

**Torrey, Utah  
International Dark Sky Community  
Application**



**DARK SKIES OVER TORREY**

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## Nomination Letter

Mark Bailey  
P.O. Box 750196  
733 S River View Drive  
Torrey, UT 84775  
[mark@torreyhouse.com](mailto:mark@torreyhouse.com)  
801.810.9847

July 4, 2017

Dr. John Barentine  
Program Manager  
International Dark-Sky Association  
3223 N. First Avenue  
Tucson, AZ 85719

Dear Dr. Barentine:

As a member of the International Dark-Sky Association (IDA), early member of the International Dark-Sky Association Colorado Plateau Chapter, proprietor of the Torrey House Alpenglowl Observatory in Torrey, and as a Torrey Town resident, I am honored to write this letter nominating the town of Torrey, Utah for the IDA Dark-Sky Community designation.

With the advent of the Heritage Starfest in Torrey in 2010 and the formation the same year of the IDA Colorado Plateau Chapter, residents of Torrey Town have been working earnestly to build awareness and support for preservation of the surrounding precious night sky. In 2015 nearby Capitol Reef National Park was designated a Dark Sky Park. In November of that year, the town of Torrey adopted a protective lighting ordinance.

Since the establishment of the lighting ordinance the town had gone to work making protected dark in the community a reality. Funds have been raised, lights have been replaced, letters have been written, publicity gained, and businesses and residents have joined together in enthusiastic support of dark sky protection. Thanks to the leadership provided by Torrey resident Mary Bedingfieldsmith, the culmination of the Town's work is the attached application. We are hopeful that the town of Torrey will be recognized for protecting its unsurpassed, gorgeous dark nights and be awarded the International Dark-Sky Community designation.

Thank you for your consideration.

Respectfully submitted,



Mark Bailey  
Torrey, Utah

Mark Bailey  
P.O. Box 750196  
733 S River View Dr  
Torrey, UT 84775  
[mark@torreyhouse.com](mailto:mark@torreyhouse.com)  
801.810.9847

## Mayor Support Letter

**Torrey Town Hall**  
P.O. Box 7501955  
75 E 100 N Torrey, Utah 84775  
(435) 425-3600 FAX (435)425-3603



**Mayor, Scott Chesnut**  
Town Clerk, Paula Pace  
Treasurer, Colleen Dudleston

May 11, 2017

International Dark Sky Association  
3223 N. First Avenue  
Tucson, AZ 85719

Dark Sky Association Board:

Residents of Torrey and nearby unincorporated areas have been working for over a year to educate citizens and to implement programs that will restore and preserve the night sky of our town.

As the Torrey Town Council, we recognize the goals of these efforts: to promote related tourism, to protect the public enjoyment of the stars, and to achieve recognition of Torrey as a community that values the night sky and its heritage.

To date, we have replaced 17 of our 22 high-pressure sodium streetlights with warm-temperature streetlights and have plans to replace the last few in the near future. This has reduced the energy we purchase from the local electricity cooperative (Garkane Energy). In addition, we have an outdoor lighting ordinance. We inform new residents and businesses of its requirements and, at the same time, ensure those requirements are met for new constructions and remodels.

These and future efforts are also an attempt to gain Dark Sky Community designation for Torrey, which would make us the first such community in Utah. We fully support this goal and look forward to continued protection of the night sky of Torrey and all of Wayne County.

Yours most sincerely,

A handwritten signature in cursive script that reads "Scott Chesnut".

Scott Chestnut

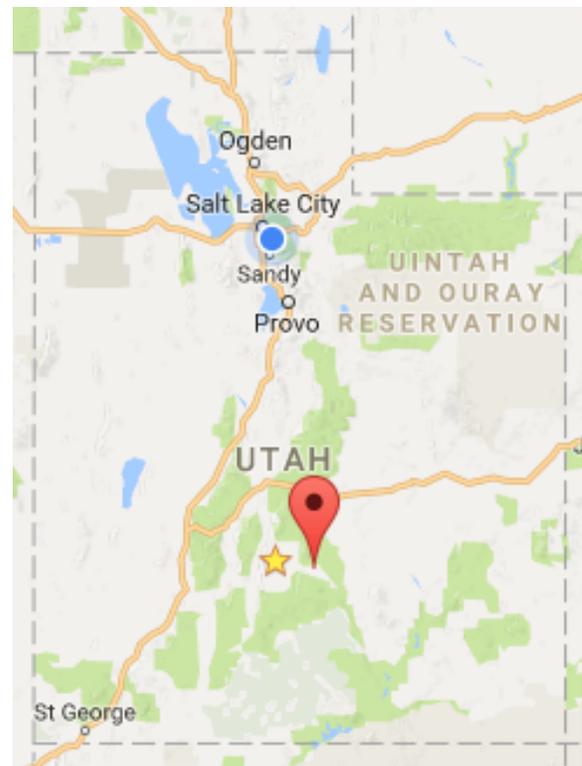
Mayor

## Factual Information



**Torrey Town**, population [241](#) (Census Bureau estimate as of July 1, 2016), elevation 6,837 feet, is located in Wayne County in south central Utah. The town was established in the 1880s by Mormon immigrants and incorporated in 1934.

Located only eight miles to the west, Torrey is the gateway town to Capitol Reef National Park, which was designated a Dark Sky Park in 2015. As stated on the IDA [webpage](#), “Capitol Reef National Park sprawls over 98,000 hectares of federal land in southern central Utah. It is named for a visually spectacular region of the Waterpocket Fold, a geological feature that made the area virtually impassable to early Anglo-American settlers. Its domes and cliffs of white Navajo Sandstone define the park’s landscape and reminded early visitors of the dome of the United States Capitol building.”



Despite serving over 830,000 visitors in 2014, Capitol Reef has largely resisted infrastructure development and instead offers visitors a rustic experience. As a consequence there is very little artificial lighting in the park, so visitors experience a night that is remarkably close to what it would have been in the pioneer era.”

The economy of Torrey and the community directly surrounding it is based primarily on tourism, recreation, retirement, and heritage farming. Driven by the attraction of the beauty of the surrounding public lands, national monuments and national parks, the area is economically healthy and growing. City-data.com estimates median household income has grown to \$44,029 by 2015 from \$25,859 in 2000 while median house value has increased to \$256,767 from \$87,500.

Torrey is home to the [Entrada Institute](#). Entrada serves the public as an arts and educational center to promote public understanding and appreciation of the arts, the natural, historical, and traditional cultural heritage of the high desert Colorado Plateau, and to foster community-based economic development in the surrounding region. Included in their programming is a [citizen science dark sky monitoring project](#) where a sky quality meter is used to measure and track area light pollution over time.

[The Entrada Institute](#) also sponsors an annual [Heritage Starfest](#) to encourage people to enjoy the dark skies of the Colorado Plateau, share the heritage of night skies, and encourage preservation of dark skies. Held on the darkest weekends of April and September, enthusiasts are invited to the Torrey Town area to celebrate its heritage of dark skies. Telescope viewing, a dark sky run/walk, constellation tours, children's activities, professional speakers, and campfire storytelling are a few of the activities promoted.

In recent years Torrey has hosted a stage on the [Tour of Utah](#), a professional bike race.



In last year's race, as Sam Wiebe of *Rally Cycling* put it, "Stage two was another monster on paper and again rolled through iconic terrain in Southern Utah's high desert. Through a living textbook of geological formations, the peloton was confronted with another massive uphill stretch before the chance at another sprint in downtown Torrey. Only the best legs would survive."



With its location adjacent to Capitol Reef National Park to its east, the Grand Staircase Escalante National Monument to the south and the surrounding Fish Lake and Dixie National Forests, Torrey will continue to draw eco-tourists and outdoor enthusiasts as visitors and new residents. The surrounding national public lands protect the area from adjacent light pollution and combined with its altitude make Torrey a magnet to stargazers, astronomers and astro-photographers. The Salt Lake Astronomical Society holds special events in Torrey to take advantage of its astro-tourism potential.

As seen on the chart below, Torrey sits on the edge of a dark place measuring 2-3 on the Bortle Scale. On a moonless summer night in Torrey, the Milky Way streaming overhead casts a shadow. Torrey is the right place to be a dark sky community.

Surrounded by public lands

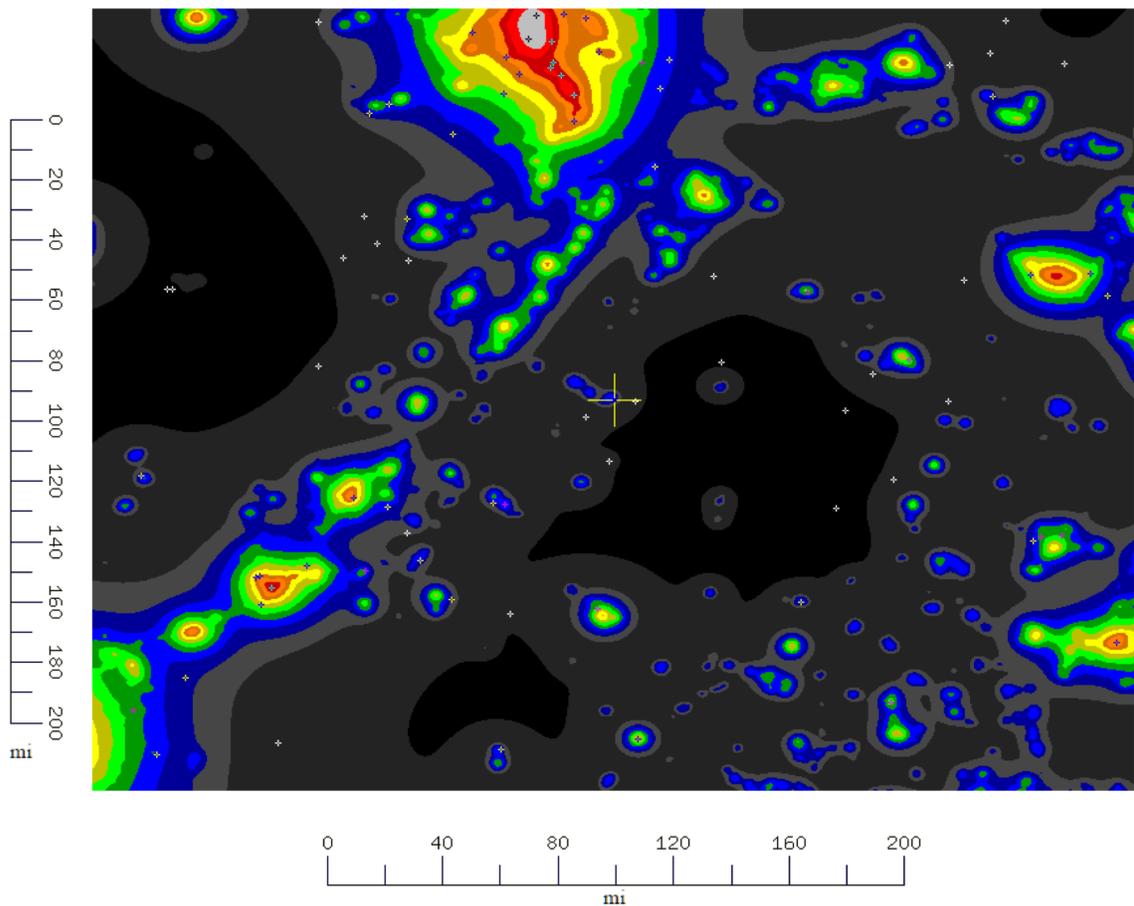


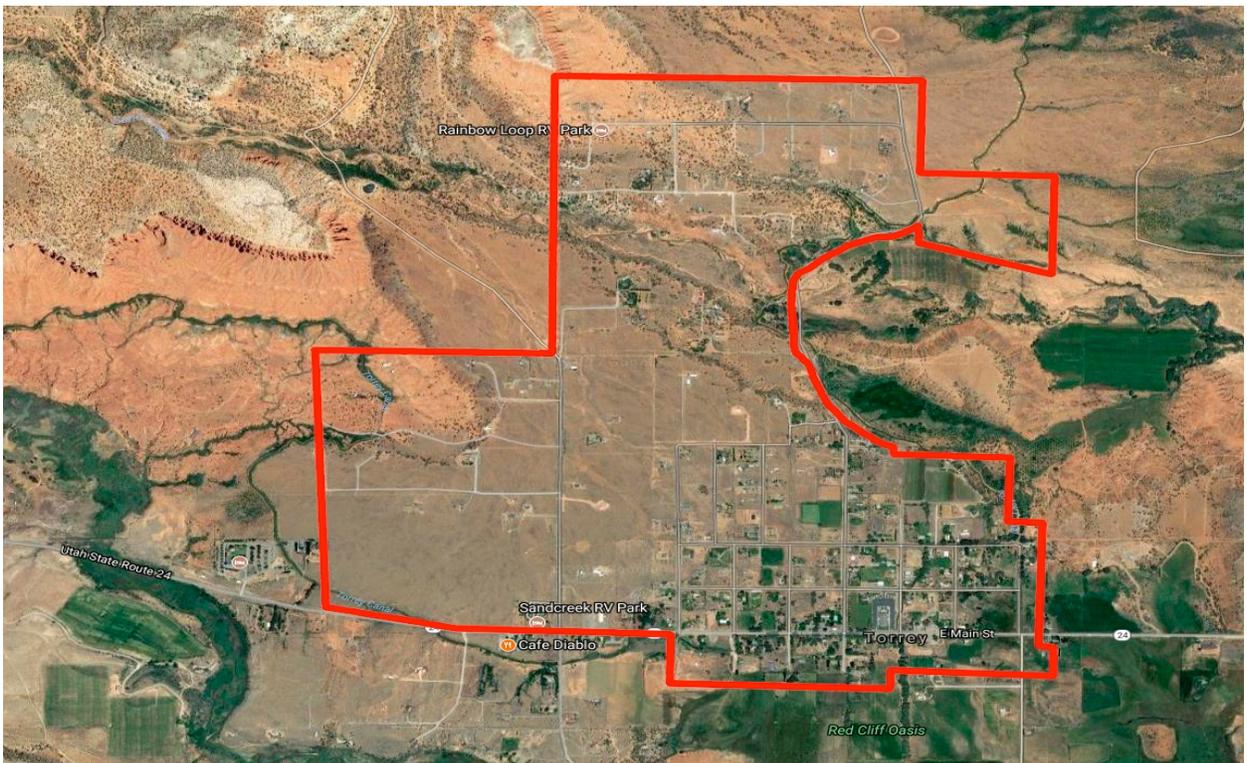
Image Credit: David Lorens (University of Wisconsin-Madison)

## Maps

Interstate 70 runs east through the central Utah to the Colorado border. Torrey is nearly 60 miles south of I-70 on Utah's State Highway 24. Capitol Reef National Park is 10 miles east of Torrey.



With the annexation that occurred in November of 2016, Torrey nearly doubled its area by adding land north of town. The majority of Torrey Town proper is north of Utah State Highway 24.



## Lighting Ordinance

On any night of the year, even when the full moon looks upon us, the Milky Way splashes above Torrey as it has since the beginning of time. As we gaze up, full moon looks down with our own wonder mirrored upon his face, perhaps in hopes our shared views will remain undiminished by a too bright future.

Torrey adopted its lighting ordinance in November of 2015. The goals were five-fold: 1) to encourage outdoor lighting practices that will minimize light pollution, glare, light trespass and sky glow in order to preserve the natural dark of the night sky and to prevent lighting nuisances on properties, 2) to promote energy conservation, 3) to maintain nighttime safety, utility, and security, 4) to prevent unnecessary or inappropriate outdoor lighting, and 5) to maintain the rural atmosphere and village character of the town.

The following minimum requirements addressing International Dark Sky guidelines are part of the ordinance:

- 1) Fully shielded or full-cutoff standard for all fixtures. (9-4-5-A)
- 2) Establishes a threshold of 3000 Kelvins for the allowable correlated color temperature of all lighting fixtures. (9-4-6-B)
- 3) Outdoor lighting that is not subject to the shielding shall not exceed 5000 lumens per net acre for commercial properties, and 1000 lumens per net acre for residential properties. (9-4-5-C)
- 4) The total amount of outdoor lighting, whether shielded or unshielded, shall not exceed twenty five thousand (25 000) lumens per net acre for commercial properties and five thousand (5000) lumens per acre for residential properties. (9-4-6-C)
- 5) Future municipal lighting may be installed when safety demands it. New lights must be fully-shielded, 3,000 K fixtures. Current IDA requirements must be met, and Torrey Town commits to enforcing their outdoor lighting ordinance. (See memo at end of ordinance page 18)
- 6) Torrey Town has twenty-two (22) municipal streetlights. Through crowd funding efforts, 17 of these lights have been replaced with 3,000 K, fully-shielded LED fixtures. The last fixtures are scheduled for replacement in October 2017. There are only three other town lights – one at the town park and two on the town hall. These all conform to Town’s lighting ordinance.

In addition to meeting all of the IDA requirements, the code also contains the following provisions:

- 1) All exterior outdoor lighting installed, after the effective date hereof in all zones in the town shall conform to the requirements established by the ordinance. (9-4-3-A)
- 2) Properties that change ownership, whether residential or commercial, must bring exterior lighting into compliance. (9-4-3-D)

Delphinus leaps through galactic waves; Cygnus soars beside Draco and Pegasus. These are the denizens of our heavens, watching over us since Ptolemy’s time and before. This lighting ordinance is an effort to preserve Torrey’s night sky for its current residents, its many visitors, and its future.

**The purposes of this ordinance are to:**

- A. Encourage outdoor lighting practices that will minimize light pollution, glare, light trespass and sky glow in order to preserve the natural dark of the night sky and to prevent lighting nuisances on properties.
- B. Promote energy conservation.
- C. Maintain nighttime safety, utility and security.
- D. Prevent unnecessary or inappropriate outdoor lighting.
- E. Maintain the rural atmosphere and village character of the town. (Ord., 3-10-2016)

**9-4-2: DEFINITIONS:**  

For the purpose of this chapter, certain words, phrases and terms used herein shall have the meanings assigned to them by this section:

**ACCENT OR ARCHITECTURAL LIGHTING:** Lighting of building surfaces, landscape features, statues and similar items for the purpose of decoration or ornamentation; or lighting that does not contribute to the safety or security of residents, guests, employees or customers on a property.

**CORRELATED COLOR TEMPERATURE (CCT):** A specification of the color appearance of the light emitted by a lamp, relating its color to the color of light from a reference source when heated to a particular temperature, measured in degrees kelvin (K).

**DIRECT ILLUMINATION:** Illumination resulting from light emitted directly from a lamp, luminary or reflector. This does not include light reflected from other surfaces, such as the ground or building faces.

**FLOODLIGHT:** A fixture or lamp designed to "flood" an area with light. A specific form of lamp or fixture designed to direct its output in a specific direction. Such lamps are often designated by the manufacturer and are commonly used in residential outdoor lighting.

**FULL CUTOFF FIXTURE:** An outdoor light fixture designed so that the installed fixture emits no light above the horizontal plane. Full cutoff light fixtures must be shielded in and of themselves. Surrounding structures, like canopies, are not to be considered when determining if the fixture is full cutoff. Full cutoff fixtures must be appropriately mounted so that the shielding prevents light from escaping above the horizontal and all light is directed downward.

**INTERNALLY ILLUMINATED:** As it relates to signs, any sign which has a light source entirely enclosed within the sign and not directly visible to the eye.

**LIGHT POLLUTION:** Any adverse effect of manmade light. Often used to denote "sky glow" from cities or towns, but also includes glare, light trespass, visual clutter and other adverse affects of lighting.

**LIGHT SOURCE:** The part of a lighting fixture that produces light, e.g., the bulb.

**LIGHT TRESPASS:** Light falling where it is not wanted or needed. Spill light falling over property lines that illuminates adjacent grounds or buildings in an objectionable manner.

**MANUFACTURER'S CATALOG CUTS:** A publication or other printed material of a lamp or lighting manufacturer offering visual and technical information about a lighting fixture or lamp.

**OUTDOOR LIGHT FIXTURE:** An outdoor electrically powered illuminating lamp or similar device used for lighting structures, parking lots, pathways, service canopies, recreational areas, signs or other similar outdoor lighting uses.

**RECREATIONAL LIGHTING:** Lighting used to illuminate sports fields, ball courts, playgrounds or similar outdoor recreational facilities.

**SECURITY LIGHTS:** Lighting designed to illuminate a property or grounds for the purpose of visual security.

**SPOTLIGHT:** A fixture or lamp designed to light a small area very brightly. See definition of Floodlight.

**TOWER:** Any monopole, antenna or the like that exceeds eighteen feet (18') in height.

**UNSHIELDED FIXTURE:** A fixture that allows light to be emitted above the horizontal either directly from the lamp or indirectly from the fixture or reflector. Any fixture not full cutoff. (Ord., 3-10-2016; amd. 2016 Code)

**9-4-3: SCOPE AND APPLICABILITY:**  

A. Compliance: All exterior outdoor lighting installed after the effective date hereof in all zones in the town shall conform to the requirements established by this chapter. This chapter does not apply to indoor lighting. However, light trespass from interior lighting that negatively impacts adjacent properties is also prohibited.

B. Nonconforming Uses: All existing outdoor lighting that does not meet the requirements of this chapter and is not exempted by this chapter shall be considered a nonconforming use. The town will encourage property owners to voluntarily bring nonconforming exterior lighting into compliance with this chapter. Where appropriate, the town may also provide assistance and expertise to homeowners in bringing their exterior lighting fixtures into compliance with this chapter.

C. Modifications; Compliance Through Building Permit Process: The town may require exterior lighting fixtures to be brought into compliance, through the building permit process, if substantial modifications are made to the exterior of the building or if the footprint of the structure is enlarged.

D. Change Of Ownership: Properties that change ownership, whether residential or commercial, must bring exterior lighting into compliance with this chapter.

E. Conflicts: Should this chapter be found to be in conflict with other ordinances of the town, the more restrictive shall apply. (Ord., 3-10-2016)

#### **9-4-4: APPLICATION AND REVIEW PROCEDURE:**



A. Lighting Plans Required: All sign permit applications, building permit applications and design development review applications shall include a lighting plan that shows evidence that the proposed lighting fixtures and light sources will comply with this chapter and shall include the following:

1. Plans or drawings indicating the proposed location of lighting fixtures, height of lighting fixtures on the premises, and type of illumination devices, lamps, supports, shielding and reflectors used and installation and electrical details.
2. Illustrations, such as contained in a manufacturer's catalog cuts, of all proposed lighting fixtures. For commercial uses, photometric diagrams of proposed lighting fixtures are also required. In the event photometric diagrams are not available, the applicant must provide sufficient information regarding the light fixture, bulb wattage and shielding mechanisms for the planning commission to be able to determine compliance with the provisions of this chapter.
3. A table showing the total amount of proposed exterior lights, by fixture type, wattage, lumens and lamp type.

B. Approval Procedure:

1. The lighting plan for all new development shall be submitted for approval concurrent with the associated application process. (Ord., 3-10-2016)
2. A certificate of occupancy shall not be issued until such time as the property is subject to a postinstallation nighttime inspection by the building inspector. (Ord., 3-10-2016; amd. 2016 Code)

#### **9-4-5: FULL CUTOFF FIXTURE REQUIREMENTS:**



A. Required: Unless specifically exempted by this chapter, all outdoor lighting shall use full cutoff fixtures that are designed and constructed so that no light is emitted from the top or sides of the fixture. Lighting must be placed at a location, angle or height to prevent direct illumination outside the property boundaries where the light fixtures are located.

B. Characteristics: In order to qualify as a "full cutoff" fixture, a light fixture must have the top and sides made of completely opaque material such that light only escapes through the bottom of the fixture. Fixtures with translucent or transparent sides, or sides with perforations or slits, do not qualify as full cutoff. Any glass or diffuser on the bottom of the fixture must be flush with the fixture (no drop lenses). Merely placing a light fixture under an eave, canopy, patio cover or other similar cover does not qualify as full cutoff. (Ord., 3-10-2016)

C. Restrictions On Total Amount Of Unshielded Lighting: Outdoor lighting that is not subject to the shielding requirement in subsection [9-4-6C](#) of this chapter shall not exceed five thousand (5000) lumens per net acre for commercial properties, and one thousand (1000) lumens per net acre for residential properties. (2016 Code)

#### D. Exemptions To Full Cutoff Fixture Requirements:

1. Fixtures having a total light output less than one thousand (1000) lumens (approximately equal to a 60 watt incandescent bulb or a 15 watt compact fluorescent) are exempted from the full cutoff requirement provided:

- a. The fixture has a top that is completely opaque such that no light is directed upward.
- b. The fixture has sides that completely cover the light source and are made of opaque or semiopaque material. Fixtures with opaque sides may have incidental decorative perforations that emit small amounts of light. Semiopaque material, such as dark tinted glass or translucent plastic, may be used if the light source is not discernable behind the material. Completely transparent materials, such as clear glass, are not allowed.
- c. The light source (light bulb or filament) must not be visible from any point outside the property on which the fixture is located.

2. Spotlights controlled by motion sensors having a light output less than one thousand (1000) lumens per lamp (allowing a maximum of a 60 watt incandescent or a 15 watt compact fluorescent bulb) are exempt from the full cutoff requirement, provided:

- a. The fixture is a spotlight or other type of directed light that shall be directed at a forty five degree (45°) angle or less, where the zero angle is pointing straight down.
- b. The fixture must not be placed in such a manner that results in illumination being directed outside the property boundaries where the light fixtures are located.
- c. The fixture must be hooded or shielded to the extent necessary to prevent glare on adjacent properties or roadways.

3. Pathway lights less than eighteen inches (18") in height are exempted from the full cutoff fixture requirement, if the total light output from each pathway light is less than three hundred (300) lumens and the lights have opaque caps that direct light downward.

4. Architectural lights, water feature illumination and sign illumination are all exempted from the full cutoff fixture requirement, provided such illumination meets all other applicable standards of this chapter. (Ord., 3-10-2016; amd. 2016 Code)

#### **9-4-6: CONDITIONS AND STANDARDS 9 4-GENERALLY:**



A. Minimum Necessary: Outdoor lighting should be the minimum necessary to provide for safety and functionality. The lowest wattage light source necessary for a lighting application should be used. (Ord., 3-10-2016)

B. Maximum Color Temperature Of All Lighting Fixtures: The correlated color temperature of any outdoor lighting fixture shall not exceed three thousand degrees kelvin (3000°K).

C. Maximum Lighting Allowed: The total amount of outdoor lighting, whether shielded or unshielded, shall not exceed twenty five thousand (25 000) lumens per net acre for commercial properties and five thousand (5000) lumens per acre for residential properties. (2016 Code)

D. Allowable Applications: Outdoor lighting shall only be allowed in the following applications:

1. To illuminate the entrances to buildings (including garage entrances).
2. To illuminate pathways and walkways.
3. To illuminate parking areas and parking area access lanes.
4. To illuminate outdoor gathering areas, such as patios, pool and hot tub areas, outdoor dining areas and recreation areas.
5. For security purposes, provided all the following conditions are met:
  - a. The lighting is activated by motion sensors and shuts off fifteen (15) minutes after each disturbance or when the activity involved is completed.
  - b. The lighting is placed and directed such that no direct illumination falls outside the property boundaries where the security lighting is placed.
6. To illuminate signage.
7. For architectural lighting, provided all of the following conditions are met:
  - a. The property where the architectural lighting is placed is on a property designated as commercial by the town.
  - b. The architectural lighting is compatible with the purposes of this chapter as determined by the planning commission.
  - c. All architectural lighting is mounted on and directed onto the front of a commercial building facing the street.
  - d. The architectural lighting is sufficiently shielded such that the light source is not visible beyond the property boundaries.
  - e. The architectural lighting is directed such that all light falls on the front of the building, and not on the adjacent ground or into the night sky.
  - f. The architectural lighting uses low wattage light sources.
  - g. The architectural lighting is not used to illuminate landscape, statues or other similar features.
8. To illuminate outdoor water features, provided all of the following conditions are met:
  - a. The lighting is angled below the horizontal plane.
  - b. The lighting is placed underneath or behind the water such that the water diffuses the light from all points where the light is visible.
  - c. Each light source has a total light output of one thousand (1000) lumens or less and the total lighting is not greater than necessary to achieve the desired artistic effect.

#### E. Light Curfews:

1. Commercial establishments shall turn off all outdoor lighting, except that listed below, by one hour after closing. (For the purposes of this section, motels and hotels are considered open around the clock when they are open for the season.)

a. Lighting to illuminate the entrance to the commercial establishment.

b. Parking lot and pathway lighting required for the safety of guests.

2. Recreational lighting (residential and commercial) shall be turned off by ten o'clock (10:00) P.M., except to conclude a community approved sporting event that is underway. (Ord., 3-10-2016; amd. 2016 Code)

#### 9-4-7: SPECIALIZED OUTDOOR LIGHTING:



A. Gas Station Canopies: Gas station canopies may be illuminated, provided all light fixtures are mounted on the undersurface of the canopy, all light fixtures are full cutoff and diffusers are not visible from locations off the property. Except for directed beam lighting, merely placing the fixtures on the underside of the canopy does not qualify as fully shielding the light fixture. Directed beam lighting mounted under the canopy is allowed, provided the light source cannot be seen from outside the property boundaries.

B. Roadway/Streetlights: Streetlights are allowable as recommended by the town engineer or town council. All streetlights shall utilize lamp types that are energy efficient and minimize sky glow and other negative impacts of artificial lighting.

#### C. Parking Lots:

1. Spot or flood lighting of parking lots from a building or other structure is prohibited.

2. The overall height of any light post used to illuminate parking lots in commercial zones shall not exceed fourteen feet (14'). All post mounted parking lot lights shall be set back from property lines a distance that is determined appropriate by the planning commission.

3. The overall height of any light post used to illuminate parking lots in residential zones shall not exceed six feet (6').

4. All parking lot lighting shall use full cutoff fixtures.

#### D. Recreational Lighting:

1. The planning commission shall review all requests for new recreational lighting fixtures for fields or courts. The planning commission shall approve such requests only after finding:

a. The recreational lighting has provisions for minimizing glare, spill light and uplight by the use of louvers, hoods or shielding.

b. The recreational lighting does not exceed illumination levels for class IV sports lighting set by the Illuminating Engineering Society Of North America.

c. The recreational lighting will only illuminate the field or court area and shall be shielded to prevent illumination falling outside of those areas.

d. The light source for the recreational light will not be visible from adjacent properties.

2. Pole mounted recreational lighting shall be limited to eighteen feet (18') in height. Pole mounted recreational lighting must be set back an appropriate distance from neighboring properties as determined in consultation with the planning commission.

3. The lighting for nonfield and noncourt areas shall conform to all provisions of this chapter.

E. Amphitheater Lighting: Outdoor amphitheatres may use illumination to light the performance area of the amphitheater and for the safety of the public. The following standards apply to all amphitheater lighting:

1. Lighting used to illuminate the performance area must be either directed spotlighting or full cutoff lighting. If directed spotlighting, the light source must be located and designed such that it is not visible beyond the property boundaries.

2. Lighting used to illuminate the performance area may only be turned on during performances or rehearsals.

3. Lighting used to illuminate the seating areas, pathways and other areas of the amphitheater must meet all standards of this chapter.

F. Signs: Signs may be unlighted, lighted externally, lighted internally or backlit. All sign lighting must be designed, directed and shielded in such a manner that the light source is not visible beyond the property boundaries where the sign is located. Lighting for signs must be directed such that only the sign face is illuminated. All lighted signs must have stationary and constant lighting. (Note: For additional information on sign lighting standards, please refer to the town sign ordinance, [chapter 3](#) of this title.)

1. Standards For Externally Illuminated Signs:

a. Lighting for externally illuminated signs must be aimed and shielded so that light is directed only onto the sign face and does not trespass onto adjacent streets, roads or properties or into the night sky.

b. Lighting for externally illuminated signs must be mounted at the top of the sign (or within 2 feet of the top of a building mounted sign), except for freestanding monument style signs which may be illuminated by ground mounted lighting.

2. Standards For Internally Illuminated Signs - Lighting Is Visible On Both Sides Of Sign:

a. Only sign copy areas and logos may be illuminated on an internally illuminated sign.

b. Internally illuminated signs shall use semiopaque materials for sign copy such that the light emanating from the sign is diffused. Transparent or clear materials are not allowed for sign copy. Noncopy portions of the sign (e.g., background and graphics) shall be made of completely opaque material.

### 3. Standards For Backlit Signs - Only One Side Of Sign Is Lit:

- a. Backlit signs shall be designed such that the light source is not visible.
- b. Backlit signs shall be designed such that harsh, direct illumination does not emanate out of the sign. Rather, the backlighting shall only allow indirect illumination to emanate from the sign. For example, signs that create a "halo" effect around sign copy are allowed.
- c. Backlit signs shall use low wattage light sources.

4. Illuminated Window Signage: Illuminated window signs positioned to be primarily visible outside the business structure are allowed only if there are no more than two (2) signs per business space and each sign measures less than three and one-half (3<sup>1</sup>/<sub>2</sub>) square feet in area. Such signs must not be illuminated when the business is closed. (Ord., 3-10-2016)

### 9-4-8: HILLSIDES, RIDGELINES AND SPECIAL CASES:

In certain cases (such as, but not limited to, properties on or near ridgelines or hillsides), additional shielding may be required to mitigate glare or light trespass. The need for additional shielding will be considered as part of the review process performed by the planning commission prior to approval of any business or residence. (Ord., 3-10-2016)

### 9-4-9: TOWERS:

- A. All monopole, antenna, tower or support facility lighting not required by the federal aviation administration (FAA) or the federal communications commission (FCC) is prohibited.
- B. When lighting is required by the FAA or the FCC, such lighting shall not exceed the minimum requirements of those agencies. Collision markers should have a dual mode for day and night to minimize impact to the night sky and migrating birds.
- C. All other lighting used on the property not regulated by the FAA or FCC shall conform to this chapter. (Ord., 3-10-2016)

### 9-4-10: EXEMPTIONS:

The following shall be exempt from the requirements of this chapter:

- A. Holiday lighting from November 15 to January 15 as long as it does not create a hazard or nuisance to surrounding businesses or residences.
- B. Traffic control signals and devices.
- C. Temporary emergency lighting in use by law enforcement or government agencies, or at their direction.

D. The lighting of federal or state flags; provided, that the light is a narrow beam aimed and shielded to illuminate only the flag. Flag lighting should use appropriate illumination levels to light the flag, while at the same time fulfilling the purposes of this chapter.

E. Low voltage LED lights and solar lights used to illuminate pathways in residential areas, provided the lights are installed no more than eighteen inches (18") above the adjacent ground level and have caps that direct the light downward.

F. The planning commission, as part of its review as outlined in this chapter, may approve lighting that does not conform to these standards if need is established. An applicant requesting such lighting is required to provide proof of requirements of property insurance or findings of competent research demonstrating the need for the requested lighting. The planning commission may attach other conditions to the approval of such lighting that will make the lighting comply with the spirit of this chapter. (Ord., 3-10-2016)

#### **9-4-11: PROHIBITED LIGHTING:**

The following are prohibited:

A. Uplighting to illuminate buildings and other structures, or vegetation, except as allowed by other provisions in this chapter.

B. Flashing, blinking, intermittent or other lights that move or give the impression of movement, not including holiday lighting between November 15 and January 15.

C. Floodlights or spotlights affixed to buildings for the purpose of lighting parking lots or sales display lot areas.

D. Searchlights, laser source lights or any similar high intensity light.

E. Except when used in window signage pursuant to subsection [9-4-7F4](#) of this chapter, neon or luminous tube lighting, either when outdoor mounted or indoor mounted if visible beyond the property boundaries. (Ord., 3-10-2016)

#### **9-4-12: VIOLATIONS:**

The following constitute violations of this chapter:

A. The installation, maintenance or operation of any lighting fixture not in compliance with the provisions of this chapter if such fixture is installed subsequent to the date when this chapter is formally adopted.

B. The alteration of outdoor lighting fixtures after a certificate of occupancy has been issued without the review and approval of the planning commission when such alteration does not conform to the provisions of this chapter.

C. Failure to shield, correct or remove lighting that is installed, operated, maintained or altered in violation of this chapter. (Ord., 3-10-2016)



**Mayor, Scott Chesnut**

Town Clerk, Paula Pace

Treasurer, Colleen Dudleston

**Torrey Town Hall**

75 E 100 N

Torrey, Utah 84775

(435) 425-3600

FAX (435)425-3603

**Council Members,**

Sheila Kearney

Bronson Oyler

Dustin Oyler

Doug Robinson

Memorandum

- 1) It shall be the policy of Torrey Town, in cases where it is determined that street lighting is deemed necessary in public rights-of-way for the safety of pedestrians, bicyclists and/or motorists, the installation of Torrey Town street lighting shall be permitted.
- 2) All streetlights shall be fully shielded fixtures using lamps with a correlated color temperature not to exceed 3000 K, or of approved historical design, utilizing illumination levels specified in the IESNA "American National Standard Practice for Roadway Lighting" (IESNA RP-08-00) or current successor recommendations.
- 3) All lighting shall be fully shielded, adhere to IDA standards, make use of appropriate adaptive controls, and be subject to curfews as directed.
- 4) Torrey Town commits to all future streetlights being in compliance with this ordinance.

  
Scott Chestnut, Mayor

8-10-17  
Date

## Events and Education

1) The Heritage Starfest - <https://www.facebook.com/heritagestarfest/> - is an annual event held in Wayne County, Utah to celebrate the dark sky of southern Utah and the Colorado Plateau. It is co-sponsored by Capitol Reef Nation Park and the Entrada Institute, which serves as an arts and educational center to further public understanding and appreciation of the arts, the natural, historical, and traditional cultural heritage of the high desert Colorado Plateau.

It began with a group of people who love Wayne County's dark skies, one of whom was an amateur astronomer, Linton Rohr.



Linton has since passed away, but his vision lives on as the annual festival continues.

The term “heritage” was used to encourage local people to think about preserving the heritage of Wayne County’s dark skies so future generations could see the same skies as the native peoples and the pioneers who settled the area.

The Starfest was first announced to the neighborhood in the form of a float in 2010 during the Apple Days Parade, which is held every year in Torrey on the weekend nearest the 4<sup>th</sup> of July.





Over the years, Starfest activities have included a wide range of events. As part of the festival from 2010-2013, families walked a night friendly road course with stops along the way that pointed out constellations. Participants received a star chart they could take home and use with their families.

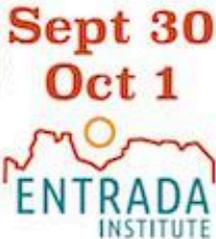
In partnership with 4-H, the Heritage Starfest 2010-2013 offered a services of afternoon and evening activities. In 2010, a blow-up planetarium known as the SKYLAB dome was used to educate youth and their families about the night sky. Participants learned about traditional constellations as well as Native American constellations. Youth participated in games about the planets, a star challenge, night vision test, dark sky friendly practices, and other learning activities.

For three years (2010-2011) as part of the Heritage Starfest we showed documentary films such as *400 Years of the Telescope*. Others focused on key issues related to dark skies.

As you can see, we like to start them young!



Here is the Starfest advertisement from 2016.



**Sept 30  
Oct 1**

**Heritage Starfest**  
Celebrating the Dark Skies of the Colorado Plateau

**Two Days/Nights of Dark Sky Fun!**

**Friday September 30: Capitol Reef National Park (CARE)**  
11:00AM-1:00PM Solar Telescope and viewing solar flares, CARE Visitor Center  
3:30-4:30PM Astronomy Programs, Ripple Rock Nature Center  
8:00-9:00PM Evening Program by Seth Jarvis, Campground Amphitheater  
9:00-11:00P Stargazing with astronomers and telescopes

**Saturday October 1: Robber's Roost, Entrada Institute, Torrey**  
7:30-8:45PM Local Dark Sky Project Update & Program with Seth Jarvis  
8:45-11:00PM Stargazing with astronomers and telescopes

**Saturday October 1: Citizen Science Project: Barb & Gary Pankow's house, Teasdale**  
(S 2nd St E & E Rustle Street; 2 blocks east of the Teasdale Post Office)  
9:30PM Gather to learn about night sky monitors, local initiatives, & enjoy snacks.  
10:00PM Car pool to 5 locations in the Teasdale-Torrey-Grover area to collect night sky data.

*Mr. Seth Jarvis built his first telescope when he was twelve and has been an enthusiastic amateur astronomer since then. He is the author of numerous planetarium shows that are shown in planetariums around the world and he is the author of four children's astronomy books. He began working for Hansen Planetarium as an usher in 1978, advanced to become the director of Hansen Planetarium in 2001, and led the transition of that facility into the Clark Planetarium in 2003.*



<https://facebook.com/heritagestarfest>

Learn More...  
[entradaInstitute.org](http://entradaInstitute.org)  
[info@entradaInstitute.org](mailto:info@entradaInstitute.org)  
[f /entradaInstitute](https://facebook.com/entradaInstitute)



**CAPITOL REEF COUNTRY**  
WC Travel Council [capitolreef.org](http://capitolreef.org)

The 2017 festival is scheduled for October 20 and 21.

2) In preparation for the installation of Torrey's new streetlights, Garkane Energy personnel installed a light of the type the town considered. Community residents received a notice announcing the location of the light so they could see the difference between the old streetlights and the new streetlights. After receiving favorable comments, the town council decided to proceed with the installation of new lights.



3) The Wayne County Farmers' Market (sponsored by the Wayne County Business Association) is held on Main Street in Torrey beginning on the first Saturday in May and ending on the last Saturday in October. One of the booths is an information table at which visitors and customers are able to receive information about events and businesses throughout the county. We received five brochures from the International Dark Sky Association: *Protecting night skies for present and future generations*; *Light pollution wastes energy and money*; *Outdoor Lighting, Crime and Safety*; *Artificial Light at Night Can Put Your Health at Risk*; and *Light Pollution Can Harm Wildlife*. Kaylene Albrecht, a life-long Wayne County resident, manages the information table, and has been distributing these brochures at the market since July of 2017. She also distributes a document showing examples of acceptable and unacceptable lighting fixtures (courtesy of IDA). Kaylene reports these materials are well received, particularly the visual examples of acceptable/unacceptable fixtures. She will continue this information effort until the market ends in October at which point this effort will be evaluated for effectiveness.



4) The 11<sup>th</sup> Annual Redrock Women’s Music Festival (<http://womensredrockmusicfest.com/>) was held in Torrey on August 11<sup>th</sup> and 12<sup>th</sup>. The festival attracted almost 500 attendees from all over the country and many from around the world. Some came from as far away as Hungary, South Africa and Australia. Kaylene Albrecht, mentioned above, set up a Dark Sky information table where she handed out IDA brochures, a light fixture illustration, and a fact sheet about preserving / returning the night sky and Torrey’s outdoor lighting efforts.



5) The Entrada Institute (<http://www.entradainstitute.org/>) is located in Torrey. The institute is a partner in Torrey’s dark sky efforts because part of Entrada’s programming includes a dark sky initiative, which promotes economic development activities related to astro-tourism by working with the local community to promote dark sky friendly lighting. Entrada has an extensive email list. The president of the organization sent scanned versions IDA’s topic-specific brochures and their illustration of appropriate and inappropriate lighting fixtures to the entire Entrada membership. One brochure was sent each week from August 9 through September 13.

6) Another Entrada program is Arts and the Park, an annual event held, in partnership, with Capitol Reef National Park. Each year watercolorists converge at the Entrada Institute to create plein air art. Local residents enjoy watching artists at work, participating in presentations, and enjoying an Art Auction. During the 2016 Arts and the Park event, it was suggested that watercolorists consider creating works featuring the night sky. This image is an award winning watercolor by Linda Flannery titled "Torrey, Torrey Night" from the 2016 event.



Linda created a second painting of the night sky over Torrey's main street, which she donated to our IOBY fund raising efforts. That painting brought \$900 to our campaign to replace Torrey's streetlights.



**7)** Torrey Town has developed a Welcome to Torrey packet, which residents will receive when applying for a water hookup or filing a building permit. The packet includes the following:

- Welcome letter
- Information about community services and related phone numbers
- Dates for area events
- Building Permit Application Checklist
- Water Connection Application
- A fact sheet about preserving / returning the night sky and Torrey's outdoor lighting efforts
- IDA's five topic-specific brochures and illustration of appropriate and inappropriate lighting fixtures
- Color Country Animal Welfare rack card
- The Capitol Reef Country travel guide from the tourist council
- Brochures from the Wayne County Business Association
- A map of Utah

**8)** We have given two presentations to the Wayne County Business Association about Torrey's efforts to become Utah's first International Dark Sky Community. The presentation covered facts about the disappearing night and the unique position of Utah's Wayne County in that it is still dark compared to much of the rest of the world. We suggested preservation of this "resource" would be a benefit to businesses in the area.

**9)** On September 15<sup>th</sup>, Mark Bailey, a part-time resident, IDA member, and partner on this project, will host a star party at his home just outside of Torrey. Invited guests are members of the Wayne County Business Association. The goal is to help them see the beauty of the area's night sky and encourage them to preserve it for future generations.

**10)** Future project – We plan to create a Dark Sky Information Exhibit at the local visitor center (located at the junction of State Highways 12 and 24. Another exhibit will be at the future home of the Entrada Center. This will be named for Linton Rohr, a local dark sky advocate who recently passed away. The money for this project has already been donated.

**11)** Future project - In cooperation with Entrada and the Wayne County School District, students from Wayne High School in Bicknell will mentor 4<sup>th</sup> graders from Loa Elementary School as they create an interpretive wayside guide and signage along a future biking and walking path. The guide will include information about local plants, animals, and the night skies in Wayne County. Key to this project is raising the money to build the path.

12) Several articles have appeared in newspapers, on-line, on the radio, and in the Torrey Town newsletter.

### **AWESOME PROJECT: This Utah town is fighting light pollution... and winning**

by ioby  
August 17, 2016

When's the last time you enjoyed an evening of stargazing, and then went to sleep in real, total darkness, without having to pull blackout curtains against the glare of modern life? Was it heavenly? Did you know that darkness doesn't just *feel* good, but that it's also very, [very good for your health](#)? And for [ecosystems and wildlife](#)?

Dark skies are a precious, threatened, and vanishing resource, but [advocates are raising awareness and replacing glaring lights around the country and the world](#), each working hard to save their own small piece of the sky. Mary Bedingfieldsmith, of Torrey, Utah, is one of them.

It all started three years ago, with a single streetlamp. Mary and her husband had recently moved full-time to Torrey – a lifelong dream for them. On one of their first evenings in town, Mary was sinking into their backyard hot tub, looking forward to gazing up at the stars, when she noticed something irksome: the row of cottonwood trees on the west side of their property were all unnaturally illuminated by a fluorescent, distinctly un-moon-like light. The culprit, it turned out, was one of the town's streetlamps – unshielded, high-pressure sodium lights that were spilling their light not just onto Torrey's streets, as intended, but onto homes and yards nearby. So Mary did what thousands of successful community organizers had done before her: she got on the phone and started making calls. And calls. And more calls. To Garkane energy company, to Town Council, the Utah Dept. of Transportation, to the International Dark-Sky Association (IDA).



“When you look at 4,000 Kelvin lights,” says Mary, “they are very white – almost blue. And those are called blue-rich lights. If you go online and start looking around, there’s a lot of detrimental health effects due to blue-rich lights.” And those, it turns out, are exactly what you’ll find on Torrey’s main street, and at many businesses and even homes.

Fast-forward three years: Mary is, via ioby, [raising just over \\$16,000](#) to turn Torrey – a town of 300 permanent residents – into Utah’s very first Dark Sky Community. She and her allies will be replacing the town’s 22 streetlamps, as well as some commercial and residential lights, with shielded dark-sky-friendly options – and the town of Torrey will actually receive tax credits for the work! Resulting dark skies will be enjoyed not just by residents, but also by the millions of tourists who visit the area each year – many of whom are “astrotourists,” or stargazers, who come specifically for the clear, unpolluted view up.

### **rethinking safety**

One of the biggest roadblocks Mary has encountered, she says, is residents’ concerns about safety. They’ve grown accustomed to bright, powerful lights that illuminate large swaths of town, and are wary of the changes afoot.

“I’ve talked to some individuals who are long time residents here,” says Mary, “and some of them are all gung-ho, but many of them are afraid. Because they think that what’s going to happen is that their lights have to go away. I’m trying to explain that no, we’re not going to take your lights away. We’re going to talk to you as an individual, and find a light that meets your needs and also is a dark-sky light.”

One resident, a woman named Diane, who owns the Torrey Trading Post and hosts overnight guests in cabins on her property, uses an unshielded high-pressure sodium light to help her overnight guests make their way safely from their cabins to the showers.

“She was telling me she had this light, and I said ‘well, let’s go out and look at it,’” Mary says of a visit she paid to the long-time resident. “So we went and looked at it, and I said ‘yeah, that’s one of the high-pressure sodium lights that we want to replace.’ And she said, ‘well, I need this light for my clients to go from their cabins to the showers.’ Which totally makes sense! So I said ‘yeah, but we can get you a light that will do what you need it to do, so your customers can get where they need to go safely, but is also a fully-shielded light, and we can help you pay for it.’ Once I said that, it was like: that’s fine. That will work.”

It sure will work. And it’ll [bring in business](#), to boot.



### **what you can do**

1. [Giving to this project](#) supports Torrey's efforts, but it also supports the larger, international Dark Sky movement. Each town that chooses to go dark is a huge step towards a world in sync with our planet's circadian rhythms, and with our skies. Dark Sky towns help raise awareness, spreading new ideas about what is possible. There are already whispers in Torrey's neighboring towns about expanding the movement.
2. Think your town or city should go dark? Check out [darksky.org](http://darksky.org) to learn about why dark skies matter, and who else is doing it. The organization's site offers an incredible wealth of information, and its gorgeous photos of Dark Sky Communities make it a joy to explore.
3. Talk with your neighbors about darkness! Do they remember growing up with darker skies? Sleeping better? Do they miss being able to see the stars? You do not have to accept light pollution as your reality – spread the word!

## Torrey Gets Closer to Becoming Utah's First Dark Sky Community

TORREY - In April of 2015, Capitol Reef National Park was designated a Gold-tier International Dark Sky Park. Since then, Torrey and nearby



The Milky Way over the desert.

Wayne county residents have expressed a desire to hitch their wagon to the Sky Park star by working toward Dark Sky Community status. This would make Torrey Utah's only community recognized as such!

To begin working toward this designation, Torrey Town, in partnership with the Entrada Institute, launched The Dark Skies Over Torrey crowd funding campaign on August 1st. The campaign ends on September 24, one week before the Heritage Dark Sky Festival. Following that, Torrey hopes to start implementing its three-point initiative to become Utah's first Dark Sky Community. The first step is to replace all of Torrey Town's city-supported streetlights with fully shielded, dark-sky friendly, LED lights. Next we hope to assist interested Torrey residents in replacing privately

owned lights with fully-shielded lights that meet individuals' needs. In the near future, we plan to launch an education effort, which will provide in-

formation to local businesses, residents, and tourists about the multiple benefits of dark nighttime skies.

A major feature of the education program includes a Dark Sky Information Exhibit at the local visitor center and at the future home of the Entrada Center. This will be named for Linton Rohr, a

local dark sky advocate who recently passed away. Many people remember Linton as the author of Star Gazing Tips column, which regularly appeared in The Insider.

Replacing Torrey Town's streetlights is one of the first steps in becoming a dark sky community. However it will have an immediate affect on Torrey Town's budget by reducing the tariff paid for electricity by almost \$650 each year. Already, the seven lights on main streets have been replaced with dark sky friendly, fully-shielded LEDs.

If you are interested in learning more about this project or would like to make a donation, go to IOBY.org and search for Dark Skies Over Torrey or contact Mary at 435.425.2228.

The sight of stars makes us dream.

— *Dark Skies Over Torrey*

Interview on KWAN Radio

On September 25, 2016, Lee Austin of KWAN radio interviewed Mary Bedingfieldsmith about the Dark Skies Over Torrey project. Here is the link to that interview:

<http://www.kwanradio.com/dark-skies-over-torrey/>

## TORREY HOUSE PRESS

## VOICES FOR THE LAND

Bridges in the Dark

February 27, 2017



Dad at his Alpenglow Observatory, Salt Lake City, August 2016

Last August I received a call from my 83-year-old mother. “Your father wants to speak with you,” she said. It is like that with Dad and me, not a lot of direct communication. I told Mom I would come over the next day after dinner. When the time came, I was surprised to see my wife, Kirsten, grab her purse and head for the door with me. My father has a reputation for being difficult and there are rarely volunteers to join me in seeing him. Dad is in his mid-eighties and as his oldest, I will be the executor of his will. I thought he might want to talk about some details or arrangements, but when we all sat down around the table together, he started talking about his observatory. I thought he was suggesting I coveted his belongings, which I surely do not. But in my own advancing years I may be gaining

enough wisdom so that when Kirsten kicked me under the table I ceased my objections and turned to see her silently mouth, eyebrows raised, “This is an honor.”

Kirsten is right—of course it is an honor. For some 35 years now, my father has been creating a private astronomical observatory that approaches university research quality. It is his magnum opus. Today, however, he feels that using it has become too demanding, that his aging memory isn’t up to managing all the software demands and keeping the cameras, focusers, cooling systems, dome syncs, and filter wheels all operating as required any longer. Dad asked me to move it all to our property in Torrey, Utah, high on the Colorado Plateau in increasingly rare dark sky country.

It has been rewarding to see the warm and enthusiastic reception from friends and family to our giving my father’s equipment a new home. There is something about an observatory that universally invokes a natural response of wonder and curiosity. People want to see it. Perhaps they want to be inspired, perhaps to get that feeling of awe a starry night will inevitably conjure. Dad named the observatory Alpenglow but that did not seem like the right name for an observatory on the Plateau. Still, I wanted to keep Dad in any new name. Friends helped me come up with *Torrey House—Alpenglow Observatory* and I hope to have it up and ready to capture its “first light” soon.

I share my father’s attraction to the night sky. In Torrey, on a moonless summer night, the Milky Way blasts up overhead arcing across the sky from Boulder Mountain on the southern horizon to Thousand Lake Mountain on the northern. The mountains appear only as black space devoid of all light. But the Milky Way is so pronounced, so prominent, that once your eyes adjust to the inky dark it is possible to see your star-lit shadow on the ground. There is usually a cool breeze, the air smells of pinyon and juniper, occasionally a coyote yelps from out of the blackness punctuating an otherwise deep silence.



The Andromeda Galaxy, visible by naked eye in the dark skies of Torrey.

The Milky Way overhead is what we see when looking out through the spiral arms of our galaxy. While it seems like millions, even in the dark sky of Torrey one can only see at most a few thousand distinct stars. Yet there are over one hundred billion stars in our galaxy. And beyond the Milky Way there are another hundred billion galaxies. On the Colorado Plateau, one of those galaxies, Andromeda, is visible with the naked eye. By the time this gorgeous light enters our eyes it has been on its way for two million years. Science has discovered that the Universe is 13.5 billion years old. It started as an infinitely small, infinitely hot point of energy with the Big Bang. As the Universe expanded and cooled the first element came into being, hydrogen. Hydrogen coalesced to form the first stars where helium was created. Stars matured and blasted into novas and supernovas, the exploded gases emitted reforming into new stars all of which eventually created the 118 elements of the periodic table you learned about in chemistry class. You and I are made up of these elements. It sounds purely romantic, but it is true, we are stardust. When I look up and think of this stardust coming together in me to somehow become conscious and that I am the Universe become self-aware and gazing back out on itself, it makes me sit down awash in awe and wonder.

It is this feeling of awe and wonder and empathy for nature that brings me to the subject of Torrey House Press (THP) and publishing. Like the dark sky, our natural landscape is a diminishing resource. Kirsten, now the executive director and publisher at THP, and I started Torrey House as a way to engender love of the land. In 2010, we worked as volunteers for a week in the fall with Mary O'Brien, a field scientist with the Grand Canyon Trust and the Jane Goodall of the southern Utah National Forests, in assessing damage to cottonwoods, willows, and aspen caused by overgrazing. Mary had us out in the field all day on our hands and knees doing transects and counting browsed shoots. At night, with PCs hooked to car batteries, we gathered around the campfire and entered the data. The overgrazing is bad news, anyone could see it at a glance, but how could we get other people who weren't there with us to see that our public lands are being mismanaged? And care? Was this data going to do it? We felt Mary needed help to share the message. We thought we would take a crack at bringing the power of pen and story to bear, to try to create some cultural empathy via good literature. We launched Torrey House Press that same fall.

Kirsten's endeavors as THP's publisher have brought her together with people and communities working towards the designation and preservation of the new Bears Ears National Monument. She and Steve Trimble took chapbook copies of *Red Rock Testimony* to Washington, D.C., and she is working with Jackie Keeler on an all Native voices anthology, *Edge of Morning*, about the Bears Ears, both titles soon to be released. She was gratified and delighted when, on December 28th, the monument proclamation was announced. And what a beautiful thing it is. The writers of the proclamation, no slouches themselves with a pen, clearly spent some time up between the Ears. Just one short excerpt:

*From earth to sky, the region is unsurpassed in wonders. The star-filled nights and natural quiet of the Bears Ears area transport visitors to an earlier eon. Against an absolutely black night sky, our galaxy and others more distant leap into view. As one of the most intact and least roaded areas in the contiguous United States, Bears Ears has that rare and arresting quality of deafening silence.*

However, as you know, Utah politicians are united in their efforts to undo the Bears Ears National Monument. There is much work to be done to protect our common heritage, and Torrey House authors are a part of that story.



Torrey House – Alpenglow Observatory in progress at its new home in Torrey, Utah. February 2017

My goal for the observatory, once it is put back together and working in its new home, is to sit down with my dad in his basement office in Salt Lake City and run it together remotely from there. We will be able to take images of objects he previously captured from the light polluted hills of the Wasatch front and compare what clear, dark, pollution-free skies have to offer. I don't know what Dad really thinks of it all, what his attraction to the heavens amounts to. Above his desk in his home in Salt Lake are some of his beautiful astrophotos. There is also an idealized image of icons from his religion. I am reluctant to ask. My dad, I am quite sure, would be on the side of Utah's radically conservative politicians on reducing the Monument protects for the Bears Ears, for instance. And his sense of the starry night is likely to be more about proving his faith than of my amazement with nature and science. But out there in the dark and star sprinkled firmament there is this bridge between Dad and me. With it communication can be had, empathy found, gaps spanned, and for that I am grateful.

Thursday, April 20, 2017

## New Street Lights Come to Torrey



COURTESY MARY BEDINGFIELD SMITH

**Courney Cropper replaces high-pressure sodium lights in Torrey with new, warm-white LED lights that featured directed illumination.**

TORREY - Anyone driving through Torrey at night in the last few weeks may have noticed a change in the streetlights. That's because, on March 15, ten old high-pressure sodium lights in town were replaced with new, warm-white LED lights that direct illumination onto the roadway rather than into the sky. This installation came about due to donations of friends and residents of Torrey Town via an on-line campaign to raise over \$18,000 to do just that - replace energy consuming streetlights with energy saving LEDs.

In addition to the monetary support of donors, Garkane Energy and The Entrada Institute played significant roles in the project. Garkane Energy decreased the rate renters pay for street and security lights that are switched to LED lights rated

under 100 watts. Additionally, Garkane Energy linemen Courtney Cropper and Scott Grundy spent many hours taking down the old lights and installing the new ones. Through their dark sky initiative, the Entrada Institute promoted the project to their members and patrons.

There are still a few town lights to be replaced, however, the result of this replacement effort is two-fold. First, Torrey Town will save over \$800 in annual expenses through reduced light rental fees paid to Garkane Energy. Second, this is a major first step in Torrey's efforts to be designated Utah's first International Dark Sky Community.

Torrey and other Wayne County communities already have some of the darkest night skies in the nation. Because we live here and can

step outside every night and see the Milky Way, or Scorpio and Orion, or watch for shooting stars, we may not realize that seeing stars at night is something fewer and fewer

people in the world are able to experience. In fact, over 80% of the people in the United States live in places where the Milky Way is no longer visible at night because of artificial light. Of Torrey's night sky, John Barentine of the International Dark Sky Association says, "What I see here is relatively little artificial light on top of what is otherwise a typically very naturally dark sky. In fact, if Torrey became an IDA Dark Sky Community, it would be among the darkest of the lot."

In a continued effort to monitor the level of artificial light in our area, the Entrada Institute will hold its semi-annual dark sky monitoring citizen science project. The next event will be Friday, April 28. Everyone is invited to participate by gathering that evening at 9:30 PM at the home of Gary Pankow - 146 South 200 East in Teasdale. For more information, contact Gary at 435.491.0222.

—Mary Bedingfield Smith



COURTESY MARY BEDINGFIELD SMITH

**The lights installed meet the public's dual desires of being able to clearly see the Milky Way while in town and having the streets safely illuminated.**

# The Salt Lake

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## **Southern Utah town has starring role in dark-sky movement**

By Dawn House Special to The Tribune

Published: April 21, 2017 09:56AM

Updated: April 24, 2017 11:46AM

Torrey • Gateway town to Capitol Reef National Park is slated to become Utah's first Dark Sky Community.

Torrey • Utah is emerging as a global leader in protecting dark skies from light pollution, attracting visits to the Colorado Plateau that during the next decade are expected to pump \$2.5 billion into rural economies.

Residents in several southern Utah communities have mounted a grass-roots push to retrofit old lighting outside homes, business and public thoroughfares to curb stray beams and save money through more efficient, directed lighting.

Torrey, the gateway town to Capitol Reef National Park, is slated to become the state's first Dark Sky Community, while Springdale, Boulder, Moab, Kanab and the border town of Page, Ariz., are considering or have passed light-curbng ordinances. The Dark Sky Community designation is an award granted so far to only 15 other communities in the United States, Canada, Scotland, Denmark and the Channel Islands.

In addition, the University of Utah has awarded formal recognition to the Consortium for Dark Sky Studies, the first academic center in the world dedicated to discovering, developing and applying knowledge to help protect night skies, according to U. officials. And next year, the university will help sponsor the largest global conference to date, examining the impacts of artificial lights.

Light pollution prompted Torrey resident Mary Bedingfield-Smith to find out what the small town (population 300) could do to curb artificial light. A single streetlight near her home was so bright that it lit up a row of cottonwood trees, spoiling her view of Capitol Reef's star-encrusted sky. She chatted with neighbors on walks and met with town officials with a proposal: Her group would raise money to install new lighting, and the municipality would save more than \$900 in lighting costs each year.

Bedingfield-Smith, a retired elementary-school teacher and Utah State University educator, was able to form a consensus by assuring residents that no one would be forced to replace existing lighting. And her group would pay new lighting costs for those who wanted to retrofit but couldn't afford it.

"People are worried about their specific situation, which is difficult to address in a large meeting," said Bedingfield-Smith, now a Torrey planning-commission member. "When we talk individually, we can discuss specific lighting needs and what can be done to get there. Without individuals and associations working together, the last remaining dark areas on the planet could well disappear without anyone noticing."

In late March, crews replaced traditional bulbs, which spew out beams in all directions, in the town's streetlights along Main Street. Workers from Garkane Energy Cooperative installed new lights using spectra that direct light away from the sky.

Torrey residents turned to online crowdfunding to help pay for eight new streetlights. Nearly \$13,000 was raised through the website ioby.org ("in our backyards"), and the Torrey arts organization Entrada helped raise an additional \$7,000. The donations paid for the town's retrofitted bulbs and new lighting at the Torrey Trading Post and Chuck Wagon store and motel, both on Main Street. Streetlights on 100 North have not yet been replaced, allowing residents to see the different effects on the night-sky view.

The longtime goal is to assist other towns in the sparsely populated Wayne County (population 2,700) to protect its dark skies — from the county seat of Loa along the State Highway 24 corridor leading to Capitol Reef.

Utah has more dark-sky places than any other state or country, but light pollution is eroding this valuable, irreplaceable resource, said John Barentine, program manager for the International Dark-Sky Association. Torrey, for example, has been the single greatest source of light pollution above Capitol Reef. Visitors must hike into the deepest southern reaches of the park to enjoy the most pristine night skies.

"In the American West, small towns emit more amounts of light, relative to their populations, than do large metropolitan areas," he said. "There's also broader support for private-property rights, and a fundamental human fear of darkness. The tendency in rural areas is to light up property in the name of safety and security."

Yet people can be safe and save money by using lights appropriately, advocates say. Simple shields on existing bulbs, for example, direct beams downward, rather than lighting up the heavens. And instead of using expensive all-night floodlights, motion detectors can flash an immediate alert to an intruder.

LED lights are phasing out other types of bulbs, but some of the brightest lamps cast a blue color, creating glare problems. It's suggested that consumers purchase LEDs measured in light output of 3,000 lumens. By comparison, an old standard 100-watt bulb equals about 1,600 lumens. The IDA website lists names of companies that manufacture appropriate lighting. The association also has an IDA Seal of Approval that provides objective, third-party certification for lighting that minimizes glare, reduces light trespass and doesn't pollute the night sky.

The American Medical Association has raised concerns about exposure to blue-rich white LED lighting, which can damage human retinas, create road hazards and disrupt nocturnal animals. The report "Human and Environmental Effects of Light Emitting Diode Community Lighting" recommends "minimizing and controlling blue-rich environmental lighting by using the lowest emission of blue light possible."

Dark skies above Colorado Plateau will have a huge economic impact on Utah, Colorado, New Mexico and Arizona, according to a Missouri State University study. Tourists from around the world will spend nearly \$2.5 billion visiting national parks in the Colorado Plateau, creating more than 52,250 jobs.

Increased visitation will also affect rural areas by providing a steady source of income for local businesses and employees during the off-peak season, according to the study.

"Many in the world have lost their view of the Milky Way," study authors David Mitchell and Terrel Gallaway write. "For them a dark sky is as exotic a sight as a herd of bison or a glacial lake."

The economic impact does not include additional tourism dollars generated from visits to Forest Service or Bureau of Land Management lands, including Utah's Bears Ears or Grand Staircase-Escalante national monuments, the latter of which is larger than the state of Delaware. Cedar Breaks National Monument near Cedar City recently celebrated being designated an International Dark Sky Park, the seventh in Utah to win this honor.

The Colorado Plateau is among the nation's last remaining dark-sky regions. Its low population density, large swatches of public lands, arid climate and high elevation lend themselves to superior night views, said Bettymaya Foott, global coordinator for the U. academic consortium and coordinator for the Colorado Plateau Dark Sky Cooperative, which provides educational materials and promotes initiatives.

“There is social shift toward appreciating the importance of dark skies,” she said. “Today, there is a greater understanding that this is something worth protecting.”

To further dark-sky protections, the U. consortium is bringing together more than 25 universities, industries, community and government partners to take part in researching light pollution. The consortium also has partnered with ALAN (Artificial Light at Night) to host a global conference at Snowbird Ski and Summer Resort in November 2018.

Stephen Goldsmith, consortium co-director and associate professor of city and metropolitan planning at the U., said in a statement when the consortium was announced in February: “The related trans-disciplinary subjects of research, both abundant and complex, make the consortium a critically important resource for communities in the developed and developing world.”

#### Astronomy events

P A sampling of events throughout Utah to see the stars in coming weeks:

Wednesdays, 8 to 11 p.m. • Star Party when skies are clear; University of Utah South Physics Observatory, 115 S. 1400 East, Salt Lake City; free

Thursdays and Saturdays, 6:45 p.m. • Viewing dark skies; Clark Planetarium, 110 S. 400 West, Salt Lake City; \$2

April through May • Citizen science research to study the impact of Salt Lake City’s light pollution on migratory birds; Tracy Aviary, 589 E. 1300 South; contact Cooper Farr, cooperf@tracyaviary.org

Saturday, April 29, 11 a.m. to 2 p.m. • Astronomy Day, Clark Planetarium; free

Saturday, May 6, 6:45 p.m. • Gateway to the Stars program, Clark Planetarium; \$2

May 14-20 • Amazing Earthfest, Kanab; <http://amazingearthfest.com>

## Torrey Town Newsletter

### Did You Know...

- Torrey has had an outdoor lighting ordinance since November of 2015?
- Its goals are to preserve the rural atmosphere and character of our town; to promote energy conservation; to maintain nighttime safety and security; and to prevent unnecessary or inappropriate outdoor lighting?
- Torrey is replacing its streetlights with LED lights that will save the town almost \$900 a year in electricity costs?
- Donations provided all of the money to replace the streetlights?
- The ordinance applies to all exterior outdoor lighting installed after November 2015?
- New constructions, remodels, renovations, and newly acquired properties fall under the umbrella of the new ordinance?
- There are thousands of light fixtures that will keep light pointed down and will also meet your lighting needs?
- If you would like assistance with outdoor lighting questions, Torrey has resources to help?
- 80% of all of the people in the world live in a place where they can never see the Milky Way?
- Our town is one of the best places in the United States to see stars?
- Torrey is applying for International Dark Sky Community designation?
- We will be the 1<sup>st</sup> community in the state of Utah to achieve that designation? And only the 15<sup>th</sup> in the entire world?

We hope residents, business and property owners, neighbors, and friends of Torrey will join us as proud supporters of our efforts to preserve this unique quality of Torrey Town. If you have questions, please contact the town hall at 435.425.3600 or P.O. Box 750027, 100 North 75 East, Torrey, Utah, 84775.



**Family**

**Joe Bauman: A home observatory that's available from across the state**

By Joe Bauman

Published: April 6, 2017 10:10 a.m.



View 3 Items

*Provided by Mark E. Bailey*

*This shows the remote observatory when it was nearly complete.*



It's a night that is cloudy and wet here in the Salt Lake City area. Scanning the astronomy discussion site, [cloudynights.com](http://cloudynights.com), there is an exciting announcement: a bright supernova has erupted in a galaxy that is well-placed in the night sky. You're itching to photograph this cosmic catastrophe — but the weather here is incompatible.

Checking the [Utah charts section](#) of the [cleardarksky.com](http://cleardarksky.com) website, it indicates that for this night alone, southern Utah has a nice clear break in the weather, but the north remains clouded into the forecastable future. You can't possibly pack up, drive to a site in the south, erect and orient the telescope, hook on a camera and begin taking pictures before full daylight tomorrow. What can you do?

If you're like Mark Bailey, you can settle behind a computer, link to your remote-controlled observatory in southern Utah and immediately begin an astrophotography run. Bang! There's the supernova, a bright dot in the galaxy where none was before — blazing brighter than the entire rest of the galaxy, the place where a star exploded and destroyed any nearby planets, the place where a newly formed black hole lurks.



Mark Bailey's "first light" photograph shows the "Leo Trio" of galaxies. Located in the constellation Leo, each is about 35 million light-years away and 100,000 light-years across. | *Mark E. Bailey*

Bailey, who is retired after a career in investment management, spends part of his time based at the family's home in the Millcreek-Holladay area and about a third at their home in Torrey, Wayne County. The town, gateway to Capitol Reef National Park, boasts skies that are among the darkest in the conterminous United States. There, far from the blazing lights of the Wasatch Front, Bailey maintains a fully automated astronomical observatory at his home, which is controlled through an internet connection.

He became interested in astronomy in 1986, when his father, David, an avid observer, took him into the Utah desert to view Halley's Comet through an 8-inch-diameter Celestron telescope. It was fun, he recalled, and he could see the attraction. But he was raising a young family and did not pursue the hobby.

David Bailey, though, dove deep into astronomy, purchasing better equipment and building an observatory in his back yard, which is near the mouth of Little Cottonwood Canyon — it was a beauty, with a revolving dome, shutters, a fine telescope and a great astronomy camera, which he controlled from the basement.

Last August, his father called Mark Bailey and said, "I'd like you to take over the observatory." The son describes how he ended up accepting the challenge in an entry of his blog, Thots and Shots, titled "[Moving Dad's observatory](#)" and online at [hotsandsshots.net](http://hotsandsshots.net):

"The gear my father has is vastly more expensive and advanced than what I am using. What I want is for him to enjoy the fruits of his efforts. But in his mid-80s, he professes that it is getting difficult. Kirsten (Kristen Allen, Mark Bailey's wife) immediately recognized Dad's request as a great honor and gave me the 'get with it' look. I got the picture and said I would move it for him. ...

"My goal is to get the Torrey House Alpenglowl Observatory up and running to the point where my father and I can run it remotely together from his home in Salt Lake City."

Mark Bailey and his son, Nick, took the observatory apart, rented a good-sized truck and hauled it to the property in Torrey.

"We did fill the thing up with the contents and with the dome itself," he said.

"And then I built a new base building." His father's base structure was round, 8 feet in diameter. But David Bailey advised him to make the new base larger than its counterpart, providing more room inside.

"So it's kind of a creative building," he said. "You have to imagine, you need to support an 8-foot-diameter dome on a 10-foot-square building" without dome supports inside the working space.

Then came the task of figuring out how to operate this complicated system, he said. The dome revolves, the shutters open. The telescope aims at a target. An astrophotography CCD camera hangs onto the end of the telescope behind a focusing mechanism, a field rotator and a filter wheel. All are managed by a computer in the observatory, which in turn runs through remote control.

They began the project in mid-August. He and Nick were able to work on it sporadically, assembling the dome in the garage in Torrey, hoisting it to the top of the base building one day, adjusting the bolts on the piers another. They ran an Ethernet cable, put in power, set up mounting plates and carried out a host of other tasks. If this had been a full-time job, it would have been done in two or three weeks of labor. As it was, it took around seven months.

Using the equipment was "a steep learning curve, with lots of trial and error," he wrote. Last week, he took the "first light" photograph, a beautiful view of a set of galaxies in the constellation Leo.

The family is thinking about good uses for the observatory, such as star parties, education, possibly carrying out some citizen science projects. And he intends to get more photographs, using the observatory from both ends of the state.

Besides the remote observatory, Bailey said, he enjoys working with a telescope set up in the outdoors. "I do like being out underneath the stars. ... The fact that I am made of stardust and I'm staring back out at the universe, self-aware, always humbles me and makes me glad to be alive."

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*Joe Bauman writes an astronomy blog at [the-nightly-news.com](http://the-nightly-news.com) and is the vice president of the Salt Lake Astronomical Society, which meets the third Wednesday of every month but December, and is online at [slas.us](http://slas.us). His email is [joe@the-nightly-news.com](mailto:joe@the-nightly-news.com).*

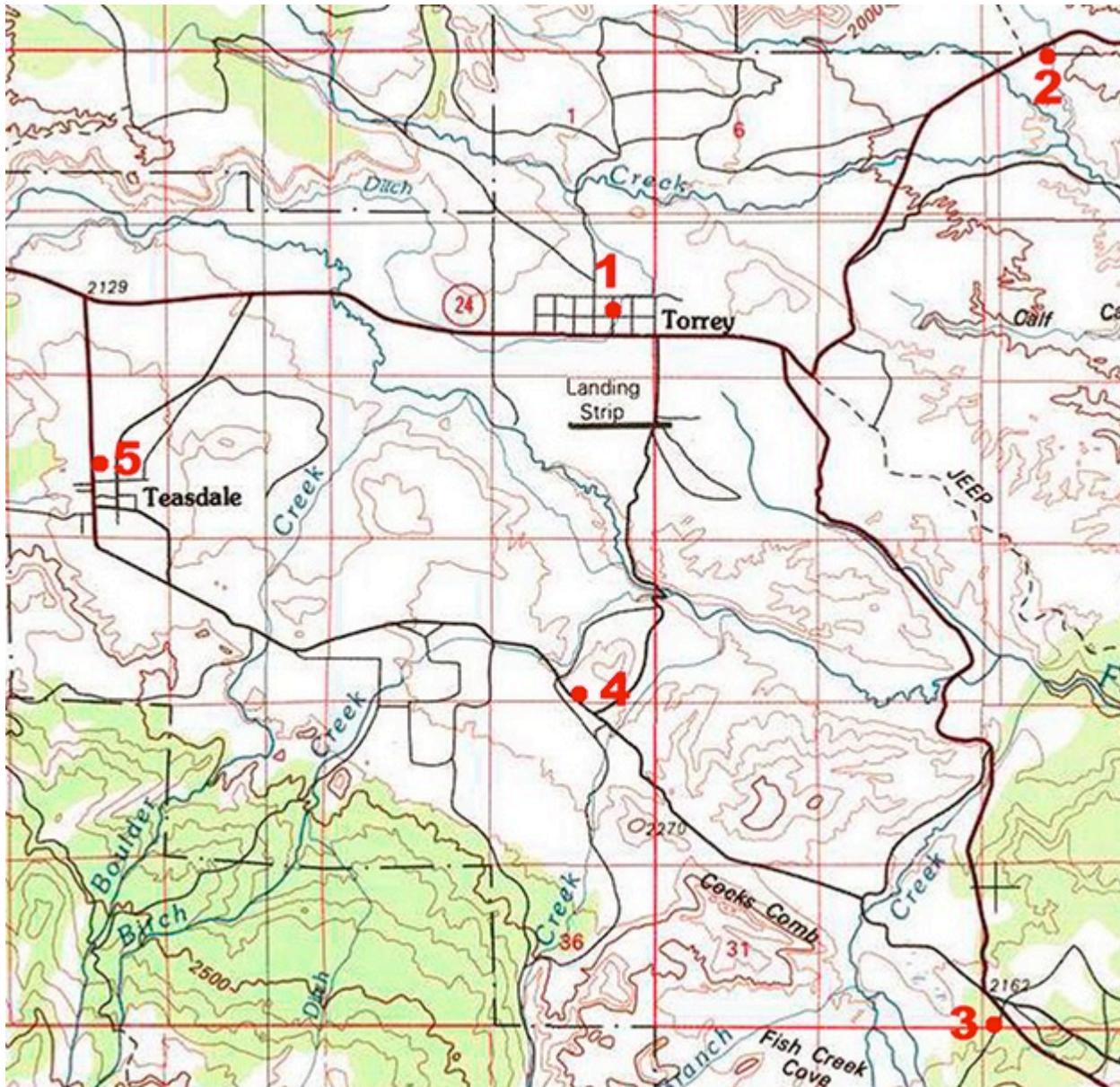
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**Joe Bauman** Joe Bauman has an astronomy blog at [the-nightly-news.com](http://the-nightly-news.com) and is the Salt Lake Astronomical Society vice president, [slas.us](http://slas.us).

## Monitoring Program

The Entrada Institute (<http://www.entradainstitute.org/>), a co-sponsor of the Dark Skies Over Torrey project, has been sponsoring a citizen science sky-brightness monitoring program since 2015. This event occurs two times each year, in April and in September. The all-volunteer team visits five locations in and around Torrey: (1) Torrey's town park, (2) a site between Torrey and Capitol Reef National Park, (3) the junction of State Highway 12 and the Grover/Teasdale road, (4) the junction of 300 East and the Grover/Teasdale road, and (5) Teasdale's town park.

Because Torrey is so small, we measure in town and in surrounding areas. This map shows these locations.



Here is the flyer advertising the 2017 spring event.

# CITIZEN SCIENCE: DARK SKY MONITORING

Sponsored by the Entrada Institute & Capitol Reef National Park

## FRIDAY APRIL 28, 2017

### Who?

People of all ages are invited to participate. Bring a flashlight (red light preferred).

### What?

We'll carpool to 5 locations in the Teasdale-Torrey-Grover area to collect night sky data.

### Where?

The group will meet at Gary Pankow's house in Teasdale (S 2nd St E & E Rustle Street; 2 blocks east of the Post Office).

### When?

Join us **FRIDAY** night April 28.

Gather at 9:30PM.  
Collect at 10:00PM.

### Why?

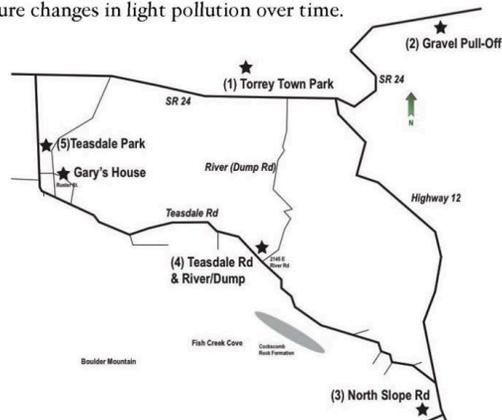
Because the more we know about the night sky, the better we can protect our dark skies.

For more info, contact  
[info@entradainstitute.org](mailto:info@entradainstitute.org)  
<http://www.entradainstitute.org/>



### What Data is Collected?

Elevation, GPS coordinates, temperature, cloud cover, wind, relative humidity, and barometric pressure are recorded. In addition, the **Sky Quality Meter (SQM)** is used to measure the brightness of the night sky in magnitudes per square arc second. The data can be compared with baseline data from a specific location or data from other locations. We collect data during the new moon each Spring and Fall. Communities can use the device to measure changes in light pollution over time.



This photo shows Andrew Kennedy taking measurements and another participant recording data on April 28, 2017.



We submitted our 2015 and 2016 data to John Barrentine and his response.

*Apr 6 at 1:47 PM*

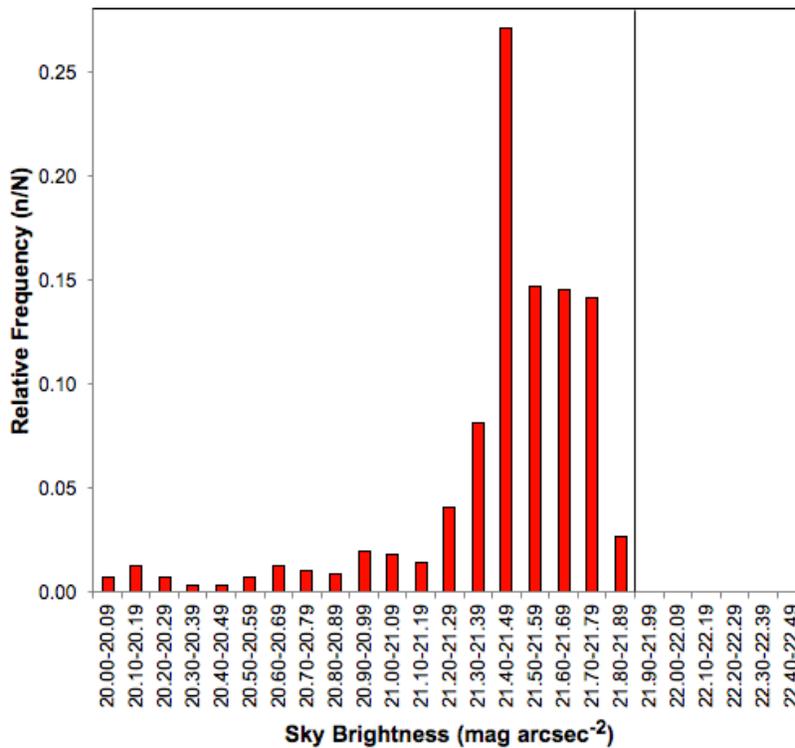
*Thanks very much for this, Mary. There is a lot of useful information here.*

*From the 565 individual measurements you submitted, I calculate an average value of  $21.4 \pm 0.5$  in the units of the SQM, which are called magnitudes per square arcsecond. Bigger numbers mean a darker sky, although the unit is logarithmic (so cutting the number in half doesn't mean doubling the sky brightness — it's a factor of hundreds).*

*Anything greater than about 20 on this scale we would generally call a "dark" sky; in fact, average values of 20 are the threshold to qualify parks for eligibility for IDA Dark Sky Park status. About 98% of your measurements are darker than 20, which is what I would expect. Some of those may have been contaminated by nearby lights, especially those made right in town proper.*

*What's more insightful is to see how the values are distributed. In the graph below, I have counted up the number of measurements in each of a set of bins that are 0.1 unit wide. Then I divide the number in each bin by the total number of measurements. The graph shows how many measurements are in each bin relative to the total.*

### Torrey, UT, zenith luminance measurements



*The bins decrease in brightness from left to right, so the bins are left are brighter skies, and the bins at right are darker skies. The vertical line is the cutoff in sky brightness established by light emitted by the Earth's atmosphere, so that's why there is nothing in the bins to the right of that line.*

*Most of the tall bars are in the darkest bins. What this shows is that Torrey is incredibly dark, basically as dark as Capitol Reef itself. This is in line with expectations for a town its size, and with as relatively little outdoor lighting as it has. The few short bars to the left (brighter sky values) are from lighting in the town itself. So what I see here is a relatively little amount of artificial light on top of what is otherwise a typically very naturally dark sky. In fact, if Torrey became an IDA Dark Sky Community, it would be among the darkest of the lot.*

*This is good support for a strict lighting ordinance in Torrey. It can maintain this level of darkness at night if the use of outdoor lighting is properly restricted, while providing for all the legitimate needs residents have for light at night.*

*Let me know if you have any questions about any of the above.*

Gary Pankow and Larry Johnson collect and report the data collected from our biannual monitoring events.

Gary Pankow  
[Pankow.gary@gmail.com](mailto:Pankow.gary@gmail.com)  
 435.491.0222  
 200 East Rustle Street  
 Teasdale, UT 84773

Larry Johnson  
[larrjoh@gmail.com](mailto:larrjoh@gmail.com)  
 435.425.3415  
 P.O. Box 206  
 Teasdale, UT 84773

## Projects

Torrey's outdoor lighting ordinance was adopted in November of 2015. Since that date, the following projects have been completed or are in the process of completion.

**1)** From July of 2016 to January of 2017, we conducted an on-line crowd sourcing campaign through a platform called IOBY (<https://www.ioby.org/about>).

**The Project** - With this project, Dark Skies Over Torrey, the Entrada Institute can assist the residents of Torrey, Utah in taking the first steps toward becoming Utah's first dark sky community.

Our community goal is three-fold. First we will replace all of Torrey Town's city-supported streetlights with fully shielded, dark-sky friendly, LED lights.

Next, where needed, we'll help Torrey residents replace privately owned lights that are out of compliance with Torrey's new outdoor lighting ordinance.

Finally, we will launch a three-point education effort, which will provide information to local businesses, residents, and tourists about the multiple benefits of dark sky lighting.

One facet of the education program includes a Dark Sky Information Exhibit at the local visitor center and at the future home of the Entrada Center. This will be named for Linton Rohr, a local dark sky advocate who recently passed away.

Additionally, in cooperation with Entrada and the Wayne County School District, 4th graders from Loa Elementary School will be mentored by high school students as they create an interpretive wayside guide and signage along a future biking and walking path. The guide will include information about local plants, animals, and the night skies in Wayne County.

**The Steps** - Mid-July to September 24: Fundraising drive! This is the part where we really need your help. Talk to your friends, family, peers, and colleagues. Remember the words of Ralph Waldo Emerson, "But every night come out these envoys of beauty, and light the universe with their admonishing smile." Help us come up with the funding to make this program possible so everyone can enjoy Torrey's dark skies.

September 30 and October 1: The annual Heritage Starfest encourages people to enjoy the dark skies of the Colorado Plateau, shares the heritage of night skies, and encourages preservation of dark skies. The Entrada Institute and the National Park Service are proud co-sponsors of the festival. During this year's event, we will announce the successful results of the Dark Skies Over Torrey fundraising drive!

November and December: The Entrada Institute will purchase those lights and Garkane Energy will install them.

2017: Begin implementing the remainder of our plan – replacing privately owned Torrey lights, educating our communities, and assisting with the bike and walking path interpretive guides and signage.

**Why We're Doing It** - Torrey, Utah is a remote, small, rural community in the heart of Wayne County. Fewer than 300 permanent residents live here, and fewer than 3,000 people reside full time in the entire county. The large majority of local businesses rely on tourism associated with the surrounding public lands. Torrey is the gateway to Capitol Reef National Park, which has more than one million visitors each year. As a result, Torrey's economic welfare is closely tethered to Capitol Reef and visitors to the Colorado Plateau.

In April of 2015, Capitol Reef National Park was designated a Gold-tier International Dark Sky Park. Torrey residents and citizens from across Wayne County have expressed a desire to hitch their wagon to the Sky Park star by working toward Dark Sky Community designation. This would make Torrey the only Utah community recognized as such!

As a first step in the process, Torrey Town Council recently passed a new outdoor lighting ordinance.

The second step is to replace the town-supported, high-pressure sodium streetlights with Dark Sky approved, fully shielded, LED lights. The success of this campaign makes it possible to take this next big step toward becoming Utah's first Dark Sky Community. The Entrada Institute, Torrey Town, and engaged citizens invite you to join us in bringing darker skies and brighter dreams to Torrey.

As of January of 2017, we have collected donations through IOBY totaling \$12,535. We've collected additional monies through donations to Entrada's dark sky initiative. Altogether we have received almost \$20,000 in donations.

**2)** Torrey has 22 streetlights. A grant provided the funds to replace the seven on Main Street (Highway 24) in early 2015. This was before we understood IDA's temperature limit was 3,000 K. The lights on Main Street are 4,000 K lights. We are hoping a filter will be soon developed so we will be able to affordably address that issue.

On March 15/16, Garkane Energy employees replaced 8 more lights, and we have the funds to replace the remaining 5 lights. The final town lights will be replaced by October 2017.



3) In 2016, Don Gomes and Annie Holt purchased the Dwendon Lee home, which is now The Old House on Center and Main. According to our ordinance, this change in ownership triggered compliance. Don and Annie have been more than willing to install fully shielded lights as they remodel. The business will open on July 22, 2017.



4) This house (the corner of 100 East and Main Street) had a change in ownership in 2016, thus triggering compliance. The owners remodeled the inside, painted the outside, and have since put it up for sale again. All of the exterior lights came into compliance with the remodel.





5) With another change in ownership, this house, located at the corner of 200 North and 300 West, came into compliance with the current remodel. The original lights were the carriage style with clear glass on all sides. The owners (Lani Lila and Harry Dundore) report the nextdoor neighbors to be very happy with the new lights.



6) This property changed ownership prior to Torrey Town’s adoption of a lighting ordinance in 2015. Conversations with a representative of the owners actually led to the ordinance’s writing and adoption. That was because, during discussions related to future development of the house and lot, that representative indicated he would “comply with any ordinances Torrey had in place.” Because there was no history or relationship with the representative, the planning commission worried about what would actually happen during the restoration. To head off any unforeseen developments, the outdoor lighting ordinance was written by the commission and passed by the town council.

As the representative and owner researched the Morrell cabin’s history, they learned Morrell was a founder of Torrey and decided to restore and renovate the house rather than scrape it from the lot and start from scratch. Since then, as they have become members of our community, they have been fully supportive of dark sky efforts in town and, mostly likely, always were.



7) Located at 345 North and 200 West, this house was built in 2016 by Lacey and Jason Grundy. It is a rental. The lights in the front are canned lights over the door. There is one light in the back.



8) Fremont Adventure Guides changed their signs in 2016. A sign change requires lighting associated with signs to come into compliance with the lighting ordinance. The business owner could not afford to change all of the lights, so he rendered them inoperable. Two lights on the east portion of the business were already shielded. There are no other exterior lights associated with the business on the outside of the building.



9) Darrell Mensel, residing at 54 North Center and former planning and zoning chairperson, changed the exterior lights on his house. Following the lighting ordinance requirement “all exterior outdoor lighting installed after the effective date hereof in all zones in the town shall conform to the requirements established by this chapter,” Darrell installed fully shielded fixtures.



10) A new residence at 340 North 175 East placed fully shielded lights at their front and back doors.





**11)** The Torrey Trading Post on Main Street has been in business for many years, so the ordinance essentially grandfathers their lights. The owners are supporters of dark skies and made a donation to our IOBY campaign. They agreed to allow us to replace their security light with a 3,000 K fixture. We will continue the conversation about other lights on the property.



12) Sheri's Hair Salon is part of the Chuckwagon Inn on Main Street. These two business have also been in town for many years and are therefore grandfathered. The Chuckwagon made a contribution to our IOBY campaign and also agreed to allow us to replace the high-pressure sodium security light of the salon. There are many other out-of-compliance lights on the business property including those on the front of the salon. Future conversations will address these lights.



13) John and Kathy are new Torrey residents in the process of completing their house. They've already purchased fully-shielded, ordinance compliant lights.



**14)** The Taft Travel Plaza is at the junction of Highways 24 and 12, about 1 mile east of Torrey Town limits. There have been more complaints about the lights at this business than about lights at any other location in the area. However, the business is in the county, which has no outdoor light ordinance. Because it is outside of town, the plaza is not subject to Torrey ordinances. When the owner (Lee Taft) began a remodel in November of 2016, a few phone calls revealed he was willing to discuss changes in lighting. We learned it was too expensive to redo the canopy, but Lee put shields around all eight of its lights. When he replaced the roof, he installed canned lights in the soffits. What a great improvement! And he didn't have to do it. That's what good neighbors are all about.



15) Slackers, a burger restaurant on the east end of Main Street, changed ownership in 2016. After a conversation between the owner, Larry Blake, and Pete Strasser, Larry shielded the lights on the west side of his business. The neighbor whose living room was previously flooded with light all night long is very happy. Larry has submitted a schedule to the Torrey town hall personnel outlining his plans to address the remaining light issues. For now, he turns off all sign lights each night when the business closes.



## Community Support

Through our campaign to raise money to replace Torrey's streetlights, we had broad support from community residents, property owners, neighbors and friends.

Cache Valley Bank	Gallery 24
Lotus Community Development	Stray Arrow Ranch
Hondoo River and Trails	KWAN Radio
Torrey House Alpenglow Observatory	Torrey House Press
Chip and Linda Ward	Judith Hopkins
Paul Smith	Libby Dietrich
Mark Bailey and Kirsten Allen	Ray Conrad
Bill and Diane Barrett	Amy O'Connor
Maria and J.P Spicer-Escalante	Karen Rohr
Red Sand Hotel	Lee Austin
Bonnie Mangold	Bob and Dianna Poulton
Anne Macey	Diane Borgerding
Wags to Whiskers	Veronica Egan
Scott T. Smith Photographer	Bonnie Kaufman, Realtor
Johanna Wilson	Frances F.
Tyler Ward	Maya Moyozen Hill
Georgia Sullivan	Chris and Kirtly Jones
The Chuckwagon	Lorraine Miller
Jim and Margaret Dowling	Michael Rohr
Terry Fisk	Leigh Von Der Esch
Susan Snow	JaNae Winder
Marci Milligan	Broken Spur Inn
Rick Ash	Circle Cliff Ranch Alpacas
Stephen Trimble	Colleen Dudleston
Brian and Lynette Thorn	Two Arrows Zen
Dick Sullivan	Jennifer Pennington
Lani Lila	Harry Dundore
Robert Marc and Ann Torrence	Torrey Trading Post
Barry and Tiffani Scholl	Jan and Greg
Paula and Rudy Pace	Gary and Pat George
Doug and Karen Bennion	Tom and Lydia Berggren
Rich and Cindy Nigro	Sarah Tal
Annie Holt and Don Gomes	Torrey Town
Jane Erickson	Rod and Eileen Frazier
Arleen Bedingfield	Julia Sati
Jan and Owen Olpin	Scott Berry
Ty Markham -Torrey Schoolhouse B&B	CARE Parkie
John Luther	Karena Rogers
Andy Monaco	Ted Swenson
Steven and Nancy Smith	Darrell Mensel
Linda Peer and John Lee	Justin Garrett Moore
David and Robyn Russell	Glen and Afton Smith
John Benson	Mark Bailey



TORREY HOUSE PRESS  
VOICES FOR THE LAND

March 6, 2017

Mary Bedingfieldsmith  
PO Box 750215  
Torrey, UT, 84775

Dear Mary:

As residents of Torrey, founders and directors of Torrey House Press, and custodians of the Torrey House-Alpenglow Observatory we are delighted to write a letter in support of Torrey Town becoming Utah's first IDA dark sky community.

As residents, we revel in the natural light found here high on the Colorado Plateau. It is a constant show with dramatic clouds and slanting light, but nothing rivals a totally dark, moonless night. In the summer, the Milky Way is so bright its starlight casts a shadow. In the spring and fall, the ethereal Zodiacal light looks like a false sunrise or sunset. Experiencing either is an event of a lifetime. As voters in Wayne County, we are aware of the need for rural economic development and can readily see how Torrey will become ever more of a getaway tourist attraction if it protects, honors, and is recognized for its dark nights.

As directors of Torrey House Press, we often use our home in Torrey as a gathering place for our own and other nonprofit organizations to hold retreats, workshops, and seminars. The dark night skies, a dark like most urbanites have rarely if ever seen, are a key attraction.

As custodians of the newly arrived, research quality, fully automated Torrey House-Alpenglow Observatory, we know the dark skies are an obvious benefit. Research institutions and avid amateur astronomers have to work ever harder to find high, clear, light pollution free skies like we have in Torrey. By keeping the night sky protected, we believe our observatory will be able to make significant contributions to astronomy citizen science for years to come.

Mary, thank you for your work to protect this priceless resource of our dark night skies and for the opportunity to lend our support.

Respectfully submitted,

Mark Bailey

Kirsten Johanna Allen

2806 E Melony Drive  
Salt Lake City, UT 84124  
torreyhouse.org

I have lived in Wayne County for a bit over 20 years now. I have a small acreage on the Fremont River, about 3 miles south of Torrey Town. I came here from north Summit County in northern Utah. My first impressions of my new home along the Fremont River were of the magnificence of the night skies. The stars were brilliant and the Milky Way shown like a Milky Way, a river of brightness and millions of stars, all individual in their splendor. I would sit on the stoop of my front porch for hours at night watching the night sky pass by, stars moving from north to south, now and then a shooting star or a satellite or the International Space Station passing overhead. I could see the stars from my previous home in Summit County, but they were not nearly so bright or defined as they are from my porch in Wayne County.

As I approach my mid 70's, I often recall the bright skies from my childhood, skies unfiltered by atmospheric pollution, whether particulate or from residential and commercial light sources. The starry skies were magnificent and the sky of a fresh spring day was a deep blue; you could see into space. Those skies are gone for most, never to be viewed.

Here in Wayne County, we have a precious resource, and that resource is our dark skies. A child can look to our night sky and see the stars as I saw them as a youngster; a sky they may not see anywhere else.

Mary Bedingfieldsmith's Dark Sky Initiative goes a long way toward protection of Wayne County's dark sky. Folks from other places come to Wayne County and look to the heavens on a dark night and exclaim, "Look at that!" They can see the stars as they have never seen them before and the Milky Way is indeed the Milky Way.

Bob Poulton

June 18, 2017

To: The International Dark-Sky Association  
From: Bonnie Kaufman, TORREY Resident and Business Owner  
Re: My support for Dark Skies Over Torrey and  
My support for Torrey's Dark-Sky Community Designation

Torrey Town is truly a special place of beauty, from desert redrock mesas guarding the gateway to Capitol Reef National Park, to the forested hills of the Boulder Mountains. But Torrey is uniquely beautiful because of its starry skies. My 72-year-old heart skips a beat every time I see the glow of the Milky Way core rising from behind the silhouettes of hills where I know there is no nearby city to explain the intense brightness of this glowing. It is eerie, breathtaking and spiritual!

Torrey has been the favorite vacation and camping destination for my family since my childhood years as we escaped big Salt Lake City to see the stars. There were neither motels nor restaurants closer than 10 miles away in Bicknell. I dreamed of someday designing a glass house in Torrey so I could see the stars at night from my own living room! That dream finally came true for me eighteen years ago when I designed and built a custom glass home which is now my primary residence at the north edge of town.

I am also a business owner in Torrey, a self-employed Realtor still helping buyers and sellers with real estate sales after more than 28 years in this rural setting. The dark skies of Torrey are a compelling reason why so many people wish to vacation or retire in this beautiful location. We ALL want the same thing... preservation of the dark skies! I and many others are supporting efforts to keep these Torrey skies dark, and we hope you will find Torrey worthy to be designated an International Dark-Sky Community.

Bonnie Kaufman, Realtor / TierOne Real Estate LLC  
435-425-2020 Torrey home / 801-557-8188 Cell Calls and Texts  
Email to [bonnie\\_kaufman@hotmail.com](mailto:bonnie_kaufman@hotmail.com)

March 5, 2017

Dear Dark Skies Over Torrey Committee:

I am writing to support the application for Torrey, Utah to be listed as an IDA Dark Sky Community. In the 20 years that I have lived in my solar powered home, four miles south of Torrey, I have witnessed increased light pollution in the town and the commercial intersection of highways 12 and 24. This area has been dubbed "The Disfunction Junction" because of the light pollution emanating from businesses.

It is heartening to see activists in our community tackling this issue, preserving the wonderful experience of living in such a beautiful area.

Thank you for your consideration.

Sincerely

BRIAN SWANSON

PO Box 77

Teasdale UT 84773

To whom it may concern,

We lived in Capitol Reef National Park from 1974-1978. Before we moved north to Salt Lake to raise our children and make our careers, we bought land in Torrey. Twenty-eight years later in 2007 we built on that land and retired there fulltime. The spectacular scenery, clean air and water, and the abundant opportunities to recreate were obvious draws but so was the incomparable night sky, a feature of this place that is only recently getting the attention it deserves.

We can see the Milky Way, constellations, meteors, and a sparkling lattice of thousands of stars that most people in America cannot see. We have a pristine and timeless window into the universe. While living in Torrey over the last ten years, we have hosted scores of guests from across the globe and without a single exception they have praised the night sky as an awesome experience. For most it was the first time they have seen the Milky Way. As one guest exclaimed, "It doesn't just astonish, it changes you." No doubt, many of the tourist who visit Torrey each year and are the lifeblood of the local economy have the same responses as our guests.

Regardless of whether we were born here, moved here, or just visit when we can, the homeowners of Torrey appreciate our unique perspective on the night sky and want to keep it and share it. Although we express some of the differences that are dividing people in this unfolding partisan era in our nation's history, our appreciation of the unique dark sky and our desire to share it with all who visit here and then pass that to our children and their children unites us. Our common ground is the sky. The campaign to get dark sky designation has been a model for pursuing a shared community goal in an inclusive, considerate, and transparent way. We want to express our strong support for Torrey's designation as a Dark Sky Community, not only because we want to protect a precious and unique experience but to validate and encourage a stellar civic project.

Please, help us keep it dark.

Chip and Linda Ward  
P.O. Box 750232  
Torrey, Utah 84775

March 6, 2017

To Whom it May Concern:

After many years of city living, I have retired to a very special place in the high desert red rock country of south central Utah. We are at 6800 feet in an exquisite wind swept area where there is about one person per square mile and the pioneering spirit is alive and well.

Nothing is more wonderful than the amount of time we spend in the great outdoors. We garden, we hike, we fish, we take photographs, we paint, we walk our dogs and we breathe crisp, clear air without industrial fragrances. My home is a cluster of little buildings requiring frequent outdoor hops from one to the other. We are surrounded by dramatically racing clouds in crazy formations, rain which may not touch the ground and a firm sense that we have no control over any of it!

But night is spectacular. When the sun sets and the shadows disappear, we are completely enveloped in a dense blackness which I have never before experienced. But no matter- because we have zillions of sharp silvery stars to keep us intrigued. Visitors are heard to remark that they had no idea there were so many stars and what is that dense shimmering swath? It's the Milky Way-which has never been so visible to them before!

Our Dark Sky Community designation is so important. With a town full of neon, lighted signage and overwhelming street lamps, our sky would take a back row seat. We would rejoin the city dwellers who can barely make out that Milky Way! We want to be certain that every person who visits Torrey, Utah, can enjoy every single sparkle in the sky-forever.

Thank you,

Diane W Barrett  
Torrey, Utah

**ANNIE HOLT & DON GOMES**

581 Red Gates Lane

P. O. Box 750037

Torrey, UT 84775-0037

(435) 425-3682 (h)

[annieholt7@yahoo.com](mailto:annieholt7@yahoo.com); [dongomesak@yahoo.com](mailto:dongomesak@yahoo.com)

March 14, 2017

To: International Dark Sky Association

The beauty of Torrey and Wayne County during daylight hours is exquisite. Red rock, sweeping landscapes, pastoral views, forested mountains, and water features are just a few of the visual and physical wonders.

Then, as day gives way to evening, an unparalleled transformation takes shape. On clear, moonless nights, the grandeur of the galaxy unfolds and provides visual treasures that many in the world never see. Stars, planets, constellations, the Milky Way...all burst into view to the delight of residents like us and the many welcome visitors.

For over 20 years, we have been property owners in Torrey, Utah. Two years ago, we were pleased to live our dream and move here permanently. We are starting a new business at "The Old House at Center and Main" in Torrey. The works of local handcrafters and authors will be featured. We are proud to showcase the work of these talented people.

Our pride extends to the Dark Skies Over Torrey campaign which has successfully raised funds to replace all of Torrey Town's city-supported streetlights with fully shielded, dark-sky friendly, LED lights. Future efforts to help privately owned lights comply and a vigorous education campaign will ensure a "Dark Skies" future.

We were pleased to contribute to that effort and look forward to Torrey's designation as an International Dark Sky Community. This will be a perfect match with our neighbor, Capitol Reef National Park, who was designated a Gold-tier International Dark Sky Park in 2015.

With Dark Sky respect,

  
Annie Holt

  
Don Gomes



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**The Entrada Institute, Inc.**

PO Box 750217 70 South 200 West Torrey, Utah 84775  
entradainstitute.org info@entradainstitute.org

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June 22, 2017

As the President of the Entrada Institute, I strongly support Torrey Town's application for the IDA Dark Sky Community designation.

Our organization has a twenty-year history serving the Torrey area community as an educational center to further public understanding and appreciation of the Colorado Plateau. In 2009, we held our first forum to discuss the importance of preserving the dark skies of south-central Utah. Since that time, we've worked with the local community including Torrey on a variety of protection, preservation, and restoration projects related to dark skies.

Since 2010, our annual Heritage Starfest has been used to promote dark sky education. This family-oriented, two-day fall festival features programs that explore dark skies as a valuable community asset. Over the years, this festival has included traveling planetarium exhibits, award-winning films, children's activities, dark sky storytelling, and night walks, in addition to traditional constellation tours, telescope viewing, and other educational activities. The event now includes Capitol Reef National Park as a co-sponsor as well as other local partners.

In 2014, The Entrada Institute was awarded a National Park Service Challenge Cost Share grant from the Outdoor Foundation. This grant involved working with Capitol Reef National Park on projects to support dark sky awareness. Our Citizen Science: Dark Skies Monitoring program emerged from this grant. Each Spring and Fall, members of the community come together to measure the brightness of the night sky and to track progress in our quest to reduce area light pollution in the Torrey-Teasdale-Grover gateway corridor to Capitol Reef National Park.

As a professional educator, I feel strongly that the Entrada Institute and our local partners have both the expertise and educational resources in place to continue providing outstanding dark sky community programming geared to the needs of both local residents as well as the thousands of ecotourists who visit our area. The local partnerships we've carefully built and nurtured with Torrey Town over many years provide us with the foundations needed for strong collaborative programs that promote the ideals of the IDA.

I strongly urge you to support Torrey Town's request for the IDA Dark Sky Community designation.

Sincerely,

Annette Lamb, Ph.D.  
Entrada Institute, President

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GALLERY 24  
PO BOX 750368  
TORREY, UT 84775  
435-425-2124

March 6, 2017

To Whom It May Concern:

On behalf of the owners/partners of Gallery 24, a business located in Torrey, Utah, we heartily support the designation of Torrey for IDA Dark Sky community designation.

One of the attractions to our area is the viewing of night skies. This brings tourists to our community and thus increases our business visitation and ultimately our sales.

Sincerely,

For Gallery 24  
Patricia Priebe-Swanson, Owner/Partner



May 22, 2017

International Dark-Sky Association  
3223 North First Ave.  
Tucson, AZ 85719

To Whom It May Concern:

I am sending this letter in strong support of the effort and application to recognize the town of Torrey, Utah as a Dark Sky Community.

Garkane Energy Cooperative provides electricity to the town of Torrey and to our members who live there. We have been actively working with a determined and focused group of concerned citizens in Torrey who want to maintain the quality and beauty of this exceptionally appointed landscape. We have found the citizens of Torrey to be strongly committed to enhance and maintain the night time beauty of the community as well.

Through the efforts of the Dark Sky organizers in Torrey, Garkane has learned much about the benefits of the designation but more importantly, we have realized the tangible economic benefits that come by conserving energy and becoming more efficient. For us, Dark Skies provides these and many more benefits.

Garkane Energy serves one of the largest areas in the United States that provides mile for mile, some of the most beautiful attractions in the world. Visitors in the millions from every nation visit Torrey each year. Incorporating the Dark Sky attraction in Torrey with the natural beauty of multiple National Parks and Monuments in our area, brings clean and sustainable tourism revenue and an exceptional night time window to the heavens.

We believe the International Dark-Sky Association would be well served to accept Torrey Utah into the growing and important list of community members.

Sincerely,

Dan McClendon/CEO  
Garkane Energy Cooperative

**DON GOMES**  
**COLOR COUNTRY COMMUNITY RADIO**  
581 Red Gates Lane - P. O. Box 750037  
Torrey, UT 84775-0037  
(435) 425-3682 (h)  
[don@kwanradio.com](mailto:don@kwanradio.com)

March 15, 2017

To: International Dark Sky Association

From its earliest days, Torrey has been a community that makes lemonade out of lemons and gets (the right) things done.

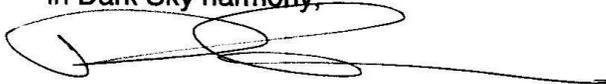
Beautiful mountains and valleys, pastoral scenes, and opportunities for recreational and agri-business pursuits are abundant. The wonderful people of Torrey accept the privilege to serve and address needs whether animal rescue, taxpayer information, arts and culture, or community radio.

When the Dark Skies Over Torrey campaign began, many supported the concept and to contribute financially. This is truly a broad-based effort.

As the visual and physical treasures of Torrey and Wayne County darken and the wondrous sky reveals the sparkling heavens, it is breathtaking. Stars, constellations, planets, the Milky Way...all a gift to those who view them here in Torrey. I've stood at the farthest reach of Alaska, at the equator and elsewhere. The Dark Sky of Torrey is a worldwide player.

It is a point of great pride that Capitol Reef National Park was designated a Gold-tier International Dark Sky Park in 2015. I look forward to a favorable decision to designate Torrey as an International Dark Sky Community.

In Dark Sky harmony,



Don Gomes, President

Lorraine Miller  
1500 E. 2000 So.  
Teasdale, Utah  
84773  
[lormiller@mac.com](mailto:lormiller@mac.com)

June 6, 2017

International Dark Sky Association

To Whom It May Concern:

I am writing in support of a 'Dark Sky' designation for Torrey, Utah.

Efforts made in the last few months to hood lights, remove unnecessary lights and encourage the use of 'dark sky' friendly lighting materials, have made a huge difference. My home looks down on Torrey from a 3-mile distance and all the glaring lights are gone.

I have an amazing view of the Milky Way. Friends come from across the U. S. with their telescopes to enjoy a sky they can no longer see from their own homes because of light pollution.

Thanks to the Entrada Institute and Scott and Mary Bedingfield-Smith for their hard work.

Thank You,

Lorraine Miller



United States Department of the Interior  
NATIONAL PARK SERVICE  
Capitol Reef National Park  
HC 70 Box 15  
Torrey, Utah 84775



IN REPLY REFER TO:

October 21, 2016

Dr. Annette Lamb, President  
Entrada Institute  
125 West Main #101  
P.O. Box 750217  
Torrey, Utah 84775

Dear Dr. Lamb:

I would like to express my appreciation of the Entrada Institute's commitment to and support of Dark Skies in and around Torrey, Utah. Capitol Reef National Park had no greater support than from the Institute in our pursuit of becoming an International Dark Sky Park. Through your citizen science program, your participation in the annual Heritage Starfest event and your campaign entitled, "Dark Skies Over Torrey", together, we have done an outstanding job of promoting those amazing dark skies that can only be found over the Colorado Plateau. Thank you for the great work you do for Wayne County and the strong partnership you have built with the park. We look forward to continuing to work together on projects that support science, education and arts, across the county.

Sincerely

Leah McGinnis  
Superintendent, Capitol Reef National Park

Thank you very much for considering Torrey's application for International Dark Sky Community designation.

Questions about this application may be addressed to

Mary Bedingfieldsmith  
[marybedingfieldsmith@yahoo.com](mailto:marybedingfieldsmith@yahoo.com)  
435.425.2228  
140 East 100 South  
P.O. Box 750215  
Torrey, Utah 84775

and

Mark Bailey  
P.O. Box 750196  
733 South River View Drive  
Torrey, Utah 84775  
[mark@torreyhouse.com](mailto:mark@torreyhouse.com)  
801.810.9847