The Roost

NEWSLETTER OF THE OWL RESEARCH INSTITUTE (ORI) & NINEPIPES CENTER FOR WILDLIFE RESEARCH & EDUCATION
NOVEMBER 2016 **VOLUME 20**

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Photo by Kurt Lindsay

Cover Photo: Northern Pygmy Owl ©Daniel J. Cox/NaturalExposures.com

MESSAGE FROM THE PRESIDENT

Greetings once again from the ORI headquarters in Charlo, Montana. Autumn arrived early with much-needed rain, snow, and cool days. The Great Horned Owls returned in 2016 and nested within 50 feet of the field station. We set up a live camera again, with our partners at Explore, and watched the adults raise two young. The owls have now been in residence around the field station and adjacent properties since 1998. (See Live Owl Cams p. 16)

Photo by Isaac Lowe-Anker

This was perhaps our busiest year ever. Between eight research projects, numerous education programs and talks, we hardly had time to breathe.

We are proud to report that in 2016 we reached two significant milestones. We completed the 30th year of our Long-eared Owl research and the 25th year of our Snowy Owl research. The Long-eared Owl project is the longest running year-round research project on this species in North America. The Snowy Owl project is also the longest running breeding season study in North America. Our philosophy is simple: We believe in long-term studies with large samples conducted by the same individuals. (See Research Milestones pp. 8-11)

We made two difficult decisions this past year. We terminated our Northern Hawk Owl project after 10 years, and scaled back on our Flammulated Owl project, now into its 8th year. These projects demand enormous physical effort, and are logistically difficult to conduct. We are currently writing papers on the Northern Hawk Owl study.

We continued to expand our education programs relating to owls, wildlife research, and conservation. In fact, we gave about 50 talks in 2016. I was fortunate enough to guide and lecture on the ship National Geographic Explorer/Linblad Expeditions, to Svalbard, Norway. During this expedition, I was guiding for Polar Bears and marine birds and mammals, as a special contractor under Victor Emanuel Nature Tours. Besides guiding, I was also invited to lecture on Snowy Owls and their life history in a changing Arctic landscape. Guiding commercial and private tours allows me a unique opportunity to expand the ORI's message, and reach out to potential future ORI supporters. (See Lectures p. 12)

After 35 years of research, it's clear to me that owls are icons in the world of wildlife and generate worldwide interest unlike any other group of animals. This interest can be parlayed by conservationists, educators, managers, and researchers into support for all wildlife. Owls, as indicators of environmental health, can be used to help conserve local habitat. Their allure can bring awareness to conservation issues. Consequently, owls are ideal advocates for wildlife conservation.

In closing, I only ask once a year for your support. This year, equipment is a high priority, and we are in desperate need of another Suburban or something similar. Every dollar counts and I hope you contribute today. Read on to learn more about the programs your investment supports. When done, please pass this newsletter on to a friend or interested party.

Thanks and enjoy
the autumn and winter seasons.

~Denver Holt

Special Thanks to Jessica Larson

Jessica and Lula

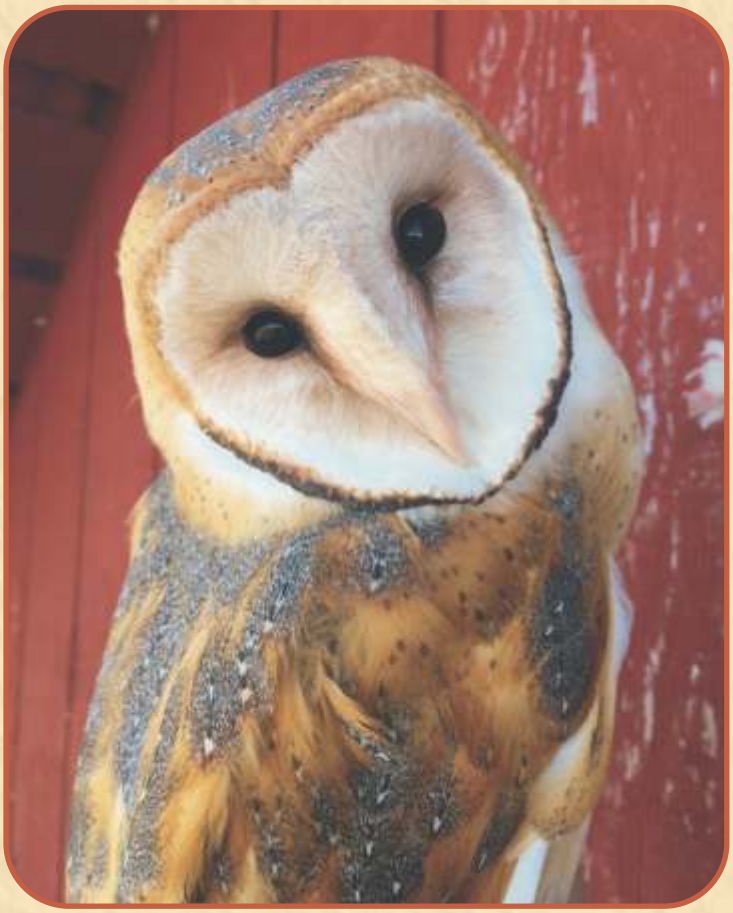
After 10 years with the ORI, Jessica Larson has moved on. She recently had her second child and is also interested in pursuing another passion, while staying closer to home in Missoula.

Jessica was an outstanding addition to the ORI. Starting off as a student volunteer, she was quickly elevated to become the program coordinator, grant writer, office administrator, and everything else you can think of.

We will miss her great smile, and when she let loose – her startling laugh. ORI researcher Matt Larson is Jessica's husband.

RESEARCH

One of the core tenets of the ORI is "boots on the ground" field work. We spend hundreds of hours each year in the field and pride ourselves on the ability to operate in a variety of landscapes, uncertain conditions, and the ever-present logistical challenges that accompany working outdoors with wild animals. We often experience exhaustion, frustration, and exasperation. Things break, cars die on the side of the mountain, essential equipment gets stolen, and weather can stall our efforts at any time. Sometimes it all seems to happen at once. But when it's all said and done, we love what we do. For all the challenges that we face in the field, we have at least as many moments that inspire us to look further and to go farther. We are grateful for the opportunity to study these owls in their natural environments and are compelled by each and every one of these species to continue to try to understand them.



Adult Barn Owl

Barn Owl. Barn Owls are the most widely distributed owl in the world, and may be one of the most common, as well. Fossil records and molecular analysis indicate Barn Owls, and their relatives, are the oldest group of living owls. They eat primarily small rodents, and their numbers can fluctuate with highs and lows in rodent populations.

While uncommon in the Missoula and Mission valleys of western Montana, we occasionally find Barn Owls during our annual search of old buildings, barns, and natural cavities. The Barn Owl is often a welcome visitor to farms and orchards, where they help control rodent populations. And remember, not every owl in a barn is a Barn Owl.

Flammulated Owl. Flammulated Owls are diminutive, insectivorous owls that are restricted in their distribution to western North America; from southern British Columbia along the Rocky Mountains to Mexico. Being primarily insectivorous, they are highly migratory and the entire population is believed to leave their northern breeding grounds to winter in Mexico and Central America, where insects are presumably abundant.

While tough to find and harder to monitor, our record of nest tree characteristics and habitat use by Flammulated Owls has helped shape the forest management plan in our study area.

Photo by Adam Eckert

Flammulated Owl

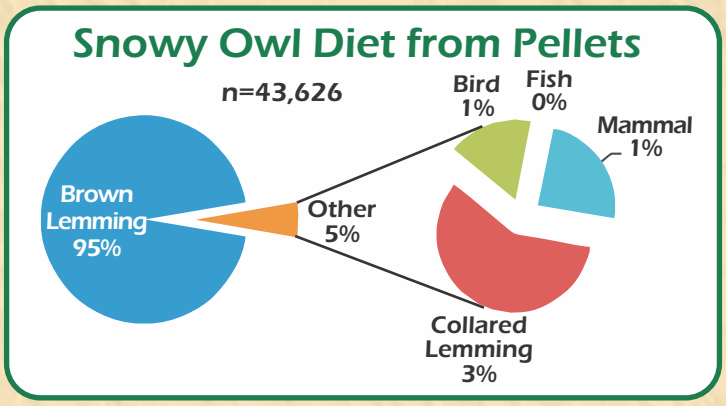
Snowy Owl. Snowy Owls have a circumpolar breeding distribution associated with Arctic tundra. They nest on the ground and, though they are capable of taking a wide variety of prey, are dependent on lemmings for successful breeding.

Photo by Florencia Mazza Ramsay

Snowy Owl chick

However, lemming numbers fluctuate widely throughout the Arctic in location and time. Thus, some Snowy Owls may not breed within a given year.

When huge numbers of these owls migrate into southern Canada and the northern U.S., we know they had a good breeding season some-where, as most of the owls are young, perhaps 5-6 months old. There is no indication that these winter irruptions are spurred by starvation or competition in the Arctic, as long-term winter studies suggest they arrive in good condition. (See Milestones pp. 8-11)



Snowy Owl feeding her chicks

Northern Hawk Owl. Northern Hawk Owls are distributed throughout northern North America and northern Europe. They are associated mostly with spruce forests of low tree density, and often found in boggy-type habitats. At the southern limits of their range, they can be found in mixed coniferous forests and recently-burned forests.

When the ORI formally started our Northern Hawk Owl study in 2006, there were seven known nest sites in the lower 48 states. We have since added 15 known nest locations and a total of 29 instances of breeding.

Photo by Kurt Lindsay

Adult Northern Hawk Owl with fledgling

Nest Characteristics of Northern Hawk Owls

Variable	North America[1]	*n*	Montana[2]	*n*
Tree Height (m)	7.5	14	19.6	17
Nest Height (m)	7.4	41	14.1	17
% Cavity Nests	33	58	53	17
% Bowl Nests	60	58	47	17
% Stick Nests	7	58	0	17

Source: [1]Duncan and Duncan 2015, [2]Owl Research Institute

Northern Pygmy Owl. Northern Pygmy Owls are associated with a wide variety of coniferous and deciduous forest habitats in western North America. They can occur from near tree line to river bottoms.

It was once believed that all owl species hatch their eggs asynchronously (in the order laid).

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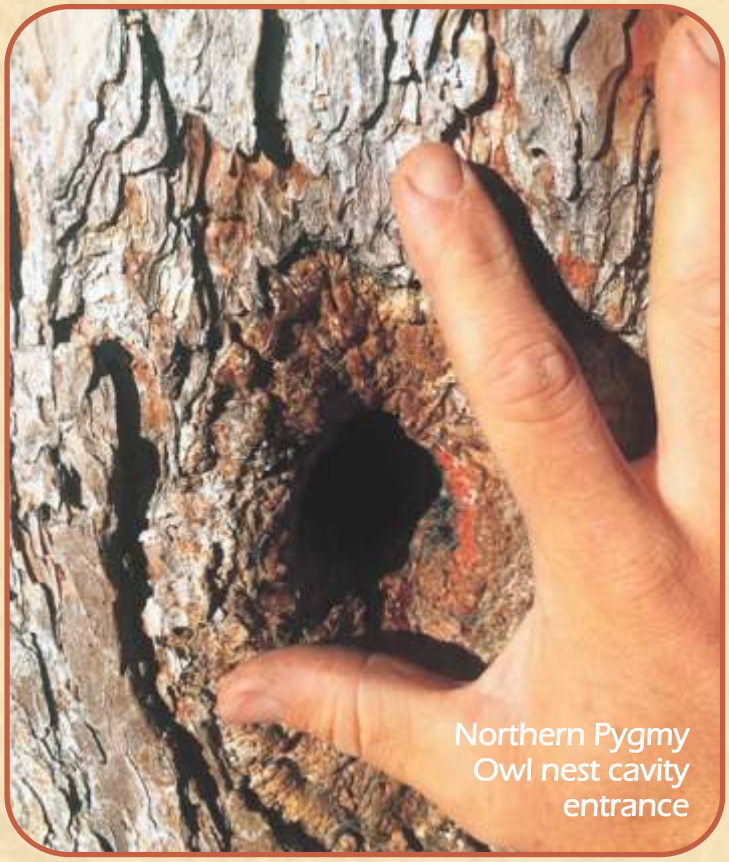
Northern Pygmy Owl chicks

However, some studies suggested Pygmy Owls may hatch eggs synchronously or nearly so. Our observations in 1982 and our present study have confirmed this unusual behavior in Northern Pygmy Owls.



Northern Pygmy Owl nest cavity entrance

Photo by Isaac Lowe-Anker

Photo by Kurt Lindsay

Northern Saw-whet Owl in natural nest cavity

Northern Saw-whet Owl. Northern Saw-whet Owls are distributed throughout North America in a variety of habitats. They may be the most common and numerous owl species in the United States and Canada.

Most breeding information on this species comes from nest box studies. Yet, one must wonder if data from nest box studies are true reflections of data from Saw-whet Owl populations nesting in natural sites, such as woodpecker holes.

Indeed, nest boxes are usually placed somewhat systematically and conveniently for a variety of reasons. Natural nest sites may have more random or patchy distribution and may be limited in number.

Furthermore, identifying key characteristics of natural nest sites is imperative for forest managers to maintain trees for cavity-nesting owls. Our data suggest different owls use different types of cavities.

Our 55 natural Saw-whet Owl nest sites are the most found for this species in North America, and provide valuable data to help forest managers.

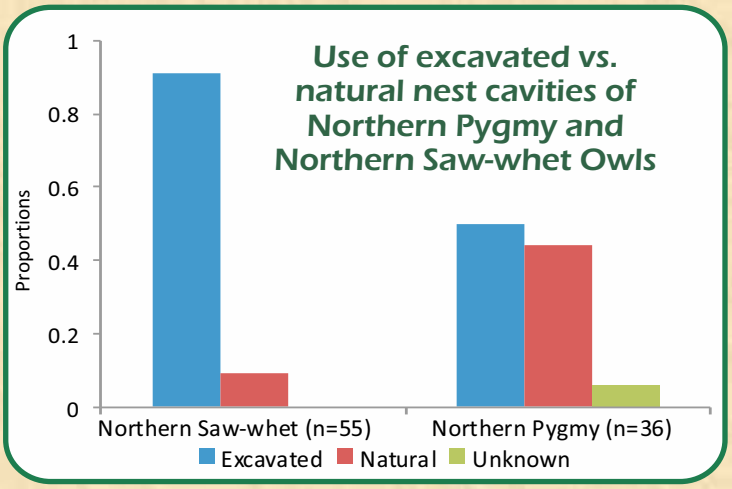


Photo by Ashok Khosla

Short-eared Owl. The Short-eared Owl is widely distributed in North America and is associated with open-country habitats such as tundra, grasslands, and rangelands, where it nests and roosts on the ground.

Although most tundra habitats appear intact, other habitats such as grasslands and rangelands have been lost or converted for other use. Consequently, Short-eared Owl populations appear to be in significant decline. (See Population Estimates, p. 11)

We continue to work with private landowners and land managers from the U.S. Fish and Wildlife Service to provide information about the locations and timing of Short-eared Owl nests. This information is used to help mitigate disturbance of management activities during the sensitive incubation and chick-rearing periods.

Google Earth

Map showing movements of Short-eared Owls fitted with satellite transmitters

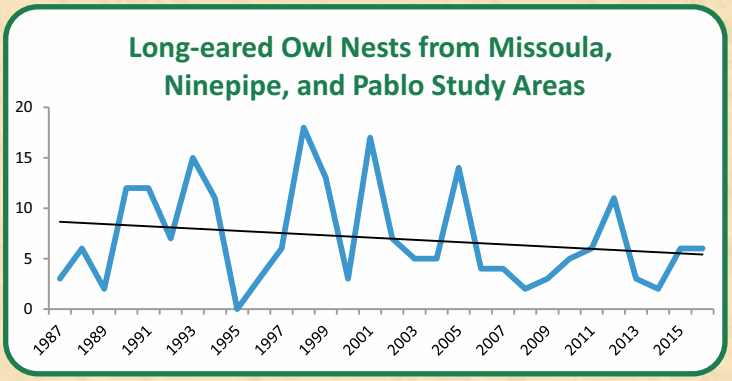
Long-eared Owl. The Long-eared Owl is widely distributed in North America. It lives in a wide variety of forest, shrub, and rangeland habitats, but is generally associated with open country. Here it forages on the wing, similar to Short-eared Owls.

Unlike the Short-eared Owl, however, the Long-eared Owl is rarely seen, due to its almost exclusive nocturnal habits. Current bird survey methods are not geared to detect this species, so little is known about its population status in Canada and the United States. However, there is data to indicate a population decline. (See graph below and Population Estimates, p. 11)

Long-eared Owl . . .

. . . displaying concealment posture

Photos by Kurt Lindsay



Boreal Owl. Within North America, Boreal Owls were once thought to nest only in Canada. However, surveys in the 1980s and review of the historical literature suggested otherwise. Today, we know that this species is found throughout the west in high elevation spruce–fir forests from Alaska to New Mexico. There is also evidence they breed in northeastern Canada, and perhaps northern Maine.

Like the Northern Saw-whet Owl, most breeding biology information comes from nest box studies. We share the same concerns about our Boreal Owl nest box study as those highlighted for Northern Saw-whet Owls. Although interesting, our data may not reflect natural distribution or other aspects of their biology (such as mating system), due to the artificial establishment of nest boxes. However, nest boxes are used with some predictability, and afford easy access for monitoring and data collection for specific questions, such as growth rates and plumage development.

Boreal Owl Chick

Measurements of Breeding Female Boreal Owls

	Number Banded	Average Wing Chord (mm)	Average Tail Length (mm)	Average Body Mass (g)
1st year breeders	9	165	109	190
Older (at least 2)	18	172	109	184
Total	**27**	**169**	**112**	**186**

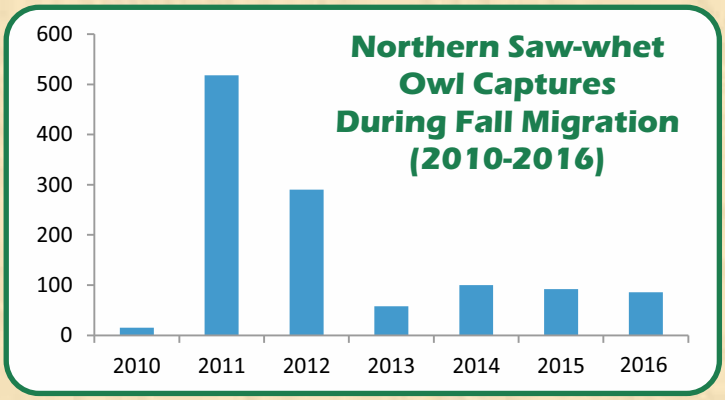
Photo by Ronan Dugan

Northern Saw-whet Owl

Migration. Northern Saw-whet Owls are well-known to be highly migratory. As with many species of owls, numbers fluctuate widely from year to year and place to place. Whether this species is an irruptive migrant responding to changing prey densities, similar to Snowy or Short-eared Owls, is currently unknown. Nonetheless, large scale migrations are known to occur from time to time.

We are now in the 7th year of our Northern Saw-whet Owl migration study. To date we have captured over 1,100 individuals. Most captures (70%) are birds in their first year of life; however, a few individuals (about 5%) can be aged up to three years old or greater.

Although recaptures of our previously banded individuals are rare, a few of these records are noteworthy. For example, owls banded here in Montana have been recaptured as far as Chico, CA; two owls were recaptured at Lucky Peak near Boise, ID; and two have been caught almost exactly a year later at the same site. These records are interesting, and over time a collection of these data can help understand the patterns and movements of Northern Saw-whet Owls, and perhaps identify important habitats and migration corridors.



RESEARCH

New Projects. For the past 10 years, we have talked about the feasibility of studying Great Gray Owls. Until now, our research has basically stalled at the hobby level. However, in collaboration with some friends, we have now decided on several study sites in western Montana and are anxious to begin.

Photo by Kurt Lindsay

Great Gray Owls

Photo by Kurt Lindsay

Photo by Kurt Lindsay

Western Screech Owl

We also began putting up Screech Owl nest boxes in western Montana on both sides of the Continental Divide. Eastern Screech Owls only occur east of the Continental Divide, but Western Screech Owls occur on both sides.

The biology and exact distribution of the two species east of the divide is rather generally known, but more info from well-designed surveys is needed.

All of our numerous boxes are on private lands, where interested landowners are keen to help monitor the owls. Over the next five years, we hope to refine their distribution data and address many questions regarding their breeding ecology.

RESEARCH MILESTONES

Two Major Milestones Reached by Denver Holt

I have always believed that dedicated field biology, coupled with long-term study, is essential to understanding wildlife behavior, ecology, and population trends. Unfortunately, in today's wildlife research domain, long-term field study seems to be a method of the past.

Today, most wildlife studies are short, seasonal jaunts into the field where researchers might: attach a transmitter; collect blood, feathers, fur, and scales; check conveniently-placed nest boxes; conduct a brief survey, and so on. Researchers then use modern technological methods and advanced mathematics to make inferences about these variables, and then use these results for conservation and management.

Clearly, technology and advanced data analysis are important tools to wildlife researchers. However, we must be careful not to let these tools supersede meaningful biological conclusions. In fact, experts in cognitive research tell us practice is the key behavior in achieving expertise. They also say it takes about 10 years of continuous practice to become experts in any domain. The ORI has remained committed to long-term field research, while utilizing modern mathematics and new technology as tools – and of course, practice.

RESEARCH MILESTONES

LONG-EARED OWL - MONTANA

We began the Long-eared Owl study in western Montana in1987. The initial research question was to determine if communal roosts of Long-eared Owls were comprised of family groups, other related individuals, or non-related individuals.

Long-eared Owls are one of only a few species of owls in the world that aggregate during the non-breeding season to form communal roosts. In Montana, this is usually during autumn and winter. At times, they also nest in close proximity – but do not fit the definition of colonial nesters.

Since the study began, a host of other questions arose, as happens in most studies. These were simple research questions such as: clutch size, hatching success, fledging success, food habits, nest-site characteristics, winter roost-site characteristics, molt, migration, and more. Even our DNA and other molecular studies, although interesting, are simple descriptive research questions.

Photo by Sarah J. Blackstone

Long-eared Owl

Predicting sex using plumage color

Through 30 years of Long-eared Owl research, we have banded almost 1,900 individuals and found over 225 nests.

We achieved many of our objectives and answered several original research questions. For example, we now know that winter communal groups of these owls rarely comprise members of the same family.

We developed a quantitative technique to discern plumage color differences between males and females.

We also unraveled the long-term mating system and determined that the owls were seasonally monogamous, but life-long polygynous. We quantified stress hormones, which allowed us to evaluate our research impact on these owls.

Overall, however, we are most proud of our long-term data on our local populations, which indicate Long-eared Owl numbers are declining. We are unsure of the factors influencing this and are presently trying to generate interest from other states to conduct surveys for this species.

HIGHLIGHTS of Long-eared Owl Study

- Longest year-round study in North America
- Over 225 nests found
- Almost 1,900 birds banded
- Over 180 birds recaptured
- Over 40,000 prey identified
- Long-eared Owls in our area are dependent on voles for successful breeding
- Quantified growth rates
- Developed quantitative method to identify sex, based on plumage color
- Determined social composition of communal roosts
- Determined social mating system
- Quantified stress response to our research
- Determined that stress does not drive early pre-fledging nest departure
- First live owl cam on Long-eared Owl nest

SNOWY OWL - ALASKA

We began the Snowy Owl study in Barrow, Alaska in 1992. The initial research question was to evaluate the predator-prey relationship between the Snowy Owl and Brown Lemming – the owls' primary food.

As with most studies, a host of other simple questions arose that were nearly identical to the Long-eared Owl study. These were followed by more original questions such as: satellite tracking of movement, growth rates, plumage development, stress response to research, nest defense behavior, and activity budgets. In fact, we were the first researchers in the world to track Snowy Owls by satellite.

Adult female Snowy Owl

Our growth and plumage development studies are the most comprehensive in the world. Our dietary studies provide the largest sample sizes in the world, highlighting the reliance of Snowy Owls on Brown Lemmings in Barrow. Our simultaneous monitoring of Snowy Owls and Brown Lemmings is the longest running study of its kind in North America. Our discovery of an infectious disease in lemmings that can affect humans has direct human health implications.

Photo by Florencia Mazza Ramsay

Snowy Owl egg and chicks

As with the Long-eared Owls, however, the most important objective was to continue long-term research and monitoring, and to ascertain the owls' population fluctuations in response to fluctuating lemming populations. We also sought to evaluate if purported lemming cycles really exist in Barrow.

Snowy Owl and Brown Lemming numbers in Barrow are declining for reasons we do not yet understand. We hope to determine if these population changes are linked to a changing Arctic climate. This study has evolved to include a message of advocacy for Arctic wildlife conservation.

HIGHLIGHTS of Snowy Owl Study

- Longest breeding season study in North America
- Over 260 nests found
- Over 700 birds banded
- Over 45,000 prey tallied
- Snowy Owls are dependent on Brown Lemmings at Barrow for successful breeding
- First Snowy Owl in world with satellite transmitter
- Developed method to identify sex of young
- Quantified growth rates
- Quantified stress response to our research
- Determined that stress does not drive early pre-fledging nest departure
- Longest data set on Snowy Owl and Brown Lemming predator-prey relationship
- First live owl cam on Snowy Owl nest

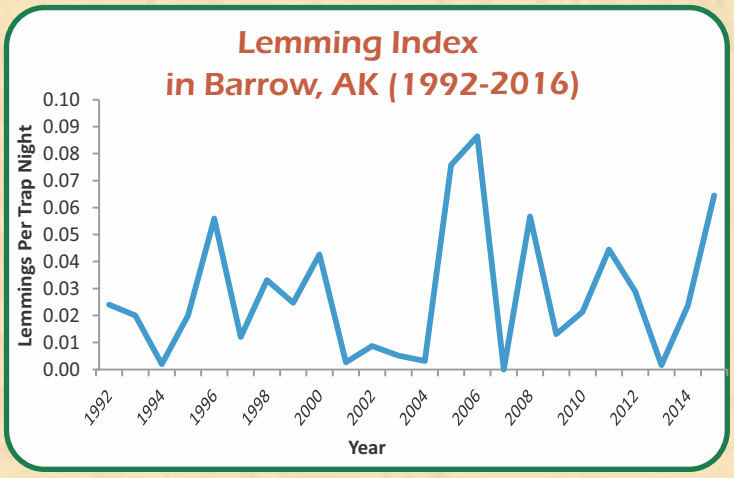
RESEARCH MILESTONES

Lemmings. Our Brown and Collared Lemming sampling project at Barrow is one of the longest efforts to monitor population fluctuations in the United States.

Now, after 25 years of sampling, we believe that lemming cycles do not exist at Barrow. It is difficult to challenge the long-standing belief that regular lemming population cycles occur; however, we see no predictable pattern over time.

Furthermore, in our review of the previous lemming research at Barrow, we see no conclusive proof that predictable cycles occurred.

Clearly, lemming population fluctuations exist, but the time interval between peaks is highly variable, the definition of a population high is subjective, and the amplitude and density is never the same from year to year. (See our graph below.)



Brown Lemmings in Alaska

Sleepy Snowy Owl chicks

North American Owl Population Estimates. Except for a few species of animals, true population estimates are extremely difficult to determine. Although a variety of population estimate methods exist, their foundations are based on numerous assumptions, many of which seem unrealistic.

Yet, wildlife conservationists and managers need to try to determine population numbers for a variety of reasons. In the table below, we provide population estimates for some of the owls breeding in Canada and the United States. The groups providing these data also provide population estimates for most avian species in Canada and the United States. If these estimates are accurate, then species such as the Long-eared Owl are in immediate need of continent-wide monitoring and conservation.

Species	Population Change (1970-2014)*
Barn Owl	48%
Eastern Screech-Owl	-41%
Great Horned Owl	-27%
Snowy Owl	-64%
Northern Pygmy Owl	2%
Burrowing Owl	-35%
Barred Owl	99%
Long-eared Owl	-91%
Short-eared Owl	-65%
Northern Saw-whet Owl	>200%

*from Partners in Flight 2016 Landbird Conservation Plan Revision (www.partnersinflight.org)

EDUCATION

The ORI intentionally maintains a small staff. Being small poses challenges, especially during the busy field season, but it also allows us to remain field-based and efficient. It would be remiss, however, to think that we do it alone. Volunteers, interns, and seasonal employees contribute hundreds of hours every year to our projects and are vital to our success. Their work and dedication are invaluable to us and we thank them all. Special thanks to Isaac Lowe-Anker, Toni McNamara, Montana Lowden, Laura Lundquist, Mat Siedensticker, long-time volunteer Steve Hiro, and many, many others for their help and enthusiasm.

Volunteer Profiles. **Toni McNamara,** of Cleveland, OH, has been volunteering for ORI for four years. Toni, who runs a small family business, has assisted us in the field in Montana and in Alaska. She brings her bird-handling skills acquired from seven years of volunteer work at the Medina Raptor Center, in Medina, OH.

In addition to helping in the field, she has taken on the time-consuming task of moderating and replying to questions about the birds on our live owl and Osprey cameras, as well as answering e-mailed questions.

Montana Lowden, a former New York City and Los Angeles fashion model, has been volunteering her time to ORI for two years. Montana grew up on a horse ranch in western Montana and is very comfortable getting her hands dirty. She now lives with her husband in western Montana.

In recent years, she has focused an increasing amount of time with ornithology-related organizations. She remains active producing and hosting television programs with a special interest for conservation-related topics. Montana brings positive energy and great passion for wildlife. She fits in nicely with ORI's work ethic. (See www.MontanaLowden.com)

Seasonal Employees. **Beth Mendelsohn,** of Jackson, WY, worked as a seasonal employee for ORI this past spring and summer. Beth came to us with significant experience working on owls and other birds of prey through her work with Teton Raptor Center and Raptor View Research Institute. She worked on various ORI projects in Montana in the spring, and then spent much of the summer in Alaska.

Although the Snowy Owls did not breed in Barrow this past summer, Beth kept very busy collecting, analyzing, and summarizing other data. This fall, Beth began studies as a master's student at the University of Wyoming. Her research focus will be on the study of population genetics of Great Gray Owls in Wyoming. Beth is an outstanding young researcher, and we certainly hope to work with her again in the future.

(L-R) Steve Hiro, Beth Mendelsohn, Toni McNamara, Denver Holt, Montana Lowden

Lectures. Every year we present many talks for a wide variety of audiences. We have species-specific programs that include: Snowy Owls, Flammulated Owls, Northern Hawk Owls, Northern Pygmy Owls, Northern Saw-whet Owls, Long-eared Owls, Short-eared Owls, and others.

We also present diversified general programs, including: Owls of Montana, Owls of United States and Canada, Evolutionary Adaptations in Owls, and How to Find and Survey for Owls. If you would like to invite us to lecture anywhere on any of these topics, please give us a call at 406-644-3412 to make arrangements.

The highlight lecture of the year was for Victor Emanuel Nature Tours' 40th Anniversary in Beaumont, TX, where Denver Holt was the opening night speaker. Approximately 200 people attended the event. Other speakers included: John Fitzpatrick, Director of the Cornell Laboratory of Ornithology; Ken Kaufmann of Kaufmann Field

Guides; and Pete Dunne of New Jersey Audubon, nature writer.

We also gave talks for: Ecology Project International, MT; Omaha Audubon Society, NE; St. Patrick Hospital, MT; Alaska Geographic Society's Murie Science Center, Denali National Park, AK; and the Special Emphasis Series at Camp Denali and North Face Lodge, AK; Flathead Lake Biological Station and Flathead Lakers Group, Science on Tap Series, MT; Quintana Nature Center Lecture Series, TX; Ohio Wildlife Rehabilitators Conference, OH; several elementary and high school classes in the Missoula and the Mission valleys, MT; and aboard the ship National Geographic Explorer/Linblad Expeditions, Norway.

Day in the Field (DITF). We donated our first DITF for a fundraiser in 1990. Now, 26 years later, we donate between 5-10 DITF annually to schools, community groups, hospitals, or charitable organization fundraisers. What initially started out as a Montana event has now expanded throughout the United States.

The DITF offers an opportunity to spend the day in a natural environment with owl researchers, focusing on either owl research or other natural history, such as bird and mammal watching. The DITF provides members of the public with an informative, exciting experience learning about wildlife research, wildlife natural history, and evolutionary adaptations.

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Denver addressing a DITF group

DITF programs are provided free of charge, as the ORI does not take money from the group's fundraising events. This year we provided a DITF to: Five Valleys Audubon, MT; NPR/KUFM Montana Public Radio; Ecology Project International, MT; Trout Unlimited, West-Slope Chapter, MT; Women 4 Wellness, St. Luke Community Hospital, Ronan, MT; KSKC Tribal Public Television, MT; Salish Kootenai College, Flathead Indian Reservation, MT; SpectrUM Discovery Area, University of Montana; Student Chapter of the Wildlife Society, University of Montana .

Photos by ©Daniel J. Cox/NaturalExposures.com

A DITF with Five Valleys Audubon, Montana

EDUCATION

Classes and Workshops. Each year we conduct a number of free educational classes and field workshops for a variety of entities, such as schools and civic groups.

Our staff is also occasionally contracted privately to teach a variety of education programs. These programs include: Owl Workshop, Winter Raptor Workshop, Winter Adaptation in Animals Workshop, Field Techniques in Ornithology, and Introduction to Ornithology Workshop.

By teaching these courses, the ORI is able to reach a wider audience, promote the ORI's research and education programs, and wildlife conservation and management, in general.

Photo by Sarah J. Blackstone

Field Workshop

"Your depth and breadth of experience, coupled with your engaging manner of storytelling, forever changed my view of my surroundings and the habitats I see. Your vision for the Institute, your passion for your work, your open respect for your staff is forever interwoven with my memories of this remarkable experience. Thank you for all your efforts on our behalf."

- Owl Workshop Participant

Flammulated Owl photo by Rick Kline

Media Coverage. Writer Gary Walther ventured to Montana and spent a week in the field with the ORI. Gary wrote a wonderful piece for "The Financial Times" newspaper of London, England. Gary's article featured the ORI's work on owls and other birds of prey in western Montana. This article was published after the deadline for our 2015 newsletter, as it appeared on 12 December 2015. (See www.financialtimes.com)

Cherie Newman of NPR/KUFM Montana Public Radio joined us in the field in February 2016, and produced a radio interview highlighting our research and her experience. (See www.kufm.com)

Winston Greeley, Public Information Officer of Montana Fish, Wildlife and Parks, joined us in the field and filmed our research on Long-eared Owls. This aired on KPAX television as a news special on 07 March 2016. (See www.kpax.com)

Rob Chaney, of "The Missoulian" newspaper, MT, covered the ORI's 30 years studying Long-eared Owls in western Montana, but it was too late to include in our 2015 newsletter. (See this article from 24 December 2015 at: www.Missoulian.com)

Melynda Harrison wrote a beautifully composed, informative, and accurate article about our Long-eared Owl study. The article was featured in the Fall 2016 issue of "Big Sky Journal". Melynda captured our feelings and related our research philosophy, our dedication, and our passion for owls and wildlife research. Photographer Jeremy Lurgio's photographs depicted our research methods, and clearly, our attitude that science can be fun. After reading this article, we felt this was one of the best pieces we've seen in years. It captured our essence. (See www.bigskyjournal.com)

Melynda also wrote a piece on our long-term research projects (Long-eared Owl and Snowy Owl) for the "Great Falls Tribune", MT. This article appeared on 27 January 2016. (See www.greatfallstribune.com)

Book Reviews and Peer Reviews. Owl books are extremely popular among people interested in natural history, and many are published each year. The ORI is frequently asked to review these books for scientific journals, publishing companies, and authors. However, it's impossible to review them all, so we must be choosy. We have just finished the review of: "The Snowy Owl" by Eugene Potapov and "A House of Owls" by Tony Angell. We

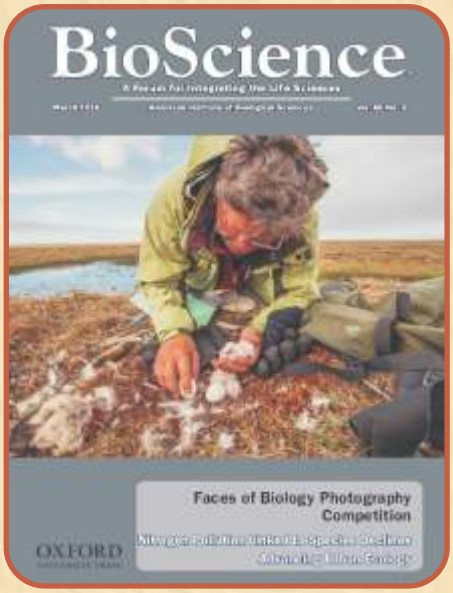
are currently reviewing "Owls of North America and the Caribbean" by Scott Wiedensaul.

Additionally, we referee scientific manuscripts for publication in peer-reviewed journals. This process is more stringent than book reviews, and authors of scientific papers are submitted to more rigorous review than book authors. We have now refereed papers for 12 professional journals.

Publications. We recently revised the Snowy Owl species account for the Cornell Lab of Ornithology's Birds of North America (BNA). It appeared in 2015, but is such an important achievement we remind you once again. You can access it at http://bna.birds.cornell. We are also updating the Northern Pygmy Owl species account for the BNA.

Additionally, we published three major papers in 2016. Two were published in the "Journal of Raptor Research", the world's leading journal on raptor biology and conservation. They were titled "Sex Differences in Long-eared Owl Plumage Coloration" (JRR 50:60-69), and "Mass Growth Rates, Plumage Development, and Related Behaviors of Snowy Owl Nestlings" (JRR 50:131-143.) The latter was selected as the cover article. A third paper, "Using Roadside Surveys to Detect Short-eared Owls: A Comparison of Visual and Audio Methods" was published in "The Wildlife Society Bulletin" (40(2):339–345), a leading journal presenting new techniques for wildlife conservation, management, and research.

Our Snowy Owl project was featured on the March 2016 cover of "BioScience" (a publication of the American Institute of Biological Sciences - AIBS) as part of their "Faces of Biology Photography Competition." (See BioScience Vol. 66, No. 3.)



Cover photo by Florencia Mazza Ramsay shows Denver working with Snowy Owl chicks at a nest in Barrow, AK.

Robert Gropp, Co-Executive Director of AIBS said: "Photography is an effective tool for capturing the attention of general audiences. It's important that we endeavor to help people understand how scientific research is done."

Dan Cox, Natural Exposures Photography, does just that. He gave a program on 10 April 2016 at the Museum of the Rockies, Bozeman, MT. Dan and Denver highlighted how photographers and researchers can work together for conservation education. Dan and Denver have been working as a team since 2000. The first result of their collaboration was the cover story for "National Geographic Magazine" in December 2002. (See more about Dan's wildlife conservation work at www.naturalexposures.com)

Dan Cox and Denver in Alaska

Professional Meetings. Denver Holt and Matt Larson presented five papers at the 50th Anniversary of the Raptor Research Foundation's Annual Meeting in Cape May, NJ. They spoke on Snowy Owls (DH), Long-eared Owls (DH), Northern Hawk Owls (ML), Northern Pygmy Owls (ML), and Northern Saw-whet Owls (ML).

At the meeting, Matt and Denver also participated in the Raptor Research Foundation's Early Career Raptor Research (ECRR) program. The ECRR committee invited the ORI to have a table and be available to students and young raptor biologists seeking advice in career opportunities in raptor research.

The ORI's standing as a successful non-profit research group provides young researchers an example of an alternative avenue to pursue research outside the more traditional routes in government and academic settings.

LIVE OWL CAMS

This was the fourth year of our partnership with the Annenberg Foundation's Explore Program. (See www.explore.org) This program uses live cameras to share with the world our planet's wildlife and scenic landscapes. For Explore's "Pearls of the Planet Series", we have established live cameras on the nests of: Snowy Owl, Great Horned Owl, Long-eared Owl, and in 2016, Osprey.

The cameras are active 24 hours a day and seven days a week – provided there are no technical difficulties. By day, you can view the scene in color and by night, infrared. Clearly, these cameras have given us an opportunity to learn more about the breeding behavior of these species. The cameras allow us to see the entire lives of these animals – sometimes including their death. It can be difficult to watch, but as researchers, we do not interfere for the sake of learning more about their collective lives.

For example, for the fourth year in a row, we placed a camera on a Long-eared Owl nest. The male and female were very obliging, allowing the world to watch them raise their family on camera. Together they raised seven young, all of whom fledged. It was the female's fourth year in a row breeding in this same spot, and she has had a different mate each time. Female site fidelity in Long-eared Owls is very rare, and mate fidelity has never occurred in this study. The world has now become familiar with this web cam and the life of these seldom-seen owls.

We conducted two live, hour-long chats during which we answered online questions from viewers about the owls and Ospreys they were observing on the cams, as well as the birds' natural history in general.

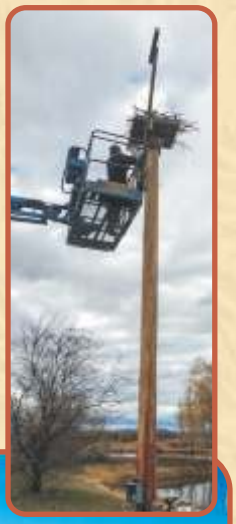
Photo by Some Call Me Tim/explore.org

Great Horned Owl with chick

From 11 March to 02 October 2016, our three nesting species, Great Horned Owl, Long-eared Owl, and Osprey, were viewed by people in 33 countries. Viewing statistics provided by Explore revealed that our cams generated enormous exposure. There were:

2,403,334 page views,
1,388,890 unique (independent) views,
2,757,728 Live Cam Streaming views,
2,664,146 YouTube views, and
1,391,823 Facebook views.

Now that's reaching a big audience! This is a tremendous education tool, and can help promote conservation messages and support for our programs. We will continue in 2017 and hope to add a camera on a small-cavity nesting species, such as a Northern Saw-whet Owl.



Osprey cam installation and meal delivery

Photo bt Samantha Eye/explore.org

A scene from this year's Long-eared Owl cam

Photo by SDinVA/explore.org

CONSERVATION PARTNERSHIPS

We rely on partnerships with many other organizations to fulfill our mission and accomplish all the work that we do. We acknowledge the following organizations and thank them for their support:

Alaska

Alaska Department of Fish and Game
North Slope Borough, Department of Wildlife
Ukpeagvik Inupiat Corporation (UIC)
UIC Science and Logistics
U.S. Fish and Wildlife Service

Montana

Confederated Salish & Kootenai Tribes
Montana Fish, Wildlife and Parks
U.S. Forest Service: Beaverhead, Lolo, Bitterroot, Flathead National Forests
U.S. Fish and Wildlife Service: National Bison Range Complex

Texas

Victor Emanuel Nature Tours

Private Landowners. We extend a special thanks to private landowners. Over the years, many individual landowners and Indian Reservations have been kind enough to allow us access to their lands for research studies and education programs. Access to private land allows us more opportunity in research than would be possible otherwise. We truly appreciate the landowners' gift of access. Thank you all.

Wild Skies Raptor Center. For several years now, we have worked with Wild Skies Raptor Center, a raptor rehabilitation and education organization in Potomac, MT. We routinely direct questions about injured owls to Wild Skies and assist them in releasing rehabilitated birds back to the wild. We also partner with them for education programs. For more information about their important work with raptors, visit www.wildskies.org.

Brooke and Frith

Natural Exposures Photography. Dan Cox, of Natural Exposures Photography, and the ORI have been working together since 2000. (See Publications p. 15)

Photographers. We thank all those who generously allow us permission to use their pictures in lectures, presentations, and this newsletter.

NATURAL HISTORY TOURS

We continue to work with Wild Planet Nature Tours and Victor Emanuel Nature Tours.
Our tours are diverse, covering all aspects of natural history, but our expertise is in birds and mammals. We teach methods workshops, such as: How to Locate and Survey for Owls; Adaptations in Owls; Ornithology for Beginners; Raptor Identification; and Winter Adaptations in Mammals.

Wild Planet Nature Tours 2017 Programs

WILD PLANET nature tours

Winter Raptor Workshop
January 26-30
Baja, CA Natural History
February 23 – March 2
Yellowstone in Winter – April 6-10
Owl Workshop – May 11-15
Montana June – June 1-10

Photos by Daniel J. Cox/Natural Exposures.com

Most tours cater to small groups and individuals.
Tours led by Denver Holt, Megan Fylling, and Matt Larson, and other qualified guides
Denver, Megan and Matt also guide a few specialty tours and an owl education workshop for Victor Emanuel Nature Tours, Austin, TX. See www.ventbird.com.

For more information, visit www.wildplanetnaturetours.com.

Eco-tourism in the Mission Valley, MT

Great Gray Gifts

www.greatgraygifts.com

A new gift shop has opened in the Mission Valley, MT, with a catchy name and a creative owl logo. We felt we must mention it in our newsletter as the shop will host a weekly updated bulletin board highlighting significant bird and mammal sightings in the Mission Valley, including: Ninepipes, Kicking Horse, and Pablo National Wildlife Refuges, the National Bison Range Complex, Flathead Indian Reservation Tribal Lands, and Montana Fish Wildlife and Parks state lands.

The small gift shop is located between the Ninepipes Lodge and Ninepipes Museum of Early Montana on Hwy. 93, about 45 miles north of Missoula. Operated by Stephanie Trudeau-Morton (smorton@greatgraygifts.com), the shop offers many unique, Montana-made gifts. Stop in for a coffee and say hello from the ORI.

Ninepipes Museum of Early Montana

www.ninepipesmuseum.org

Located next to Great Gray Gifts is the Ninepipes Museum of Early Montana. This is no roadside tourist trap. This is a first rate museum and comparable to any big city museum of its type in quality and quantity of artifacts and displays, including an extensive wildlife exhibit. If you are in the Ninepipes area, take the time to stop – you'll be very impressed with this museum.

Ninepipes Lodge

www.ninepipeslodge.com

Next door, Ninepipes Lodge has emerged as an eco-friendly lodge, welcoming birders, hunters, and nature enthusiasts. It has updated rooms, a beautiful dining room with a magnificent view of the Mission Mountains, and a clean spacious bar. The Lodge highlights the heart of the Flathead Indian Reservation and is immediately adjacent to Ninepipe National Wildlife refuge, and only a 20-minute drive to the National Bison Range. For more information, please contact Brian Morton at 406.644.2588.

2016 Wish List

In addition to donations and grants, the ORI is in need of other contributions.

Each year we are grateful to receive donations of equipment and gear that help in our research and facility/equipment maintenance. Thanks to all of you who have donated in the past!

When you spend time working outdoors as much as we do, you end up putting some wear and tear on your equipment. In order to keep it all up and running, we spend a fair amount of time and effort maintaining and organizing all of our gear. Unfortunately, even the best-kept equipment breaks down over time. For some reason, this past year was particularly tough on our equipment. Our Suburban died (370,000 miles) on the Boreal Owl project, snowmobiles and ATVs broke down, and at times it felt like it was all falling apart at once. We've patched up what we could and replaced much of what we couldn't, but there are always things that would be appreciated. Please consider us if you have any of the following items to donate:

- **ATVs** – 2 more in good shape
- **Suburban** or other field car
- **Microscopes**
- **Riding Lawn Mower**
- **Banding Equipment**
- **Binoculars & Scopes**
- **New Computers**
- **Books & Artwork** (bird & wildlife related)

Our programs would not be possible without your generosity. Thank you.

Photo by Ronan Dugan

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.

Name _____

Size: 2″_____ **3″**_____ **4″**_____ **5″** _____

Animal, Bird, Plant _____

Donation amount enclosed $_____

Address_____

City _____

State_____ **Zip**_____

Phone ( )_____

Email _____

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UIC Science and Logistics, Umiaq, AK
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NonProfit Sponsors

Five Valleys Audubon, Missoula, MT
Mission Valley Audubon, MT
Montana Audubon Wildlife Fund, MT

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

NOTE ABOUT SPONSORSHIPS: In our newsletter, our practice is to recognize only businesses, nonprofits, foundations, and agencies. We do not list individual names as a courtesy to our constituents, for many wish to remain anonymous. Only in special cases, and with permission, do we list the names of individuals. On the Wall of Support, however, we will list all sponsors, individual or otherwise. This decision ensures a certain measure of privacy.

OWL RESEARCH INSTITUTE
P.O. Box 39
Charlo, MT 59824
406-644-3412
owlmontana@blackfoot.net
www.owlinstitute.org

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Photo by Dick Walker