

ADOPT A WILD RAPTOR!



CONTRIBUTE TO RVRI THROUGH OUR 'ADOPT A RAPTOR PROGRAM'

When you adopt a raptor, you will receive a packet which includes an adoption certificate specific to your individual bird with band number, wing tag (*Golden Eagle only*), age, sex, size and when and where it was banded. You will also be notified of any follow-up information regarding re-sightings, re-capture and recoveries. Furthermore, you will get a 4 x 6 color photo of your adopted bird and an informative Natural History fact sheet.

AVAILABLE RAPTORS

Sharp-shinned Hawk.....	\$50
American Kestrel	\$50
Cooper's Hawk	\$50
Northern Harrier	\$50
Merlin	\$75
Prairie Falcon	\$75
Red-tailed Hawk	\$75
Rough-legged Hawk	\$75
Swainson's Hawk.....	\$100
Northern Goshawk	\$150
Golden Eagle	\$250
Golden Eagle with satellite transmitter	\$1500



WRITE DOWN THE RAPTOR YOU WANT TO ADOPT IN THE SPACE PROVIDED IN THE ENCLOSED ENVELOPE

We are a 501(c) 3 non-profit organization; all donations are tax deductible. A receipt for your tax records will be provided.

**RAPTOR VIEW
 RESEARCH
 INSTITUTE**
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Spring 2011

RAPTOR VIEW

RESEARCH INSTITUTE



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MESSAGE FROM THE PRESIDENT

Welcome to Raptor View Research Institute's (RVRI) sixth annual newsletter. It is hard for me to believe it has been six years since our inception! We continue to work very hard at building on our long-term research projects, developing new projects, and as always, dedicating time to our free education programs. From our Golden Eagle and raptor migration studies along The Rocky Mountain Front, to our Osprey ecotoxicology and our Swainson's Hawk nesting ecology projects, Raptor View is a year-round endeavor. This newsletter is our means of sharing with you pertinent events in the greater raptor research community, as well as an overview of our successes from 2010, and our vision for 2011. Of course, none of this would be possible without the generous contributions and continued support of the many conservation-minded individuals, businesses and organizations that keep us moving forward. Thank you again for your support!

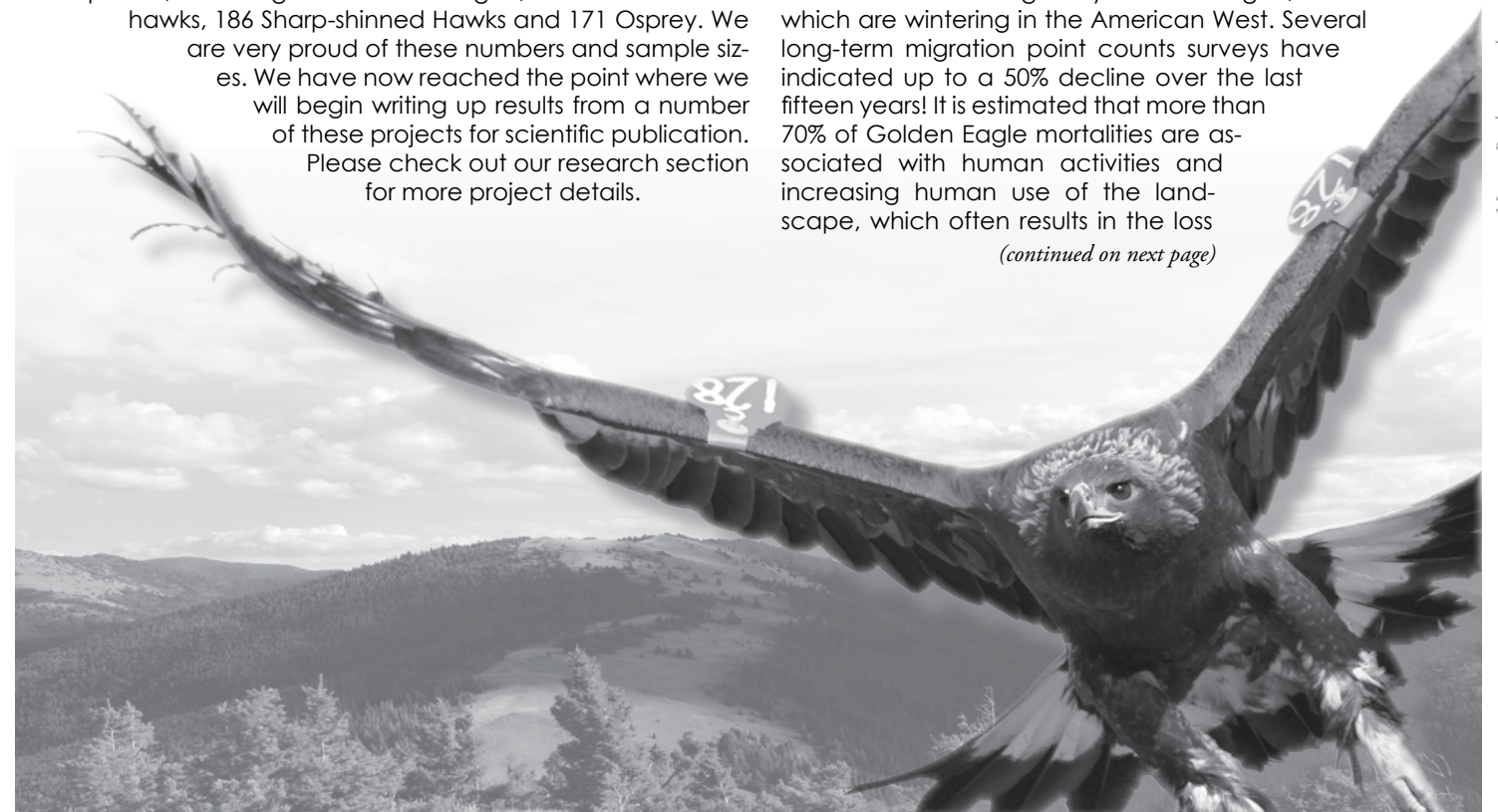
We had our best fall season to date in 2010. We set a new single season record - banding 36 Golden Eagles! Since 2004, RVRI has banded a total of 1,071 raptors; this total comprises 14 species, including 166 Golden Eagles, 141 Northern Goshawks, 186 Sharp-shinned Hawks and 171 Osprey. We are very proud of these numbers and sample sizes. We have now reached the point where we will begin writing up results from a number of these projects for scientific publication. Please check out our research section for more project details.

We are reminded of how important our work is in light of concerns that Golden Eagle numbers are declining. There is a call for research data on Golden Eagles by the U.S. Fish and Wildlife Service and other government agencies to examine the impact of expanded resource extraction, windfarms, and related infrastructure across many areas of the American West. Understanding the relationships between human activities and Golden Eagle ecology is essential if we are going to create a balance between healthy Golden Eagle populations and sustainable development.

The Golden Eagle is already listed as a "species of concern" in many federal wildlife regions across the West. It is also federally protected by the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act. Indeed, it does appear the Golden Eagle is no longer "flying under the radar" in terms of a species in need of more research.

For years, those of us who study raptor migration ecology have been keenly aware of the reported declines in the number of migratory Golden Eagles, most of which are wintering in the American West. Several long-term migration point counts surveys have indicated up to a 50% decline over the last fifteen years! It is estimated that more than 70% of Golden Eagle mortalities are associated with human activities and increasing human use of the landscape, which often results in the loss

(continued on next page)



Megan Ruchmann photo

Hatch-year Golden Eagle C-128 flies away, Nora Ridge in background

of suitable habitat. Clearly, more scientific information is essential if we are going to better understand what is going on with Golden Eagles, in both migratory and non-migratory populations.

In anticipation of this need, RVRI will be ramping-up our research efforts in 2011. In addition to our Nora Ridge research station, we are planning to bring back our Grassy Mountain Project along the Big Belt Mountains. Additionally, we plan to conduct a full season of point count monitoring in the Bull Mountains. It was here in 2005 where exploratory counts yielded some very impressive numbers of Golden Eagles. Of course, by nearly tripling our research efforts we will be greatly expanding our education outreach. This will pay big conservation dividends for future generations.

It is clear, we have a lot of work ahead of us and are looking forward to a very productive 2011. I would like to thank everyone who has contributed in the past, whether through donations or volunteer time. I also appeal to you to continue supporting our programs,

even during these tough economic times. I ask those of you who are just learning of our work for the first time to consider a tax deductible donation to Raptor View. Your contribution of any size is essential to the continuation of our research, conservation, and education programs. We look forward to hearing from you and forging new partnerships in conservation. Have a wonderful year!

Sincerely,

Robert Domenech

Robert Domenech



Megan Ruchmann photo

IN THE COMPANY OF EAGLES (AN ESSAY BY JEFF HERSHKOWITZ)

Long ago, I flew hang gliders for many years along the Sierra Nevada. We were mostly young men in our 20's and 30's in those days of the 70's and 80's. As carpenters, laborers, waiters, we eked out a living at Lake Tahoe and the Sierras in order to ski powder in winter and ride the sky in summer, the latter of these activities being the strongest passion for most of this collection of arguably social misfits.

Hawks and especially Golden Eagles were our mentors and totems as we learned soaring micrometeorology through their eyes. Our feathered teachers always found the lift and we would follow them to cloud-base in our foot-launched craft whenever we had the chance. We could be low in hellish turbulence and sink, miles from any road, track, or civilization, but if luck was on our side and an eagle would flash by, our salvation was usually assured. All we had to do was follow and they would always lead us to the best lift.

In the spring we would sometimes see eagles as pairs, enter a thermal, spiral up and through us, then lock talons and spiral down for a thousand feet, separate above the trees and thermal back up, only to repeat the act. As you may know, most spring and summer thermals in the Sierras contain soaring raptors.

I remember one day in the Owens Valley, getting very low and far from any road with my prospects of finding lift or a suitable landing spot rapidly diminishing. I was soaked in sweat from wrestling the glider around and trying to stay airborne in the July desert heat. A subtle

brown flash going the opposite direction briefly crossed the edge of my peripheral.

I instinctively turned in that direction, towards the mountain, trees and away from anything hospitable, with nothing more than the summation that a hawk or eagle was in the vicinity. Rolling out of my turn, I saw the golden almost immediately about a thousand yards in front and a couple hundred feet below me.

I pursued, knowing if I ran out of altitude and crashed back here, at best it would be at least a two-day walk out. We were dropping like stones. Now I was committed with no way out but up or crash in this rocky canyon.

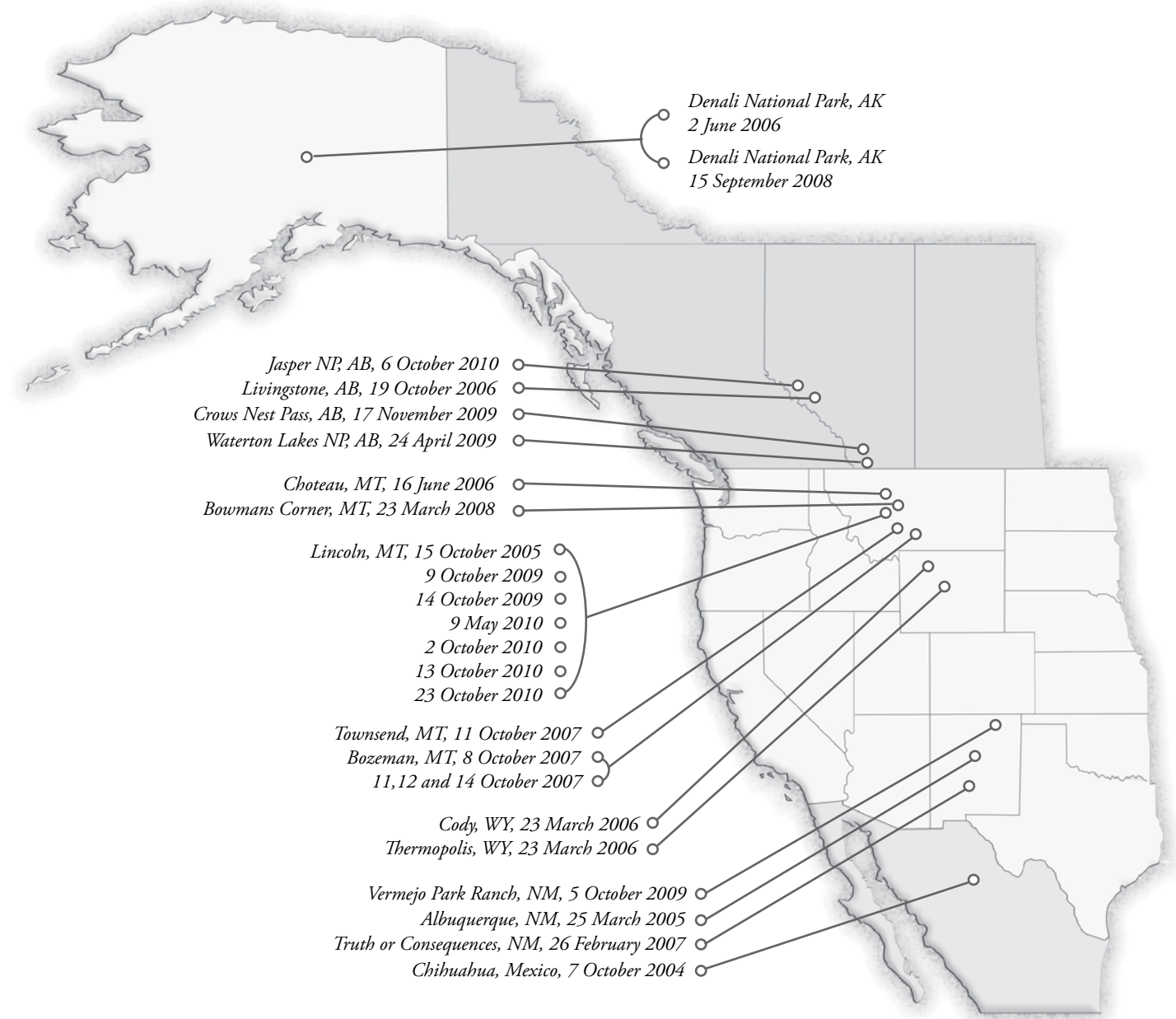
Finally she shot upward and turned in front of me, much to my relief. She paused, mid turn, pointing in my direction, before continuing her circle, drifting up the canyon wall. Thirty seconds later I hit the rowdy base of the same gusty thermal. The glider pitched up and my variometer (a device for measuring climb or decent rate) started to chirp away, indicating lift. Then we waffled through mixed lift and sink before hitting the actual core of the thermal where the strongest lift resided.



Jeff with Golden Eagle

(continued on page 14)

GOLDEN EAGLE WING TAG UPDATE 2010



Map of Golden Eagle Wing-tag Encounters, as of Fall 2010

RVRI has been applying vinyl wing-tag markers (blue with white alphanumeric's) on all captured Golden Eagles since 2004, and to date 134 migrant eagles have been wing-tagged and banded from our stations. This technique is considerably more effective than banding alone as a means of identifying individuals and receiving return information.

These encounters are helping us learn more about Golden Eagle migratory ecology, such as, where migrants are wintering and summering, how far they travel, how long they live and the

cause of individual eagle mortalities. In 2010 five of our wing-tagged eagles were encountered, bringing our total to 25 encounters!

Most notable encounter in 2010 was Golden Eagle C-90, an impressive three-year-old female, banded near Lincoln, MT on October 23, 2008. She has the distinction of being our only eagle that has been encountered twice, with more than 1,000 miles between encounter locations. She was first observed during the summer of 2008 in Denali National Park. The second encounter would be her last, as she was found

dead October 6, 2010 along the side of hwy 93, near Jasper National Park by park employees. Her tag was removed and turned over to the park biologists, who then contacted us. Unfortunately, we have not been able to determine the cause of death, though electrocution has been ruled out, as there are no power lines along that stretch of road.

As time passes and data continues to trickle in, we look forward to learning more of the outcomes of these marked individual eagles in our efforts to learn more about Golden Eagles as a whole.

EDUCATION



RVRI continues to offer free, hands-on outdoor educational workshops for local school groups, youth homes, college students, community organizations, the general public, and for charitable events. We feel that 'the informal, non-traditional classroom' is a great way to augment conventional approaches to learning, while exposing students to a very unique outdoor education experience. We are able to involve students from a variety of backgrounds and circumstances in all aspects of raptor research, and introduce them to key ecological principles, raptor ecology, and conservation biology. In 2009 we had over 200 participants take part in our programs! Also worth noting is that since its inception, our Osprey Research Project has reached over 2000 students.

Raptor View's Education Curriculum

RVRI offers a comprehensive educational curriculum designed and written by Noel Nies- Nesmith, as part of her Masters Degree in Education. Noel deftly merges field research techniques and classroom learning into an informative, fun and complete format designed primarily for middle and high school age students.

Participated in our educational programs include:

Audubon Society, Missoula Youth Homes (MYH), Seeley-Swan High School, Potomac School, Willard Alternative High School, Flagship Youth Program, WORD (Summer Arts and Leadership Camp, Learning Times Child Care), Clark Fork Watershed Education Project, Natural History Center, and others.

All the participants of our programs experience a unique view into wildlife research and conservation that few people ever see. We feel this particularly important with the kids, as we instill in them, an appreciation for the often misunderstood 'bird of prey.'

Day in the Field

RVRI donates a day in the field for local community fundraisers, charitable events and other non-profit organizations. The day is spent working with RVRI biologists on one of our research projects. Participants assist directly in all aspects of our field work. We enjoy sharing our research and are glad we can help. Our days in the field have brought in donations of up to \$1,000 for these very worthwhile charitable events.

Groups and charities include: The Natural History Center, AniMeals, Missoula Children's Museum, Montana Audubon, Missoula Carousel Association, Footloose Montana, Jayden Summerfield Fund, NPR Public Radio, YMCA (Christine Doyle Fundraiser), Traveler's Rest Preservation and Heritage Association, Paxon School (art curriculum fundraiser) and others. Please feel free to contact us if you think we can help.



Megan Ruebmann photo

Kristina Davis's Potomac Middle School class spends a day in the field banding raptors

RESEARCH



FALL MIGRATION AND BANDING RESEARCH FROM NORA RIDGE

This fall we successfully completed our fifth season of banding and observation from Nora Ridge along the Rocky Mountain Front (RMF) in west-central Montana. This project is part of an ongoing effort to monitor trends in raptor populations of the northern Rocky Mountains, with an emphasis on Golden Eagles.

The 2010 season was our best season for weather in years, with warm, sunny conditions lasting the entire field season. Of 45 days of counting we had only three days of the "dreaded" east winds and only one day of measurable snow. This made for a very steady predictable flight, with migrants moving nicely along the western flanks of Nora and nearby ridges. These favorable weather conditions and the predictable migratory flight paths of eagles and other raptor migrants contributed to our record breaking 33 Golden Eagles banded on the ridge! (See banding section for more details)

The Crew

As usual, we had a highly motivated field crew. Full season banders included RVRI executive director Rob Domenech and new comer, trapper/bander David "Clutch" Haines. We hung the nickname "Clutch" on David, as he had the ability to pull in these "clutch" eagle captures on days when all hope seemed to be lost. Also on board fulltime was Erik Enzien who has been chasing raptor migration around western Montana with Rob since the mid 1990s. Erik has been there for RVRI since day one. Besides being our graphic designer and builder of this newsletter, Erik is skilled birder and naturalist. Erik also proved to be a great back-up trapper pulling in 15 raptors, including several Golden Eagles. Veteran Vince Slabe slid in towards the end of September just as the eagle flight was starting to pick up. Vince brings his unique brand of humor and infectious enthusiasm, as well as, much experience to the team. Tyler Veto (former Willard Alternative High School student) timed his arrival to coincide with Vince. Tyler was supposed to be attending college classes! Anyway, Tyler has put in hundreds of hours working with RVRI and "knows the ropes" very well.

In addition and in classic fashion, Bryan Bedrosian showed up with an entire crew of his own! That crew consisted of Ross "Randall" Crandall, Kathy "Kat" and Dean Townsend, Jill Learned and Megan Ruebmann. When Bryan shows up, the energy level of the entire crew is amplified. Bryan's crew stayed for a week, with the exception of Megan who stayed on for most of the peak season. Megan, a seasoned field biologist and photographer, was a delight to work with and great to have on-site! Finally, rounding out the crew and heading up the count were new comers Sarah Norton and Adam Shreading. Adam and Sarah fit right in with the crew and did an outstanding job of heading the count. Their enthusiasm (even on slow days) never waned and they always had their eyes to the sky. Furthermore, they worked tirelessly to give us the heads-up on in-coming raptors to the banding station.



left, Dave and Vince with Golden Eagle. above Right, Megan with Red-tailed Hawk. below right, Sarah with Golden Eagle

Megan Ruebmann photo

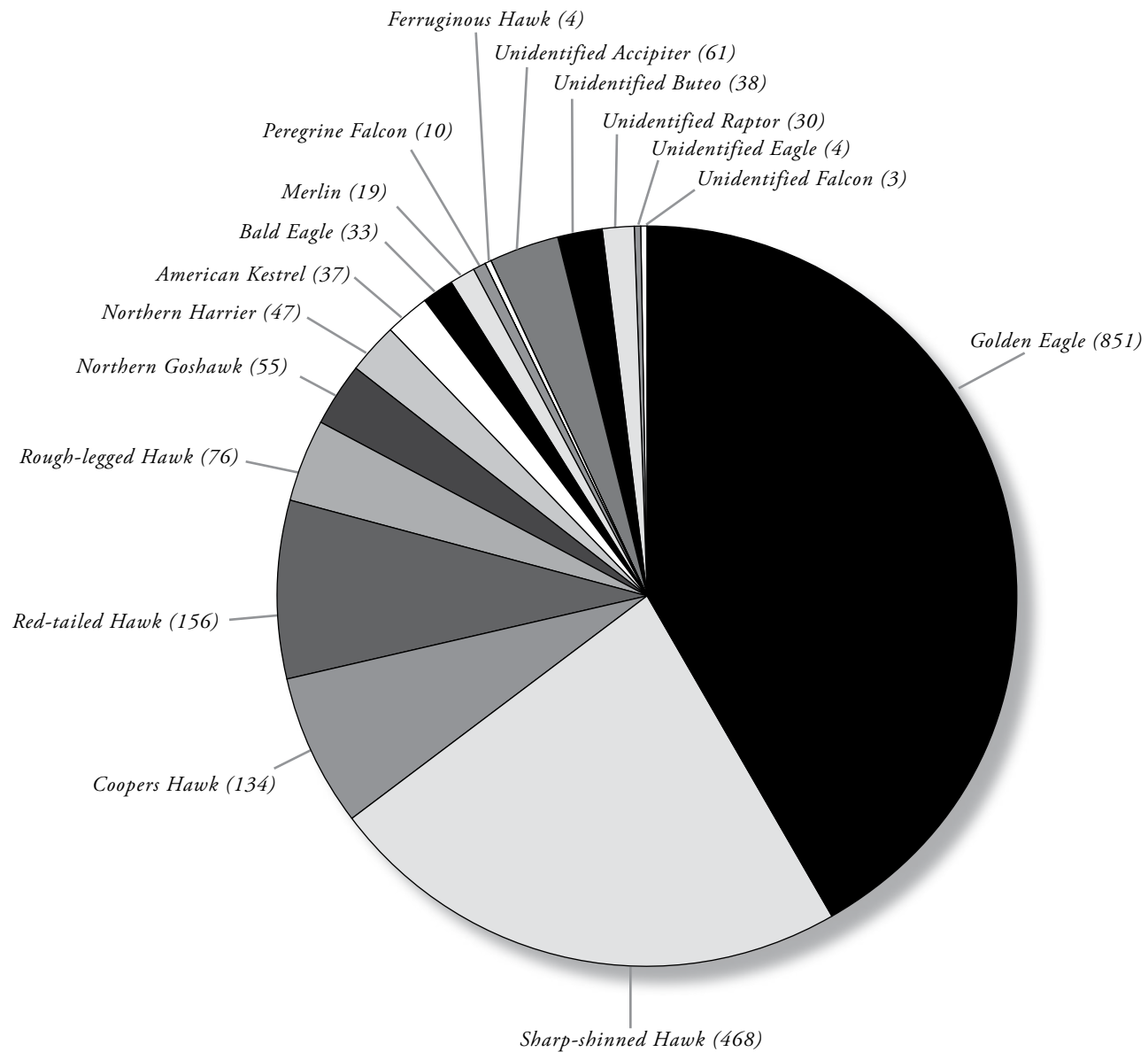


RESEARCH



GOLDEN EAGLE AND FALL RAPTOR MIGRATION COUNT FROM NORA RIDGE

Observations were conducted from September 7th through October 30th. During this period eight days were suspended due to unworkable weather conditions and only three days were cut short due to poor weather. A total of **2,047** raptors were counted in **309** hours of observation, comprised of **16** species, including Turkey Vultures. The Golden Eagle total came in at **851** and comprised **41** percent of all observed migrants. Our highest count in one day occurred on October 6 when Sarah and Adam tallied **139** raptors, including **65** Golden Eagles.



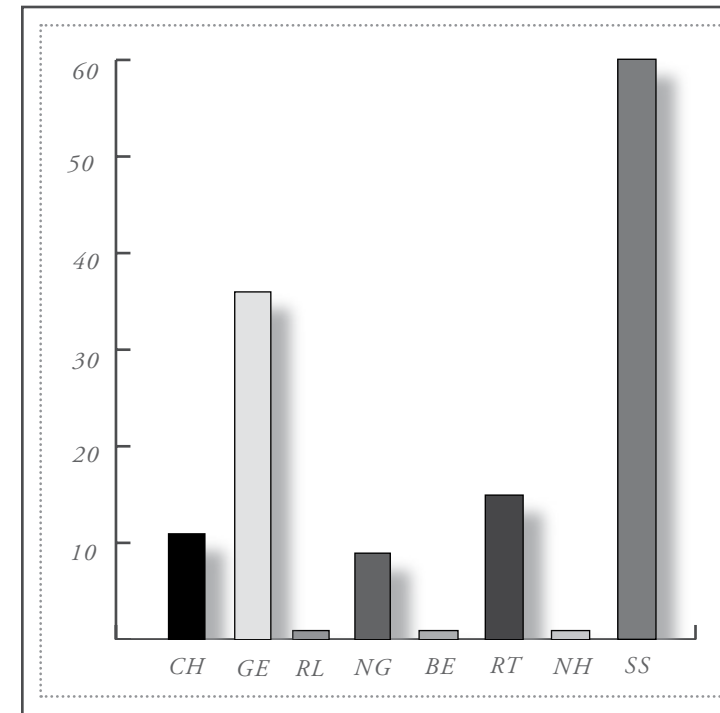
Raptors species observed:

Golden Eagles 851 (42%), Sharp-shinned Hawks 468 (23%), Cooper's Hawks 134 (7%), Red-tailed Hawks 156 (8%), Rough-legged Hawks 76 (4%), Northern Goshawk 55(3%), Northern Harrier 47 (2%), American Kestrels 37 (2%), Bald Eagle 33(1.6%), Merlin 19, Peregrine Falcon 10, Ferruginous Hawk 4, Osprey 3, Broad-winged Hawk 2, Prairie Falcon 1, Unidentified Accipiter 61(3%), Unidentified Buteo 38, Unidentified Raptor 30, Unidentified Eagle 4, Unidentified Falcon 3.

RESEARCH



BANDING SUMMARY, NORA RIDGE



Banding Summary for Nora Ridge 2010

We banded from September 18th through November 1st (weather permitting), for a total of 36 trap days on the ridge, compared with 19 days in 2009. As previously mentioned, we couldn't have asked for better weather; this accounted for the high number of trap days. We banded a total of 134 raptors, including 36 Golden Eagles this season, 33 of those caught on Nora Ridge. This is a new RVRI record for Golden Eagles caught on the ridge!

Highlight captures included:

We had our first ever recaptured Cooper's Hawk this season. The adult female was captured September 23rd by volunteer Jen Callahan. Jen trapped and banded hundreds of Cooper's Hawks while working with HawkWatch International and made the capture look easy. This hawk was first captured and banded on Nora Ridge on September 18th 2008 by RVRI bander Tyler Veto. At that time, she was two-years-old. She looked to be in excellent condition and after some standard measurements we released her to continue on her south-bound migration.

Another highlight was Vince Slabe's capture of a 12 pound, adult Female Golden Eagle for our Adult Golden Eagle Satellite Tracking Project. (see page 8)

Thanks to our dedicated crew and many helpful volunteers for making the fall 2010 our most successful Golden Eagle trapping and banding season to date! Special thanks go out to Liz and Jerry Cain for providing housing and wonderful hospitality to our field crew!



Adult Cooper's Hawk



Palm release of hatch-year Sharp-shinned Hawk



ADULT GOLDEN EAGLE SATELLITE TRACKING STUDY 2010

Compared to young Golden Eagles, adults are far less studied on migration with satellite telemetry. This is largely due to the difficulty of capturing wary adults. We can learn more about Golden Eagle migratory ecology as a whole by studying adults, as they are proven survivors and have completed their migratory journeys many times over.

Long-term point count surveys of migrating Golden Eagles on the Rocky Mountain Front flyway (RMF) indicate declines in both total fall and spring Golden Eagle annual counts over the past 15 years and suggest the rate of decline has been increasing. This trend is more pronounced in the spring point count totals and may be due, in part, to an increase in mortalities occurring on wintering grounds in the Lower 48. It is the goal of this project to learn more about Golden Eagle fall and spring migration routes, stopover areas, winter range movement patterns, and potential hazards within these areas.

Threats to migrating eagles in the form of power line electrocution, poisoning, shooting, lead contamination due to fragmented rifle bullets in carrion and gut piles, vehicle collisions, habitat degradation and others have been ongoing for many years. In addition wintering ground destinations such as: Wyoming, Montana, Colorado, New Mexico and Texas have been subject to rapid habitat changes from the oil and gas development boom of the last decade. Furthermore, large scale wind farm developments are also a concern, especially when located along migration routes and wintering areas. Indeed, threats to Golden Eagles have clearly increased and may have reached the point where reproduction is unable to keep up with increasing mortality.

To help us learn more, we have instrumented a total of seven adult Golden Eagles with satellite

transmitters over the past four years. These units are expensive \$2500 per transmitter, plus the Argos costs to manage the data bringing the total to roughly \$4500 per year for one eagle. However, when we consider what we can learn, the benefits far outweigh the costs. Please let us know if you want to help us raise funds for this very worthwhile project.

Already, our tracking data is being used by land managers in Wyoming and Montana, as energy development in the way of wind, oil and gas is expanding across these states very rapidly. One of the goals of this project is to aid land managers and industry in the placement of these large scale facilities. Additionally, this project will help us better understand the ongoing effects of these industrial areas, as we observe how these satellite tracked eagles behave in and/or around these facilities.

In 2010 we instrumented one big, feisty adult female Golden Eagle 78453, captured on October 21st. The behavior of this eagle is out of the ordinary for us, as she stayed around the Lincoln area near our banding station for two weeks, before



Vince trapped "Elaine", a feisty adult female Golden Eagle to be fitted with satellite transmitter



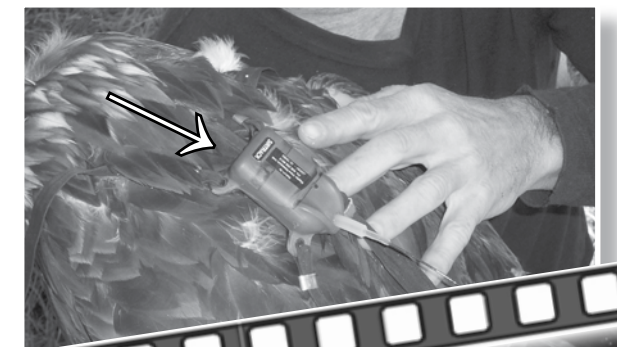
heading south along the Big Belt Mountains, into the Paradise Valley, north of Yellowstone National Park. Currently she is held up there and we are checking her status daily. Will she continue south seeking warmer weather and better feeding opportunities? Is she from some far northern summer range in Alaska or Canada, or perhaps a Montana eagle moving around her winter territory? We simply don't know, but are looking forward to finding out more in the coming months.

If you are interested in keeping track on adult female Golden Eagle "Elaine" or seeing our past Golden Eagle tracks, check out Wildlifetracking.org (a service of Seaturtle.org). Go to the top of the Home Page and click on **ANIMALS, BIRDS, ROCKY MOUNTAIN ADULT GOLDEN EAGLE PROJECT**.

Our major partners of this project are Bryan Bedrosian with Craighead-Beringia South and Melanie Smith, GIS analyst with Audubon Alaska. Their passion, dedication and expertise, has been essential to the successes of this project. Thank you!



Above and Below, Fine tuning transmitter harness



Megan Ruehmann photo





GOLDEN EAGLE RESEARCH PROJECTS 2010 • • • •

Determining Gender in Golden Eagles

Morphological measurements such as, wing-chord, tail length, body weight, etc., have proven to be reliable indicators in determining gender for several raptor species. In many raptors, females are often measurably larger than males, when we consider simple descriptors such as; mass and wing-chord. However, this is not always the case with Golden Eagles. By collecting DNA and comparing it to our suite of morphological measurements, we hope identify the most accurate technique for sexing Golden Eagles in hand.

Foot Volume

David Ellis is arguably the leading authority on Golden Eagle Ecology and Natural History in the world today. We were of honored when David approached us to see if we could put to the test his innovative idea for sexing Golden Eagles. David's idea was simple; if you place the foot in a beaker of water the female foot would displace measurably more water than the male foot. As you might imagine, this is not the easiest procedure, gently immersing the foot of a wild Golden Eagle in a beaker of ice cold water. However, we have worked the technique out and preliminary results are very promising, accurately predicting the gender of all eagles tested!

Wing-loading (completed)

Wing loading is a key aerodynamic feature of flight, representing the relationship between weight and wing/tail surface area. It is associated with how a particular raptor species hunts for prey and the types of prey it can capture. Lightly wing-loaded raptors such as Harriers and Kites exhibit a slow, buoyant flight with a hunting strategy characterized as "searching" whereby they commonly hunt and fly in an energy efficient manner, not requiring great speed to capture their prey. Compared with "attackers" which are generally heavily wing-loaded raptors such as, the Gyrfalcon and Merlin. These powerful, high speed flyers employ a direct pursuit style of hunting, often aimed at a swift, larger bodied (relative to their size) prey species.

After three-years of field work, we have collected enough data on Golden Eagles (males and females of all age classes) to analyze our data and see how they compare.

David Haines photo



The often challenging technique of measuring foot volume on a Golden Eagle as a means of determining gender



Outstretched wing of adult Golden Eagle



Eagle Lead Project (first phase completed)

Lead has long been documented as a serious environmental hazard to eagles and other predatory, opportunistic and scavenging avian species. Due to lead poisoning in the Bald Eagle, Golden Eagles and numerous waterfowl species, the use of lead shot for waterfowl hunting on federal and state lands was banned in 1991. However, mounting evidence suggests that the problem persists and the source of the contamination is coming from gut (offal) piles left behind by hunters and perhaps to a lesser extent, upland game birds, wounded with lead shot and not recovered may be contributory as well.

Golden Eagles are opportunistic feeders, known to scavenge offal piles and take wounded animals. To date we have lab analyzed blood from 106 Golden Eagles and have found that nearly half of our sampled eagles had elevated blood-lead levels. We will submit our findings for publication in a peer reviewed journal this winter, as this information has obvious land management and conservation implications. However, this is a long-term project and we will keep on sampling eagles for lead, adding to our growing database and continue with our educational outreach. We hope that over time, we will see a decrease in lead levels of our sampled eagles, as people learn more about the health hazards (to humans and wildlife) of using lead based ammunitions for hunting.

Blood Pathogen Project

Our good friend and colleague Bryan Bedrosian with Craighead-Beringia South put us in contact with toxicologists Dr. Alan Slosberg, with Kimron Veterinary Institute, Israel and Dr. Wilson Rumbelha with the Diagnostic Center for Population and Animal Health, Michigan State University. In short they have developed a system where by they use several dime sized dried blood spots to analyze for environmental toxins, as well as bacterial, viral and organismic blood pathogens. We are excited about this recent collaboration and are anxious to see what they discover.

Stable Hydrogen Isotope Project (completed)

Every fall, thousands of northern latitude raptors migrate through Montana on their annual journey from breeding and natal areas to wintering grounds. Understanding where that raptor originated is our main question. By utilizing innovative sampling techniques, RVRI has been able to more accurately estimate that "place of birth."

Specifically, an isotope of hydrogen, called deuterium, was selected due to the ratios of deuterium changing consistently with latitude. With this technique we only need to take a "thumb-sized" feather

sample, which then can be analyzed to determine the ratio of deuterium. By sampling only juvenile birds, whose feathers are grown in the nest, we can estimate the individual bird's natal origin.

We sampled fall migrant juvenile Golden Eagles and Northern Goshawks collecting 58 and 35 samples, respectively. We have completed analyzing the data and will finish writing up our results this winter for publication.

*Please see our website for updates on all these projects



Drawing blood from the brachial vein of a Golden Eagle for heavy metal and DNA analysis



RVRI POWER LINE RETROFIT PROJECT

Power line electrocutions are well known as one of the major human-caused mortality factors to medium and large sized raptors throughout North America. Depending on the particular power line configuration, location of the line and time in operation, a single pole, can be responsible for the mortalities of dozens if not hundreds of individual raptors. Most electrocutions and injuries are the result of the raptor landing between phases on the cross arm. When they close the circuit, via phase to phase, phase to ground, or otherwise the birds become energized and often die on the spot. Undeniably, this is still a huge problem in many areas throughout the West, especially where power lines are the only perches available, for example, across prairie lands and agricultural fields where hunting raptors tend to gather.

Electrocutions and related injuries to raptors are very preventable. Many utility companies now adhere to standards put forth by the Avian Power Line Interaction Committee (APLIC) for newly constructed lines (see aplic.org for more information). However, there are thousands of miles of older, poorly configured lines, many erected in the 1960s and 1970's that need attention and continue to kill raptors. Before this newsletter piece was finished, we received a call from Pat Shanley, Forest Service biologist, that a Golden Eagle was found dead due to electrocution. Furthermore, this electrocution happened along a known migration corridor, not far from our Nora Ridge research site. Indeed, this hazard persists and RVRI is doing all we can to lessen this on-going problem.

RVRI began working with Missoula Electric Cooperative (MEC) in 2008, when we spearheaded the Paws-Up Ranch - Power Line Retrofit Project (see RVRI newsletter 2009-10). During that time, we developed a great working relationship with David Lopez, now retired Operations Manager for MEC. David was in-

strumental in helping us develop the working, cooperative relationship we have with the utility company today. In a few short years, we have helped MEC identify and correct over 20 deadly (to raptors) utility poles.

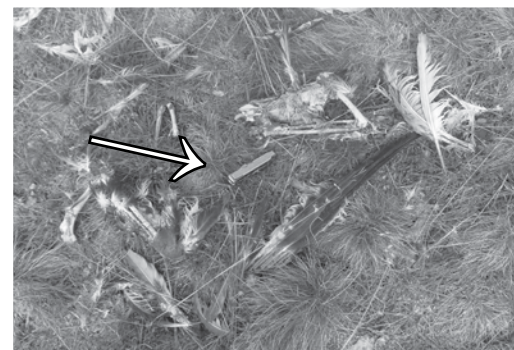
In 2010 we extended this relationship to include Northwestern Energy (NWE), the largest utility provider in the state. As a large utility, NWE has a fulltime company biologist Sam Milodragovich. Sam is a knowledgeable, passionate raptor biologist and has helped us over the years with our Osprey Project. Osprey, are a huge problem for local utility companies in Montana, as they select utility poles to build their bulky stick nest. Much of Sam's time in the spring and summer is spent mitigating Osprey/power line interactions.

During the fall 2010, we received a call from Brooke Tanner with Wild Skies Raptor Rehabilitation. She had a Red-tailed Hawk in-hand that had been badly burned from an old utility pole located in Missoula. Brooke and I visited the site and discovered a dead raptor in the same vicinity where the Red-tailed Hawk was found. I called Sam and he acted without hesitation. In just a few short days the problem was identified and corrected. Furthermore, Sam arranged for us to meet with his operation's foreman in Missoula, to show him utility poles we see as dangerous to raptors. This is a huge proactive step by Northwestern Energy and one we are very excited about!

These collaborative efforts in conservation and raptor protection between RVRI, MEC, and NWE are a fine example of how research, conservation and industry can work together to protect these ecologically vital, federally protected species. We look forward to working with MEC and NWE and other utility companies in our efforts to identify problem utility poles and work swiftly to make those poles "raptor" safe.



Deadly utility pole prior to retrofitting



Remains of numerous raptors found under a single poorly configured utility pole



I made a half turn, climbed a hundred feet, then flew out the back side, again into sinking air. I tightened my continuing turn to get back into the drifting thermal as quickly as possible. Again we pitched up. I flattened our turn and pushed out on the control bar, slowing the glider almost in a climbing flat spin, in order to milk as much climb as possible out of the available rising air.

This is a dangerous move when negotiating strong lift and turbulence, since the possibility of being overpowered by the conditions and tumbling the glider is more likely at low speeds. Stories abound of people being tumbled and/or jerked off the control bar and thrown into the sail of the glider by strong lift with associated turbulence, sometimes with such force as to cause structural failure of the glider. At best it can ruin your day...

Next time around we climbed about 200 feet and I stayed in lift through most of the turn. From then on it was an express elevator ride as the thermal gathered size, consistency and energy from the heating flank of the mountainside below. I was now able to widen out my turns and keep my speed up.

Still, I kept a white-knuckle grip on the bar, my heart pounding in this rodeo ride skyward. My new friend was now at my altitude. As we spiraled up together, we flew in the same rotational direction. Sometimes she was a hundred or more yards away, sometimes within the wingspan of my glider. She was completely un-intimidated by my presence.

I could see her piercing eye and the fringed detail of each feather, she was so close at times. It is difficult to adequately describe the sensation of pleasure one experiences, climbing through a desert sky in the company of a golden eagle, completely in his own element, with all the matter-of-fact confidence and incredible skill associated with living in such an hostile environment. It is a feeling of grandeur and at the same time very humbling, a kind of intimacy with these, the wildest, freest, enigmatic and most far ranging lords of the sky. It was for me a feeling of awe and rare privilege, dream flight and ultimate freedom realized, incomparable to anything else I could imagine.

We climbed a couple of thousand feet, when to my surprise, two more goldens entered the thermal with us, as fragments of lift continued to coalesce into a fuller, expanding, accelerating lift column. At 12,000 feet, we were climbing at about 2,500 feet per minute, when a second pair of goldens joined us in a dizzying counter rotating spiral.

I was giddy with euphoria (and perhaps a little hypoxic). Piercing cries from five eagles, in the unlikely company of a clumsy human in an unpowered, foot-launched contraption, careening upward in crazy circles, thousands of feet above the ground. I couldn't believe my eyes. Eagles were everywhere. Apparently I had stumbled upon the afternoon raptor commute.

Presently, we reached the barber-pole spirals of water vapor near the base of the cloud, the beginning stages of verga and a maturing cumulus. Frozen water droplets and corn snow pelted my face, even though the desert floor below us was well over a hundred degrees. I looked out across the flat bottom of our cloud, the desert below, jacked with dry, craggy mountains, sprawled away to the hazy eastern horizon.

Over a mile directly below us, Boundary Peak, Nevada's highest point, defined the northern end of the imposing White Mountains, whose spine snaked southward. Behind us to the west, the snow-capped Sierra Nevada rose like a granite fortress wall. The sweat on my body was now freezing. I glanced at my altimeter: 20,100'.

It was time to leave, since we would soon be in the cloud, with the imminent threat of disorientation, hypoxia and icing at hand. The eagles disappeared as suddenly as they had arrived, presumably to hunt their respective terrain. I turned east, following our prevailing westerly drift and US highway 6.

I landed 2 miles west of Tonopah that day, 160 miles from my launch point. While it was an extraordinary day, it was one of many in the sport and pastime that I loved and pursued for over 20 years.

Careers and families beget mortgages and other responsibilities. Proficiency in any sport or activity with such inherent risk must be maintained if one expects to enjoy some measure of mortal longevity, and thus, alas, it has been over 20 years since I last accompanied eagles to cloud base.

Still, I remain grateful and consider myself extremely lucky to have lived the life I have. I consider any soaring bird a kind of kindred spirit and will never forget experiences like the one described here. Whenever I catch a glimpse of an eagle here in the Sierras or anywhere else I travel, the memories and emotions of those times return anew.





OSPREY RESEARCH 2010

Missoula is located along the Clark Fork River, just downstream from one of the largest Superfund sites in the country. For more than 100 years, heavy-metal contaminants from mining operations have accumulated behind the Milltown Dam. These contaminants include mercury, arsenic, lead, cadmium, zinc and copper. The dam has been removed and we are continuing our study, now going on its fifth year, to see how the ecosystem and the Osprey respond to this change.

As top predators that feed exclusively on fish, Ospreys serve as biological indicators, i.e. "canaries in the coal mine" of the health of the aquatic and riparian ecosystems they inhabit. By testing Ospreys for contaminants and monitoring the health of local populations, we can gauge the level and extent of the contamination present in these ecosystems. RVRT's Osprey research project presents an ideal opportunity to establish baseline data for pre-and post-dam removal contaminant levels, as well as using Osprey as "bio-sentinels" for other Montana watersheds.

We are proud to be partnering with several local experts, University of Montana researchers Dr. Heiko Langner and Dr. Johnny Moore (Environmental Biogeochemistry Lab) and Dr. Erick Greene (Division of Biological Sciences and Wildlife Biology), to closely examine the causes, locations and possible effects of mining-related contaminants on Osprey and the ecosystems that support them.

To date we have accessed 36 nests and have taken blood samples and banded 171 nestlings. Results are troubling, with many of our nestlings showing mercury levels 100 times higher than what would be considered toxic in humans.

OSPREY BALING TWINE PROJECT

Ospreys have the habit of incorporating unusual materials into their nests. We have discovered items such as: ball caps, bungee cords, gloves, shirts, old rusty barbed wire, pieces of tarp and of course lots of baling twine. Unfortunately, baling twine is a serious threat to Osprey. This polypropylene rope is used to tie bales of hay, and it often gets left in fields after people open the bales to feed livestock. We have found baling twine in nearly every nest located in our study area. An Osprey nest that blew down in Missoula contained more than a quarter of a mile of baling twine!

This results in a big problem, since the chicks and even the adults can easily get tangled in it. In some areas it kills more than 10 percent of the chicks before they fledge, as well as some of the adults. All too often the birds suffer a slow agonizing death of hanging upside down from the nest until they expire. Sometimes they are strangled or starved to death when very young. One fledgling in Helena suffered an amputated foot and another died, as rescue efforts were underway. The most notable incident involved an adult Osprey that was hit by a car. When the driver stopped to examine the bird, he discovered that it had one of its nestlings, hopelessly tangled to its feet. Both the adult and nestling died in the collision.



Scenes from the Eastgate Osprey Cam



We are continuing our efforts to spread the word via TV news coverage, newspaper articles, as well as distributing our Osprey and Baling Twine educational pamphlets. We are hopeful, that over time, land owners and stewards will step up their efforts to clean up the discarded twine. This is a very preventable problem and one we will continue working very hard to remedy.

For more information or for copies of our Osprey and Baling Twine pamphlets contact projectosprey@mso.umt.edu or visit our website and check out our Osprey section at www.raptorview.org

Two Osprey Band Encounters in 2010

We received two interesting band "encounter" reports this year from the Bird Banding Lab (BBL). In short, the BBL is a branch of the U.S. Dept. of Interior that oversees all banding data for North, Central and South America.

The first was a "mortality" encounter on June 19, 2010. A sharp-eyed young man and his father were hiking the Gallatin Crest Trail, near Bozeman Montana, at an elevation of nearly 10,000 feet in early summer, when the young man noticed the shiny aluminum band right in the middle of the trail. What is particularly unusual about this encounter is no other part of the Osprey was found. They described what looked like "hamburger" in the band.

This bird was originally banded in the Blackfoot Valley as a nestling on July 23, 2007. Our bird was nearly four-years-old, the age when Osprey first attempt to breed. It had nearly completed its long journey north back to its natal area. With so little to go on, it is impossible to know how this Osprey actually died. We can only hazard guesses. Perhaps this young bird was flying along the ridge and was struck down by a territorial Golden Eagle? Maybe it was sick, starving or grounded by bad weather and was killed or scavenged. However this bird died and whatever might have eaten it, we are lucky the band was left intact. Nonetheless, it one more piece of information to help us learn more about these remarkable raptors.

The second encounter occurred on November 9, 2010. This was an Osprey that we had banded as a nestling on July 19, 2010 in Lolo, Montana. This encounter is one where we know exactly how our young Osprey met its demise. It made its first fall migration south, covering a distance of roughly 2,200 miles, just south of Acapulco, Mexico. Apparently it had flown into unfriendly airspace of Alvarez International airport and was killed by a propeller plane. Airport workers found the bird on the runway and called in the band number.

The risks are many for young birds of prey, some studies show that more than half of young raptors that make it to fledging, do not survive the first year of life. These are just two examples where we were fortunate enough to learn the fate of these individual Ospreys. This is precisely why researchers band birds, to learn more about their natural histories, including: migratory ecology, movement patterns, causes of mortalities, nest site and mate fidelities, life spans and much more.

In 2009 we introduced an auxiliary marking aspect to our Osprey studies. We are applying blue bands with white numbers. As with our Golden Eagle wing tags, these bands will allow us to identify individuals relatively easily with binoculars or spotting scopes.



Nearly fledged Osprey chick

Erick Greene photo

RESEARCH (CONTINUED)



SWAINSON'S HAWK NESTING PROJECT • • • •

Currently the Swainson's Hawk (SWHA) is on the National Audubon "Watch List," due in part, to the large die offs that occurred on the Pampas Prairie of Argentina (their wintering ground) during the mid 1990's from eating Monocropophos, an organophosphate pesticide, tainted grasshoppers. Over 5,000 were reportedly found dead in one field!

In Montana it is currently under consideration for listing as a "Potential Species of Concern" west of The Continental Divide. What this means is, the limited information available suggest potential vulnerability, or simply that additional data is needed to accurately assess the species in a given region.

As a grassland species, Swainson's Hawk populations are dependent on open prairie-grassland like landscape to thrive. A quick look at historic photos of Missoula Valley shows that much of our valley was once largely comprised of open grassland-prairie like habitat. However, over time, much of those historic grasslands have given way to residential and commercial development due to the ever increasing populous of Missoula Valley. The remaining grassland type habitat, favored by these raptors and other prairie dwelling species now spans primarily from Reserve Street west to Frenchtown, including some areas of the north hills. This is the area we have chosen as our primary study area.

No one knows what "historical" numbers of Swainson's Hawk were in Missoula Valley. Did they nest throughout the valley in numbers many times greater than what we currently have, or could it be they were never more numerous than they are today? Unfortunately, we will never know. What we do know is we have less than a dozen known nesting territories and this fact alone warrants the need for further investigation.

In 2005 we conducted our first survey and banding efforts for nesting Swainson's Hawks in the valley. Surveys were casual and more or less conducted on a spare time basis; we found five nest sites. In 2006 and 2007 we stepped up our efforts for a total of 12 known, active territories. From 2008 – 2009 several of those known nest sites/territories became inactive, bringing our total number to only five. This was disconcerting to us and called for a more in-depth look.

During the spring and summer of 2010 with help from Jim Brown with Five Valleys Audubon (FVA), Ken Furrow with Furrow Productions, Carly Woods with the Rural Institute, Kristi DuBois with MT Fish, Wildlife & Parks, numerous private landowners and a dedicated core group of volunteers, we conducted our first true systematic nesting survey for Swainson's Hawk.

In total 14 territories have been identified, where at least one adult was observed on site throughout the season. Of those, we located nine active nesting territories, with an average productivity of one fledgling/nest attempt. Six of the nine nests successfully fledged young; at one nest we were unable to confirm productivity. We also found five occupied territories where we unable to locate a nest. Of those five territories, pairs of adults were present at two sites and only one adult male at the remaining three sites. Additionally, we confirmed 23 active Red-tailed Hawk territories within our study area.

To date, we have banded 44 individuals and marked 34 with uniquely color-coded leg bands. These colored bands allow us to identify hawks from a distance and track individuals, while learning more about breeding behavior, survivorship, territoriality, nest site and mate fidelity. We look forward to productive season in 2011 season and the return of our Missoula Valley Swainson's Hawks.



Missoula Valley Swainson's Hawk

RAPTOR VIEW RESEARCH T-SHIRTS NOW AVAILABLE!

RVRI now has 100% organic cotton T-shirts available for purchase. We have 2 styles to choose from. They cost \$20.00 per shirt, shipping and handling included. Make your check payable to Raptor View Research Institute and specify type, size and number. You can also E-mail us at rob.domenech@raptorview.org and subject your message "T-shirt".



T- Shirt Design #1
Front



T- Shirt Design #2
Back

PARTNERSHIPS & COLLABORATIONS 2010 • • • •

RVRI continues to develop partnerships and collaborations with other professionals in order to build on our research and expand our educational outreach. It is impossible to express how crucial these relationships are to our work. They develop out of a common interest and passion for raptors, their health and environment. And as often happens, professional relationships turn into lifelong friendships.

We would like to take this opportunity to recognize some of these individuals and organizations:

Our sincerest thanks and appreciation go to Bryan Bedrosian with Craighead-Beringia South; David Ellis; Dr. Alan Shlosberg; Denver Holt with Owl Research Institute; Erick Greene and Heiko Langner with University of Montana; Jim Lish with Oklahoma State University; Kate Davis with Raptors of the Rockies; Ken Wolff of Grounded Eagle Foundation; Melanie Smith, Geographic Information System specialist; Pete Sherrington with Rocky Mountain Eagle Research Foundation; Ryan Alter of Alter Enterprises; Steve Hoffman, Montana Audubon; Jim Sparks, Bureau of Land Management; Steve Kloetzel, The Nature Conservancy; Pat Shanely, Helena National Forest and Doug Bonham with Wildlife Computers.

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2010: A VIEW FROM THE FIELD



Rough-legged Hawk



Bryan Bedrosian



Adam Shreading holding Golden Eagle



Don Rakow palm releases Sharp-shinned Hawk



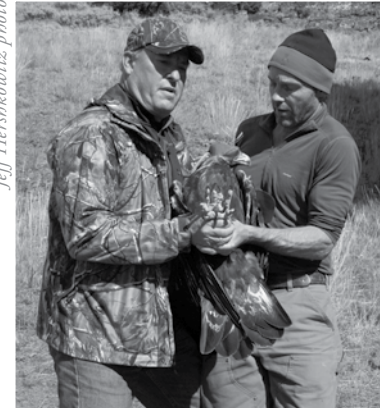
Lisa and Mark Smith of Lincoln, MT with Golden Eagle. Nora Ridge in background



Species of concern, an adult Northern Goshawk



Gavin, Colton, Uncle Rob and Edge with young Golden Eagle



Nick Corvinus and Rob with Golden Eagle



Northern Harrier

Nick Corvinus photo

David Haines photo

Jeff Hershkowitz photo

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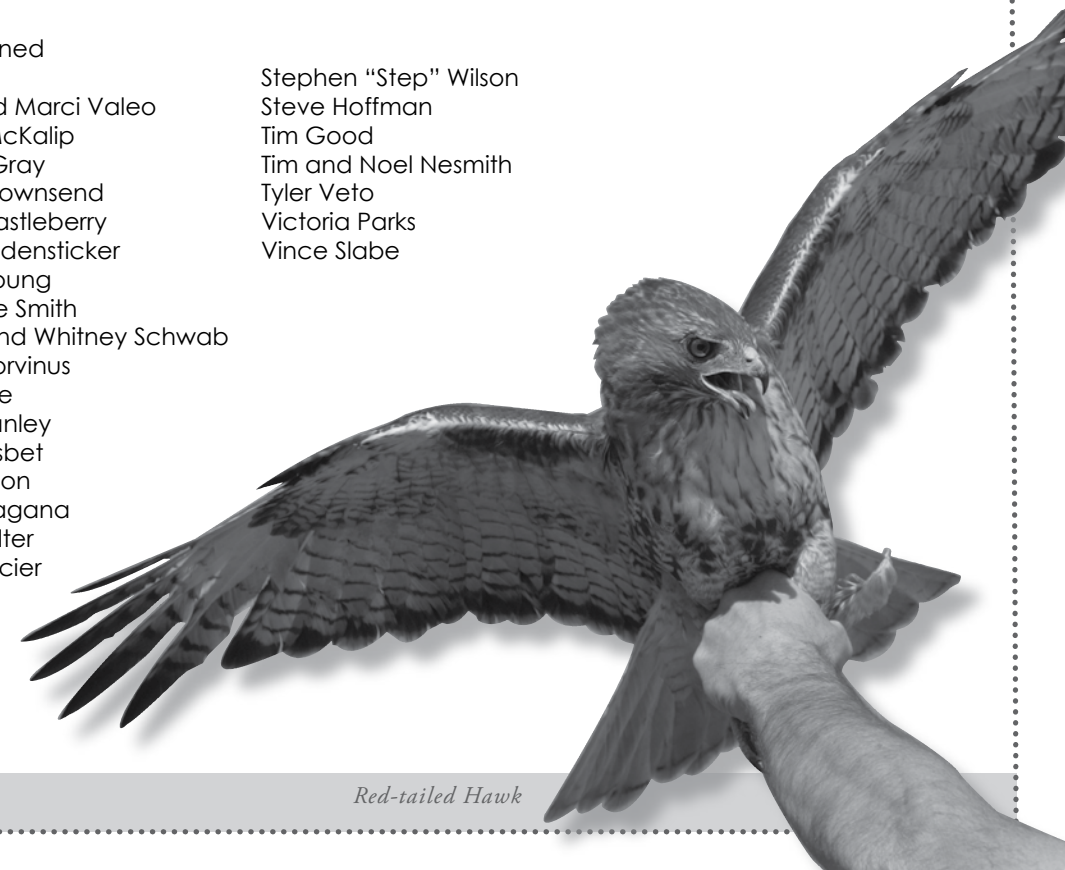
INDIVIDUALS

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Red-tailed Hawk