

MESSAGE FROM THE PRESIDENT

It seems like only a short time ago that I took over the RRF Presidency from Mike Kochert. In reality, though, that was nearly four years ago, and this will be my final President's message for *Wingspan*. I hope I'm leaving RRF in as good a shape as Mike did; I honestly believe that's the case, though due only in small part to me. I've had the good fortune to work with a great slate of directors, and a dedicated and hard-working group of officers, editors, committee chairs and webmaster that has toiled tirelessly on behalf of RRF. We owe a tremendous debt of gratitude to all of these folks. In particular, though, I'd like to single out Treasurer Jim Fitzpatrick and Secretary Judy Henckel for personal thanks. Jim and Judy have shouldered most of the really hard work for me during my Presidency, and they have both always been there when I needed help. There's no telling how much damage I might have done to RRF if it weren't for their assistance and patient wisdom.

Following the Green Bay meeting (which everyone will be attending, right?), Lenny Young will take over as RRF President. Lenny has a great business and managerial sense, and knows RRF. This combination of skills should serve us very well as we move into the most important phase of business plan development—creating a strategic plan for RRF. The strategic plan is intended to compliment and provide purpose to the interim financial plan (completed under Mike Kochert's leadership last year) and membership plan (currently being coordinated by Ted Swem). I look forward to continuing to work with Lenny and the directors on this important phase of RRF's development, assuming they'll have me.

A final important point I want to call your attention to is our 2005 ballot and voting process. Thanks to Judy Henckel and The Schneider Group, those of you with e-mail addresses on file with OSNA will have the opportunity to vote for your new directors electronically. This is an important advancement for RRF, in terms of ease and convenience, as well as cost: for every e-mail vote cast, we will save on postage. Thanks again to Judy for taking this on and bringing it to reality!

I'd like to close by thanking you for giving me the opportunity to serve you as RRF President. It's been an honor to work for you in this capacity.

Best regards,

Brian



**MAKE PLANS NOW TO ATTEND THE 2006 NORTH AMERICAN
ORNITHOLOGICAL CONFERENCE!**

The 2006 NAOC will meet in Veracruz, Mexico, October 3-7, 2006, in what promises to be an outstanding meeting of eight societies. This fourth such conference is being jointly organized by the Raptor Research Foundation, American Ornithologists' Union, Association of Field Ornithologists, CIPAMEX, Cooper Ornithological Society, Society of Canadian Ornithologists, Waterbird Society and Wilson Ornithological Society.

The theme is "Wings Without Borders", and the meeting will feature outstanding plenary speakers, oral and poster sessions and symposia, and will serve as the annual meeting for RRF, as well as the other societies. Special emphasis will be placed on involving colleagues from Latin and South America. Along with the scientific program, several workshops and field trips will be offered, including the opportunity to view the fall migration of 5+ million raptors! There are over 540 bird species in central Veracruz alone!

Watch for the call for symposia with the full conference program and call for abstracts and registration information. A website is being established, so be sure to check www.naoc2006.org for up-to-date information or contact the conference manager at: helens@sgmeet.com or 1-254-776-3550.

THE RAPTOR RESEARCH FOUNDATION, INC.

(FOUNDED 1966)

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Wingspan is mailed twice each year to all members of The Raptor Research Foundation, Inc. (RRF). It is also available to non-members at a subscription rate of US\$10 per year. *The Journal of Raptor Research* (ISSN 0892-1016) is published quarterly and available to individuals for US\$40 per year (US\$20 per year for students, and for regular members in certain nations) and to libraries and institutions for US\$65 per year. Add US\$5 for destinations outside of the United States. There is a US\$3 surcharge for memberships renewed after November 15. Persons interested in birds of prey are invited to join RRF. For information about subscriptions or membership, please contact: Ornithological Societies of North America, 5400 Bosque Boulevard, Suite 680, Waco, TX 76710, USA; 1-254-399-9636 (phone); 1-254-776-3767 (fax); business@osnabirds.org (e-mail); <http://www.osnabirds.org> (web).

VERACRUZ RAPTOR TOURS RRF MEETING 2006

Bill Clark will lead two RRF-sponsored raptor tours before and after the RRF annual meeting in Veracruz, Mexico in October 2006.

Pre-conference raptor tour, September 29-October 3, 2006, will focus on raptor migration. The world's largest count of migrating raptors was tallied here. We will spend four days watching this spectacle and also see some resident Neotropical raptors and other birds. Cost of the 4-day trip is US\$750 per person, double occupancy.

Post-conference raptor tour, October 8-13, 2006, will be to observe Neotropical raptors. We will visit three different areas: one a wetland, another a low-land rain forest, and the third a higher elevation rain forest. We will see some migrating raptors and other birds too. Cost of the 5-day trip is US\$950 per person, double occupancy.



Laughing Falcon: could be seen on either of the RRF-sponsored raptor conference tours in Veracruz in 2006.

Costs include transport, room, and all guide and entry fees but not personal drinks or food. Bill is writing a raptor field guide for Mexico and Central America. Contact Bill at 1-956-364-0415 or raptors@earthlink.net for detailed itineraries or to ask for more information or both.

TURKEY VULTURE TRACKING PROGRAM, SASKATCHEWAN 2005

by Stuart Houston

At this moment, Saskatchewan leads in three aspects of Turkey Vulture research:

- the only current nestling Turkey Vulture wing-tagging program in North America; 14 large wing tags, with an easily read white letter and two numbers on a green tag, were applied at 9 nests in 2003, and 30 at 17 nests in 2004. This year, 2005, we will visit 29 known, active nests.
- the only nestling carrying a satellite transmitter (tagged west of Leoville, Saskatchewan, on August 5, 2004; locations within 10 km, several per day, come every two days by e-mail).
- the only two adult vultures captured on their nest, carrying GPS transmitters that provide hourly reports of location, distance traveled to obtain food for young, and length of time on a single carcass. A bodypack transmitter was applied to a presumed adult female at her nest west of Duck Lake on June 18, 2005, and a presumed adult male at his nest south of Hanley on June 19. Hourly reports within 10 m GPS accuracy come every six days by e-mail.

This is a team effort. Financial support for the first and only nestling transmitter (previously on an Osprey that made two trips to Costa Rica and back) and for the cost of Argos satellite transmissions, came from Nature Saskatchewan, donations matched dollar-for-dollar by Saskatchewan Power. Geoffrey Holroyd and Helen Trefry of Canadian Wildlife Service, Edmonton, applied the transmitter. Peter H. Bloom of Orange County, California, provided hands-on wing-tag instruction to Brent Terry in California.

The two 2005 transmitters have been supplied by Keith Bildstein, and hourly locations are supplied by David R. Barber, both at the Acopian Center for Conservation Learning, Hawk Mountain Sanctuary, Pennsylvania. Heart loggers were inserted under anesthesia at the field locations by Dr. Karen Machin, Western College of Veterinary Medicine, Saskatoon. The bodypack transmitters were installed by Dr. Marc Bechard of Boise State University, during his 21st field banding trip to Saskatchewan. Wing tags were applied by Brenton Terry and Michael Blom of Saskatoon.

Anyone sighting a vulture is encouraged to look for a wing tag. Nestling tags on right wing, adult tags on left wing. Please report the number of the tag to: C. Stuart Houston, 863 University Drive, Saskatoon, SK S7N 0J8, Canada. Phone 1-306-244-0742 before 9 p.m. CST, or send data to houstons@duke.usask.ca. Saskatchewan observers are asked to check deserted farm buildings and report those with vultures to the same address. Watch for the next issue of *North American Bird Bander* for an account of the history of leg banding (now outlawed) and wing tagging in North America.

BREEDING LONG-EARED OWLS INVADE SOUTHERN MANITOBA IN 2005

by Jim Duncan

The largest documented irruption of Great Gray Owls in southern Canada and the northern United States in winter 2004-2005 has received much attention by amateur naturalists and professional biologists. But another, more cryptic phenomenon related to climate and food availability has taken place with other owl species, at least in Manitoba in summer 2005.

Unusual high rain in summer and fall 2004 resulted in conditions that prevented many farmers from harvesting alfalfa and other agricultural crops routinely grown on the Manitoba prairie. It appears that meadow voles (a kind of field mouse) took advantage of the resulting abundant food supply and bred, well, like voles during winter months under a nice warm blanket of insulating snow. The resulting wet spring conditions in 2005 further prevented regular agricultural activities in many areas, and the resulting explosion of vole populations drew the attention of more than alarmed urban and rural homeowners. It seems that Long-eared Owls (*Asio otus*), and to a lesser quantified degree, Short-eared Owls (*Asio flammeus*), decided to cut short their migration and settle down to take advantage of the large supply of meadow voles and breed in southern Manitoba in high numbers.

To date (August 2005), thanks to reports from landowners, staff from Manitoba Conservation, and staff and volunteers with The Wildlife Haven, I have tabulated information on 34 Long-eared Owl nests and/or breeding sites and 10 locations with evidence of breeding Short-eared Owls, at least a 10-fold increase over normal years. In what I can only now describe as a June-July "owl-o-rama", I visited 23 of these locations personally to interview landowners and to see first hand the behavior, nest sites, and habitat of these prolific owls. Evident was landowners' excitement and generally protective attitude towards the owls. This summer's plethora of Long-eared and Short-eared owls afforded many Manitoba citizens with their first personal encounter with an owl. Owls were often found nesting in old crow and magpie nests (owls do not build their own nests) in trees immediately adjacent occupied houses!

Since young owls typically leave the nest as downy chicks before they can fly, many people found one or more young flightless owl on the ground and innocently, but often incorrectly assumed that these chicks were abandoned or orphaned. Subsequently, many long-eared owl chicks found their way to the care of The Wildlife Haven, a wildlife rehabilitation organization in Manitoba. I tried to reunite chicks with their parents as best I could while I visited nest sites to study them. Thus, seven of 13 long-eared owl chicks turned into The Wildlife Haven were either returned to their original nest or they were fostered to a different family group in the wild. Thank goodness owl parents cannot count! What happened to the other six, you ask? Four were transported to Katherine McKeever, a veteran owl rehabilitator in Vineland Ontario who runs The Owl Foundation, where they are being raised by unreleasable adult Long-eared Owls to avoid imprinting, and two were kindly taken in by the Assiniboine Park Zoo.

This summer many of the people I met asked me “Where did all these owls come from?” Biologists like Dr. Stuart Houston of Saskatchewan have earlier provided some insight on the nomadic nature of *Asio* owls in Saskatchewan, Canada. Stuart noted that while the migratory and nomadic nature of Short-eared Owls is well recognized, that of the Long-eared Owl is somewhat cryptic. The secretive nature of the more nocturnal Long-eared Owl appears to mask the extent to which they are nomadic. I am preparing a more detailed report on the breeding of high numbers of *Asio* owls in southern Manitoba this summer that will include an examination of how well Manitoba’s volunteer-based spring nocturnal owl survey tracked this dramatic fluctuation in the number of the enigmatic and seemingly nomadic Long-eared Owl.

Jim Duncan
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NEWS ABOUT THE MONTEJO RAPTOR REFUGE (SPAIN)

by Fidel José Fernández y Fernández-Arroyo

In the Montejo Raptor Refuge and its surrounds (Spain), I have just finished the 31st consecutive year of raptor nest censuses. Over a 56-day period, I documented 184 fledglings at 174 nests representing 10 raptor species. This number includes 31 nests outside Gorges Riaza Natural Park, which are especially important due to potential impacts of public use within the park. These numbers are low, compared to the last 10 years, primarily due to a lower number of Eurasian Vulture chicks (the population in these gorges is the largest known in Europe and perhaps in the world). Public use and the new European sanitary rules about dead domestic animals may also be exerting an influence. More information can be found, in Spanish, in the last two issues (27 and 28) of my “Hoja Informativa sobre el Refugio de Rapaces de Montejo” (220 and 128 pages, respectively), which are available at <http://www.naturalicante.com>, in “La Mochila del Naturalista”, or in “Tienda Verde” (c/ Maudes, 23; 28003-Madrid, Spain; phone: 34-915793345). I may be contacted at: c/ Pensamiento, 15 - 3^o A / 28020-Madrid, Spain (phone: 34-915793345, e-mail: ffernan@mat.uned.es).

FALCONS FOR GRAPES PROJECT TAKES OFF

The annual cacophony of bird bangers and shotguns used to deter birds from fruit and grape crops in Marlborough, New Zealand, may soon be a thing of the past. An ecologically sound solution to the annual damage done to New Zealand's grape harvest by fruit eating birds may soon be achieved thanks to a ground breaking initiative. Following extensive cooperation between government agencies, Forest and Bird, growers and a UK based consultancy specializing in 'green' solutions, the 'Falcons for Grapes' project is now set to start this spring.

Although the endemic New Zealand Falcon winters on the Marlborough plains, coming from nests in the ranges nearby, there is nowhere on the plains where they can nest safe from introduced predators. The project aims to provide nest barrels and a 'seed' population of falcons in order to expand the population back from the hills onto the plains. An intrinsic part of the program is to study the falcons both in the hills and on the plains in order to understand what is limiting their numbers and what can be done to halt their decline. The falcon is New Zealand's last endemic bird of prey; the Haast's Eagle became extinct with the moas, and the Laughing Owl has not been seen for 30 years.

The Marlborough falcons are the longest-studied population in the country. Project leader from International Wildlife Consultants, Nick Fox said, "I first started studying the falcons here in 1974 as a raw Ph.D. student and have worked on them ever since. However, little is known about the populations in recent times. With the need for farming to be competitive in the international markets there is increased pressure on habitats and on farmland. This project is aimed to help both the falcons and New Zealand farming, especially the new wine industry. For Marlborough wines to succeed, the problems of reducing bird damage whilst maintaining a landscape that is pleasant both for people and wildlife have to be faced. By supplementing their food we hope the falcons can deter pest birds rather than catch them. It is also an opportunity for the wine industry to contribute to understanding the ecology of this native bird, potentially providing a win:win result to all parties."

'Falcons for Grapes' will be undertaken in close collaboration with the Department of Conservation which has issued the necessary permits to move up to 15 baby falcons from nests in the surrounding hills to nest boxes in selected trial vineyards. The project has now received a grant from the Sustainable Farming Fund which will cover 41% of the costs for the first three years. A further 30% will come from International Wildlife Consultants (UK) who will also provide a base for the project in Marlborough. The Wine Industry is funding 14% of the project at this stage, with a view to providing further funding if the first three years of development are looking positive. A further 15% of the funding will be sought elsewhere to fund a Ph.D. student studying the falcons.

The project has already received a number of enquiries from people wishing to assist in monitoring falcons. The Raptor Association of New Zealand has many members in the area and those wishing to participate in conserving falcons should contact the Falcons for Grapes Manager, Colin Wynn at 64-027-223-1115.

**RAPTOR RESEARCH FOUNDATION
2005 ANNUAL MEETING**

**Green Bay, Wisconsin
12-16 October**

The Raptor Research Foundation 2005 annual meeting will be held from 12-16 October at the KI Convention Center in Green Bay, Wisconsin (<http://www.regencygb.com/convention.html>). The meeting will be hosted by the Cofrin Center for Biodiversity, which is part of the University of Wisconsin, Green Bay (<http://www.uwgb.edu/biodiversity>). Green Bay is a thriving community with many attractions (<http://www.titletown.org/default.asp>) located in eastern Wisconsin on one of the largest freshwater estuarine ecosystems in the world. A substantial fall raptor migration occurs along Green Bay and the nearby Lake Michigan shore, including thousands of Saw-whet Owls and other species characteristic of eastern North America and Canada. The meeting will include social gatherings and scientific sessions: 20-minute presentations on topics such as raptor migration, management, conservation, and ecology. Jim Fitzpatrick will make an extended presentation entitled, "In Search of the Ivory Billed Woodpecker", wherein he will recount his efforts and those of others to document the existence of the Ivory Billed in the Arkansas delta. Jim is one of a very few people who have actually seen an Ivory Billed. Kate Davis worked with RRF Scientific Program Chair Angela Matz to organize a special session on raptor education. Among the topics are presentations on enclosure design, federal regulations associated with maintaining raptors for educational purposes, and expanding appreciation for raptors in environmental education through creative writing. Field trips include a visit to the Linwood Springs Research Station near Stevens Point to observe Saw-whet Owl banding and an outing to observe raptor migration on the Lake Michigan shore. Details on the meeting are posted and updated periodically on the RRF web site at <http://biology.boisestate.edu/raptor>, or for general information, contact RRF Conference Committee Chair Dan Varland (phone: 1-360-538-4582, e-mail: daniel.varland@rayonier.com). The deadline for submission of abstracts has now passed, but you may register up to and even during the meeting. On-line registration is not an option this year. Register by completing the registration form mailed to you with the meeting circular with the March 2005 issue of *The Journal of Raptor Research*. A copy of the meeting circular may also be downloaded from the RRF website (see information on the 2005 conference).

GREEN BAY CONFERENCE RAFFLE ITEMS NEEDED!

Those attending the Green Bay meeting are asked to bring one or more raffle items. Raffles items include such things as an enlargement of your favorite raptor photograph (matted or not, framed or not), a couple of tickets to a Wisconsin team's professional sporting event, a raptor book, and a raptor trap. Proceeds will go to defray meeting costs.

ANNOUNCEMENTS

UPCOMING MEETINGS

2005

October 12-16

RAPTOR RESEARCH FOUNDATION 2005 ANNUAL CONFERENCE

Green Bay, Wisconsin

contact: <http://biology.boisestate.edu/raptor> or Dan Varland (phone: 1-360-538-4582, e-mail: daniel.varland@rayonier.com)

October 28-31

4th SYMPOSIUM ON ASIAN RAPTOR - MALAYSIA 2005 "TOWARDS CONSERVATION OF ASIAN RAPTOR THROUGH SCIENCE AND ACTION"

Taiping, Malaysia

contact: http://www5b.biglobe.ne.jp/~raptor/FINAL_ANNOUNCE-4thAsianRapSympo2005.htm or Mike H. N. Chong (phone: 603-4107-1958, e-mail: mikechn@pc.jaring.my)

2006

June 11-14

II NEOTROPICAL RAPTOR CONFERENCE AND SYMPOSIUM ON RAPTOR OF THE SOUTHERN CONE

Iguazú, Argentina

contact: <http://www.neotropicalraptors.org> or Cameron Ellis (e-mail: cellis@peregrinefund.org)

October 2-7

RAPTOR RESEARCH FOUNDATION 2006 ANNUAL CONFERENCE (4th NORTH AMERICAN ORNITHOLOGICAL CONFERENCE)

Veracruz, Mexico

2007

September 12-16

RAPTOR RESEARCH FOUNDATION 2007 ANNUAL CONFERENCE

Allentown, Pennsylvania

PUBLICATIONS AVAILABLE

SCREECH OWL MONOGRAPH

AVAILABLE I have a limited number of copies of "The Screech Owl: Its Life History and Population Ecology in Northern Ohio" by L. F. Van Camp and C. J. Henny, North American Fauna No. 71 (1975), 65 pp. for free distribution! The newer generation may not be aware of this 30-year old publication which has much basic information. Contact me at: charles_j_henny@usgs.gov or 3200 Jefferson Way SW, Corvallis, OR 97331, USA and provide your mailing address. Chuck Henny

WEST NILE VIRUS We would like to draw your attention to the following article which will appear in the fall issue of *Avian Diseases* (vol. 49, no. 3): Stout, W. E., A. G. Cassini, J. K. Meece, J. M. Papp, R. N. Rosenfield, and K. D. Reed. 2005. Serologic evidence of West Nile virus infection in three wild raptor populations. *Avian Dis.* 49(3). Thank you, The Authors.

ON-LINE RESOURCES

GRIN The Global Raptor Information Network (GRIN), is a web-based resource providing detailed information on birds of prey (eagles, hawks, and falcons). Comprehensively designed to promote and facilitate communication between raptor enthusiasts of the world, GRIN serves a variety of audiences from the beginning student to a conservation manager to a seasoned researcher. The goal of the program is to provide a one-stop shopping destination for anyone interested in diurnal raptors. Visit GRIN at: <http://www.peregrinefund.org/GRIN.asp>.

MERLINS RRF member, David P. Drummond is founder and president of the Merlin Falcon Foundation, P.O. Box 4123, Bellingham, WA 98227, USA (e-mail: merlinology@hotmail.com). We are working with you to collate our collective

knowledge of merlins in the world toward their informed conservation stewardship. Please visit our evolving website at: <http://www.merlinfalconfoundation.org>.

FOR SALE

GYRFALCON MUGS Alaska Bird Observatory (ABO) has printed more of the Gyrfalcon mugs sold at the 2003 RRF annual conference in Anchorage. These mugs may be ordered through ABO's website: <http://www.alaskabird.org>.

RRF PUBLICATIONS Back issues of *The Journal of Raptor Research* (TJRR) Vol. 1-30 and all Raptor Research Reports may be purchased

directly from RRF (Jim Fitzpatrick, Carpenter St. Croix Valley Nature Center, 12805 St. Croix Trail S, Hastings, MN 55033, USA; phone: 1-651-437-4359; fax: 1-651-438-2908; e-mail: jim@carpenternaturecenter.org). Some older issues of TJRR are not available. See <http://biology.boisestate.edu/raptor/rrf.htm#Back> issues for details and prices. Orders for four or more volumes receive a 30% discount. RRF decals and pins also are available. Vol. 31+ of TJRR may be purchased from the Ornithological Societies of North America (5400 Bosque Boulevard, Suite 680, Waco, TX 76710, USA; 1-254-399-9636; phone: 1-254-399-9636; fax: 1-254-776-3767; e-mail: business@osnabirds.org; web: <http://www.osnabirds.org>).

RECENT THESES ON RAPTORS

The U.S. Geological Survey's Richard R. Olendorff Memorial Library greatly appreciates receiving a copy of each thesis abstracted in *Wingspan*. This allows the Library to make theses available to scientists and managers worldwide through its Raptor Information System (RIS, see *Wingspan* 7(1):16). Please send theses to: Olendorff Memorial Library, U.S. Geological Survey, Forest and Rangeland Ecosystem Science Center, Snake River Field Station, 970 Lusk Street, Boise, ID 83706, USA.

Guinn, J. E. 2004. BALD EAGLE NEST SITE SELECTION AND PRODUCTIVITY RELATED TO HABITAT AND HUMAN PRESENCE IN MINNESOTA. Ph.D. Diss., North Dakota State Univ., Fargo. 172 pp.

Removal of the Bald Eagle from the federal Endangered and Threatened Species List has been proposed but delayed, pending consideration of habitat needs and the development of a population-monitoring plan. This project evaluated the species' use of nesting habitat in Minnesota, where a large population of Bald Eagles nests across several different ecoregions and near varying levels of human activity. A total of 24 habitat and human-presence variables were measured at a sample of 120 active nest sites and 166 random sites. Measurements within 100 m of nests were taken on site while variables up to 1,000 m were measured by analyzing remote-sensing data and aerial photographs. Discriminant Analysis separated nest sites from random sites primarily on the basis of tree diameter and distance from shoreline. Information-theoretic Model Selection showed little relationship of productivity at each nest to the characteristics of the site. Within the range of basic requirements (proximity to water, substantial trees for nest support, and an adequate prey base), eagle habitat was highly variable and not specialized. The rebound of Bald Eagle populations did not occur with concurrent increases in habitat. Rather, it appears that recent population trends were the result of demographic factors that were probably not related directly to habitat or human

presence. As long as the public does not harass the birds or impact eagle reproduction and survival, nesting Bald Eagles appear to coexist satisfactorily with humans in close proximity. The continued welfare of Bald Eagles depends most importantly on protection of the birds themselves, via continuing education of the public and enforcement of existing regulations. While Bald Eagle nesting habitat should not be ignored, there is little evidence from this study that it is currently a major concern in the state of Minnesota.

Salafsky, S. R. 2004. COVARIATION BETWEEN PREY ABUNDANCE AND NORTHERN GOSHAWK FECUNDITY ON THE KAIBAB PLATEAU, ARIZONA. M.S. Thesis, Colorado State Univ., Fort Collins.

Knowledge of factors limiting population growth and persistence is necessary to develop comprehensive conservation strategies. Although variable prey resources are often associated with fluctuations in raptor demographic rates, the mechanisms of food limitation are poorly understood especially for an opportunistic predator like the Northern Goshawk (*Accipiter gentilis*). To determine the reproductive responses of goshawks to variable prey populations, I evaluated the number of young produced from 823 goshawk breeding-opportunities on the Kaibab Plateau, Arizona from 1994-2002. Concurrently, abundance was calculated for five prey species (3 mammal, 2 bird). I explored the relationship between goshawk reproduction and prey abundance at one temporal (year) and two spatial (study area, forest type) scales. I also analyzed the relative contribution of individual prey species to goshawk reproduction. Goshawk reproduction showed significant annual variation within the entire study area, mixed conifer forest, and ponderosa pine forest. However, reproduction did not vary between forest types. Abundance of all prey species combined accounted for 88% of the variation in goshawk reproduction within the study area, 72% in mixed conifer forest, and 85% in ponderosa pine forest. Red squirrel (*Tamiasciurus hudsonicus*) density explained more annual variation in goshawk reproduction in the study area (88%), mixed conifer forest (73%), and ponderosa pine forest (89%) than any other species. However, I could not determine whether the abundance of individual prey species or total prey abundance was more important to goshawk reproduction because most prey species populations fluctuated in phase. These results suggest that goshawk population dynamics are strongly associated with prey abundance and the importance of each prey species is likely dependent on the abundance, quality, and availability of alternate prey. Thus, appropriate conservation strategies for forest-dependent predators such as goshawks should emphasize forest management practices that benefit prey resources.

Tingay, R. E. 2005. HISTORICAL DISTRIBUTION, CONTEMPORARY STATUS AND COOPERATIVE BREEDING IN THE MADAGASCAR FISH EAGLE: IMPLICATIONS FOR CONSERVATION. Ph.D. Thesis, Univ. Nottingham, UK. 412pp.

The island endemic Madagascar Fish Eagle (*Haliaeetus vociferoides*) is considered critically endangered, based on a perceived notion of a historical and continuing population decline during the last fifty years. This thesis critically evaluates the hypothesis of population decline by utilising historical and contemporary documents and museum specimens. The results suggest that the population has not suffered a recent decline but rather the population is naturally small. This thesis also investigates the types and distribution of cooperative breeding strategies and assesses their role in the species' population structure and dynamics. The unusually high diversity of reproductive strategies includes cooperative polyandry and potentially polygyny, polygynandry and homosexuality, which are restricted to within one area of relatively high population density in western Madagascar. The social organisation of cooperative groups is examined and results suggest that, unusually, the role of dominance in the male social hierarchy is not associated with paternity assurance or limited ecological resources, but rather with social prestige. The evolution of cooperative breeding in this species remains undetermined as these results challenge the traditional hypotheses used to explain cooperative breeding in other avian species. Finally, the species' IUCN conservation status is re-assessed and it is proposed that the Madagascar Fish Eagle should now be downlisted from *critically endangered* to *endangered*.

WINGSPAN CONTRIBUTIONS

The Raptor Research Foundation, Inc. thanks the following people who contributed material to this issue of *Wingspan*: **David Drummond, Jim Duncan, Fidel José Fernández y Fernández-Arroyo, Nick Fox, Sally Galbraith, Jeremy Guinn, Chuck Henny, Stuart Houston, Susan Jones, Brian Millsap, The Peregrine Fund, Susan Salafsky, Bill Stout, Ruth Tingay, and Dan Varland.**

Wingspan welcomes contributions from RRF members and others interested in raptor biology and management. Articles and announcements should be sent, faxed, or e-mailed to the editor: Leonard Young, 1640 Oriole Lane NW, Olympia, WA 98502-4342, USA (phone/fax: 1-360-943-7394, e-mail: rrfwingspan@comcast.net). Deadline for the next issue is February 7, 2006.



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