



The Roost

NEWSLETTER OF THE OWL RESEARCH INSTITUTE (ORI) & THE NINEPIPES CENTER FOR WILDLIFE RESEARCH & EDUCATION (NCWRE)

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Message from the President — 20 Years!

It's autumn again and time for the annual newsletter. It's dark and cool this morning, and the Great Horned Owls have been loud and walking and slipping on the metal roof of the farm house. This is the tenth year since we purchased the research center, and there have been Great Horned Owls in residence every year. This is also the 20th year of the ORI.

This will be the longest president's message yet, so please bear with me. It's hard to accept that I am 20 years older, and that time absolutely flew by. How did it go so fast, and how have we maintained the energy?

I am sure of one thing: Our jobs keep us in the field and provide us with the enjoyment of observing and researching wildlife in various habitats. This work makes time speed by very quickly.

So what have we accomplished in these 20 years? Well, I can say that we have become a nationally and internationally recognized name in the field of owl

research, education, and conservation. And we have continued to “buck the system,” remaining full-time field researchers. Although we have office work, we get into the field most days throughout the year on various projects. We have even been able to reverse the occupational hazard that comes with most wildlife research jobs — sitting in offices, going to meetings, getting besieged by paperwork and left with little, if any, field time. We have also continued to resist the trend of short-term field studies that usually last 1 to 3 seasons, with only 6 to 10 field weeks per season. Instead, we have been able to maintain long-term field studies, with several of our studies having 15 to 20 or more years of data. And in most cases, our

sample sizes are very large. We believe this makes our data more robust and more reliable — particularly for managing our natural resources and building a case for conservation.

I once read a proverb that seemed to fit our ORI philosophy: Tell or teach me and I might forget, show me and I might remember, involve me and I will understand. I believe this to be particularly true for wildlife researchers. To become reliable experts, we need to become involved. In addition, we need to be involved over time. For instance, cognitive scientists



Denver Holt with Snowy Owl

Photo by Daniel J. Cox www.naturalexposures.com

tell us that it takes approximately ten years of dedicated labor to become an expert in any field of study. And to become experts, we must constantly augment our information. Cognitive scientists surmise that training, detailed study habits, competition, hard work, and experience all play major roles in developing expertise. We believe this practice

applies to wildlife research too. We believe that by concentrating our efforts on long-term studies, gathering large sample sizes, and being in the field, we have been able to continually inspect, refine, and redesign our studies.

What else have we accomplished professionally in 20 years? Well, we have become more diverse, and yet more focused, in our scientific knowledge. We have developed a “jack-of-all-trades, master of one” type of thinking. In other words, we have become more educated in other science disciplines, while maintaining a focus on our own research. For example, while conducting our Long-eared Owl

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research, we also catalogued other wildlife (i.e., amphibians, reptiles, birds, and mammals). It turns out that this extra attention has been paramount in developing species lists for the conservation of remaining grasslands in one of our Montana study areas.

As for other accomplishments, a brief look at our publication list shows that ORI has produced about 80 written documents, including children's science books, natural history writing, observational and inferential studies, experiments, theory, reviews, species accounts, book chapters, and opinion pieces. Our first children's book, *Owls Who Are They?*, was praised as a tool for teaching science to children by using science. Our paper on “Effects of Short-eared Owl Predation on Common Tern Colony Desertion, Reproduction, and Mortality” was nominated for an award. Our publication on the “Effects of



Barn Owl

Northern Pygmy Owl Eyespots on Avian Mobbing” was picked up by news agencies as a new discovery in science. Meanwhile, our paper on “Diet of Snowy Owls Wintering in West-Central Montana, With Comparisons to Other North American Studies,” presented the largest sample size for wintering Snowy Owl diet in North America by a factor of 15. We also collaborated on a monograph that was one of the first to standardize owl survey techniques: *Owl Survey Methods: Guidelines for Nocturnal Owl Monitoring in North America*. Our senior and co-authorships on three of the *Birds of North America (BNA)* species accounts are highly cited reviews for professionals and amateurs. We have also published papers on stress hormones, infectious disease, human health, parasites, wildlife injuries, small mammals, and even mountain lions and plants.

Further, our students have won travel and presentation awards at professional conferences for their research. Denver Holt was named “Montana's Wildlife Biologist of the Year” in 2000, by the Wildlife Society of North America. Also, we have been invited as keynote speakers to a number of the major Bird Festivals in the United States.

Our research has been shared on radio talk shows and in numerous newspaper and magazine articles,

from local to national and international. We have been the cover story for *National Geographic Magazine* and featured in *Terra Magazine* of Germany and *Voici* of France. Our chapter on owls, as part of the popular book *Arctic Wings: Birds of the Arctic National Wildlife Refuge*, won an outdoor book award in 2008 (see “Popular Publications” page 10). We will be featured in an upcoming 2009 article for the *National Wildlife Federation*. Our research has trickled into children's magazines, such as *National Geographic Magazine* for kids, *Ranger Rick*, and *Boy's Life*. And in 1993, we were invited to meet with and give a special program to a young teenager, Prince William of England. In turn, we received a letter from St James Palace, England, acknowledging Princess Diana's gratitude for our efforts.

Our research has also been featured on television news pieces and in movie documentaries. Our work has appeared in David Attenborough's *Life of Birds*, *National Geographic Explorer*, and Audubon's *Up Close Series* on birds. Our research has also been filmed for the Natural History Units of NHK Television, Japan; and the Norwegian Broadcasting Company, Norway. Recently, we worked with the British Broadcasting Company (BBC) series called *Frozen Planet*. This new series will be the sequel to the highly acclaimed *Planet Earth* series.

Where are we going next? Well, as humans, we inhabit the world with a few other friends — approximately 320,000 species of plants; 1,000,000 species of insects; 400,000 species of invertebrates other than insects; 28,000 species of fish; 13,000 species of amphibians and reptiles; 9,800 species of birds; and 4,900 species of mammals. And surely there are others to be named. Obviously, we cannot research, manage, monitor, or protect them all. However, we can use some animals as “surrogate species” — ones that have diverse habitat needs and require large land areas. Indeed, some high-profile species are already serving this purpose, primarily because they are charismatic and appealing to look at, and thus are more likely to generate public interest than other species. If we concentrate on meeting their needs, we will in turn protect habitats that could encompass many of the above-mentioned organisms. We believe owls fit in this surrogate category.

Let me explain: Owls are among the most widely recognized animals in the world and are distributed everywhere except Antarctica. They have been recorded in most native people's myths, legends, and even early cave art. They are mentioned in literature, featured in paintings, celebrated in poems, and turned into logos for corporations and sports teams. As a highly recognized group of animals, owls are poised to be poster ambassadors for protecting landscapes,

as well as for the many plants and animals that live within them. Furthermore, because owls are at the top of the food chain as avian predators, eating everything from insects to amphibians, reptiles, birds, and mammals, they can serve as barometers for environmental change. When the environment does change, because of human or natural factors, the effects are likely to be reflected in changes in owl numbers.

Also, there is something about owls that draws our attention. Part of the appeal is that their faces resemble human faces. Indeed, their eyes are often used to rivet attention to advertising for an assortment of products. The notion of their wisdom, and even the idea that a group of owls is called a “Parliament,” suggests a human predilection for owls. As ORI assumes a larger role in habitat conservation issues, we can use owls to craft solutions to conserve and manage habitats in a responsible way that will benefit many plants and animals — including ourselves.

We envision that Snowy Owls will rest beside Polar Bears as icons of the Arctic environment and Arctic conservation, especially as we research and monitor their responses to our changing climate. We have been able to use our research and owls to help protect habitat, such as the Arctic National Wildlife Refuge in Alaska, and the Palouse prairies and deciduous draws of Montana. Bolstering this success is the fact that we have banded thousands of owls during our long-term studies, providing information on local populations and habitat associations, among other variables.

Habitat conservation is the land issue we face, and we have been losing the battle. If we want to conserve or manage habitat, it is critical to collect sound scientific data to bolster our case. Repeatedly, scientific data is being called upon to argue court cases and land use claims. In addition, we need to get involved in communities, both locally and nationally. Conservation is about common people and conversation — talking to the farmers, ranchers, and other land owners about the lands we want to protect. It's also about talking to the men and women who work in the landscape for a living. Conservation is a public communication issue, and we need to get everyone involved.

For 20 years now, we have drawn upon our constituents to empower us and support our programs in research, education, and public communication. In reality, you the constituents are the foundation for what we do. After you have browsed through this newsletter, I hope you consider a contribution. Your tax-deductible contribution ensures that we are in the field being leaders in research and education programs. That in turn promotes reliable wildlife management and conservation decisions.

Welcome Caroline Deppe

We are excited to announce the return of Caroline, who rejoined ORI this year to take up the role of Development Director. Caroline worked for us from 1997 to 2000. She assisted us with species accounts for *Owls of the World*, and she conducted research on the function of false eyes, or “eyespot,” a deceptive coloration pattern found on the back of the head of Northern Pygmy Owls. Her award-winning study puts her in a rare class of researchers who have pioneered a new question. After a few years of writing and research jobs, Caroline has moved back to Montana to work on ORI outreach and fundraising. To learn more about her, refer to the “Note from the Development Director” that follows.

Thanks and Happy Holidays, Denver Holt



Denver Holt on the Arctic Tundra

Photo by Daniel J. Cox www.naturalexposures.com

Note from the Development Director

Recently, I filled out a survey that posed the following question: What would you change about your life? I immediately took up my pen to write “nothing.” I began work for ORI as the Development Director this year and haven't had a single regret. It is tremendously fun and fulfilling to get up and work for ORI — for Denver, the crew, and the owls.

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My first experience with the institute occurred during a university ornithology class back in 1997. We went out with Denver and crew and experienced the Long-eared Owl study first-hand. I was hooked. Before I knew it, I was working on a Master's that partnered ORI with the University of Montana, Missoula. The project centered on the Northern Pygmy Owl and the eyespots (a plumage feature that resembles eyes) on the back of its head. It was a great experience that involved lots of field science and lots and lots of writing.

Since then, I have conducted research in frugivory, worked as a ranger-naturalist in Yosemite, and built and run a tutoring business dedicated to teaching English. I have also written grants for environmental education and open space. But in my heart of hearts, I always hoped to return to Montana and ORI, and here I am, absorbing and promoting the goals of owl research, education, and conservation.

My main objective for ORI can be summed up in five words: “Keep us in the field!” Since this mantra could be misinterpreted, let me translate. We have an excellent field staff. I want the funding to retain and

develop these high-quality researchers. I want them out of the office and out in the field, as much as possible. I want them out on the Arctic Tundra with Snowies, in the Boreal Forest with Hawk Owls, and out in the grasslands with Short and Long-eared owls. If I can get the funding to sponsor these great researchers and projects, then I am doing my job.

If I were filling out that survey again, the one that asked me what I would change about my life, I might say it a little bit differently: “more time.” I want more time to learn about wildlife biology, to write grants, and to appreciate staff. Mostly, I just want more time to foster the goals of the ORI, which is such a hard-working and productive organization. And that is all I would change.



ORI photo

ORI Development Director Caroline Deppe with Jacky Black and Ruby Mae

RESEARCH

MONTANA

Owl Projects

Long-eared Owl. This project continues into its 23rd year. Conducted year-round, it is one of the longest-running research projects for this species in the world. As of this writing, we have banded 1,550 owls, located 202 nests, and discovered 25 major winter roosts. In recent years, we have documented several cases of females returning to their natal area to breed, the first evidence of this kind in North America.

As always, Long-eared Owl populations are tied to those of voles, the owl's primary prey species. In 2008, vole numbers were low; and correspondingly, so were owl nests, a pattern that paralleled 2007. Despite the low population, it is critical that we sustain this work, tracking the ebbs and flows of the Long-eared Owl population. Our data have not only scientific value, but also strong implications for conservation: In western Montana, wildlife groups, city open space planners, and land trusts



Long-eared Owl

Photo by Daniel J. Cox www.naturalexposures.com

have used our Long-eared Owl project to protect remaining grasslands and riparian thickets from development.

Barn Owl. For the second year in a row, Barn Owls too had a poor year, with only a few nests located, primarily in agricultural habitats. Generally, our nests have been in natural holes in eroded clay cliffs. We found that among the 2008 nests, reproduction was limited, with smaller clutches and fewer fledglings. In years of high small mammal abundance, this species can raise two broods in one season. This owl is considered a Species of Concern in Montana, and we know little about them.

Northern Hawk Owl. Despite cross country skiing, hiking, and snowshoeing over 500 miles in Glacier National Park (GNP), our researchers only detected a few Northern Hawk Owls, and no nests.

However, we suspect that Northern Hawk Owl numbers may increase in 2009. Already this fall, we have received reports of the owls returning to GNP. The last time such sightings occurred was in 2004. The sightings were soon followed by many reports of nesting for the breeding season of 2005.

We are deeply committed to maintaining this long-term research program: The Northern Hawk Owl is a Species of Concern in Montana. It is a rare breeder in the continental U.S., with fewer than 50 nest sites, most of which have occurred in Montana

(14) and Minnesota (around 20). Of those 14 nests in Montana, all were located in GNP, the only place where Northern Hawk Owls have been recorded nesting in the state. Outside the U.S., the owl is also reported to be in decline in the Canadian provinces north of Montana.

On the conservation front, this species is potentially a barometer for the health of Boreal Forests, which is believed to be its primary habitat. The owl may also bolster the claim for maintaining Post-Fire Habitat — it appears that Northern Hawk Owls occur in greater numbers after burn seasons. It is imperative that we continue our research and



Photo by Daniel J. Cox www.naturalexposures.com

Northern Hawk Owl

monitoring to determine whether this association exists. By sustaining our research program, we will ultimately have a tool to assist with understanding, managing, and conserving Northern Hawk Owls, Boreal Forest, and Post-Fire Habitat in North America.

Currently, we are looking for sponsors for the Northern Hawk Owl project for 2009. GNP

supports our independent research project in the park, providing access and housing. However, GNP opted not to fund our work in 2007 and 2008. If you are interested in helping sponsor the project so that it can continue, please contact ORI.

Great Gray Owl. In 2008, Great Gray Owls were scarce once again. Although we did see owls in our study areas, we were not able to confirm nesting for the second year in a row. The owl is a Species of Concern in Montana.

Short-eared Owl. Much attention is being focused on Short-eared Owls, for they appear to be tied to the decline of grassland and shrubland habitat across North America. We conducted detailed surveys and research in western Montana during the late 1980s and early 1990s. We are also in the process of developing new survey techniques for the owl, which is a Potential Species



Photo by Daniel J. Cox www.naturalexposures.com

Short-eared Owl

of Concern in Montana and a Species of Conservation Concern nationwide. Our experience with the species is extensive — including breeding and diet studies, improvement of field techniques, and status reports, and culminating in authorship of the *Birds of North America (BNA)* species account for Short-eared Owls.



Photo by Daniel J. Cox www.naturalexposures.com

Northern Saw-whet Owl

Small Cavity Nesting Owls. There was almost a complete lack of nesting for most of our cavity nesters. After an eventful 2007, 2008 surveys yielded only one Boreal and one Northern Pygmy Owl nest. Zero Northern Saw-whet and Western Screech Owl nests were found. As usual, our Western Screech Owl nest boxes were often occupied by starlings or flying squirrels, but no owls.

As an aside, we are learning that forest management practices for these cavity nesting owls may need to change. For instance, our data suggests that Northern Pygmy Owls and Northern Saw-whet Owls have very different characteristics for the snags they nest in. Thus, instead of simply leaving one or a few standing large snags in a forest, managers may need to leave a greater variety of snags; that is, if they are truly going to protect and provide nest sites for small cavity nesting owls.

In a new study, graduate student Mat Seidensticker began his research on the Flammulated Owl. Despite an intense field season, only one nest was confirmed and a second suspected.

Research Profile

The Flammulated Owl. Twenty years ago, Denver Holt conducted the first surveys in western Montana to try to determine if Flammulated Owls were nesting in the state. Although the owls were seen and heard calling, no evidence of successful nesting (such as a nest with eggs, chicks, or recent fledglings) was confirmed. Just because birds are singing in an area does not mean that they are breeding. Shortly after those surveys, a University of Montana graduate study followed, entailing additional surveys and

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detected, conclusive proof of nesting was still lacking.

In recent years, the Avian Science Center at the University of Montana launched a well-organized survey program to determine the distribution and habitat associations of Flammulated Owls in western Montana. Their valuable results clearly show that this species has a wide range there. Once again, however, no conclusive evidence of nesting was determined.

ORI is now taking the next step in this inquiry, conducting an intensive study of Flammulated Owl breeding ecology. This degree of attention is critical because the Flammulated Owl is a Species of Concern in Montana, as well as a Sensitive Species across its range in the northwestern United States.

There are several explanations for the owl's listing: its association with mature- to old-growth forests, its dependence on natural holes in trees or cavities excavated by woodpeckers, and its niche as a migratory insectivore. In Montana, the Flammulated Owl appears to prefer older Ponderosa Pine and shade-intolerant Ponderosa Pine/Douglas Fir forests. These forests tend to provide large snags and cavities needed for nesting and to supply ample insects. However, this preferred habitat type is at risk, due to extensive wildfire suppression and logging.

Further, the Flammulated Owl is migratory. When its insect food supply goes dormant or dies, the owl travels from its breeding site to wintering grounds. Interestingly, little is known about where the owl tends to overwinter.

This year, ORI biologist Mat Seidensticker launched a pilot study of the Flammulated Owl in western Montana. He is combining this work with a Master's degree, through the Environmental Studies program at the University of Montana, Missoula. For the next few years, Mat will locate and confirm nests and document their nesting biology. He will also determine characteristics of the nest trees and breeding habitat used by these owls. His research should provide new data for forest managers to maintain habitat, nesting trees, and consequently a healthy breeding population of Flammulated Owls.



ORI photo

Mat Seidensticker climbing a tree

ALASKA

Snowy Owls

Our 17th season researching Snowy Owls and lemmings in Barrow was outstanding. It was one of our best seasons ever — we recorded 35 nests and banded about 150 chicks. Actually, the season caught us by surprise, simply because the last few years have been so incredibly dynamic: Lemmings and Snowy Owl nesting surged in 2006 (our peak year), crashed in 2007, and returned to abundance in 2008.

As we track these populations, we ponder these questions: What factors most greatly influence lemming populations, spurring their ebbs and flows? To what degree are lemmings susceptible to climate change? And to what extent do lemmings affect Snowy Owl populations? We suspect that this predator-prey relationship is a barometer for significant impacts to the Arctic tundra, especially those created by climate change.

To date, we have located 219 Snowy Owl nests and banded almost 700 individuals. Ultimately, these data will serve as a baseline for assessing correlations among owls, lemmings, and climate change in the Arctic.

Lemmings

Two species of lemmings occur in the Barrow area — the Collared Lemming and the Brown Lemming. However, it is the population fluctuations of the Brown Lemming that drive the Snowy Owl breeding ecology there.

Although the causes for these Brown Lemming population



Photo by Daniel J. Cox www.naturalexposures.com

Denver Holt inspecting a Snowy Owl nest with approximately 40 dead lemmings

fluctuations are unknown, they are regular occurrences through space and time in our Barrow study area. Frequently, the fluctuations are thought to be “cyclical,” meaning that they occur at somewhat regular intervals. However, we are starting to question the label; so far, in our 17 years of data collection, there appears to be no regularity to the rises and falls of the population.

Regardless, in 2008, lemmings surged. Our traplines were full, and so were Snowy Owl nests.

Male Snowy Owls delivered lemmings to brooding females and chicks, which were sometimes surrounded by piles of 25 to 40 dead lemmings.

For us, these caches provide “free” data on body mass, sex, and reproductive status about lemmings killed by owls. This information helps us to evaluate the predator-prey relationship between these two species. It also adds to the scope of our Brown Lemming population index, which at 17 years is currently the second most extensive data set for lemmings in North America. (First place goes to a project that lasted for 19 years.)

EDUCATION

ORI educational programs cover a diverse audience and provide unique opportunities for participants to get involved in research. When possible, we donate binoculars, scopes, and other equipment to university students and programs in the U.S. and abroad.

Our programs include classroom slide shows, lectures, and field work. We offer independent studies to advanced high school students and university undergraduates when appropriate.

Our emphasis is on high school and college science and natural resource classes, as well as on adults interested in natural history and wildlife research.



Photo by Elizabeth Eubanks

Rob Eubanks, Steve Hiro, and Denver Holt at Snowy Owl nest

High School

ORI provides high school students with a morning in the classroom and afternoon in the field. This interactive field workshop teaches students about creating research questions, designing methods, and developing field techniques. Students also get involved in discussions about ecology, conservation, management, and project justification. Schools throughout western Montana participate in our annual program, and some for more than a decade.

One high school highlight was getting to

Nancy Claflin Research Award

We found an awardee in Mat Seidensticker, whom we welcomed back to ORI this year. Mat worked with ORI for seven years and moved on to pursue other interests in 2006. He has returned to attend graduate school at the University of Montana Environmental Studies Program. Mat's thesis is related to the Breeding Biology and Management of Flammulated Owls. Nancy Claflin would have been proud to present Mat with this \$1000 award (see “Research Profile” page 5).

participate in the Missoula Chamber of Commerce's Leadership High School “Life-Long Learning Day,” for the second year in a row. This program gives 30 high school juniors an opportunity to learn about the importance of becoming involved in a community. The program also emphasizes building effective leadership skills for future endeavors. Denver Holt's program included a 45-minute lecture describing how he became involved in wildlife research and natural history tour guiding, and how those professions have influenced his life.

Currently, we are working with student intern Jessica Pratt from Hellgate High School in Missoula, MT. Through an independent study program, Jessica is completing a set number of hours assisting with field research, and then she will prepare a science paper and final report. This project also teams ORI with high school science teacher Dave Oberbillig.

Universities and Community Colleges

Most undergraduates do not participate in wildlife research during the school year, often because of limited opportunities and the seasonal nature of most research programs. However, ORI's year-round projects provide some undergraduates with the opportunity to observe and participate in research. We also offer limited internships and encourage students to develop projects that interest them. For almost 20 years, the ORI has had one or more interns from the University of Montana and elsewhere. Interns come from various backgrounds, although most originate from biological science programs.

This year, we welcomed Wildlife Biology student Matt Larson, who has worked on our Northern Hawk Owl and Snowy Owl projects. This fall, Matt was awarded a MILES (Montana Integrative Learning Experience for Students) fellowship. Matt will use the first year of this grant to develop survey strategies for the grassland nesting Short-eared Owl.

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Adult Community

Each year, we become more involved in adult education. We teach classes on such topics as Montana's natural history, owls, and raptors. Participants include local Audubon Societies, Flathead Valley Community College's Elderhostel Program, Glacier Institute Education Programs, and Montana Natural History Center, among others.

National Science Foundation Polar TREC Program

The PolarTREC program is funded by the National Science Foundation and managed by the Arctic Science Consortium. Each year, the program sends K-12 teachers to the Arctic and Antarctic, primarily to learn about the science of the poles.

While in Barrow, ORI was invited to participate in this education program, and we enjoyed it wholeheartedly. For one, it allowed us to get to know Florida-based science teacher Elizabeth Eubanks. After winning the highly competitive grant, Elizabeth traveled to the Arctic to learn about carbon fluxes and global climate. She also came out in the field with us to learn about Snowy Owls.



Photo courtesy Elizabeth Eubanks

Elizabeth Eubanks with Snowy Owl chick

After spending time in the field, Elizabeth returned to the Barrow research station to report back to classrooms across the country. She communicated through a special Internet platform that supports real-time online presentations, audio, and chat. At one sitting, ORI and other researchers took part in the podcast,

which enabled them to discuss their projects with classrooms across the United States.

Elizabeth worked hard to bring the Arctic into the classroom. She took countless photos and shot lots of video to make a short production for her school, collected Snowy Owl pellets for her students to dissect, and developed a comprehensive unit on Arctic animals. She also kept a journal about her Arctic experience, which you can read by visiting www.polartrec.com/arctic-tundra-dynamics-08/journals/elizabeth-eubanks.

Researchers and Volunteers

Wildlife biologists Colleen Bitter, Jessica Crowley, Matt Larson, Megan Fything, and Mat Seidensticker of Missoula, MT, logged hundreds of volunteer hours for the ORI, assisting with field

trapping, banding, and many other duties. We are particularly indebted to Steve Hiro, a semi-retired heart surgeon who devoted countless time and energy to ORI and its owl studies.

In Barrow, Colleen and Steve chose to forgo their shorts, t-shirts, and summer bathing suit look for hip-boots, long-johns, fleece undergarments, and raincoats. They hiked 10 to 15 miles a day in 35 to 40 degree temperatures with 80% humidity and 10-plus mph daily winds on the Alaska Snowy Owl project.

Veterinarian Elizabeth Layne volunteered her time to advise and assist on issues related to wildlife health. Elizabeth just co-authored a manuscript with us, and we hope to collaborate more in the future. Scores of other volunteers assist in the field when time allows. We thank them all.



Photo by Elizabeth Eubanks

Colleen Bitter (right), Denver Holt, and volunteers at Snowy Owl nest

Day in the Field

The ORI donates a day in the field to community fundraisers, educators, and civic groups. Participants observe various owl research projects and/or learn about Montana natural history. This is ORI's version of citizen science involvement.

Attendees assist in scouting and setting nets. They observe owl banding and taking of measurement data. Or they may just enjoy the natural history information provided by their guides. At fundraisers, the Day in the Field program has netted from \$50 to \$1,000 for numerous Montana and out-of-state charities.

Participants have included Community Medical Center, Five Valleys Audubon, Five Valleys Land Trust, International Wildlife Film Festival, Jodi Marshall Fund, Kalispell Region Hospital, KSKF Television of the Flathead Indian Reservation, Lake County Youth Homes, Missoula Aging Services, Missoula International School, Missoula Senior Center, Montana Environmental Information Center, Montana Natural History Center, Montana Public Radio, Montana Wilderness Association, Ninepipes Museum of Early Montana, Ohio Bird Conservation Symposium, St. Patrick's Hospital, University of Montana Foundation, among others.

INCREASING OUR EXPOSURE

Our Website

It's finally looking great! Thanks to Jennifer (Jen) Sauter of Ohio, our new look is impressive. Jen's talent for web design has increased ORI's exposure, augmented visits to our site, and garnered tremendous congratulations and praise. Jen spent much of 2008 getting the site in order, joining our staff as a volunteer. We are deeply indebted to her and welcome her high spirit to the ORI team. We were especially pleased that Jen made it to her first Hat Party in 2008, but we cannot tell you anything else.

Now that the look of the website has been updated, we are also planning to make our site a spot for (at least) monthly updates, especially about ORI research and news. Also, we are assembling a new and improved set of species accounts for all the owls of North America, thanks to the efforts of writer and artist Chelsea Molloy. See it at www.owlinstitute.org.

Media

Talk about an incredible team: Writer Ellen Horowitz; photographer Daniel J. Cox; elementary school teacher Ansley Watson and her students from Lakeside Elementary, MT; and the ORI. These folks convened to create an article for *Ranger Rick Magazine* (volume 42, March 2008). The article focused on research and conservation of owls, and particularly on the trees that owls need for nesting. During the day, students also helped with pellet dissection, sifting through prey remains and discovering what the owls had been eating. Also, students got to observe ORI staff conducting research and banding owls.



ORI photo

Matt Larson and Jessica Crowley band a Snowy Owl

ORI was also pleased to be the focus of an article for *Montana Quarterly Magazine* (volume 4, 2008). Author Charles Finn described the ORI mission and values in an accurate, well-written article. Our favorite tagline about ORI is “gathering data in the

old-fashioned way — boots on the ground.”

And finally, Sharon Levy wrote an informative piece about lemmings that included our work from Barrow, AK. It's about time lemmings got some recognition. After all, they appear to drive the whole system in the Barrow region where we work. In the article, Sharon documented the little-known life history of the hamster-like animals and their so-called population cycles. See *Wildlife Conservation* (volume 111, 2008).

Frozen Earth

The popular and amazing series *Planet Earth* was watched by 100 million people. So popular was this series that it even got a mention on *Oprah*. Its sequel, called *Frozen Earth*, is scheduled to air in two years. This series will address the Arctic and Antarctic and discuss issues of climate change and wildlife.

This year, BBC producer Matthew Swarbrick and cameraman Stephen de Vere visited our Snowy Owl research site in Barrow, AK. The team spent approximately five weeks filming various aspects of Snowy Owl breeding biology and principal prey, the Brown Lemming.

Although we are excited and slightly anxious about the results, the pleasure was decidedly ours. Matthew and Stephen are absolutely talented, but more important, fun and kind and dedicated to wildlife conservation. There's a chance they might come back for additional filming, and we would welcome them as friends.

It turns out that ORI researchers will be shown on the series website, as part of a special feature that describes how the series was made. There will even be an interview where ORI researchers discuss the biology of the Snowy Owl and Brown Lemming.

World Series of Birding

For the second year in a row, the Steiner Merlin Youth Team donated a substantial amount of money to the ORI as their conservation cause. After logging 121 species, the team won their Youth Division (grades 1 through 5) at the World Series of Birding, held at Cape May, NJ. This competition is an annual fundraiser to benefit conservation. We thank them very much for thinking of the ORI.

Programs

Over the last 20 years in Montana, we have presented hundreds of natural history programs to such groups as the Bitterroot Audubon Society; Faith Lutheran Church in Ronan; Flathead Valley Community College; Glacier Institute; Glacier National Park Associates; Montana Department of

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Fish, Wildlife and Parks; Raptor Festival at Lone Pine State Park; Rollins Community Center; Ronan High School; Sentinel High School; St. Ignatius Elementary School; Swan Ecosystem Center; University of Montana Wilderness and Civilization program; and the Western District Meeting of the Montana Garden Clubs. Many of these groups are yearly participants. Unfortunately, due to a lack of funding, we were unable to reach some of the public schools we have taught in the past.

Festivals

Denver Holt was the keynote speaker for Green Mountain Conservation Group's (GMCG) 10th Anniversary, held in Effingham, NH. His talk on Snowy Owls and long-term studies was well-received. It was also well-rewarded — at the end, he was presented with a life-size mount of a Snowy Owl made of cheese. The GMCG is a watershed conservation group dedicated to protecting one of the largest watersheds in the northeastern U.S.

Popular Publications

Arctic Wings continues to do well. The book was published by The Mountaineers Book Publishing Company in Seattle, Washington. This coffee table book discusses the importance of the Arctic National Wildlife Refuge (ANWR), with a focus on birds. Editor Stephen Brown coordinated the project, and former President Jimmy Carter wrote the forward. And the “Owls” chapter was written by Denver Holt.

This year, *Arctic Wings* won the National Outdoor Book Award for Design and Artistic Merit, the outdoor world's most prestigious citation. The purpose of the award is to recognize and encourage outstanding writing and publishing. According to one of the judges, “*Arctic Wings* establishes a new benchmark in the art and literature of the Arctic National Wildlife Refuge. This is not only a book of exceptional photography, but it also includes solid and factual information, along with a series of essays by noted biologists and conservationists.”

We also provide a children's series of books that translate high-quality field research and experience into literature. Our first children's book, *Owls Who Are They?*, is featured in elementary schools and libraries across North America. Our second book, *Snowy Owls Who Are They?*, was published this year.

Third grade teacher Ansley Watson of Somers, MT; ORI President Denver Holt; and artist Jennifer White Bohman of Missoula, MT, combined their skills to create this book.

In assembling a team for these books, our logic was quite simple: We are researchers, but not teachers. So

in addition to using our field science background, we also engaged professional educators, including Kila Jarvis (1st book) and Ansley Watson (2nd and 3rd books). Both are incredibly skilled at teaching and communicating with children. And then, by adding in superb artists Leslie Leroux and Courtney Couch (1st book), Jennifer White Bohman (2nd book), and an artist to be named (3rd book), our series is shaping into success. Check them out at www.mountain-press.com. Ansley Watson has also agreed to work on our third book with ORI. In collaboration with Denver Holt and Rob Domenech, this book will cover all of Montana's birds of prey.

Technical Publications

Although field research is the best part of this job, your work is not finished until you publish and share it with the public. Whether for a scientific or popular audience, the writing must get done.

Manuscripts Published or in Press in 2008

Feeding Ecology of Snowy Owls Wintering in West-Central Montana: With Comparisons to other North American Studies. *Journal of Raptor Research* 42: 172-179.

The 2005 to 2006 Snowy Owl Irruption Migration to Western Montana: *in press*, *Northwestern Naturalist*.

Characteristics of Nest Mounds Used By Snowy Owls. *in press*, *Ardea*.

Corticosterone as a Measure of Stress in Nest Bound and Nest Departed Long-eared Owl Chicks. *in press*, *Ardea*.

Flushing Effects and Seasonal Changes on Corticosterone Levels in Adult Long-eared Owls. *in press*, *Ardea*.

Eye Injuries in Long-eared Owls. *in press*, *Journal of Raptor Research*.

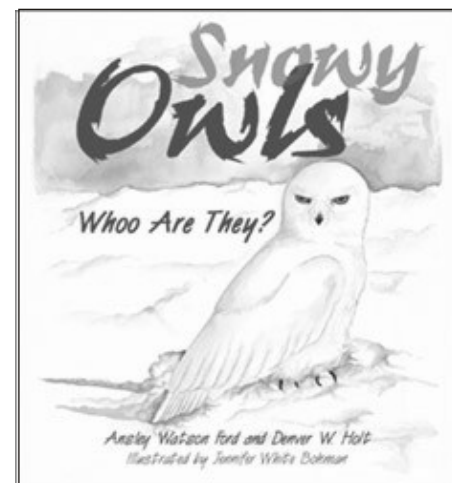
Manuscripts in review include

Natal Philopatry in Female Long-eared Owls

The Social Mating System of Long-eared Owls

Sexing Long-eared Owls using Plumage Coloration

Growth Rates and Plumage Development in Snowy Owl Chicks.



Professional Meetings and Collaborations

Our entire staff and associates attended the Raptor Research Foundation (RRF) annual meeting. This year, it was in our hometown of Missoula, MT. The RRF is the governing society for all raptors (hawks, eagles, falcons, and owls) in the world.

ORI is also a member of the newly established World Working Group on Snowy Owls (WWGSO). This group is dedicated to the conservation of Snowy Owls through research and education, with particular attention to global warming. In partnership with WWGSO, the ORI will take the lead role in rewriting the Snowy Owl *Birds of North America (BNA)* species account. It will be exciting to pour 17 years of Barrow field experience into the Snowy Owl account.

Partnerships

Alaska Airlines. The airline secured us discounted flights to Barrow, AK, when we needed extra researchers for the intensive breeding season in 2008.

Barrow Arctic Science Consortium (BASC). We are grateful to BASC for their assistance with our Snowy Owl project in Barrow, AK. The BASC logistical crew has enabled us to access our study area, a 100-square mile stretch of Arctic tundra.

Dell Computers. A special thanks goes to Dell Computers and Trudi Dillman, who helped set us up with a discount on a laptop that could function on the Arctic tundra.

Field Worx Consulting. We continue to assist Byron Crow by helping with his Peregrine Falcon research. Byron developed the innovative technique of using remote sensing equipment to record the species' nesting biology. He also donates his climbing skills to scale snags used by cavity nesting owls.

Garmin (GIC). GIC has also joined with the ORI. We thank them for donating all the GPS units and computer programs needed for our research.

Glacier National Park (GNP). Since 2006, we have partnered with GNP to study Northern Hawk Owls in Montana. They provide access and housing.

Global Owl Project (GOP). The ORI is working with the newly developed GOP, which seeks to obtain a better understanding of the world's owl species through updated taxonomy. It also works to protect species by supporting education, research, and conservation. The ORI is currently helping out with the design of survey protocols for certain species of owls.

Grounded Eagle Foundation (GEF). Ken Wolff of the GEF of Condon, MT, has provided numerous records of Montana owls for our research. GEF has supported ORI for many years.

Land Access. Without cooperation from many groups, much ORI research could not be conducted. We work closely with many private landowners, and with state, federal, and tribal agencies. We thank all the private landowners for supporting our work. We

also thank the Flathead Indian Reservation; U.S. Fish and Wildlife Service; Montana Department of Fish, Wildlife and Parks; U.S. Forest Service; Bureau of Land Management; and the United Inupiat Corporation, North Slope Borough, for providing access to their lands.

Montana Audubon. We participated once again as sponsors in the Montana Audubon Birdathon Fundraiser. We are excited about new relations with Director Steve Hoffman.

Montana Outdoor Science Schools (MOSS). We have also joined forces with the MOSS to participate in the Annual Bridger Bowl Raptor Festival. This festival has the potential to become one of the largest raptor festivals in the northwestern U.S., and the ORI appreciates being a part of it. This year, we donated a field trip and two lectures to the festival.



Snowy Owl and chicks

Photo by Daniel J. Cox www.natural exposures.com

Nikon. Our partnership with Nikon continues to grow. Nikon has shown a commitment to wildlife research, conservation, and public education. The president of U.S. Sports Optics has a keen interest in these activities and is currently contemplating a more serious conservation role for Nikon in the future. We work with Mike Freiberg, Sport Optics Division, and Kristin Hunt, Public Relations from Chevalier Advertising, to test Nikon equipment in the field. Thanks to Nikon for continuing to provide funding and optics.

Open Space Preservation. We work closely with several conservation groups in Missoula, MT, to help protect open space. Because of our long-term research, and the fact that we record all wildlife, our data is being used to help protect wildlife habitat from development. Thus far we have taken members of the City of Missoula Open Space Committee, Clark Fork Coalition, Five Valleys Land Trust, Montana Nature Conservancy, and Five Valleys Audubon into the field to show them in detail the areas of interest and describe where species occur. We also provide data to Montana Fish, Wildlife and Parks to bolster their case for preserving grasslands.

Patagonia. Patagonia outfits our crews on an annual basis. Also, Patagonia has developed a special t-shirt that features a line drawing of a Snowy Owl,

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and a description of the Snowy Owl Project and the ORI. The shirt will emerge in 2009.

Raptor View Research Institute (RVRI). Raptor View of Missoula, MT, and ORI have established a complimentary relationship: They conduct research on diurnal birds of prey, and we on nocturnal birds of prey. Longtime friend and president of RVRI Rob Domenech volunteers himself and his crews, specifically to develop capture techniques for large owls. RVRI is one of the leading research groups for diurnal birds of prey in western Montana.

Vann's Appliance Specialists. Vann's introduced us to Garmin, helping us obtain GPS units. Vann's is also donating a video system, which we plan to mount near a Long-eared Owl nest. With Vann's assistance, we will observe nesting behavior of this secretive, nocturnal species.

HAT PARTY 2008

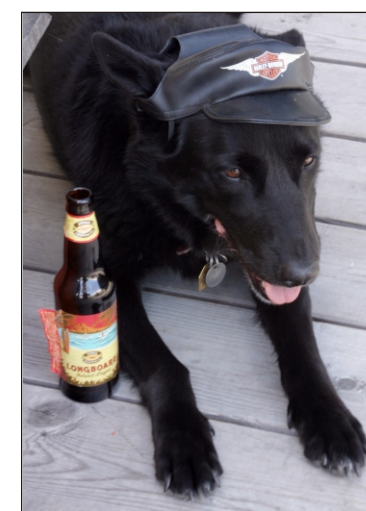
Bringing Constituents Together

The 8th Mission Valley Hat Party was big, rivaling last year's attendance. Last year saw about 600 people, and this year about 500 to 550. The crowd was pretty impressive, given the forecast for rain. This year, guests came from California, Idaho, Maine, Massachusetts, North Carolina, Oregon, Texas, Washington, Wyoming, and Vermont.

The day started out partly cloudy and warm with temperatures in the low 70's, a comfortable late summer day for Montana. Crowds devoured 475 lbs of pig, 220 lbs of beef brisket, 30 gallons of beans, 40-plus pies, several large pots of salad, 300 lbs of melons, 10 large boxes of pastries; and they drank 14 kegs of beer, 8 cases of wine, 6 cases of soda, and 25 gallons of water. We even had a little food left over this year.

Keeping with tradition, we opened with "The Jerry Clemens One-Man Band." With his diverse musical talent and, at times, terrible jokes, Jerry set the stage for a lot of laughs and fun. "The Singing Sons of Beaches" of Jerry Lewis Telethon fame, con-

tinued the high energy, playing Montana folk music and performing comical skits. Next on the scene was the "Jackie Britton Band," which includes my old college roommates John Boyle (piano and vocals) and Kurt Sprenger (fiddle). Those two have yet to miss a Hat Party. Singer Stacey Santilli also



Chatham Rose Holt checked IDs at the Hat Party

Pronghorn Research

This summer, ORI provided housing for two researchers from the University of Idaho, while they studied Pronghorn at the National Bison Range. The researchers lived at the Ninepipes Wildlife Research Center (NWRC) at no cost to them. This is what the NWRC was intended for, as a way to support researchers while they conduct their field studies. In the past we have provided housing and supplies to researchers of Bighorn Sheep, Painted Turtles, small mammals, and weeds.

Natural History Tours

For those of you interested in a Natural History Tours, visit Wild Planet Nature Tours, run by Megan Fyelling and Denver Holt, at www.wildplanetnaturetours.com.

joined them for her second year. Rounding out the night was "Déjà vu," for their second year of upbeat rock, rhythm and blues, making for fantastic dance music!

As the evening progressed, the clouds rolled in, bringing showers at 9:30 and 11 p.m. With the first rain, people layered on rain jackets and kept on dancing. The second shower lasted 20 minutes and was rather heavy, to the point that we shut down the music for fear of mixing water and electricity.

Shortly after the live music quit, the rain stopped and the party proceeded to the campfire, with singing and playing for all. "The Singing Sons of Beaches" got things rolling, playing Montana folk music for nearly two hours, while others joined in. Thereafter it was open-mike night at the fire, with musicians and songsters continuing for hours. Once again, Jerry Clemens kept things going, and about 75 people sang and played bongos, banjos, fiddles, guitars, harmonicas, spoons, and other percussion instruments until 4 a.m.

About 25 volunteers oversee bartending, cooking, decorating, serving, gate keeping, meat cutting, music, pie baking, and groundskeeping, among other jobs. Many take time off work to help out. Although we cannot name them all here, they are appreciated. A party of this size could not function without them.

2008 WISH LIST

In addition to monetary contributions, ORI depends on donated items. Here are the donations we wish for this year.

Arc View software	Good quality outdoor lawn furniture	Riding lawn mower (large)
Binoculars, scopes, & tripods	Lumber & building goods	Scanner
Books, journals, & wildlife artwork	New computers (desk & lap)	Sound recording equip.
Chest freezer	Power Point projector	Wall tent & general camping gear
Dissecting microscope	Power tools	Wood stove (modern kind)
Float boat or Zodiac		

COMPANY & CORPORATE SPONSORS

ABR Inc., Alaska
 Barrow Arctic Science Consortium, Alaska
 Canopy Tower Lodge, Panama
 Defenders of Wildlife, Washington, D.C.
 Five Valleys Audubon, Montana
 Flathead Indian Reservation, Montana
 Garmin International Inc., Kansas
 Holt Trucking, Massachusetts
 Marchie's Nursery, Montana
 Mission Mountain Audubon, Polson
 Montana Audubon, Missoula
 Natural Exposures, Montana
 Nikon, New York
 Patagonia, Montana, Nevada, and California
 Stantec Consulting, Alberta, Canada
 UIC Real Estate, Alaska
 Vann's, Montana
 Woodlot Alternatives, Maine

American Wildlife Conservation Foundation
 Banbury Fund
 Bobolink Foundation
 Dow Chemical Foundation (matching gift program)
 Edison International (matching gift program)
 Environmental Data Research Institute
 Fanwood Foundation
 Fiduciary Charitable Foundation
 Harris Foundation
 JP Morgan Chase Foundation (matching gift program)
 Lower Flathead Valley Community Foundation
 Microsoft Matching Gifts Program Program
 Morrow Charitable Trust
 Norcross Foundation
 Pittsburgh Foundation
 Prudential Foundation (matching gift program)
 Seligson-Johnson Foundation
 Sterling Foundation
 T & E Foundation
 Vanguard Charitable Endowment
 Wellpoint Foundation (associate giving campaign)
 Woods Foundation
 Wyland Foundation

FOUNDATION SPONSORS

Amber Foundation
 American Express (just give program)

WALL OF SUPPORT



To secure your name on the Wall of Support, please fill out and return the form below. Complete the form exactly as you wish it to appear on the wall. We will use the weathered exterior wood siding from one of our buildings for your name. When the barn renovation is complete, the Wall of Support will be constructed. There are four size categories to choose from for your donation: \$100 = 2"; \$250 = 3"; \$500 = 4"; and \$1000 or more = 5". Included with a \$1000 donation is an animal and/or plant of your choice. (See example below.)



Owl Research Institute and the Ninepipes Center for Wildlife Research & Education

I WANT MY NAME ON THE WALL OF SUPPORT

Name _____

Size: 2" _____ 3" _____ 4" _____ 5" _____ Animal, Bird, Plant _____

Donation amount enclosed \$ _____

Address _____ City _____ State _____ Zip _____

Phone () _____ E-mail _____

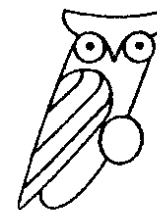
CONSTITUENTS: We do not list the names of our constituents in the newsletter as a courtesy to them. Many wish to remain anonymous. Unless instructed to do otherwise or to be recognized on the Wall of Support, we will not list their names. We also do not share our constituents' information with anyone.

The ORI is a non-profit, 501(c)3 tax-exempt organization. We are funded by grants from foundations, corporations, and individual donations. Please consider us in your estate planning. We accept donations of real property, stocks, bonds, mutual funds, life insurance policies, and gift annuities. Donations are tax-deductible to the extent of the law. We ask for funding once per year. We hope you make your donation today. Our Federal Tax Identification number is 81-0453479.



Snowy Owl

Photo by Pamela Moriarty



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