from this Ordinance, the Municipality may cause notification of the person(s) responsible for the lighting and require appropriate remedial action.
- b. If the infraction so warrants, the Municipality may act to have the problem corrected as in F.1.b. above.

I. Nonconforming Lighting – Any luminaire or lighting installation existing on the effective date of this Ordinance that does not conform with the requirements of this Ordinance, shall be considered as a lawful nonconformance.

1. A nonconforming luminaire or lighting installation shall be made to conform with the requirements of this Ordinance when:

- a. Minor corrective action, such as reaiming or shielding can achieve conformity with the applicable requirements of this Ordinance
- b. It is deemed by the Municipality to create a safety hazard
- c. It is replaced by another luminaire or luminaires or abandoned or relocated
- d. The number of existing luminaires is increased by 50% or more
- e. There is a change in use

2. Regardless of the requirements of Section I.1. above, when requested by the Municipality, nonconforming luminaires and lighting installations shall be made to conform with the requirements of this Ordinance or removed within three (3) years from the effective date of this Ordinance.

## **APPENDIX B**

### **LIGHTING GUIDELINES**

## LIGHTING GUIDELINES WITHIN THE HOPEWELL BIG WOODS DARK SKY RESERVE

Hopewell Big Woods is a special place that encompasses the last large, unbroken forest left in southeastern Pennsylvania. It is one of the most important natural areas in the region. It is an exceptional resource with hundreds of plant and bird species, pristine forest, unique wetlands and clean streams providing open space, drinking water, and unique scenic, cultural and natural resources. It is greatly valued as an asset for public recreation, including stargazing.

To protect people and the environment from the ill effects of light pollution, the following guidelines are set forth for outdoor lighting:

1. Provide only the amount of light when and where needed to adequately see the task. Over lighting is a waste of power and money and serves no benefit.
2. Use energy-efficient bulbs such as CFIs and LEDs to save energy and money.
3. Utilize light bulbs that do not exceed 60-watts incandescent (15-watts compact fluorescent). Anything higher is generally wasteful and can produce excessive glare.
4. When the seeing task requires a higher wattage bulb, utilize a fixture that shields the light so no light is projected up above the horizontal.
5. Aim floodlights down to 45° or less, not into the sky and not into neighbors windows.
6. Use a motion sensor to automatically activate lighting when you or your family or visitors arrive or leave.
7. For short repetitive tasks such as putting a pet out, consider the use of an interval timer that automatically extinguishes the lights at the end of a preset interval.
8. Put lighting on a timer for automatic shut off at a reasonable hour, e.g., 10:30 p.m.
9. Use light bulbs that produce a warm-colored light rather than blue or white light, e.g. 3700°K or less. They are better for the environment.
10. Dusk-to-dawn barn lights project almost half of their light up into the trees and sky all night long. Consider modifying them with a reflector to direct the light downward and replacing the photocell with a photocell timer that can be set to shut the lights off at a preset time each evening.
11. Reconsider the need for all-night security lighting. Most break-ins occur during the day not the middle of the night. All-night lighting provides a false sense of security. The best security measures are locking your doors and having a guard dog.

## OUTDOOR LIGHTING TIPS AND SUGGESTIONS

Outdoor lighting is a part of modern living, providing visibility for out nighttime activities, but it can have some unwanted effects. Careless and excessive use of outdoor lighting wastes energy and money. Glare from misused outdoor lighting creates an annoyance and in severe cases becomes a nuisance or even a safety hazard. Without care, light can go where neighbors, pedestrians and drivers don't want it.

These tips will help to get the most benefit from outdoor lighting and avoid its negative effects.

1. Don't light you neighbor's property – As much as possible, avoid locating or aiming lights so they shine onto neighboring properties. Complaints typically come when "Their light shines into my window." No outdoor lighting using bare bulbs should be used. Use light fixtures that direct the light onto your property, so that no objectionable light goes off your premises.
2. Don't over or under light – Use the right amount of light, not too little and not too much. Use common sense when lighting your property.
3. Aim flood lights down – Flood lights and spot lights should be aimed down at least 45 degrees from horizontal, not aimed straight out. Flood lights aimed straight out often cause unwanted glare and result in about half of the light going upward and wasted. At the same time, neighbors can be annoyed by uncontrolled lighting nearby. Pedestrians and drivers passing by will appreciate the reduced glare.
4. Use motion sensors – Use lights equipped with motion sensors so lights come on when family or visitors arrive and then go off automatically when no one is present. Compared to leaving all the lights on from dusk to dawn, automation makes better use of energy and money.
5. Use a timer – Use an inexpensive automatic timer to turn most outdoor lights off late at night when there is little or no outside activity. Money saved on electricity and bulbs will pay for the timer over and over again. Decorative lighting can usually be turned off late at night when no one is around.
6. Help the environment – Remember that less light at night is better for the natural environment. Too much light from populated areas can disrupt the feeding and breeding cycles of nocturnal animals. Outdoor lighting may attract unwanted insects and the animals that feed on them.
7. Security lighting – Since outdoor "security" lights left on all night might actually attract unwanted attention to your property, consider lights equipped with motion sensors as a better choice.

**APPENDIX C**

SUPPORT LETTERS

44TH DISTRICT  
JOHN C. RAFFERTY, JR.

SENATE BOX 203044  
20 EAST WING  
HARRISBURG, PA 17120-3044  
(717) 787-1398  
FAX (717) 783-4587

3818 GERMANTOWN PIKE  
SUITE B  
COLLEGEVILLE, PA 19426  
(610) 831-8830  
FAX (610) 831-8837

THE SHOPPES AT PUGTOWN  
2325 POTTSTOWN PIKE  
POTTSTOWN, PA 19465  
(610) 469-8390  
FAX (610) 469-8394

INTERNET E-MAIL ADDRESS:  
jrafferty@psen.gov

WEBSITE:  
www.senatorrafferty.com



## Senate of Pennsylvania

June 1, 2011

### COMMITTEES

TRANSPORTATION, CHAIRMAN

APPROPRIATIONS

BANKING & INSURANCE

CONSUMER PROTECTION & PROFESSIONAL

LICENSURE

JUDICIARY

LAW & JUSTICE

ADVISORY COUNCIL FOR THE SOUTHEASTERN  
VETERANS' CENTER

JOINT STATE GOVERNMENT  
COMMISSION, VICE CHAIRMAN

PENNSYLVANIA COMMISSION ON CRIME  
AND DELINQUENCY

TARGETED COMMUNITY REVITALIZATION  
AND CRIME PREVENTION ADVISORY COMMITTEE

STATE TRANSPORTATION COMMISSION

To Whom It May Concern:

I have been informed by a representative of the PA Outdoor Lighting Council that the Council plans to prepare an application to the International Dark Sky Association to request that the area known as the Hopewell Big Woods be designated as an International Dark Sky Reserve.

The Hopewell Big Woods Project is a very important initiative in my Senate District. The project will preserve and protect the natural environment and rural heritage of this region. Preserving the rural character in this region has become a key focus for many of the municipalities within my district. Open space preservation and maintaining the uniqueness and beauty of natural areas are very important issues to me and to my constituents.

Although a number of the municipalities within my district have already taken an active approach in addressing light pollution through ordinances, this effort to designate the Hopewell Big Woods as a Dark Sky Reserve will further insure that this area remains free from unnecessary light pollution and will foster the continued appreciation of this natural setting.

I hope that you award them with this designation. Thank you for your consideration.

Very Truly Yours,

A handwritten signature in black ink, appearing to read "John C. Rafferty, Jr." with a stylized flourish at the end.

John C. Rafferty, Jr.

JCR/sgm

Respond to: CURT SCHRODER, MEMBER  
ROOM 41 A, EAST WING  
PO BOX 202155  
HARRISBURG, PA 17120-2155  
PHONE: (717) 783-2520  
FAX: (717) 705-1994

□ DISTRICT OFFICE:  
315 GORDON DRIVE  
EXTON, PA 19341  
PHONE: (610) 524-5595  
FAX: (610) 524-5667

E-mail: [cschrode@pahousegop.com](mailto:cschrode@pahousegop.com)  
Website: [www.curtschroder.com](http://www.curtschroder.com)



**House of Representatives**  
COMMONWEALTH OF PENNSYLVANIA  
HARRISBURG

**COMMITTEES**

GAMING OVERSIGHT, CHAIRMAN  
INSURANCE

February 24, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

Re: PA Outdoor Lighting Council Dark Sky Reserve Application  
Hopewell Big Woods

Dear IDA Board of Directors:

I am writing to you regarding "Hopewell Big Woods", a portion of which is located in my legislative district. The goal of maintaining this 73,000 acre expanse is to preserve and protect the area's rural heritage and natural environment and to promote responsible growth.

The PA Outdoor Lighting Council has made my office aware of their plans to have the Hopewell Big Woods and surrounding area designated an International Dark Sky Reserve by your organization. It is my understanding that their formal application is forthcoming.

South Coventry Township and West Vincent Township, both part of Hopewell Big Woods and the 155<sup>th</sup> Legislative District, have enacted and enforce PA Outdoor Lighting Council ordinances.

I fully support the effort to protect the Hopewell Big Woods from light pollution and request that you grant full consideration to the Pennsylvania Outdoor Lighting Council's application to designate Hopewell Big Woods and surrounding area as a Dark Sky Reserve.

Very truly yours,

A handwritten signature in black ink that reads "Curt Schroder".

Curt Schroder, Member  
155<sup>th</sup> Legislative District

**MARK M. GILLEN, MEMBER  
128<sup>TH</sup> LEGISLATIVE DISTRICT**

PO Box 202128  
Harrisburg, PA 17120-2128  
Phone: (717) 787-8550  
Fax: (717) 783-7862

E-mail: [mgillen@pahousegop.com](mailto:mgillen@pahousegop.com)  
[www.RepGillen.com](http://www.RepGillen.com)



**House of Representatives**  
Commonwealth of Pennsylvania  
Harrisburg

29 Village Center Drive, Suite A-7  
Reading, PA 19607  
Phone: (610) 775-5130  
Fax: (610) 775-3736

**Committees:**  
Veterans Affairs and  
Emergency Preparedness  
Education  
Aging and Older Adult Services  
Labor & Industry

May 18, 2011

C. Stanley Stubbe, President  
Pennsylvania Outdoor Lighting Council  
1438 Shaner Drive  
Pottstown, PA 19465

Dear Stan:

Thank you for taking the time to contact me about the Hopewell Big Woods designation as an "International Dark-Sky Reserve." I appreciate your giving me the opportunity to comment.

Rest assured that I am all for preserving the Big Woods. In fact, I stand behind Congressman Gerlach's support of the Hopewell Big Woods preservation. I also have a map in my office of areas in and around Berks County that have a high conservation value ranking, and I have been a longtime admirer of Oley Hills and the Pennsylvania Highlands.

Thank you for bringing your concerns to my attention. Your perspective will assist me in helping residents across the 128<sup>th</sup> Legislative District.

Sincerely,

A handwritten signature in black ink that reads "Mark M. Gillen".

**Mark M. Gillen**  
State Representative  
128th Legislative District  
PA House of Representatives

MMG:lmt

**ANDREW E. DINNIMAN**

State Senator  
19<sup>th</sup> District

Senate Box 203019  
183 Main Capitol Building  
Harrisburg, PA 17120-3019  
717-787-5709  
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One North Church Street  
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Fax: 610-436-1721

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Website: www.senatordinniman.com



**Senate of Pennsylvania**

**Committees:**  
Education, Minority Chair  
Agriculture and Rural Affairs  
Communications and Technology  
Consumer Protection / Professional Licensure  
Environmental Resources and Energy  
Local Government  
Policy, Deputy Chair  
State Government  
Veterans Affairs and Emergency Preparedness  
-----  
Ben Franklin Technology Development Authority  
Education Commission of the States  
Joint Legislative Conservation Committee  
Life Sciences and Biotechnology Caucus, Co-Chair  
Pennsylvania Charitable Nonprofit Caucus, Co-Chair  
Pennsylvania Emergency Management Council  
State Board of Education

West Chester

March 9, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

Dear IDA Board,

It has recently come to my attention that the Pennsylvania Outdoor Lighting Council is interested in applying on behalf of Hopewell Big Woods for an International Dark Sky Reserve designation.

Hopewell Big Woods and the surrounding area are comprised of a 73,000 acre expanse in northwestern Chester County and southeastern Berks County, Pennsylvania. This resource is one of the last large unbroken forests left in southeastern Pennsylvania and, therefore, one of the most important natural areas in the region. Partnering with local municipal agencies including West Vincent Township (Chester County), the Pennsylvania Outdoor Lighting Council seeks to protect this resource and the surrounding area from light pollution for future generations to enjoy.

I support the Pennsylvania Outdoor Lighting Council's application and it is my belief that the International Dark-Sky Association will find that the Council's efforts meet the letter and spirit of the International Dark Sky Reserve program. Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Andy E. Dinniman".

Andrew E. Dinniman  
State Senator – 19<sup>th</sup> District

AED:dcv

JIM GERLACH  
5TH DISTRICT, PENNSYLVANIA  
HOUSE COMMITTEE ON WAYS AND MEANS  
SUBCOMMITTEE ON HEALTH  
SUBCOMMITTEE ON OVERSIGHT  
HOUSE LAND CONSERVATION CAUCUS  
CO-CHAIR

2442 RAYBURN HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-4316  
FAX: (202) 225-8440

**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-3806

www.gerlach.house.gov  
twitter.com/jimgerlach  
www.facebook.com/repjimgerlach

July 6, 2011

Mr. Buell T. Jannuzi  
President, Board of Directors  
3225 N 1st Ave  
International Dark-sky Association  
Tucson, AZ 85719

Re: Hopewell Big Woods International Dark Sky Reserve Application

Dear Mr. Jannuzi:

I am writing with regard to the application by the Pennsylvania Outdoor Lighting Council (POLC) to designate the Hopewell Big Woods and surrounding area as an International Dark Sky Reserve.

I have been told that a Reserve designation will enable POLC to further educate and inform citizens, municipalities, and businesses of light pollution and build upon the work that has already been done in the region to control light pollution.

The granting of this designation will enable POLC to prevent light pollution from increasing within and around the Reserve and I respectfully request that you give their application the utmost consideration.

Thank you for your thoughtful consideration of this application.

With kind regards, I am

Sincerely,



Jim Gerlach  
Member of Congress

JG:LS

DISTRICT OFFICES:

**BERKS COUNTY**  
840 NORTH PARK ROAD  
WYOMISSING, PA 19610  
(610) 376-7630  
FAX: (610) 376-7633

**CHESTER COUNTY**  
111 EAST UWCHLAN AVENUE  
EX10N, PA 19341  
(610) 594-1415  
FAX: (610) 594-1419

**MONTGOMERY COUNTY**  
580 MAIN STREET, SUITE 4  
TRAPPE, PA 19426  
(610) 409-2780  
FAX: (610) 409-7988

Founded 1740

Incorporated 1872

## *BOROUGH OF BIRDSBORO*

202 E. Main Street  
Birdsboro, Pennsylvania 19508  
Phone: (610) 582-6030  
FAX: (610) 582-6039

Birdsboro Council

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear Board of Directors:

We have been advised by the PA Outdoor Lighting Council of their plans to make application to the International Dark Sky Association to request that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

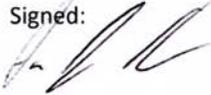
Birdsboro is within the Hopewell Big Woods area and we are an active participant in the initiative to preserve and protect the area's rural heritage and natural environment to the extent possible. POLC's aim to control light pollution in and around Hopewell Big Woods through the establishment of a Dark-Sky Reserve fits in well with what we are attempting to achieve.

We are currently in the process of reviewing our lighting ordinance for possible enhancements and intend to enforce it and to consider whether existing commercial and institutional facilities should be required to have their lighting brought into compliance with current ordinance requirements.

We are aware of the consequences of bad lighting, not only to our night sky but also to the natural environment and our citizens and realize that wasted lighting means wasted energy and increased air pollution. To that end, we require businesses to extinguish their non-essential lighting after closing.

We urge you to seriously consider granting the POLC's request to designate the Hopewell Big Woods and the area surrounding it as a Dark Sky Reserve.

Signed:





## CITY OF READING, PENNSYLVANIA

MAYORS OFFICE  
ROOM 2-33  
815 WASHINGTON STREET  
READING, PA 19601-3690  
(610) 655-6234

**THOMAS M. McMAHON**  
**MAYOR**

March 14, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Board of Directors:

I am writing to encourage you to designate the area within the Hopewell Big Woods and surrounding Schuylkill Highlands Conservation Landscape Initiative as an International Dark Sky Reserve in Pennsylvania.

The City of Reading is approximately 5 miles from the western boundary of the Hopewell Big Woods but well within the Schuylkill Highlands Conservation Landscape. Because Reading is a largely urban community with some 88,000 residents, we unfortunately do contribute more than a little to the brightening of the surrounding night sky.

That having been said, with the help of the PA Outdoor Lighting Council we are becoming sensitive to the consequences of light pollution and our responsibility not to contribute to the problem, to the extent that we can avoid it. By way of demonstrating that, we have participated in the Earth Hour event as a way of educating our citizens about the consequences of light pollution. In addition, as a part of our downtown revitalization program we relighted an area with downward directed street lighting.

As mayor of Reading, I fully support the effort to protect the Hopewell Big Woods and surrounding area from light pollution and request that you approve the PA Outdoor Lighting Council's application to designate the area as an International Dark Sky reserve.

Sincerely,

A handwritten signature in black ink, appearing to read "T. McMahon".

Thomas M. McMahon, Mayor  
City of Reading, Pennsylvania



# TOWNSHIP OF EAST NANTMEAL

---

3383 Conestoga Road  
Glenmoore, PA 19343  
(610) 458-5780  
(610) 458-1970 (Fax)

April 14, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Avenue  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Board of Directors,

The East Nantmeal Board of Supervisors has been made aware by the PA Outdoor Lighting Council of their plans to make application of IDA to request that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

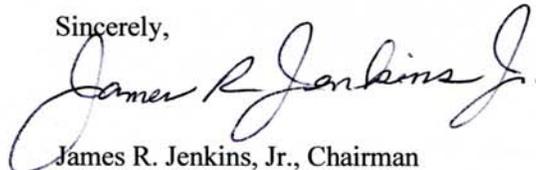
The northern portion of our Township is within the Hopewell Big Woods, with the balance being immediately adjacent to it. We are a rural municipality of some 1800 inhabitants and are very much in favor of the initiative to preserve and protect our rural heritage and natural environment of the extent possible.

We are aware of the consequences of bad outdoor lighting, not only to our night sky but also to the natural environment and to our citizens and realize that wasted lighting means wasted energy and results in increased air pollution.

We have enacted and enforce a version of the POLC's model lighting ordinance and support the POLC's work and their aim to minimize light pollution through the establishment of a Dark-Sky Reserve.

Please seriously consider POLC's petition and designate the Hopewell Big Woods and the area surrounding it as a Dark Sky Preserve.

Sincerely,



James R. Jenkins, Jr., Chairman

pc: File

**Board of Supervisors**

John D. Funk, *Chairman*  
Mark Dunphy, *Vice Chairman*  
Christine McNeil, *Member*



**Manager, Secretary, Treasurer**  
Mary E. Flagg

**Chief of Police**  
William S. Demski  
(610) 933-0115

**Zoning/Code Enforcement**  
Paul Schmidt

262 Ridge Road, Spring City, PA 19475  
(610) 933-4424 • Fax (610) 933-1142

April 4, 2011

Board of Directors  
International Dark Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

Re: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Board of Directors:

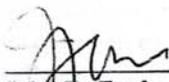
The East Vincent Board of Supervisors has learned of the PA Outdoor Lighting Council's (POLC) plans to make application to IDA to request that the Hopewell Big Woods be designated as an International Dark Sky Reserve.

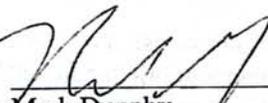
This plan is of interest to us because the eastern portion of our Township is within the bounds of Hopewell Big Woods and the balance is immediately adjacent to it. East Vincent is a mostly rural 14 square mile municipality of some 6,800 inhabitants and we are in favor of the initiative because it fits in well with our attempts to preserve and protect our rural heritage and natural environment.

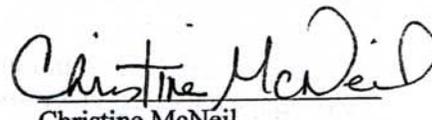
We are aware of the consequences of bad outdoor lighting, not only to our night sky but also to the natural environment and to the wellbeing of our citizens and realize that wasted lighting means wasted energy and results in increased air pollution. In 2004 we adopted a version of the POLC's model lighting ordinance.

We support the POLC's work and their aim to control light pollution through the establishment of a Dark-Sky Reserve and hope you will seriously consider their petition to designate the Hopewell Big Woods as a Dark Sky Reserve.

Sincerely,

  
John D. Funk  
Chairman

  
Mark Dunphy  
Vice Chairman

  
Christine McNeil  
Supervisor

**NORTH COVENTRY TOWNSHIP  
BOARD OF SUPERVISORS**

845 S. Hanover Street, Pottstown, PA 19465  
Phone (610) 323-1694 \* Fax (610) 323-7239  
[www.northcoventry.us](http://www.northcoventry.us)

March 28, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: International Dark Sky Hopewell Big Woods Reserve Application

The PA Outdoor Lighting Council has advised the North Coventry Township Board of Supervisors that they are in the process of preparing an application to IDA to request that the area known as the Hopewell Big Woods be designated as an International Dark Sky Reserve.

As partners in the Hopewell Big Woods initiative and with a large portion of the Township within the Big Woods boundary, we strongly support this effort on the part of POLC to encourage the control light pollution in and around the Big Woods.

The Township has an effective POLC-based outdoor-lighting ordinance and we strictly enforce it on all new development. In addition, we have taken steps to require that our large Coventry Mall shopping center, constructed before the lighting ordinance was in place, phase in lighting that is ordinance-compliant. In addition we are reviewing our street lighting to determine which street lights could be removed and which could be extinguished at midnight.

We are aware of the consequences of bad lighting, not only to our night sky but also to the natural environment and are aware that wasted lighting is wasted energy and the source of increased air pollution. For that reason we require businesses to extinguish their lighting shortly after closing.

We encourage you to seriously consider the benefit to IDA's cause by designating the Hopewell Big Woods and surrounding area as a Dark Sky Preserve.

Sincerely,

  
Andy Paravis      Jim Marks      E. Kent High      Harvey Greenawald      Spencer Claypoole

**North Coventry Township Board of Supervisors**

**ROBESON TOWNSHIP BOARD OF SUPERVISORS**

**2689 MAIN STREET**

**BIRDSBORO, PA 19508**

PHONE (610)582-4636 FAX (610)582-0032

[www.robiesontownship.com](http://www.robiesontownship.com)

April 20, 2011

Mr. Stan Stubbe  
1438 Shaner Drive  
Pottstown, PA 19465

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear Directors:

Much of Robeson Township is situated within the 73,000-acre expanse known as the "Hopewell Big Woods." As such, we are an active participant in the initiative to preserve and protect the area's rural heritage and natural environment and to promote responsible growth.

The PA Outdoor Lighting Council has made the Township aware of their plans to apply to the IDA to ask that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

Robeson Township is essentially a rural community that supports the use of responsible outdoor lighting. We adopted the POLC-based outdoor-lighting ordinance a number of years ago and enforce it.

It is our hope that we can continue to protect our dark skies, even as development moves our way and we appreciate the fact that having the area designated as a Dark Sky Reserve will provide us with the important extra leverage to facilitate that protection.

The Board of Supervisors of Robeson Township urges you to seriously consider granting the Pennsylvania Outdoor Lighting Council's application and designate the Hopewell Big Woods and surrounding area as a Dark Sky Preserve.

Sincerely,



Thomas C. Keim  
Township Manager



S O U T H C O V E N T R Y T O W N S H I P

March 11, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear Board of Directors:

We have been advised by the PA Outdoor Lighting Council of their plans to make application to the International Dark Sky Association to request that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

A large portion of South Coventry Township is within the Hopewell Big Woods and we actively encourage preservation and protection the area's rural heritage and natural environment. POLC's aim to reduce light pollution in and around Hopewell Big Woods fits in well with what we are attempting to achieve.

For many years The Township has had the POLC-based outdoor-lighting ordinance in place. The ordinance applies to all new land developments. We also have examples of commercial and institutional facilities that have voluntarily upgraded their lighting to bring it into compliance with current ordinance requirements. We encourage compliance when lighting upgrades for current commercial/institutional properties are being made. We educate our residents to encourage them to see the benefit of down lighting and preserving dark skies.

We are aware of the consequences of bad lighting, not only to our night sky but also to the natural environment and to our citizens. We realize that wasted lighting means wasted energy and increased air pollution. To that end, we encourage businesses to extinguish their non-essential lighting shortly after closing.

We must all work together to educate and encourage preservation of dark skies

Very truly yours,

Mildred W. Donnell  
Secretary-Treasurer

TOWNSHIP OF  
**UNION** *Berks County, PA*

1445 E. Main St., Douglassville PA 19518  
(610) 582-3769 (610) 385-3769  
Fax (610) 582-4737

**SUPERVISORS**  
John Salaneck, III  
Donald E. Basile  
Nelson Ott Jr.

**MANAGER**  
Carol R. Lewis

February 28, 2011

Board of Directors  
International Dark-Sky Association  
3225 N. First Ave.  
Tucson, Arizona 85719-2103

Re: Hopewell Big Woods International Dark Sky Reserve Application

Dear Board of Directors:

All of Union Township is situated within the 73,000 acre expanse known as the "Hopewell Big Woods". As such, we are an active participant in the initiative to preserve and protect the area's rural heritage and natural environment and to promote responsible growth.

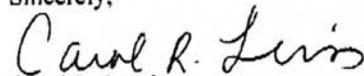
The PA Outdoor Lighting Council has made us aware of their plans to apply to the IDA to as that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

Union Township strongly supports the tenants of responsible outdoor lighting and has adopted the POLC-based outdoor lighting ordinance which is strictly enforced. We have also taken steps to retrofit existing township controlled outdoor lighting installed prior to the time the ordinance existed, to bring it into compliance.

It is our hope that we can continue to protect our dark skies, even as development moves our way and appreciate the fact that having the area designated as a Dark Sky Reserve will provide us with the important extra leverage to effect that protection.

The Board of Supervisors of Union Township urges you to seriously consider granting the Pennsylvania Outdoor Lighting Council's application and to designate the Hopewell Big Woods and surrounding area as a Dark Sky Preserve.

Sincerely,



Carol R. Lewis  
Manager/Secretary/Treasurer

Cc: Union Township Board of Supervisors (via e-mail)  
Frederick Hatt, Esquire (via e-mail)  
file

# Warwick Township Board of Supervisors

---

2500 Ridge Road • Elverson, PA 19520  
(610) 286-5557 • FAX (610) 286-7792

March 1, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear Board of Directors:

Much of Warwick Township is situated within a 73,000-acre expanse known as the "Hopewell Big Woods." As such, we are an active participant in the initiative to preserve and protect the area's rural heritage and natural environment and to promote responsible growth.

The PA Outdoor Lighting Council has made us aware of their plans to apply to the IDA to ask that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

Warwick Township supports the tenets of responsible outdoor lighting and has adopted the POLC-based outdoor-lighting ordinance, which we strictly enforce on new development. We have also taken steps to retrofit some existing outdoor lighting that was installed prior to the time the ordinance existed, to bring it into compliance.

It is our hope that we can continue to protect our dark skies, even as development moves our way and appreciate the fact that having the area designated as a Dark Sky Reserve will provide us with the extra leverage to effect that protection.

The Board of Supervisors of Warwick Township urges you to seriously consider granting the Pennsylvania Outdoor Lighting Council's application and to designate the Hopewell Big Woods and surrounding area as a Dark Sky Preserve.

Sincerely,

Warwick Township Board of Supervisors



Charles H. Jacob, Chairman



Jimmy Barker, Vice Chairman

Eric Sydlosky, Member



**SUPERVISORS OF WEST NANTMEAL TOWNSHIP**

455 North Manor Road  
P.O. Box 234  
Elverson, Pennsylvania 19520  
(610) 286-9722  
FAX (610) 286-0476

April 13, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Avenue  
Tucson, AZ /85719-2103

RE: Hopewell Big Woods International Dark Shy Reserve Application

Dear Board of Directors:

The PA Outdoor Lighting Council has advised the West Nantmeal Township Board of Supervisors of plans to make application to IDA to request that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

A portion of our township is within the Hopewell Big Woods, with the balance being immediately adjacent to it. We are a rural municipality and very much in favor of the initiative to preserve and protect our rural heritage and natural environment to the extent possible. POLC's work and their aim to further control light pollution in and around Hopewell Big Woods through the establishment of a Dark-Sky Reserve fits in well with that aim to retain our rural character.

We are aware of the consequences of bad outdoor lighting, not only in our night sky but also to the natural environment and our citizens. We are also aware that wasted lighting means wasted energy and increased air pollution.

Please seriously consider POLC's petition and designate the Hopewell Big Woods and the area surrounding it as a Dark sky Reserve.

Sincerely,



Susan L. Ward, Secretary/Treasurer  
West Nantmeal Township

KENNETH MILLER, JR., Chairman  
CLARE QUINN, Vice Chairperson  
ZOË PERKINS, Member

BOARD OF SUPERVISORS  
West Vincent Township  
729 St. Matthews Road  
Chester Springs, PA 19425-3301  
610-458-1601 610-458-1603  
[www.westvincenttp.org](http://www.westvincenttp.org)

JAMES R. WENDELGASS  
TOWNSHIP MANAGER

March 1, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Board of Directors:

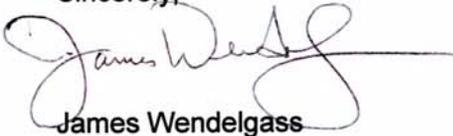
It has been brought to our attention that the PA Outdoor Lighting Council plans to make application to IDA to request that the Hopewell Big Woods and surrounding area be designated as an International Dark Sky Reserve.

A large portion of West Vincent Township is within the Hopewell Big Woods, with the balance being immediately adjacent to it. We are essentially a rural municipality and take considerable care to prevent new development from adversely impacting that rural character. To that end, we have and enforce a version of the PA Lighting Council's dark-sky ordinance.

The Township is very much in favor of this initiative to preserve and protect our rural heritage and natural environment. We are aware of the consequences of bad outdoor lighting, not only to our night sky but also to the natural environment and our citizens. We are also aware that wasted lighting means wasted energy and increased air pollution.

Please seriously consider POLC's petition and designate the Hopewell Big Woods and the area surrounding it as a Dark Sky Preserve.

Sincerely,



James Wendelgass

Township Manager



August 1, 2011

Board of Directors  
International Dark Sky Association  
3225 North First St.  
Tucson, AZ 85719-2103

RE: Schuylkill Highlands Letter of Support for a Dark Sky Reserve

Dear IDA Directors:

The Schuylkill Highlands Conservation Landscape Initiative, of which I am director, involves a 926,689-acre expanse in southeastern Pennsylvania. It is a place-based strategy for natural resource stewardship and advocacy in key landscapes where there are strong natural assets and local readiness and support for land conservation, locally-driven planning and community economic revitalization efforts. Within the Initiative, PA Department of Conservation and Natural Resources, other state agencies, non-profits, municipalities and other entities work closely with communities on such issues as creating walking and biking trails, encouraging sustainable development, protecting greenways, protecting habitat by reducing forest fragmentation and conserving land. The Initiative is a collaboration of people and partners banding together to envision a better economic future, tackle shared challenges and care for the natural, cultural, historic and scenic resources that define the place.

The PA Outdoor Lighting Council is a Schuylkill Highlands partner and has made us aware of the intention to apply to you to have a portion of the area within the Schuylkill Highlands designated as the "Hopewell Big Woods Dark Sky Reserve." We applaud this effort and see it as being very much in support of and aligned with the goals of the Schuylkill Highlands Initiative. It is within an area with the highest number of cultural resources anywhere to be protected. The core of the proposed Reserve, much of which is wooded and protected against development, provides a recreational venue for visitors from surrounding communities and distant metropolitan areas, to hike, boat, hunt, and camp and enjoy the dark night sky that exists there as compared with the light-polluted metropolitan areas. It is that later quality that is so important to preserve and that only can be preserved by instituting strong measures. It is our contention that establishing a dark sky reserve will provide the framework and catalyst to garner the attention of and commitment from citizens, businesses, organizations and municipalities to engage in proper



outdoor-lighting practices throughout high priority natural resource areas within a defined greenway area and within the Schuylkill Highlands Conservation Landscape.

Please assist us in this vital need to preserve and protect the night sky over the Schuylkill Highlands by designating the area as a Dark Sky Reserve.

Sincerely,

A handwritten signature in black ink that reads "Carol De Wolf". The signature is fluid and cursive, with a long horizontal stroke at the end.

Carol De Wolf  
Director, Schuylkill Highlands



Chester County Parks and Recreation



July 26, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

*Commissioners:*  
Terence Farrell  
Kathi Cozzone  
Ryan A. Costello

**Subject: Hopewell Big Woods; Application for International Dark Sky Reserve**

Dear IDA Board of Directors:

Chester County Parks and Recreation Department has been made aware by the PA Outdoor Lighting Council that they are preparing a request to IDA to designate the 73,000-acre expanse of land known as the "Hopewell Big Woods" and surrounding area as an International Dark-Sky Reserve.

One of the Chester County Park facilities, Warwick Park, a 561-acre, regional County park site situated in the rural areas of Warwick and South Coventry Townships, is within the Hopewell Big Woods area. At that facility and at our other parks, we are aware of the consequences of light pollution to the natural environment and for that reason, park lighting is generally directed downward and only on when needed.

For the past ten years, a local amateur astronomy group has held an annual "StarFest" at Warwick Park, and that event attracted visitors from far and wide to enjoy our park's dark skies and to learn more about amateur astronomy.

With the Hopewell Big Woods' goal to preserve and protect the area's rural heritage and natural environment and to promote responsible growth, it is our opinion that the Dark-Sky Reserve designation would fit perfectly with that aim.

Chester County Parks and Recreation fully supports the effort to protect the Hopewell Big Woods and surrounding area from light pollution, and requests that you give this area the designation of Dark Sky Reserve.

Sincerely,

John P. Mikowychok, CPRP,  
Director of Parks and Recreation

pc: Stan Stubbe, President,  
PA Outdoor Lighting Council

Government Services Center

601 Westtown Road, Suite 160 • West Chester, Pennsylvania 19380-0990 • P 610.344.6415 • F 610.344.5469 • [www.chesco.org/ccparks](http://www.chesco.org/ccparks)



# THE COUNTY OF CHESTER



## COMMISSIONERS

Terence Farrell  
Kathi Cozzone  
Ryan A. Costello

Ronald T. Bailey, AICP  
Executive Director

## PLANNING COMMISSION

Government Services Center, Suite 270  
601 Westtown Road  
P.O. Box 2747  
West Chester, PA 19380-0990  
(610) 344-6285 Fax: (610) 344-6515

February 24, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Board of Directors:

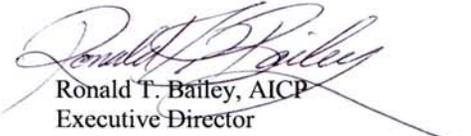
The Chester County Planning Commission has been advised by the Pennsylvania Outdoor Lighting Council that they are preparing a request to IDA for designating the 73,000-acre expanse of land known as the "Hopewell Big Woods" and surrounding area as an International Dark-Sky Reserve. With the goal of the Big Woods being to preserve and protect the area's rural heritage and natural environment and to promote responsible growth, the Reserve designation would fit perfectly with that goal.

This application is consistent with the County's long-range policy plan entitled Landscapes2. The plan designates the Hopewell Big Woods as a protection area of national significance. This application further promotes the goals and objectives of that plan.

The Chester County Planning Commission has long been an advocate for responsible exterior lighting and has created and distributed a Planning Bulletin that encouraged the creation of effective lighting ordinances. Of the seven Chester County municipalities within the Hopewell Big Woods, five have adopted and are actively enforcing an effective dark-sky ordinance. Land trusts have worked closely with land owners to conserve significant amounts of land from development.

The Chester County Planning Commission fully supports the effort to protect the Hopewell Big Woods and surrounding area from light pollution and requests that you seriously consider designating it as a Dark Sky Reserve.

Sincerely,

  
Ronald T. Bailey, AICP  
Executive Director

RTB/DDW/kp



## Berks County Amateur Astronomical Society

---

May 1, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Ave  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Directors:

The Berks County Amateur Astronomical Society (BCAAS) is a 70-member tax-exempt nonprofit corporation founded in 1973. Our mission goals are to promote the science of astronomy by encouraging and coordinating the activities of our members, to forward professional research by contributing amateur resources wherever possible, to educate the public and introduce to all the splendors of the sky.

We hold public star parties at French Creek State Park as well as at other venues within the Schuylkill Highlands. We have club observing at a site in Bernville, which is also within the Schuylkill Highlands. Unless steps are taken to counter the trend, development moving this way will pollute our night sky to the point where we'll have to drive for hours to do observing, and those in this area will lose their ability to see all but a handful of stars.

As president of BCAAS, a member of IDA and an officer of the PA Outdoor Lighting Council, PA Chapter of IDA, I can assure you that the members of BCAAS are very much in favor of having the area encompassed within the bounds of the Schuylkill Highlands designated as an International Dark Sky Reserve. We hope this designation will serve as a focal point for the continued fight to halt the degradation of our night skies.

Thank you,

A handwritten signature in cursive script that reads "Barbara Geigle".

Barbara Geigle, President



County of Berks  
Planning Commission

(610) 478-6300  
FAX: (610) 478-6316

Berks County Services Center  
633 Court Street, 14<sup>th</sup> Floor  
Reading, PA 19601-4309

Joseph Griffin, Chairman  
Peter F. Giorgi, Vice-Chairman  
James C. McCarthy, Secretary  
Lloyd Hopkins  
James L. Mason  
Lee C. Olsen  
Douglas Paul Rauch  
Barry L. Schlouch  
Mark C. Scott

Glenn R. Knoblauch, Executive Director  
Heidi B. Masano, Asst. County Solicitor

August 10, 2011

Stan Stubbe, President  
Pennsylvania Outdoor Lighting Council  
1438 Shaner Drive  
Pottstown, PA 19465

RE: Hopewell Big Woods International Dark  
Sky Reserve Application

Dear Mr. Stubbe:

The Berks County Planning Commission understands that the Pennsylvania Outdoor Lighting Council (POLC) is in the process of preparing a request to the International Dark Sky Association to designate the Hopewell Big Woods and its surrounding area as an "International Dark Sky Reserve".

The Berks County Greenway, Park & Recreation Plan identifies a greenway network that is composed of a system of hubs, nodes and corridors that highlight significant ecological habitats, historic, cultural and recreational resources. The majority of the proposed reserve core is identified by our Greenway Plan as: "The Big Woods Greenway Hub". This Hub is one of the three highest valued conservation areas for ecological habitat within the County. The area is identified as an Important Mammal Area by the PA Wildlife Federation and an Important Bird Area by the PA Audubon. The Pennsylvania Department of Environmental Protection has designated portions of the Hay Creek and French Creek Watersheds as Exceptional Value Waters. Besides the forest cover and pristine waters, other assets of this Hub include rich cultural and historic resources, all providing significant recreational opportunities. The proposed reserve periphery contains a network of other greenway hubs and corridors linking the Reading Urban Area to this resource. Encouraging dark sky friendly lighting is consistent with our Greenway Plan's goal of conserving the ecological, historic and recreational resources of The Big Woods Greenway Hub.

The Commission also notes that several Berks County municipalities located within the proposed reserve have adopted outdoor lighting ordinances endorsed by POLC.

August 10, 2011  
Page 2

Hopewell Big Woods International Dark  
Sky Reserve Application

The Berks County Planning Commission supports POLC's efforts to help conserve the abundant resources located in the Hopewell Big Woods and your endeavor to establish the Hopewell Big Woods International Dark Sky Reserve.

Yours truly,

A handwritten signature in blue ink, appearing to read "J. Griffin".

Joseph Griffin, Chair  
BERKS COUNTY PLANNING COMMISSION



**COUNTY OF BERKS, PENNSYLVANIA**  
**Parks & Recreation Department**  
**Berks County Heritage Center**



Mark C. Scott, Esq., Commissioner Chair  
Christian Y. Leinbach, Commissioner  
Kevin S. Barnhardt, Commissioner

2201 Tulpehocken Road  
Wyomissing, PA 19610  
Phone: 610.374.8839  
Fax: 610.373.7049

May 4, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Board of Directors:

The Berks County Parks and Recreation Department has been made aware by the PA Outdoor Lighting Council that they are initiating a request to IDA to designate the 73,000-acre expanse of land known as the "Hopewell Big Woods" and surrounding Schuylkill Highlands area as an International Dark-Sky Reserve.

Because the Berks County Parks and Recreation Department is responsible for providing recreational opportunities as well as addressing the interpretive and educational needs related to our facilities, we are very much aware of the environmental impacts of light at night. As such, we annually hold a series of interpretive programs where the needs of nocturnal creatures are featured. In addition, we sponsor several star parties each year to focus attention on the wonders of the night sky.

It is our belief that according such a Dark Sky Reserve designation would not only provide recognition for the light pollution abatement efforts already in place but would provide a strong focal point and incentive to continue the effort with renewed purpose.

Berks County Parks and Recreation fully supports the effort to protect the Hopewell Big Woods and Schuylkill Highlands from light pollution and requests that you seriously consider granting the designation of International Dark Sky Reserve to the area.

Very truly yours,

Peter Diebolt, Chairman  
Berks County Parks & Recreation Board

*Dedicated to public service with integrity, virtue & excellence*

[www.co.berks.pa.us/parks](http://www.co.berks.pa.us/parks)



# ChesMont Astronomical Society

71 Hillbrook Drive, Honey Brook, PA 19344

April 15, 2011  
*VIA REGULAR MAIL*

Board of Directors  
International Dark-Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

**RE: Hopewell Big Woods  
International Dark Sky Reserve Application**

Dear IDA Directors:

The Chesmont Astronomical Society (CAS) is a 52 member non-profit amateur astronomy club that exists to observe the night sky, promote the science of astronomy and an awareness of light pollution. CAS observes from a location within Pennsylvania State Game Lands (SGL) No. 43, which is located within Hopewell Big Woods. CAS also holds public star gazing events at other venues in and around Hopewell Big Woods.

Sky brightness readings taken over the past several years at local CAS observing sites have yielded Sky Quality Meter values ranging from 19.88 to 20.22, all equating to a Schaaf Class 3 value. While those readings are not ideal, the SGL 43 observing site is conveniently located and often preferred over driving great distances to experience significantly darker skies. It is also used by several other astronomy clubs located in and near the City of Philadelphia.

It is inevitable that the quality of the night sky over Hopewell Big Woods will continue to degrade as development brings homes and businesses to the area unless meaningful steps are taken to limit light pollution; steps such as enacting ordinances for the efficient use of nighttime illumination and educating the public with respect to what they can do to minimize inefficient outdoor lighting that contributes to light pollution.

For that reason, CAS is greatly encouraged by the PA Outdoor Lighting Council's intention to request that the 73,000-acre Hopewell Big Woods and surrounding

The Chesmont Astronomical Society is a non-profit organization dedicated to educating the public about the wonders of astronomy, its history and its preservation from visual extinction by inefficient lighting. The goals of the Society are to develop and maintain quality, public education and outreach programs and to cultivate awe and respect for the mysteries of the cosmos.

[www.chesmontastro.org](http://www.chesmontastro.org) / [Betelgeuse Newsletter](#)

Founded in 1988 by:

Karl Krasely  
Dan Acker  
Bob McCool  
Joe Varaday  
Chuck Buski

IDA, April 15, 2011  
Hopewell Big Woods

Page 2

area be designated as an International Dark-Sky Reserve. That is the very kind of action needed to focus attention on the issue of light pollution and engage the local community in preservation of the night sky.

CAS applauds the PA Outdoor Lighting Council for undertaking its initiative and implores the IDA to declare Hopewell Big Woods an International Dark Sky Reserve.

Sincerely,



Martin R. Howe, President  
ChesMont Astronomical Society

cc: Stan Stube, POLC



**Crow's Nest Preserve**

201 Piersol Road  
Elverson, PA 19520  
610-286-7955

Daniel J. Barringer  
*Preserve Manager /  
Invasives Management Coordinator*  
dbarringer@natlands.org

*Main Office*

Hildacy Farm  
1031 Palmers Mill Road  
Media, PA 19063  
tel: 610-353-5587  
fax: 610-353-0517  
info@natlands.org  
www.natlands.org

C. Stanley Stubbe  
Pennsylvania Outdoor Lighting Council  
1438 Shaner Drive  
Pottstown, PA 19465

Dear Stan:

I am writing in support of establishing a Dark Sky Reserve for the area surrounding French Creek State Park: the Hopewell Big Woods region.

A naturally-dark sky is an asset to Crow's Nest Preserve, the wildlife species that live on it, the preserve visitors who come to star watch, and members of the public who live in and visit our region.

There is more light pollution in the sky in the region than 15 years ago and a corresponding loss of star visibility. There are fewer places than ever to see the full glory of the night sky.

At the preserve we minimize light pollution by turning outdoor lighting off when no programs are going on and choosing fixtures that minimize glare. We are additionally concerned about the unnecessary waste of energy used for excessive lighting.

Good fixtures and practices are available and can be seen in our region alongside poor ones. Our hope is that establishing a Dark Sky Reserve will help educate people about making good decisions about nighttime lighting that impact us all.

Sincerely,

Daniel Barringer



Pennsylvania Department of Conservation and Natural Resources

400 Market Street, 7<sup>th</sup> Floor, Harrisburg, PA 17105

March 4, 2011

Board of Directors  
International Dark-Sky Association  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Directors:

The Pennsylvania Department of Conservation and Natural Resources has been made aware by the PA Outdoor Lighting Council of their plans to request of IDA that the 73,000-acre expanse of land known as the "Hopewell Big Woods" and surrounding area be designated as an International Dark-Sky Reserve.

DCNR is an active partner in the Hopewell Big Woods Partnership and in the overarching Schuylkill Highlands Initiative. With the Hopewell Big Woods expressed goal being to preserve and protect the area's rural heritage and natural environment and to promote responsible growth, it is our opinion that a Dark-Sky Reserve designation would be a fitting adjunct.

DCNR has two facilities in or near the Hopewell Big Woods. The first is French Creek State Park, a 7,730 acre facility within the Hopewell Big Woods. The second is Marsh Creek State Park, a 1,727 acre plot with a 525-acre lake, which is adjacent to the Hopewell Big Woods. The Park Manager of both of those facilities is keenly aware of the negative environmental impacts of light pollution and park lighting is directed downward and only on when needed.

Both parks are used extensively by local amateur astronomy groups to hold star parties where the public is invited to learn the joys of astronomy. This is a testament to the need to continue to protect the night skies over those venues.

DCNR fully supports the effort to protect the Hopewell Big Woods and surrounding area from light pollution and strongly urges that you seriously consider according the designation of Dark Sky Reserve to the area.

Sincerely,

Brook Lenker  
Manager of Education and Outreach

Stewardship

Partnership

Service

Delaware Valley Amateur Astronomers

April 13, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Directors:

The Delaware Valley Amateur Astronomers, (DVAA), is a group of enthusiastic hobbyists living in and around Philadelphia. We love to share our knowledge and enjoyment of astronomy with other amateur astronomers and with the public.

The PA Outdoor Lighting Council, of which we are a member, has announced their intention to make application to IDA to have the area in and around the Hopewell Big Woods designated as an International Dark Sky Reserve.

We are extremely enthusiastic about this action on their part because many DVAA members use the gun range at State Game Lands No. 43, which is within the Hopewell Big Woods, as an observing site. Because of our proximity to Philadelphia, where the sky is hopelessly polluted, it is helpful to have a site with relatively dark skies within a short drive. While the Hopewell Big Woods site is not the darkest in the state, it suits our short-term observing needs.

To prevent further degradation of the skies over the Hopewell Big Woods, we will need a rallying point and it is our belief that designating the area as a dark sky reserve will help to increase peoples' awareness of light pollution issues and provide a rallying point for future preservation efforts.

The DVAA urges IDA to consider the significant benefits to be derived from this designation and to declare the Hopewell Big Woods an International Dark Sky Reserve.

Sincerely,



Leonard M Jensen

President, Delaware Valley Amateur Astronomers



**pennsylvania**

DEPARTMENT OF CONSERVATION  
AND NATURAL RESOURCES

French Creek State Park  
843 Park Road  
Elverson, PA 19520-9523  
January 5, 2011

610-582-9680

International Dark Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

Dear IDA Board of Directors:

The Pennsylvania Outdoor Lighting Council has advised me of their intention to make application to IDA to have the Pennsylvania Department of Conservation and Natural Resource's French Creek State Park included within the Core of the proposed Hopewell Big Woods International Dark Sky Reserve.

French Creek State Park is a 7,730-acre site under the direction of the PA Department of Conservation and Natural Resources. Within the park are camping, hunting, fishing, boating and hiking opportunities, to mention a few of the recreational facilities that are used by residents from throughout the region. It is estimated that approximately 845,113 persons visit the Park annually.

We are particularly proud of the fact that we collaborate with several local astronomy groups to conduct star parties under our dark skies throughout the spring, summer and fall months. In addition, our educational staff promotes dark skies and star gazing in their presentations.

Although there is very little outdoor lighting within the Park, that which does exist is full-cutoff.

As Manager of French Creek State Park, in the proposed Core area of the Reserve, and Marsh Creek State Park, which is in the peripheral area of the Reserve, I enthusiastically support this effort to protect the night sky within the Hopewell Big Woods. We will continue to follow proper lighting practices and promote dark skies in our educational programs.

We fully support the Pennsylvania Outdoor Lighting Council in their effort and encourage IDA to approve the application to designate the Hopewell Big Woods as an International Dark Sky Reserve.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric M. Brown". The signature is fluid and cursive, written over a white background.

Eric M. Brown  
Park Manager  
French Creek State Park



## HAY CREEK WATERSHED ASSOCIATION

*Preserve. Protect. Restore.*

January 28, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: PA Outdoor Lighting Council International Dark Sky Reserve Application

Dear IDA Board of Directors:

I am the Executive Director of the Hay Creek Watershed Association. HCWA is a nonprofit organization dedicated to actively protecting, preserving and restoring our watershed through advocacy, education, community involvement and stewardship of the areas within and as well as adjacent areas affecting the watershed. The watershed covers approximately 22 square miles of mostly forest lands and is entirely within the bounds of the Hopewell Big Woods. We are active participants in the Hopewell Big Woods Partnership and the implementation of their six conservation goals.

The Association is keenly aware of the adverse environmental impact of light pollution on the night sky and of its negative effect the health of freshwater ecosystems. Representatives of our organization, including myself, recently toured the watershed with a PA Outdoor Lighting Council representative to identify light pollution issues and to consider appropriate corrective action. We will be working closely with the Council and other members of the Partnership to preserve and protect our night sky and natural environment from light pollution. Our education programs and literature will feature the addition of helpful light-pollution abatement information.

On behalf of the Association, we urge you to grant the PA Lighting Council's request to establish the Hopewell Big Woods as a Dark Sky Reserve so that we will have the much-needed added impetus and inspiration to help control light pollution in the years to come.

Sincerely,

*Meredith*

Meredith B. Chalfant  
Executive Director



**United States Department of the Interior**

Hopewell Furnace National Historic Site  
2 Mark Bird Lane  
Elverson, PA 19520

February 15, 2011

International Dark Sky Association  
3225 North First Avenue  
Tucson, AZ 85719-2103

Dear IDA Board of Directors:

As Superintendent of the Hopewell Furnace National Historic Site, I was pleased and excited to learn of the intention of the Pennsylvania Outdoor Lighting Council to include the Furnace as part of the Core area of the proposed Hopewell Big Woods International Dark Sky Reserve.

The park's 848.06 acres and historic structures illustrate the business, technology and lifestyle of our growing nation. To the extent possible, the facility, including the outdoor lighting, is maintained as it was in the 1771-1883 timeframe when the furnace operated. Each year, more than 60,000 visitors come to experience how life was in that era.

I have revised the park's operating procedures to require extinguishing all unnecessary lighting after hours.

We are pleased to be a participant in the Reserve application process and can assure you that we intend to enthusiastically do our part now and in the future to protect the night sky and natural environment at Hopewell Furnace National Historic Site.

We encourage you to approve the application to designate the Hopewell Big Woods as an International Dark Sky Reserve.

Sincerely,

Edie Shean-Hammond  
Superintendent



## Horse-Shoe Trail Conservancy, Inc.

PO Box 2226

Southeastern, PA 19399

610-993-0593

Website: [www.HSTrail.org](http://www.HSTrail.org) E-mail: [President@HSTrail.org](mailto:President@HSTrail.org)

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Don Cook  
Vice President

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Treasurer

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Martha Quigley  
Phil Schmitt  
John Stein  
Charles Wolfinger

March 2, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Directors:

The PA Outdoor Lighting Council has advised the Horse-Shoe Trail Conservancy of their intention to request that the 73,000-acre expanse of land known as the "Hopewell Big Woods" and surrounding area be designated as an International Dark-Sky Reserve.

The Horse-Shoe Trail is a 140-mile hiking and equestrian trail that runs from Valley Forge to the Appalachian Trail in southeastern Pennsylvania. Approximately 30 miles of the trail runs through the Hopewell Big Woods.

Although the Conservancy has little or no control over the lighting in Hopewell Big Woods, we are very much aware of the consequences of bad lighting and totally support any effort aimed at protecting the night sky above and the natural and visual environment in and around the Hopewell Big Woods.

We applaud the PA Outdoor Lighting Council for instituting this initiative and highly recommend that you seriously consider designating the Hopewell Big Woods as an International Dark Sky Reserve

Sincerely,

Ingrid Cantarella-Fox, President Horse-shoe Trail Conservancy

## FEDERATION OF NORTHERN CHESTER COUNTY COMMUNITIES



Charles Jacob, Chair  
P.O. Box 130  
St. Peters, PA 19470

Chris McNeil, Vice Chair

Miriam Newman, Secretary

Stan Stubbe, Treasurer  
1438 Shaner Drive  
Pottstown, PA 19465

April 12, 2011

Board of Directors  
International Dark-Sky Assn.  
3225 North First Ave.  
Tucson, AZ 85719-2103

Subject: Hopewell Big Woods International Dark Sky Reserve Application

Dear IDA Board of Directors:

The Federation of Northern Chester Communities (the Northern Federation) has been advised by the PA Outdoor Lighting Council of their plans to make application to your organization to request that the Hopewell Big Woods and part of the Schuylkill Highlands surrounding area be designated as an International Dark Sky Reserve.

The Federation is an inter-government organization represented by 9 townships in Northern Chester County, PA. Six of the member communities are partially or entirely within the Hopewell Big Woods area and the balance are within the overarching Schuylkill Highlands area.

A Regional Parks, Recreation and Open Space Plan is currently being prepared by the Federation. The Plan's purpose is to promote the health, safety and welfare of the region's citizens through planned parks, recreation and open spaces. The Plan will contain elements to strive to provide continued proper protection against light pollution. A recent survey of citizens within the Federation's area revealed that 85% of the respondents considered dark skies to be an important aspect of our area's physical and visual environment. A designation of Dark Sky Reserve by IDA would provide a significant and on-going incentive to rectify existing light pollution problems and to stave off future bad-lighting issues.

At the April meeting of the Federation, the membership voted unanimously to send this letter to you, urging that you grant the POLC's request and designate the Hopewell Big Woods and the area surrounding it as an International Dark Sky Reserve.

Signed:

Charles Jacob, Chair



**SCHUYLKILL RIVER**  
NATIONAL & STATE HERITAGE AREA

140 College Drive

Pottstown, PA 19464

484-945-0200

Fax: 484-945-0204

E-mail: [info@schuylkillriver.org](mailto:info@schuylkillriver.org)

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

November 23, 2010

Stan Stubbe  
Pennsylvania Outdoor Lighting Council  
1438 Shaner Drive  
Pottstown, PA 19465

Dear Stan:

I have been in receipt of your October 27, 2010 letter outlining the plan and proposal from the Pennsylvania Outdoor Lighting Council (POLC) regarding your application to the International Dark-Sky Association.

On Thursday, November 11, 2010 our board unanimously voted in favor of your application and proposal and I would like to state our full endorsement of your program. The residents and communities within the Schuylkill River National & State Heritage Area will certainly benefit from your education programs as well as your general conservation efforts as it relates to light pollution.

I would welcome future updates from you regarding any special events or announcements from the POLC and look forward to witnessing the impact and effect your organization has on our local and regional natural resources.

Please do not hesitate to contact me with any more additional information or questions on how we can continue to partner together for our region.

Sincerely,

A handwritten signature in black ink, appearing to read "Kurt D. Zwikl".

Kurt D. Zwikl  
Executive Director

**APPENDIX D**

HOPEWELL BIG WOODS DARK SKY RESERVE

PROMOTIONAL BROCHURE

## HOW CAN YOU HELP?



This



Not This

Use Shielded Lights to Hide the Bulb



Barn Light, Unshielded  
Light goes everywhere  
and causes glare



Barn Light, Shielded  
Light goes where needed

Shield Your Barn Light



Shut Lights Off When Not Needed



40W



10W

Use Low-Wattage Bulbs

## The Pennsylvania Outdoor Lighting Council



Volunteers promoting better  
outdoor lighting for Pennsylvania

PA Chapter of the International  
Dark-Sky Association

Contact Information:

E-Mail: [polcouncil@gmail.com](mailto:polcouncil@gmail.com)

Web: [www.polcouncil.org](http://www.polcouncil.org)

*Brochure funded by generous support from:*



This project was funded in part by a grant from Community Conservation Partnerships Program, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and the William Penn Foundation in support of the Schuylkill Highlands Mini-Grant Program administered jointly by Natural Lands Trust and Schuylkill River Heritage Association.

## HELP SAVE HOPEWELL BIG WOODS' NIGHT SKIES



So you can:

- Enjoy the stars
- Get a good night's sleep
- Protect the environment
- Be a thoughtful neighbor
- Be kind to nature's creatures

Look inside for  
helpful information

# WHO NEEDS DARK NIGHTS?

PEOPLE AND ALL OF NATURE'S CREATURES NEED A PERIOD OF DARKNESS EVERY 24 HOURS.



Birds & Animals



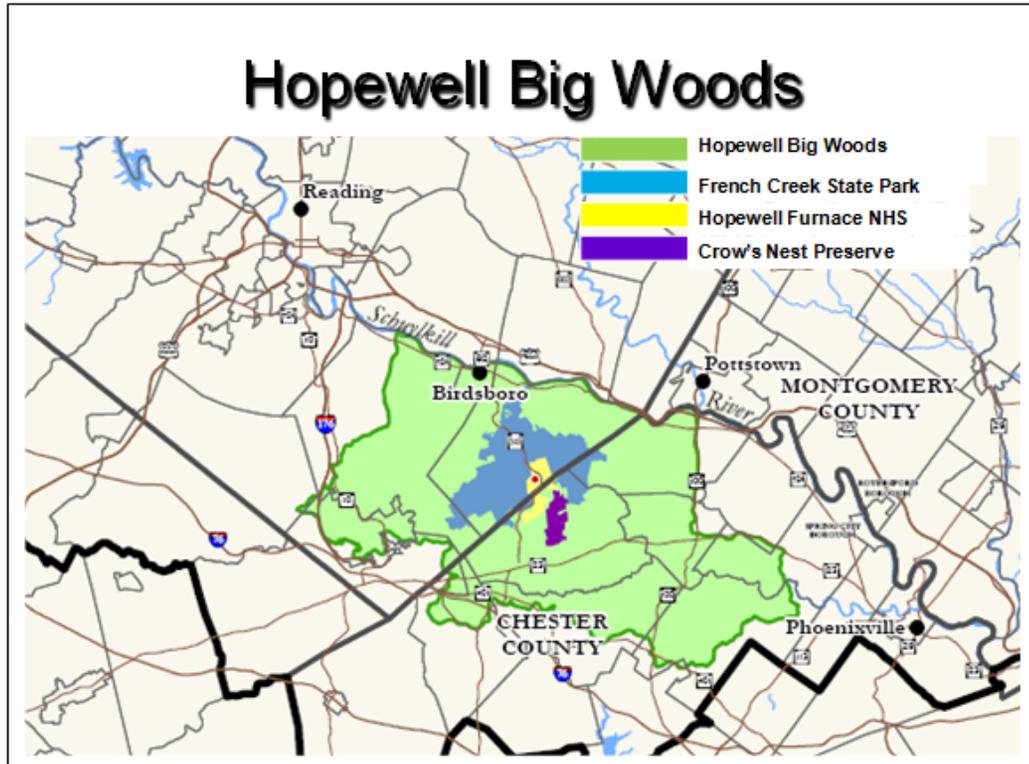
People (Neighbor's Floodlight)



Insects



Plants



Courtesy Natural Lands Trust

Hopewell Big Woods, a 73,000 acre expanse, is the last large unbroken forest remaining in southeastern PA. It is one of the most important natural areas in the region, an exceptional resource with hundreds of plant and bird species, pristine forests, unique wetlands, and clean streams, providing open space, drinking water, and unique scenic, cultural, and natural resources.

As a Hopewell Big Woods Partner, the PA Outdoor Lighting Council is assisting in sustaining and promoting the area's natural, cultural and recreational heritage by advocating for responsible outdoor lighting, both within and surrounding Hopewell Big Woods.