

# Windows to Wildlife



Millions of birds die by colliding into needlessly illuminated buildings every year. The Fatal Light Awareness Program of Toronto, Canada, annually displays these victims of light pollution to raise public awareness.  
© 2009 Kenneth Herdy.

## Dark Skies: A Vanishing Natural Resource

Written by Beth Waterbury\*

Regional Wildlife Diversity Biologist, Idaho Dept. of Fish & Game- Salmon Region

For millions of years, animals have relied on Earth's predictable rhythm of day and night. This dark-light cycle governs many life-sustaining behaviors encoded in the DNA of all animals. In the mere span of the last century, the increasing proliferation of artificial lights has transformed the nighttime environment over large portions of Earth's surface, not only obscuring our ability to marvel at the heavens, but also causing disruptions to animals dependent on the darkness of night.

The intrusion of artificial light on the nighttime setting is known as "light pollution." This phenomenon is pronounced around urban centers, creating "sky glow"—the scattering of light by clouds and atmospheric particles that makes it difficult to see stars and other features of the night sky. Light pollution also includes any outdoor light that creates glare (excessive, discomfiting brightness), clutter (bright, excessive grouping of light sources), or light trespass (intrusive light). Its sources include building exterior and interior lighting, billboard advertising, commercial properties, offices, factories, streetlights, and illuminated sporting venues. These sources can produce "ecological light pollution," which is artificial light that alters the natural patterns of light and dark in ecosystems.

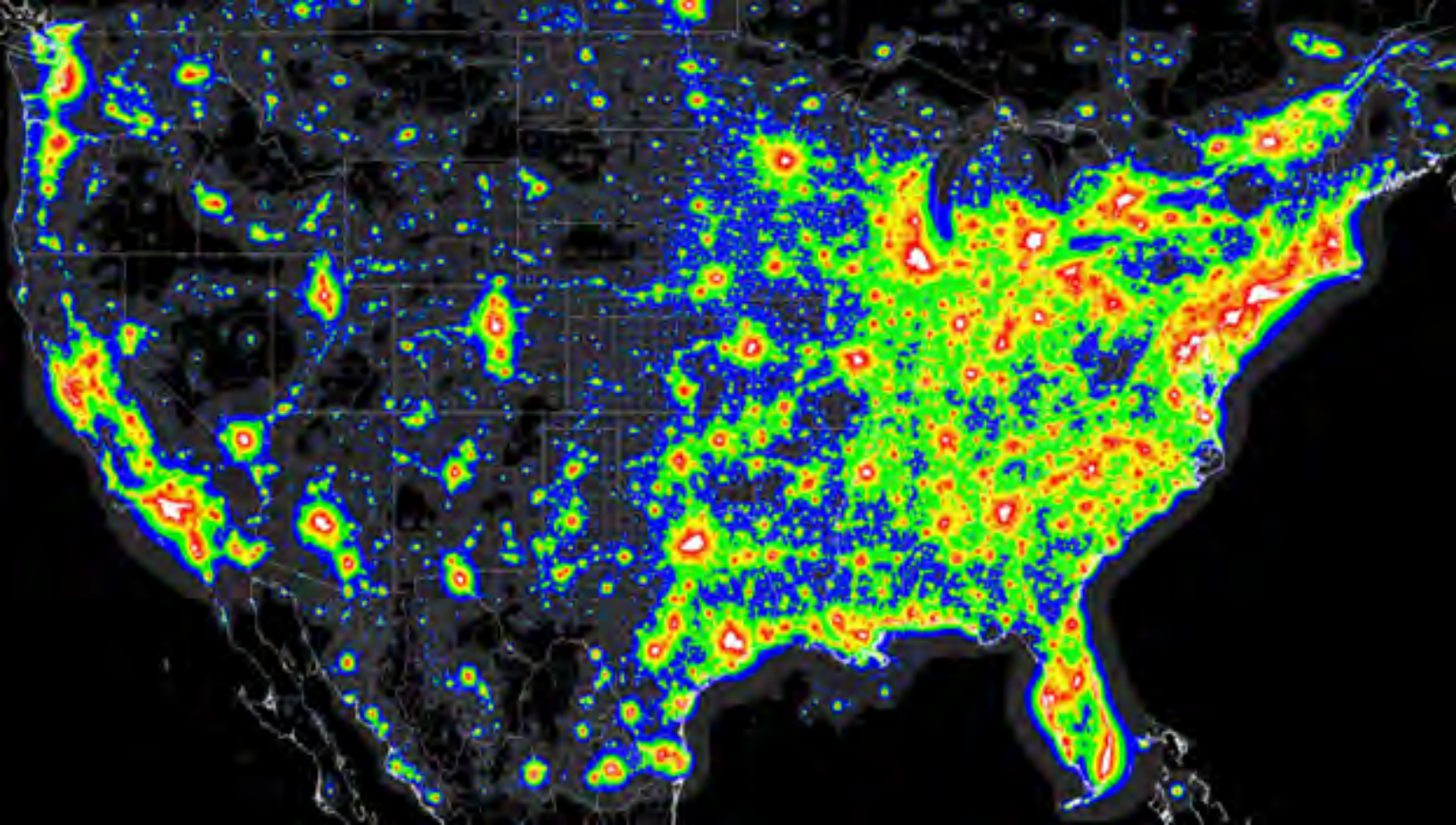
Ecological light pollution is a potent influence on the behavioral and community ecology of organisms in natural systems. Light pollution causes disorientation, and attraction to or repulsion from the altered light environment, which in turn may affect how animals move about, communicate, find food, and even select mates.

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Light pollution in the United States © 2008 Lead Dog Consulting, © Image NASA, © Europa Technologies, © Tele Atlas

Birds have been migrating great distances for millennia, navigating by the sun, moon, and stars, prominent landmarks, and the Earth's magnetic field. Many species have evolved to migrate at night when they are less vulnerable to predation and skies are usually less turbulent. Night-migrating birds rely, in part, on the moon, stars, and setting sun to orient themselves on their migration routes.

Migrating at night, birds are attracted to brightly-lit tall buildings and other structures. Often, they collide with lighted buildings, or become entrapped in a maze of tall buildings before later dying of collision or exhaustion. These dangers are magnified on foggy or rainy nights when cloud cover is low and birds migrate at lower altitudes. In part due to light pollution impacts, building collisions are among the top anthropogenic threats to birds, killing an estimated 365 to 988 million birds annually in the U.S.

As nocturnal animals, bats are particularly sensitive to light pollution. Studies have shown that external artificial lighting delays the onset of the evening emergence of bats and, as a consequence, shortens their feeding time. Some bats avoid illuminated areas. Such avoidance not only reduces available habitat, it obliges bats to take detours that may involve increased energetic costs and greater predation risk. Other bat species congregate at street lights that attract nocturnal insects. This can benefit bats, but may also increase the risk of predation by owls, domestic cats, and even diurnal predators such as hawks, crows, and gulls.

Many amphibians have excellent nocturnal vision. High intensity artificial light can cause temporarily blindness in some frogs, toads, and salamanders and return to a dark-adapted state may take hours. Studies reveal that female frogs are less selective about mate choices and frogs silenced their breeding choruses when light levels increased, presumably to avoid the increased predation risk of mating activity. With the exception of sea turtles, few studies have examined the effects of artificial light on free-ranging reptiles. Sea turtles may be the "poster child" for managing light pollution. Once-dark beaches now dazzle with the bright lights of coastal development. Where hatchling turtles would naturally orient toward the brighter, more reflective sea horizon, they may instead crawl towards streetlamps, illuminated parking lots, and buildings, eventually succumbing to exhaustion, dehydration, or predation.

Bortle Dark-Sky Scale		
Color	Bortle Class	Sky Description
Black	1	Excellent dark sky site
Dark grey	2	Typical truly dark site
Blue	3	Rural sky
Green	4	Rural/suburban transition
Yellow	5	Suburban sky
Orange	6	Bright suburban sky
Red	7	Suburban/urban transition
	8	City sky
	9	Inner city sky

Fortunately, concern about light pollution and its ecological impacts is rising dramatically. A growing number of scientists, homeowners, environmental groups, and civic leaders are recognizing the night sky as a natural resource as worthy of protection as an old growth forest or a scenic river. And the good news is that light pollution can be reversible.

Too often, light pollution is largely the result of bad lighting design, which allows artificial light to shine outward and upward into the sky where it's not wanted. Research and development efforts have focused on new lighting designs and lamp technologies that efficiently direct light where it is needed, resulting in less wasted light emitted and the added benefit of energy savings. Light pollution is also being addressed through a growing number of local and regional ordinances aimed at regulating lighting practices on a large scale, controlling operating periods, and selecting lights that avoid glare and obtrusive up-lighting. These community-driven solutions conserve energy and energy costs, reduce unwanted light on adjoining properties, improve human safety, and protect wildlife breeding and migration habitats.

In North America there are numerous "Lights Out" campaigns patterned after highly successful programs in New York City, Chicago, Toronto, and Boston, to help protect birds from colliding with buildings. These programs urge building managers to voluntarily flip the off-switch at night during spring and fall migration seasons. Toronto's Fatal Light Awareness Program has demonstrated reduced number of birds killed from building collisions as a result of reduced nighttime light emissions, with side benefits of lower costs and CO<sub>2</sub> emissions due to reduced electricity consumption.

Light pollution can also be curbed at the individual level. The International Dark-Sky Association (IDA) recommends 5 ways to make a difference in conserving the night sky:

1. Install lighting only when and where it is needed.
2. Use energy saving features such as timers, dimmers, and motion sensors on outdoor lights.
3. Make sure your lighting is shielded so light shines down, not up. Encourage good lighting at your workplace, too.
4. Educate your family, friends, and neighbors about the importance of good lighting for the environment.
5. Visit [www.darksky.org](http://www.darksky.org) for public outreach materials, IDA publications, where to find dark sky friendly lighting, examples of community lighting ordinances, and many other helpful links.

At present, large swathes of Idaho boast some of the darkest skies on Earth and comprise an irreplaceable heritage to preserve for future generations. Natural night should be accessible to all, be it frog, bird, bat, or human, as every one of us shares just one night sky.



Collision in the night skies ©  
Fatal Light Awareness Program  
(December 3, 2015) Facebook  
photo.



# NONGAME WILDLIFE CONSERVATION FUND

Help conserve Idaho's wildlife and their habitats.

The Idaho Department of Fish and Game receives no state tax dollars and nongame wildlife receive no revenue from the sale of hunting and fishing licenses.

By making your tax-deductible contribution, you are helping to protect over 90% of Idaho's wildlife diversity as well as supporting important conservation education and watchable wildlife programs.

Do something wild and donate today!



Burrowing owl © Mike Morrison

## Donate Today!

Idaho Tax Form 40, Line 33

Check It and Protect It!

## Bald Eagles Flock to Wolf Lodge Bay for Abundant Kokanee

by Carrie Hugo\*, Wildlife Biologist, Bureau of Land Management

Each year bald eagles congregate in Wolf Lodge Bay on Lake Coeur d'Alene to take advantage of the annual kokanee spawn, taking advantage of the easy meal the spawning fish provide and putting on a spectacular display along the lake shore for the public's viewing pleasure. Bald eagle numbers increase through early December with the peak numbers occurring during the second and third weeks of December. By the middle of January however, most of the eagles have moved south to their wintering grounds.

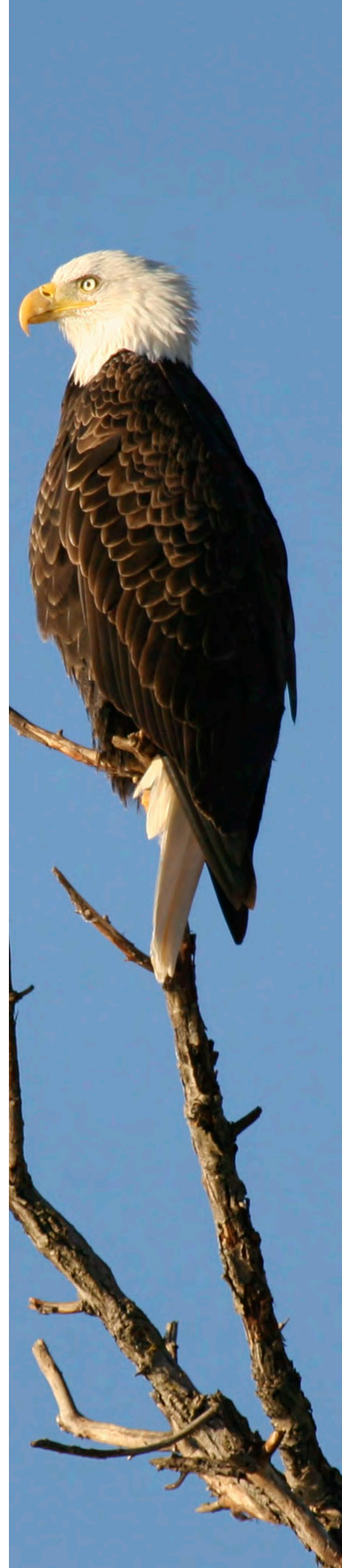
To take advantage of this unique viewing opportunity, plan to visit the Bureau of Land Management's (BLM) long-established Eagle Watch Week. From December 27 through December 31, the BLM, Idaho Fish and Game, and local Audubon members provide two interpretive sites for the public to experience premiere eagle watching. The BLM's Mineral Ridge boat launch and the Mineral Ridge Trailhead parking area welcome eagle watchers of all ages. Spotting scopes, mounted displays of bald and golden eagles, informational brochures and signs and "eagle experts" are available to answer all kinds of eagle questions. This year will be the 25th anniversary of Eagle Watch Week!

If last year's high count of 140 eagles is any indication, there should be an abundance of eagles to view. The record high count occurred in 2011 when 273 adult and juvenile eagles were counted in one day! The accuracy of eagle counts is always a question, and is in fact one of the most commonly asked questions during the Eagle Watch event. Each week during "eagle season", a BLM biologist records the number of eagles along a set route and set viewing points. Weather plays a big factor in the counts as the adults, with their bright white heads, blend in easily with snow-covered tree branches. But the immature or juvenile birds are all brown and stand out more against the snowy white trees. The opposite is true when there is no snow on the trees. Bright white adults stand out while immature birds are camouflaged amongst the branches.

Historically, eagles began making their appearance in Wolf Lodge Bay around the second to third week of November. Their numbers rose exponentially for the next three to four weeks and then began to fall as the kokanee spawn came to a close in late December and early January. However, the vastly improved kokanee spawn on Lake Pend Oreille is changing the behavior of bald eagles during their winter travels through the Idaho Panhandle. Because the eagles are coming from the interior portion of British Columbia, they encounter Lake Pend Oreille first. In the past, they just flew on by because the number of spawning kokanee on Lake Pend Oreille was just not worth stopping for. In recent years, that has changed dramatically! Efforts by Idaho Fish and Game to bring back the struggling kokanee population in Lake Pend Oreille have clearly been successful and now the eagles are beginning to stop and linger in places like Bayview and Buttonhook Bay on the massive lake's south shore. This stopover has created a noticeable shift in the arrival date of the eagles to Lake Coeur d'Alene. Over the past two seasons, the eagles have not begun arriving to feast on the spawning kokanee in Wolf Lodge Bay until early December.

But worry not! There will still be plenty of eagles to view in Wolf Lodge Bay and eagle watching makes for a great holiday tradition! With family in town and the kids out of school, what could be more fun than viewing the regal and stunning show the bald eagles put on during their annual visit to Lake Coeur d'Alene?!

To get to the "Eagle Watch" sites, take Exit 22 on I-90 and follow the road south around Wolf Lodge Bay. The boat launch site will be visible from the road; and Mineral Ridge trailhead is just a half-mile further down the road. For more information about Eagle Watch, call 769-5004. Follow the BLM's Coeur d'Alene District webpage for the latest eagle count numbers and additional information on Eagle Watch Week: [blm.gov/g3ld](http://blm.gov/g3ld)



# Winter Wildlife Events

## Coeur d'Alene Eagle Watch

Each winter from November through January a migrating population of bald eagles visits the Lake Coeur d'Alene area to feed on spawning kokanee salmon. The BLM began counting bald eagles around Wold Lodge Bay in 1974. The number of eagles returning to this area varies from year to year.

From Coeur d'Alene, travel southeast on I-90 for 7 miles. Turn onto ID 97 south. Suggested viewing spots are Higgins Point, Mineral Ridge Boat Ramp, and Mineral Ridge Trail head.

Learn more and follow the action of the weekly counts: [bit.ly/CDAEagleWatch](http://bit.ly/CDAEagleWatch) #CDAEagleWatch and [www.blm.gov/id/st/en/environmental\\_education/BLM-Idaho\\_nature/Mineral\\_Ridge\\_Wolf\\_Lodge\\_Bay.html](http://www.blm.gov/id/st/en/environmental_education/BLM-Idaho_nature/Mineral_Ridge_Wolf_Lodge_Bay.html)

## Craters of the Moon National Monument and Preserve

18 miles West of Arco on Hwy 20/26/93; (208) 527-1335

[www.nps.gov/crmo/index.htm](http://www.nps.gov/crmo/index.htm)

### Loop Road is Closed but We're Open for Winter!

Winter has arrived at Craters of the Moon and the dark lava rock now wears a mantle of white. The loop drive is closed to automobile travel but there are still many excellent opportunities to explore the park. Join us for the following winter activities and events:

### January 9, 16, 23, 30 and February 6, 13, 20 - Winter Snowshoe Adventures

9:30 a.m. - 3:00 p.m.; Explore a cooler side of Craters of the Moon on a Ranger guided Winter Snowshoe Adventure. The day begins with a 30-minute classroom session followed by several hours out in the park on snowshoes. Look for tracks and climb a volcano on this 2-4 mile trek. Bring a lunch. Snowshoes are available for complementary use (donations accepted). Reservations are required and participants need to be at least 10 years of age for this moderately strenuous walk. Call 208-527-1335 or email ([crmo\\_information@nps.gov](mailto:crmo_information@nps.gov)) early to sign up for these popular excursions.

### Mid-December through February (depending on snow conditions)

The 7 mile loop road will be groomed for skiing as soon as snow pack allows and there are no entry or user fees. Most of the Winter Trail follows relatively level terrain and can be completed in 2-4 hours. There are also excellent opportunities for snowshoeing throughout the park including our 1.5 mile snowshoe loop. Please note that pets are not permitted on any of our winter trails.

Visit the website for maps and current conditions: [www.nps.gov/crmo/planyourvisit/winter-activities.htm](http://www.nps.gov/crmo/planyourvisit/winter-activities.htm)

## Foothills Learning Center

3188 Sunset Peak Rd., Boise; (208) 514-3755

[www.cityofboise.org/Bee/Foothills/index.aspx](http://www.cityofboise.org/Bee/Foothills/index.aspx)

### January 6 - Birding Series with Terry Rich: Who's Here Now

9-10 a.m.; No pre-registration; free; please leave pets at home. Bird books and binoculars are available to borrow. Free! What other birds are wintering in Idaho, in addition to birds on our feeders? Terry will talk about where you can go to see birds that are year-round residents and overwintering populations.

### January 9 - Second Saturday Series: Crystals, Snowflakes, and Avalanches!

10 a.m. - 1:00 p.m.; No pre-registration; free; please leave pets at home. Take a journey inside the snowpack with a snow scientist! Explore the layers and crystals and understand how avalanches happen. Watch an avalanche simulation, and see the equipment used in avalanche safety and rescue! Learn how the Idaho Snow Survey monitors snow in the mountains and uses this information to predict stream flow throughout Idaho.

### January 13- Sunset Series: Winter Night Skies

7-8:30 p.m.; No pre-registration; free; please leave pets at home. Join Dr. Paul Verhage, Chemistry and Engineering instructor with the Treasurer Valley Math and Science Center and dedicated Street Astronomer, who joins us again after our very successful Autumn Star Party. He'll guide us around the winter night skies and provide the latest updates from the world of Astronomy. Weather permitting, we'll head out our back door to stargaze.

### February 3 - Birding Series with Terry Rich: State of the Birds

9-10 a.m.; No pre-registration; free; please leave pets at home. Bird books and binoculars are available to borrow. Free! So how are bird populations doing? What is the overall state of birds worldwide? Which species are doing OK and which need help? Learn a bit about how populations are assessed and prioritized for conservation action and efforts. We'll be looking at the following programs: Partners in Flight, Joint Ventures, the North American Bird Conservation Initiative, BirdLife International, National Audubon Society, American Bird Conservancy and the American Birding Association.



# Winter Wildlife Events

## February 10- Sunset Series: DIY Upcycled Valentine Cards

7-8:30 p.m.; No pre-registration; free; please leave pets at home. Remember how much fun it was making valentine cards as a child using bits of glitter and macaroni and string...welcome to the adult version! Join Pam McKnight, MA in art education and found object/mixed media artist and spend the evening making a handmade valentine for a special someone from recycled and repurposed materials. Materials will be provided, but feel free to bring things from home as well; otherwise, all you need to bring is your imagination!

## February 13 - Second Saturday Series: Hibernating Hearts

10 a.m. - 1:00 p.m.; No pre-registration; free; please leave pets at home. Join Adare Evans, Idaho Department of Fish and Game Wildlife Educator, as she shares a treasure trove of taxidermies and her extensive knowledge about Idaho's winter wildlife. Enjoy hands-on activities exploring winter animal adaptations and make a nature valentine for a special someone!

## March 2 - Birding Series with Terry Rich: Spring Migration

9-10 a.m.; No pre-registration; free; please leave pets at home. Bird books and binoculars are available to borrow. Free! Different species move north at different times. We may also be seeing a shift in overall migration patterns of some species due to changes in climate.

## March 9- Sunset Series: Fish in the Foothills?

7-8:30 p.m.; No pre-registration; free; please leave pets at home. Did you know there is a native fish population in the Boise Foothills? Join Dr. Chris Walser, ichthyologist and professor at The College of Idaho, and Tim Breuer, Executive Director of the Land Trust of the Treasure Valley, to learn about the Dry Creek redband trout. Dr. Walser and his students have been studying the redband trout population in Dry Creek since 2013.

## Hagerman Bird Festival

The Hagerman Valley will once again host birders the weekend of February 12-14. The Hagerman Valley is a hotspot for wintering birds. Bald eagles, great blue herons, trumpeter and tundra swans, snow geese, egrets, and thousands of ducks may be seen on the open water and ponds of the Hagerman Valley in the winter.

The Festival begins Friday evening and will conclude Sunday afternoon. Presentations, workshops, and intensive birding opportunities will be offered over the course of the three day event. Sponsoring organizations are the National Park Service, Hagerman Fossil Beds, Prairie Falcon Audubon Society, Hagerman Valley Chamber of Commerce, Southern Idaho Tourism and others. Come celebrate birds in the banana belt of Idaho. Plan to join us!

For more information visit us on Facebook: <https://www.facebook.com/HagermanBirdFestival>. Registration information will be available soon. Contact us at: [Hagermanbirdfestival@gmail.com](mailto:Hagermanbirdfestival@gmail.com) or call 208-352-3175. Lodging information can be found at [www.hagermanvalleychamber.com](http://www.hagermanvalleychamber.com)



## How Hunters and Artists Helped Save North America's Waterfowl

*BE A PART OF THE DUCK STAMP SUCCESS STORY*

<https://academy.allaboutbirds.org/duck-stamps/>

## Tracking Migration

by Terry Thomas\*, Regional Habitat Manager, IDFG

Last week I stood on a hill near Henrys Lake. It was a cold clear day and the surrounding snow-covered peaks sparkled like diamonds in the sun. Far overhead, two wedges of trumpeter swans, white as the snow-capped peaks, honked in the brilliant blue sky. They were on a due south compass bearing heading to far off wintering grounds.

The snow around me was full of elk tracks heading in one direction. I could follow them with my binoculars as they disappeared over a ridge to the north and could see their trails spilling across a meadow at the foot of Mt. Jefferson to the south.

Research shows that in their travels, these particular elk will eventually link up with elk pouring out of Yellowstone's Pitchstone Plateau, and all will end up at Wall Creek Wildlife Management Area in Montana.

Migration has always been of interest to biologists and to conservation planners. However, data wasn't easy to obtain. In years past, biologists would put a VHF tracking collar on an animal and then have to climb into an airplane to track it. In rigorous studies, relocations would occur about once a week. At the end of the study, the researcher would have a very thin sketch of where that animal went while monitored. This was slow and expensive for not a lot of data.

Technological advances have changed the migration game and migration is one of the fastest growing research topics. Researchers now employ GPS technology with collars that communicate with satellites for highly accurate locations.

Depending on how the collars are programmed, they can provide all kinds of feedback from hourly locations to the animal's heart rate. Better yet, all this data is downloaded on demand right to the biologist's computer. Once outrageously expensive, GPS collars and monitoring are now less expensive than VHF in most cases.

GPS collared elk and friends © (CC-BY-SA) Scorpions and Centaurs on Flickr CC





Whether VHF or GPS, it seems that every time researchers place tracking collars on animals there are surprises. One such case was a pronghorn antelope project that occurred near Carey. It was assumed that these animals would move south toward Shoshone to winter. But researchers were stunned when they discovered that they moved east, not south, and wintered near Howe at the bottom of the Little Lost.

An elk study, conducted in the Centennial Mountains and Island Park, discovered that some elk that summer in Idaho don't winter in the Sand Creek Desert. Rather, they head to winter range around Montana's Lima Reservoir.

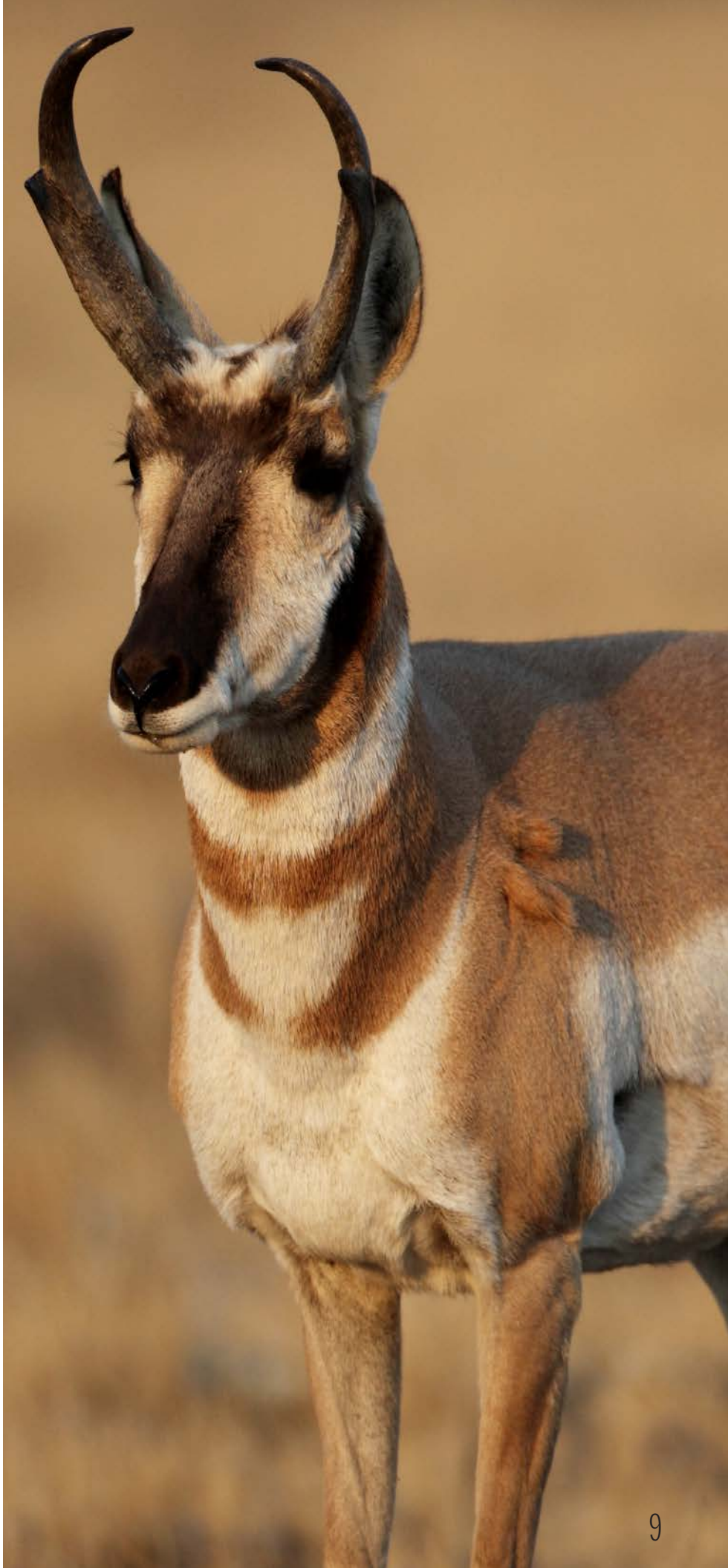
And no one would have predicted that some mule deer wintering on the Sand Creek Desert spend their summers around Jackson Lake in Grand Teton National Park and another, collared near Howe, would end up near Bozeman, Montana.

We tend to think of fall migration as a north to south thing. That certainly can be true, particularly with birds. However, migration for big game can be in any direction. For instance, elk and mule deer that winter at Tex Creek WMA actually migrate north to winter. The key is that the animals move to lower elevations regardless of the compass bearing.

Research has revealed that migrations can be long. The longest documented big game movement is a mule deer herd that migrates 150 miles between Jackson Hole to Rock Springs, Wyoming. Pronghorn from Jackson Hole winter near Big Piney, Wyoming, a distance of over 100 miles.

Idaho, Wyoming and Montana will each deploy up to 400 tracking collars this year. I can hardly wait to hear what new surprises researchers will uncover.

Pronghorn antelope © Dennis W. Donohue/Shutterstock





# How many birds will you find?

**19th Annual Great Backyard Bird Count**  
**February 12-15, 2016**



**Join in!** Count birds in your backyard, local park, or wherever you spot a bird, and submit your observations online.

**[birdcount.org](http://birdcount.org)**

White-breasted Nuthatch  
Photo: Nick Saunders/GBBC



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# WANTED

Your winter hummingbird sightings



Because insects make up a large part of their diet, Anna's Hummingbirds can survive cold winter weather. Over the past decade, they have begun wintering in Idaho.

The IBO wants to study this phenomenon. By counting and tagging individuals, we will get accurate population information and track individuals over time.

More info at: <http://ibo.boisestate.edu/winter-hummers/>

Please contact us with any winter hummingbird sightings  
[IBO@boisestate.edu](mailto:IBO@boisestate.edu) or 208-426-2223

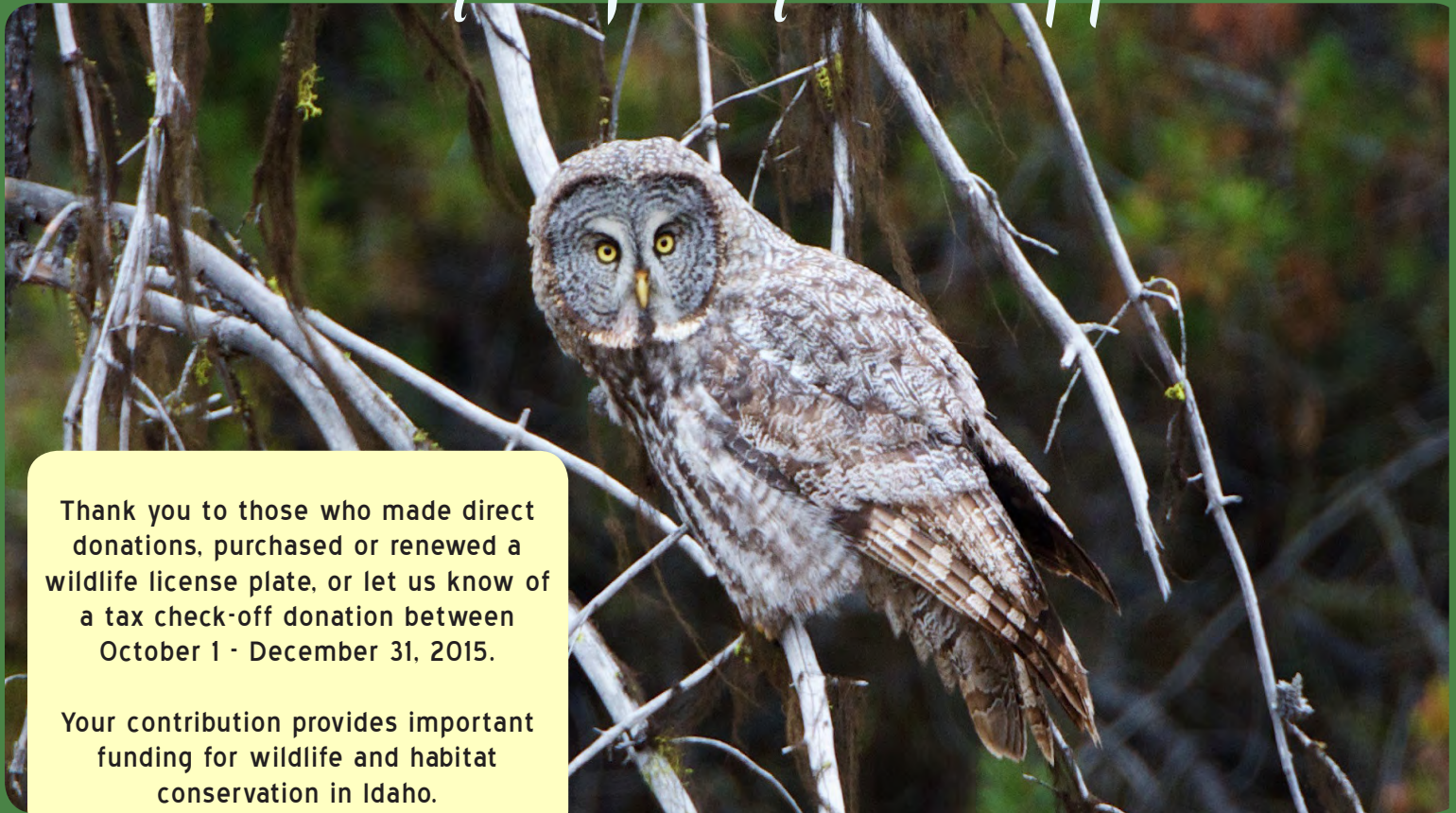
We want to map *all* sightings, plus band birds if homeowners are interested. Don't forget, you can also record your sightings at eBird.org!



BOISE STATE UNIVERSITY  
INTERMOUNTAIN BIRD OBSERVATORY



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Thank you to those who made direct donations, purchased or renewed a wildlife license plate, or let us know of a tax check-off donation between October 1 - December 31, 2015.

Your contribution provides important funding for wildlife and habitat conservation in Idaho.

Great Gray Owl © Mike Morrison

## Windows to Wildlife

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To submit an article, obtain a subscription, or notify us of address change, contact the Editor at the above address.

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