

RAPTOR VIEW

RESEARCH INSTITUTE

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LETTER FROM THE PRESIDENT...

Hello everyone and welcome to Raptor View Research Institute's (RVRI) second annual newsletter. RVRI has been hard at work building on our research projects and free educational programs, all of which would not be possible without your generous contributions. It has been a very busy year and we are excited to share our successes with you as we head into the New Year.

Early November marked the completion of the 7th consecutive and final season of our fall raptor migration monitoring and our 5th season of trapping and banding from Rogers Pass, Montana. This project was started well before the inception of RVRI and we will continue raptor migration and banding at various sites in Montana, but I will tell you more about that later.

While monitoring and banding raptors, unexpected and interesting events happen on a near daily basis. On October 22nd we captured and banded a rare dark-morph Broad-winged Hawk. This species is observed by the thousands on central and eastern North American flyways, but seldom seen in the northwest. For comparison, we typically count less than 20 per season here in MT. Also, we are thrilled to report the re-sighting of an adult Golden Eagle we banded in 2003. Dr. Erick Greene, with his group of students from the University of Montana, positively identified the bird by its color-coded wing tags

while it was feeding on road kill near Rogers Pass. It's nice to know the bird is alive and well, and it is interesting to see this eagle in the same general area two years after being captured. In addition, we discovered that some Golden Eagles apparently have a taste for Porcupine! We captured a young Golden Eagle with a porcupine quill embedded just below its left eye. This is the second eagle we have captured with evidence of such an encounter and exemplifies the natural hazards and hard lessons eagles must learn to survive. If the eagles are successful in these hearty endeavors is anyone's guess! Luckily for this eagle, the injury wasn't life threatening and the bird was in good health; we removed the quill, banded, and released the bird without incident.



*RVRI President
Rob Domenech*

As mentioned, this was our final season from the Rogers Pass study site. The decision to relocate was largely based on increased human presence in the area and along the Continental Divide Hiking Trail. We set out this past summer to locate alternative sites that would offer equal or better flights of raptors without the human disturbance factor. Our exploratory work went extremely well, thanks to our good friends and colleagues Fred and Cathy Tilly, and Mat Seidensticker. We are pleased to announce that our research will expand to include two new locations - Nora Ridge and the Bull Mountains. This expansion will further our understanding of raptor migratory ecology, locally and nationally, while increasing our educational outreach.

We continue to conduct free hands-on, outdoor educational workshops for local school groups, youth homes, college students and community members. We feel that the 'informal, non-traditional classroom' is a great way to augment conventional approaches to learning, involving students in all aspects of raptor research and introducing them to key ecological principles and conservation biology. Using this concept, we are partnering with National Audubon



Rob with a Swainson's Hawk

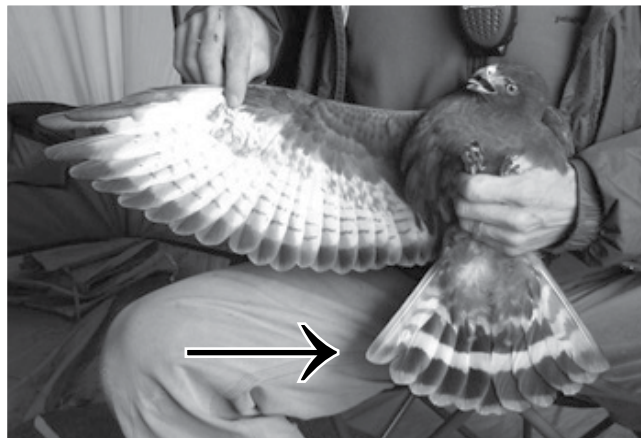
letter continued on page 2

DARK MORPH BROAD-WINGED HAWK BANDED

On October 22nd we captured and banded a rare dark-morph Broad-winged Hawk. Dark morphs of this species are rather extraordinary, estimated to occur roughly, **only every 1 in 100,000**. This was a highlight indeed and only the second Broad-winged ever banded in MT, both from Rogers Pass. We will continue to watch closely and report on Broad-winged Hawk movements in MT in the coming years.



*RVRI Biologists w/ Dark Morph Broad-winged Hawk
(L to R: Tim Pitz, Sharon Fuller, Rob Domenech, Noel Nies)*



Note the retained juvenile feathers on the outer edge of the tail (T-6), indicating second year of life.

LETTER (CONT. FROM PAGE 1)

Society, The Grounded Eagle Foundation, and Seeley Swan High School to develop a curriculum where students conduct their own local raptor studies with RVRI biologists as their mentors. This is a very exciting prototype project that has potential to reach students on a national level. This project is just another way we donate our time and expertise to the community. RVRI also continues to donate "Days in-the-Field" to local non-profits groups, charitable foundations, educational groups, and others to help with their fund raising events.

Though only incorporated in February 2004, RVRI has grown quickly, exceeding our research and education goals for the past two years. We have many committed volunteers, both in the field and behind the scenes, who donate their time and expertise to help ensure our success. For the fall 2006 season, we will need three additional dedicated biologists to ensure quality and keep pace with our research and educational demands. I have focused this letter on our fall work, but our spring and summer projects are growing as well and contributing to the conservation, research, and educational communities.

As I close this letter, I hope you are as happy as we are with what we have accomplished in only two years. Your support is essential and ensures the continuation of the research projects and educational programs of RVRI. All contributions are greatly appreciated and we have enclosed a self-addressed envelope for your tax deductible donation. Please see the back page of this newsletter, to learn about our new Adopt -A- Raptor program. We look forward to continuing our research, educating the community, and sharing what we learn from this amazing work-all of which would not be possible without your generous contributions and support.

Best Regards,

Rob Domenech

Board	<i>Rob Domenech</i>	<i>Kathy Grey</i>	<i>Victoria Parks</i>	<i>Kelly Castleberry</i>	<i>Barry Ambrose</i>	<i>Noel Nies</i>
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SWAINSON'S HAWK NESTING PROJECT

This project focuses on Swainson's Hawks nesting ecology in Missoula County and the surrounding area. Swainson's Hawks typically nest in open country and plains regions. Currently there is little information about their breeding ecology in the inter-mountain region of west-central Montana.



Recording wing molt on an Adult Rufus Morph Swainson's Hawk

We will investigate:

- nest site selection
- home range size
- nesting frequencies
- nest site fidelity
- possible inter-relatedness with neighboring birds through DNA analysis
- mate fidelity
- effects of human encroachment and development on established territories

This study was started on the suggestion of friend and colleague Denver Holt of the Owl Research Institute, who for years has been curious about the hawks' breeding ecology and abundance in the area. He has made numerous anecdotal observations over his many years of owl research and provided us with some of our first nest site locations and study ideas.



Measuring forearm length aids us in determining sex

EAGLES SURVIVE HAZARDOUS ENCOUNTERS

This adult female Golden Eagle (**below**) is missing the hallux toe from her right talon. She apparently beat the odds by surviving certain infection and disability. This maiming was likely the result of an encounter with a trapper's steel leg-hold trap set to catch unsuspecting coyotes and other mammalian targets. This is just one example of how human activities can impact Golden Eagles and other large raptors.



As mentioned in my opening letter, we have banded two Golden Eagles with evidence of direct encounters with Porcupines. The first eagle in 2003 had numerous broken and worn quills embedded in its legs and head; and had a 'mangy' look around its head, probably due to repeated attempts to rid itself of the bothersome quills. Remarkably though, in spite of appearances, the eagle seemed to be in fair condition. In this photo, (**below**) the quill came very close to the young eagle's eye. Such an injury could have certainly impaired the bird's ability to hunt. This eagle was in otherwise excellent condition. If these encounters are chance happenings or regular occurrences is anyone's guess.



EDUCATION



RVRI continues to offer free, hands-on outdoor educational workshops for local school groups, youth homes, college students, the general public, and others. We feel that the 'informal, non-traditional classroom' is a great way to augment conventional approaches to learning. 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.

UNIVERSITY OF MONTANA

Each season, Ecology Professor Dr. Erick Greene brings several interested wildlife biology students to our research site to experience firsthand what it is like to work with these magnificent birds, and see what our field work entails. We try and schedule these trips to coincide with the peak Golden Eagle migration, so students can have a memorable educational experience, while getting a 'hands-on' opportunity to assist us in counting, capturing, handling, and processing the raptors. Invariably some of these students come back to volunteer on their own and pursue careers in avian research.

SEELEY SWAN HIGH SCHOOL

This project focuses on Mary Johnson's Seeley Swan High School's sophomore biology class and was initiated by Mary, Bob Petty (National Audubon Society) and Ken Wolff (Grounded Eagle Foundation) through a grant from the Liz Claiborne Art Ortenburg Foundation. Ken asked us to come on board to involve the students in some of our on-going research. Other involved agencies and professionals are Scott Thompson (U.S. Forest Service biologist) and Kristi DuBoise (Native Species Coordinator MT Fish, Wildlife & Parks).



Mary Johnson's sophomore Biology class ready to release a banded and wing-tagged juvenile Golden Eagle

It seems we were destined to be involved, as Noel Nies, RVRI biologist and board member, who is getting her Masters Degree in Education, was coincidentally working with Mary to complete her education requirements. We were essentially brought in from two independent avenues, through Mary and Noel's work and through an invite from Ken Wolff. The results of this cooperative venture have been rewarding for all.

RVRI conducted several field trips for Mary's class to our Rogers Pass banding station this fall. Group size averaged 20 students per trip. The students learned first hand what field biology is all about. They were awesome apprentices and quickly became engrossed in our project.

We are now working with these same students in smaller, individual groups to conduct their own specialized raptor research projects this winter and coming spring. These projects include: winter raptor surveys, nest site behaviors of Red-tailed Hawks, Bald Eagle nesting survey, foot-pad and sexing of Red-tailed Hawks, and Golden Eagle hydrogen isotope study. The kids are very motivated and we look forward to seeing them present their findings at a community forum in Seeley Lake.

MISSOULA YOUTH HOMES

RVRI conducts several field trips a year for the Missoula Youth Homes (MYH), Radke Home. These kids were part of our first educational outreach programs. They are always enthusiastic and have experienced a unique view into wildlife conservation that few people ever see. The original kids have moved on and new ones have come to the program. It is amazing to see the progression from tentative onlookers to active in-the-field participants. We feel they will forever remember their time on the mountain with us and with the raptors, taking with them an understanding of raptor natural history and conservation. We look forward to more visits from Radke residents and will try and incorporate the other area homes in the future.

FLAGSHIP PROGRAM

This program provides positive youth development for Missoula area school kids, including Hellgate High School and Willard Alternative High School.

HELLGATE HIGH SCHOOL

Whitney Warren, Program Coordinator for Flagship, has arranged field trips to our banding station for the last two years. We couldn't be any happier with these kids and their participation. These students work side-by-side with us, assisting in all aspects of the work.

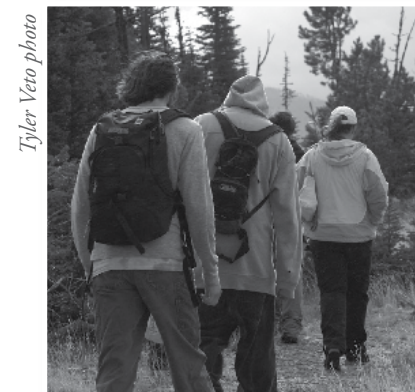
Though all the kids through this program have been great, Tyler Veto has really stood out. His excitement reminded us how cool our work really is. He came up to the site on his own time and, armed with only a camera, snapped some of the absolute best photos we have seen from the site. We look forward to having Tyler on site more often during the 2006 season.

WILLARD ALTERNATIVE HIGH SCHOOL

Whitney, always on the hunt to involve her students in new projects, met with Kristi DuBoise to discuss some potential ideas. Kristi suggested Osprey Platform Nest Monitoring. Currently, nobody seems to know just how many platforms there are in the Missoula area or how many are actually used. Whitney brought in Matt Johnson, Flagship Program coordinator for Hellgate High School, to involve his students as well. From this cooperative effort spawned the Osprey Citizen - Science Monitoring Project. We look forward to starting the field work in April, when the Osprey return from their wintering grounds from as far south as South America.



Rob points to fur remains on this Red-tailed Hawk's talons



Students head down the trail after a day on the mountain



Charlie Simpson's Willard School Science class with Red-tailed Hawk

RESEARCH



GOLDEN EAGLE AND FALL RAPTOR MIGRATION

This fall we successfully completed our 7th and final season of research from Rogers Pass. We observed our highest number of Golden Eagles (1,270) as well as the highest overall raptor totals (2,147) to date. It is difficult to say why the numbers were higher this season compared to past years. Although the total number of observed Golden Eagles was higher than previous seasons, the Golden Eagle age-class breakdown was similar when comparing the ratio of juvenile to adult. If we had seen a higher percentage of juveniles, this could indicate a higher reproduction year. We suspect the higher overall count totals may be due to the relatively favorable weather conditions this season with fewer inverted and easterly wind days.



Wing of a young Golden Eagle for later molt pattern study

BANDING SUMMARY FOR ROGERS PASS

From 2001 through 2005, we banded a total of 466 raptors comprised of 14 different species, including 95 Golden Eagles. For the years 2002 – 2004, the number of Golden Eagles banded at our station was higher than all North American banding stations combined. We suspect this is also the case for the 2005 season. We are very proud of this distinct accomplishment and excited to continue our work at our two new sites next season.

As is often the case in long term studies such as ours, interesting questions and ideas arise from our core research, prompting us to answer these questions through additional study. Although RVRI began with monitoring and banding of migrating raptors, we are now pursuing the following research as well.



Tail spread of a first-year Golden Eagle

ADULT GOLDEN EAGLE SATELLITE TRACKING STUDY

Little is known about adult Golden Eagle migratory ecology in North America. Where do they winter and how long do they stay? Do they use the same migration routes and wintering areas annually? What are the major causes of mortality, human related and naturally occurring? These are just some of the questions that we need to answer in order to determine appropriate conservation and management strategies.

Satellite tracking technology is being used more frequently as a research and educational tool. Questions that in the past would have taken years to answer and thousands of dollars to research can now be answered in days for fraction of the cost. This project will help shed light on the migratory mysteries of these secretive birds. Currently, almost all the satellite tracking of Golden Eagles has been conducted on younger birds. This is due to the fact that capturing adults is exceedingly difficult. Presently, we are the only researchers that regularly capture several adult Golden Eagles per season. We have secured one satellite transmitter, and will deploy it on the first adult eagle captured next fall. We are working to get more transmitters, but they are costly, roughly \$5,000 for the whole package. However, when we consider the amount of scientific information they will provide and the conservation and educational benefits they afford, they are well worth it!

GOLDEN EAGLE FOOT PAD AND DNA SEXING PROJECT

Unlike some raptor species which can be easily sexed using body measurements such as wing-chord, tail-length, body weight, etc., Golden Eagles are not so simple. Since 2001, we have used foot pad measurement to verify sex of Golden Eagles, based on previous research findings. Often it is obvious, as with the case of either a very small male or a large female. However, at times we find ourselves scratching our



A Golden Eagle foot-pad is carefully measured

heads as to whether the bird is a male or female. Since we annually capture up to 30 eagles per season, we are in a position to test previous research against our own. Sharon Fuller, RVRI biologist and graduate from the University of Montana, was spectacle of these prediction methods and decided to spearhead a sexing/DNA investigation. She brought in the expert volunteer services of Mike Kavanaugh and Damian Cremins, microbiologists from the University of Montana. To acquire the DNA, we collected feather samples by carefully plucking a single breast feather from each eagle. Sharon worked in the lab with Mike and Damian to prepare samples for DNA extraction. They were successful and the preliminary results have been very interesting. Of the sixteen eagles captured in 2005, we correctly sexed twelve. We will look at these findings closely, as they certainly warrant further investigation. We look forward to more of Sharon's findings and using them to develop and/or improve upon sexing methodologies via physical characteristics.

GOLDEN EAGLES BAND SIZE STUDY

The majority of Golden Eagles are banded as nestlings. If the band is tightened completely, as is typical, and the eagle outgrows the band, the bird could develop life threatening complications. Also it is unlikely that the banded bird would be recaptured and the event would go unseen.

Over the years, we have noticed that the # 9 size bands (the largest issued for raptors in North America and designed for Golden and Bald Eagles) are often too small for the larger eagles. Golden Eagles have a thick, feathered leg, and in order to get the band to fit properly on these larger birds, we have had to expand or gap the bands accordingly, custom fitting each individual bird. To do this we use different sized rivets and specialized application techniques. We have carefully recorded each gap measurement and are preparing a report available for early next year



#9 size bands

STABLE HYDROGEN ISOTOPE PROJECT

The development of stable hydrogen isotope techniques to track the origins of migratory birds represents an effective, affordable advancement in studying migratory connectivity. Through this analysis we hope to estimate the breeding origins of our Golden Eagles. This study focuses on juvenile birds only, as they have grown all of their feathers completely while in the nest. The bird absorbs hydrogen ratios into their feathers. The feathers taken from juvenile birds can be analyzed to determine

latitudinal regions for natal ground.

RVRI biologist Tim Pitz, a graduate in wildlife biology from the University of Montana, has been curious about isotope analysis and has enthusiastically taken the lead in this study. To our knowledge we are the only researchers looking at this in fall migrant Golden Eagles. Tim is determining the latitudinal regions where the juvenile eagles were born, how far they have traveled, and what type of migratory behavior they may exhibit.



RVRI biologists Rob, Tim and Sharon display the impressive wingspan of a Golden Eagle

EXPLORATORY WORK



NORA RIDGE & BULL MOUNTAINS

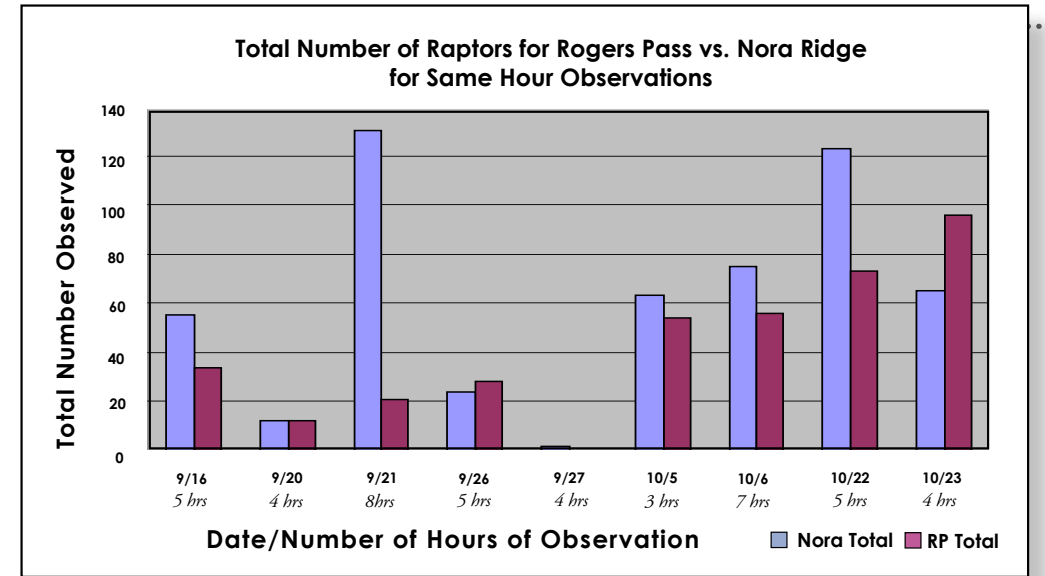
In addition to the research collected at Rogers Pass, we also conducted exploratory counts at two sites this fall, Nora Ridge and the Bull Mountains. Nora is located about 4 miles southwest of Rogers Pass and the Bulls are approximately 65 miles south, near Whitehall, MT. Conducting exploratory work takes a tremendous amount of patience and stamina. We were all cautiously optimistic going into the season.

We were very fortunate to have the invaluable aid of our good friends and colleagues Fred and Cathy Tilly, on Nora Ridge and Mat Seidensticker in the Bulls to evaluate the sites. Fred and Cathy are seasoned raptor migration specialists with accolades that could fill this newsletter; they are the expert's experts in this field! Mat is a very accomplished owl biologist, astute observer, and an exceptionally quick study. An added bonus and true privilege was having Steve Hoffman (founder of HawkWatch International) visit both sites and gave us a very enthusiastic 'thumbs up'!



Cathy and Fred Tilly on Nora Ridge, Lucky the dog not pictured

For totals of all raptor species combined, Nora Ridge was ahead on nearly all days of simultaneous observations. This was especially obvious on Wednesday Sept 21st when there was very little wind and excellent thermal conductivity.



RESEARCH EXPANSION

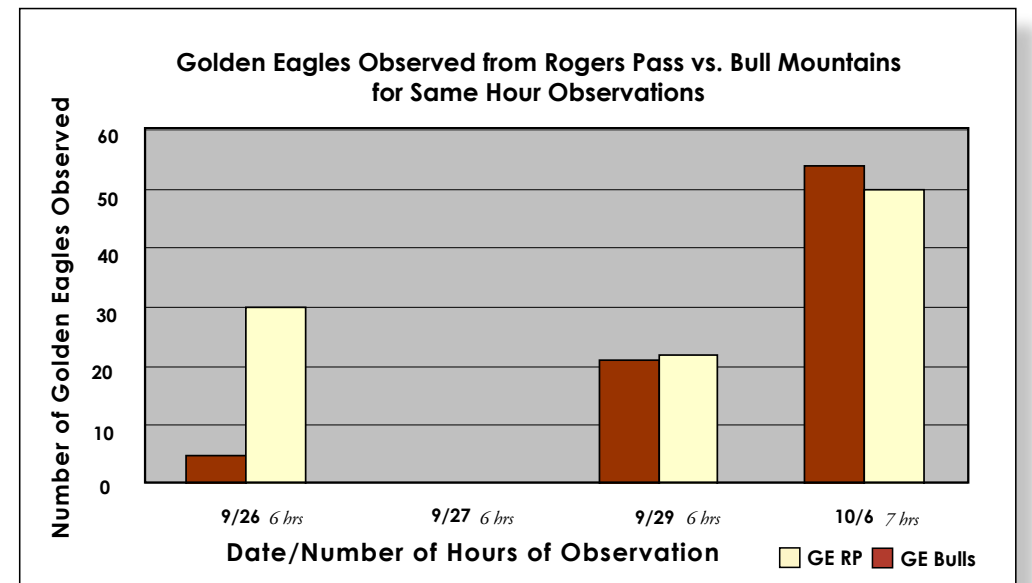
Needless to say, numbers at both locations truly surpassed our best expectations, as they almost consistently came in higher than the Rogers Pass location. Furthermore, we always had more observers at Rogers Pass, often three or more, as compared to Nora with two and the Bulls with one, making our exploratory count results all the more impressive.

As a result of this successful endeavor, we are pleased to announce the expansion of our research to include both of these new sites. They will further our understanding of raptor ecology, locally and nationally, while adding to our educational outreach. We can't wait to get started!



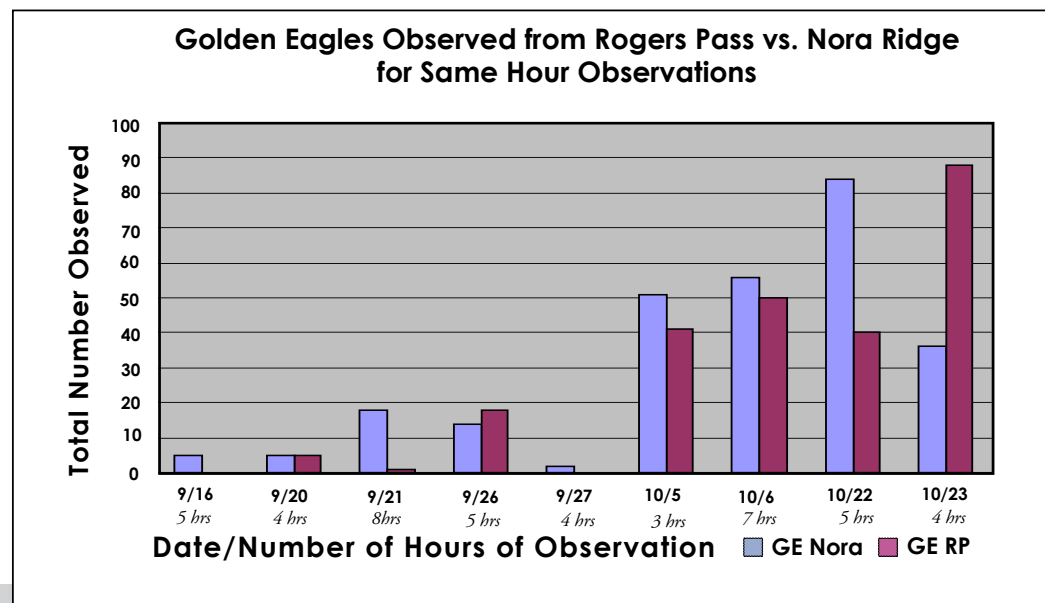
Wildlife Biologist Mat Seidensticker in the Bull Mountains

Golden Eagle count totals on the Bull Mountains were comparable to Rogers Pass, even though there were 3 observers on Rogers Pass vs. 1 observer in the Bulls

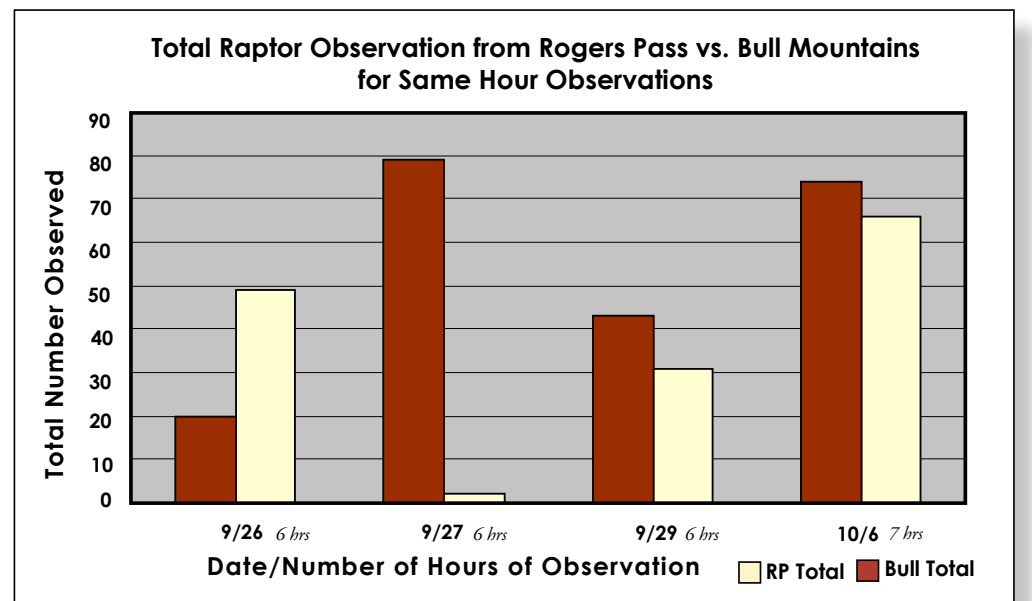


This graph clearly illustrates Nora's viability as a Golden Eagle research site, when compared to Rogers Pass.

Note: Sunday Oct. 23rd marked the opening day of rifle season. Fred and Cathy opted to observe from a less strategic vantage point in the Nora area, due to hunter presence on the main look out.



This graph illustrates a migration wave of non-eagle raptor species passing Rogers Pass (approx. 60 miles north) on Sept. 26th and reaching the Bulls on Sept 27th.



2005: A VIEW FROM THE FIELD



Liam Mulla expertly holds a Rough-legged Hawk



Rob with kids from the Jocko Nature Camp



Kadin, Liam and Gavin with Kestrel



Noel demonstrates raptor trapping techniques



A tale of two Accipiters: the Cooper's Hawk & the Sharp-shinned Hawk



Sharon with Broad-winged Hawk



Rob gets some love from a Golden Eagle



Steve Hoffman and family at Rogers Pass



Bat Biologist Nathan Schwab releases a Golden Eagle into the Rocky Mountain sky



Whitney Warren before the palm release of a Sharp-shinned Hawk

THANK YOU!



To attorneys **John Ferguson** and **J. Tiffin Hall**, thank you both very much for your generosity, your 'pro-bono' services and your friendship.

It is difficult to give everyone the gratitude they deserve, as so many have helped us along the way, donating their time and expertise when needed. Here we recognize those people and businesses that have assisted us along the way.

ORGANIZATIONS

Big Sky Conservation Institute
Bureau of Land Management
Grounded Eagle Foundation
Helena National Forest
Mountaineer's Foundation

Montana Fish, Wildlife & Parks
Montana Water Trust
Nature Conservancy
Northern Arizona University
Owl Research Institute

Patagonia
Raptors of the Rockies
S.E.C Charitable Corp.
University of Montana
Walker Family Trust

BUSINESSES

21st Century Plastics
Allegra Printers
Best Buy
Boyce Lumber
Bird Watchers Country Store
Dave Taylor Roofing

EDSD
Law Office of J. Tiffin Hall
MT Ace Hardware
Pacific Steel
Pet Nebula
Quality Supply

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Western Electric Distributors
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Mat Seidensticker

Pat Shanely
Vince Slabe
Jim Sparks
Nate Schwab
Patricia and Stephan Speckart
Dave Taylor
Frank Taylor
Fred and Cathy Tilly
Brett Walker
John Walker
Bob Walker
Whitney Warren
Ken Wolff



Tyler Veto photo

Tyler Veto photo

ADOPT A WILD RAPTOR!

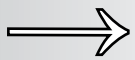


CONTRIBUTE TO RVRI THROUGH OUR 'ADOPT A RAPTOR PROGRAM'

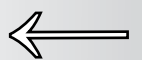
When you adopt a raptor, you will receive a packet which includes an adoption certificate specific to your individual bird with band number, wing tag (*Golden Eagle only*), age, sex, size and when and where it was banded. You will also be notified of any follow-up information regarding re-sightings, 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.....	\$25
American Kestrel	\$25
Cooper's Hawk	\$35
Northern Harrier	\$35
Merlin	\$45
Prairie Falcon	\$45
Red-tailed Hawk	\$50
Rough-legged Hawk	\$50
Swainson's Hawk.....	\$75
Northern Goshawk	\$75
Golden Eagle	\$150
Golden Eagle with satellite transmitter	\$1000



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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