



W · I · N · G · S · P · A · N

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MESSAGE FROM THE PRESIDENT

Having spent 15 years in Florida, I'm having a hard time adjusting to the "real" winters here in Virginia. Snow, sleet, freezing rain, and rain so cold it's hard to believe it isn't freezing have been on the docket here the past month, and I, for one, am looking forward to spring. Given that this is our spring issue of *Wingspan*, I have to believe it isn't far off. You'd never know it looking out my window, though.

Those of you who made it to Anchorage enjoyed an excellent meeting. The local committee did an outstanding job on all fronts. We are particularly indebted to our hosts, the Alaska Bird Observatory. Nancy DeWitt, Executive Director of ABO, deserves special recognition for her hard work and dedication on RRF's behalf.

Among the many items of business your Board of Directors considered in Anchorage was RRF's 2004 budget. For the first time in recent memory, we were forced to pass a budget that will spend more than we anticipate taking in. Your directors and officers did not take this step into red ink lightly; in fact, we cut costs everywhere possible before doing so. It is simply a fact that our expenses, and in particular the costs to publish a scientific periodical of the caliber of today's *The Journal of Raptor Research* (TJRR), exceed our income under today's dues structure. Past-president Mike Kochert created an ad-hoc Financial Planning Committee in 2000 to develop a business plan for RRF. The Board of Directors and I have asked that committee to expedite its work, with the goal of having a plan in place to resolve our current financial situation for the 2005 budget cycle. The committee is looking into a number of fiscal issues, management of RRF's award accounts and possible cost savings in publishing TJRR among them. However, I think it is likely we will have to consider the first increase in RRF's dues in 14 years. The Board of Directors has the authority under RRF's By Laws to enact a dues increase. However, we are concerned about how a dues increase would be perceived by members, particularly since subscriptions to RRF, and all other ornithological journals, have been declining in recent years. We need more income to continue doing the job we've done, but a dues increase that precipitates a steep membership decline won't help.

I encourage you to give some thought to this issue over the next few weeks, and then let your directors know if you would support an increase in dues to continue the services you currently receive. As you contemplate this issue, take a fresh look at your last issue of TJRR, review this *Wingspan*, and visit the RRF website. Are these things worth a few more dollars each year to you?



A final immediate step we can all take to help with RRF's financial situation is to encourage those around us with a scientific interest in raptors, including the institutions to which we belong, to become members. On a formal level we will be reinvigorating our Membership Committee to consider options for rebuilding our membership. But in the end, we as individuals can have the most impact on membership growth by getting our colleagues to join and support RRF.

Start making your plans now for what should be another interesting meeting in Bakersfield California next November. I look forward to seeing you there.

Best regards,

Brian

**RAPTOR RESEARCH FOUNDATION
2004 ANNUAL MEETING**

**Bakersfield, California
10-13 November**

The Raptor Research Foundation 2004 annual meeting will be held from 10-13 November at the DoubleTree Hotel in Bakersfield, California in conjunction with the California Hawking Club (CHC) annual field meet (learn more about the CHC at <http://www.calhawkingclub.org>). Details on the joint meeting are posted and updated periodically on the RRF web site at <http://biology.boisestate.edu/raptor>. Abstracts for oral and poster presentations on any aspect of raptor biology, ecology, conservation, or management are welcome. The deadline for submission of abstracts is 31 July. An advertising circular with instructions for abstract submission and other information about the meeting will be mailed to RRF members in May, and conference details will be posted on the website as soon as they are available. Special sessions under consideration include Ecology and Conservation of Wetland-dependent Raptors, West Nile Virus, and Management of Raptor Electrocutions in California. For more information on the scientific program, contact Angela Matz, Scientific Program Chair (phone: 1-907-456-0442, e-mail: angela_matz@fws.gov).

Among the field trips are tours of the California Living Museum, the Facility for Animal Care and Treatment at the University of California, Bakersfield, and viewing of the CHC Sky Trials. In Sky Trials, trained raptors test their skills against racing pigeons (see <http://www.ebiz.netopia.com/utahskytrials/historyoftheutahskytrials/>). If you live in California, especially near the Bakersfield area, and would like to help with conference planning, please contact Dan Varland, RRF Conference Committee Chair (Rayonier, 3033 Ingram Street, Hoquiam, WA 98550, USA; phone: 1-360-538-4582; e-mail: daniel.varland@rayonier.com).

2003 RRF AWARD RECIPIENTS

by Petra Bohall Wood, Chair, Awards Committee

Fran and Frederick Hamerstrom Award (Selection Committee: Clint W. Boal, Chair; Brent Bibles; Joan Morrison) Recipient: **Stuart Houston** (see page 4).

James R. Koplín Travel Award (Selection Committee: Patricia A. Hall, Chair; Joan Morrison) Recipient: **Colleen Moulton**, Boise State University, "Territory Defense of Nesting Burrowing Owls: Responses to Simulated Conspecific Intrusion."

William C. Andersen Memorial Award (Selection Committee: Laurie Goodrich & Petra Bohall Wood, Co-chairs; Reviewers: Jim Bednarz, Jim Belthoff, David Bird, David Payer, Jeff Smith, Petra Bohall Wood) Recipient: **Joshua Hull**, Sonoma State University, "Historical Demography and Population Genetic Structure of Migrating Sharp-shinned Hawks."

Dean Amadon Grant (Selection Committee: Carole Griffiths, Chair) Recipient: **Heather Lerner**, University of Michigan, "Testing Hypotheses of Harpy Eagle Phylogenetics and Phylogeography."

Stephen R. Tully Memorial Grant (Selection Committee: Kim Titus, Chair; Robert Rosenfield; Robert Murphy) Recipients: **Shelley Bayard de Volo**, Colorado State University, "Genetic Fingerprinting for Identifying Individual Northern Goshawks in Studies of Survival" and **Gabriel Jaime Colorado**, Medellin, Colombia, "Monitoring the Migration of North American Raptors in Northern Columbia" (see page 5).

Leslie Brown Memorial Grant (Selection Committee: Jeff Lincer, Chair; Steve Hoffman; Alan Kemp; Gary Duke; Rich Howard) Recipient: **Odette Curtis**, FitzPatrick Institute of African Ornithology, "Black Sparrowhawks Vs. The Working for Water Project: Recognizing and Resolving a Conflict of Environmental Interests on the Cape Peninsula."

THE RAPTOR RESEARCH FOUNDATION, INC.

(FOUNDED 1966)

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Wingspan is distributed twice a year to all RRF members. It is also available to non-members for a subscription rate of \$10 per year. *The Journal of Raptor Research* (ISSN 0892-1016) is published quarterly and available to individuals for \$33 per year (\$18 per year for students) and to libraries and institutions for \$50 per year from: Ornithological Societies of North America, P.O. Box 1897, Lawrence, KS 66044, USA. Add \$5 for destinations outside of the continental United States. Individual and student memberships renewed before November 15 are \$30 and \$15, respectively. Persons interested in predatory birds are invited to join The Raptor Research Foundation, Inc. Send requests for information concerning membership, subscriptions, special publications, or change of address to: Ornithological Societies of North America, P.O. Box 1897, Lawrence, KS 66044, USA.

FRAN AND FREDERICK HAMERSTROM AWARD 2003

by Clint W. Boal, Chair, Hamerstrom Award Committee

The Fran and Frederick Hamerstrom Award was established by the Raptor Research Foundation in 1990 to honor Fran and Frederick Hamerstrom and recognize their contributions to our understanding of raptor natural history and ecology. This award is given based on long-term significant research contributions in raptor ecology and natural history, and is awarded for the sum of an individual's work. The selection committee for this award consists of Clint Boal, Brent Bibles, and Joan Morrison.

The recipient of the 2003 Raptor Research Foundation's Fran and Frederick Hamerstrom Award is Dr. Stuart Houston. Dr. Houston has engaged in raptor research for over 40 years, having published over 242 scientific papers on ornithology and natural history. He is a life member of the American Ornithologists' Union, having joined the union in 1943, and becoming an Elective Member in 1959 and a Fellow in 1989. He is also a member of the Wilson Ornithological Society since 1948, the Cooper Ornithological Society since 1980, the Association of Field Ornithologists since 1983, and the Raptor Research Foundation since 1997.

Dr. Houston's cumulative impact on raptor ecology has been especially felt through his banding and research of prairie raptors, especially Ferruginous Hawks and Swainson's Hawks. His long-term banding efforts have provided considerable insights into many prairie-nesting birds of prey, and his efforts have also resulted in collaboration with a number of other bird of prey researchers. What makes Stuart's impressive and important contributions to raptor ecology even more noteworthy is that he is not a professional biologist. Somehow, Stuart found the time to have a career as a medical doctor, specializing in diagnostic radiology, and writing 3 books, 13 book chapters, and over 65 scientific articles in the medical field, and holding numerous memberships and administrative positions within his professional field.

Truly, Dr. Houston is an overachiever, continuing to make significant contributions to the understanding of raptor natural history and ecology. It is with great pleasure that the Raptor Research Foundation presents the Fran and Frederick Hamerstrom Award to Dr. Stuart Houston.

2003 RECIPIENT OF THE MORLEY NELSON FELLOWSHIP

"Use of Stable Hydrogen Isotopes to Identify and Assess Yearly Variation of Natal Origins Among Raptors Migrating Through the Florida Keys"

Sara Ress, University of Arkansas

The Morley Nelson Fellowship is awarded by the Conservation Research Foundation. For information about the fellowship, please see *Wingspan* 11(2):16.

STEPHEN R. TULLY MEMORIAL GRANT 2003

by Kim Titus, Chair, Tully Grant Committee

The Tully Grant Committee of Drs. Kim Titus, Bob Murphy, and Bob Rosenfield evaluated 32 proposals last year. The RRF Board allowed us to make two grants; information regarding the two projects that received grants is summarized below.

"Migration of North American Raptors in Northern Colombia"

Gabriel Jaime Colorado

Seasonal hawk migration counts have been conducted along the northernmost part of the South American Andes in the Central Cordillera of Colombia since 1997. The project was begun to establish a monitoring station at Alto de Minas mountain pass, near Medellin city, Antioquia province. Over 15,000 raptors, including Broad-winged and Swainson's hawks, Merlins, and Swallow-tailed Kites, were counted in fall 1997 and spring 1998. A new monitoring location was established in the fall of 1999 at a lookout on the Cauca inter-Andean valley, near Fredonia town, Antioquia province (05°54'N, 75°43'W), that has been continually running since that year. Up to 40,000 migrating raptors represented by 9 species are counted per season, and more than 15 resident raptor species have been reported in the area. As part of this project, an environmental education program focusing on bird conservation has also been developed in local schools.

"Using Molted Feathers as a Source of DNA in Mark/Recapture and Population Genetic Studies"

Shelley Bayard de Volo, Colorado State University

Recent improvements in genetic techniques have facilitated the use of non-invasive genetic sampling for forensic, demographic, and phylogenetic studies. Mammal hair, bone, teeth, and feces have been used to identify poachers, estimate population size, determine paternity, and identify species and sex, and genotype individuals. Although DNA from molted feathers has been used for sex determination in birds, few studies have used feathers to genotype individuals in mark/recapture studies or for estimating population allele frequencies.

The primary focus of my research is to use molted feathers as a source of DNA for genotyping Northern Goshawks (*Accipiter gentilis*). The study population occupies the Kaibab Plateau (northern Arizona), where goshawks have been studied with mark/recapture methods, and molted feathers have been collected (1991-2003). My research addresses two primary objectives, the first being to fill frequent annual gaps in the individual capture histories of hawks. Gaps occur in years when goshawk nest attempts fail before they can be recaptured. I will assess the effects of filling such gaps on estimating adult survival rates using program MARK. The second objective is to estimate annual survival rates using only molted feathers and molecular techniques. This objective will test the utility of non-invasive genetic sampling compared with time consuming and expensive mark/recapture techniques. Both objectives will use the same genotyping methods, which include the extraction of DNA from molted feathers, and molecular sexing and genotyping.

MERGER MAKES FOR NEW CENTER FOR BIRDS OF PREY IN SOUTH CAROLINA

by Jim Elliott & Jemima Parry-Jones MBE

South Carolina enjoys a long and important legacy of the serious study of, and deep appreciation for birds. Renowned names such as Catesby and Audubon are historically linked to South Carolina bird life.

We are establishing in Charleston, South Carolina, the Avian Conservation Center, a nonprofit organization dedicated to education, science, and conservation, with birds as its primary focus. The new center is being structured initially through the merger of two well-respected bird of prey centers --the National Birds of Prey Centre (NBPC) in Gloucestershire, England, and the South Carolina Center for Birds of Prey (SCCBP) in Charleston, South Carolina--into the International Center for Birds of Prey (ICBP).

The NBPC has for more than three decades been dedicated to the study and conservation of birds of prey and their often-diminishing habitat, and is recognized internationally for its knowledge and expertise relating to raptor ecology, public education, and the care, management, and captive breeding of birds of prey. The SCCBP has, in little more than 10 years, emerged as one of the more well respected centers within the US; the center operates a professional medical clinic for injured birds of prey, conducts educational outreach programs for thousands of individuals each year, and has established ground-breaking field and laboratory research studies that contribute to the understanding and preservation of birds of prey and their habitat.

The NBPC is transferring all components of its organization, including more than 200 birds of prey from all parts of the world, to the US to be combined with the SCCBP organization. The nonprofit ICBP will be located in Charleston, South Carolina. The scientific, educational, and conservation potential produced by this union is considerable, given that it creates a center with more than 45 years of combined experience in the disciplines of avian medicine, formal education, and captive breeding, and a significant public educational facility.

The ICBP will be located on the 150-acre Avian Conservation Center campus, a substantial portion of which is to be accessible to the visiting public. Visitors will experience a natural setting where they can observe wild birds as well as captive birds of prey from all over the world. The property features flying fields where birds will be presented daily in free-flying demonstrations, a compelling and profound learning experience. An education/science/conservation building will feature displays, classrooms, laboratories, and other venues for formal educational programs. A standards-based curriculum is being developed for primary school students, and hands-on experience and internships will be offered to students at undergraduate and graduate levels. Instruction and training will be available for educators, scholars, natural resource professionals, veterinarians, and others.

A non-public area of the property will be designated for a comprehensive avian medical center that will treat hundreds of injured hawks, eagles, owls, falcons, and shorebirds each year. The medical center is being staffed and equipped to provide the highest level of avian medical care available.

This facility will also serve the educational mission of the center as a training facility for veterinary practitioners and students, and as a valuable resource for researchers.

The special collection of birds in the UK is scheduled for transfer to the US in early November 2004, and the opening of the ICBP is planned for the spring of 2005. Anyone who would like further information about this project may contact Jim Elliott at raptorjde@aol.com or Jemima Parry-Jones at jpi@icbp.org.

INTRODUCTION TO RAPTOR FIELD TECHNIQUES

Stevens Point, Wisconsin
6-10 June 2004

A 5-day workshop entitled "Introduction to Raptor Field Techniques" will be held 6-10 June 2004 in Stevens Point, Wisconsin by Eugene Jacobs of the Linwood Springs Research Station and Loren Ayers of the Wisconsin Department of Natural Resources. Receive first-hand experience working on live raptors: capturing and handling techniques, broadcast call surveys, tree climbing and rappelling, habitat sampling techniques, telemetry equipment, and more. Cost is US\$425, and space is limited. For more information, visit: <http://www.raptorresearch.com>; for reservations, contact Eugene Jacobs (e-mail: lsrs@raptorresearch.com).

EAGLE HANDLING WORKSHOP

Antigo, Wisconsin
11 June 2004

A half-day eagle workshop will be held 11 June 2004 near Antigo, Wisconsin. Eugene Jacobs of the Linwood Springs Research Station will lead a small group of participants to the Raptor Education Group, Inc. in Antigo. Marge Gibson will present on how to handle Bald Eagles in a manner that is safe and low stress to the birds as well as the researcher. Bald Eagle natural history and behavior both in the wild and in captive situations will be discussed. Marge will present material about transporting eagles, floating fish traps, and other trapping methods. Each participant will have the opportunity to handle an eagle if he/she wants, or observe if that is her/his preference. Cost is US\$60, and space is limited. For more information, visit <http://www.raptorresearch.com>; for reservations, contact Eugene Jacobs (e-mail: lsrs@raptorresearch.com).

WILDLIFE RESEARCH INSTITUTE TAKES COMPREHENSIVE APPROACH TO BURROWING OWL MANAGEMENT

by Jeffrey L. Lincer

The Burrowing Owl (*Athene cunicularia*) is being considered (on and off) for listing by California, and a Status Account has been completed by the U.S. Fish and Wildlife Service (USFWS). Further reflecting the urgency of protecting this species over a large geographic area, USFWS and the Canadian Wildlife Service identified the Burrowing Owl as a candidate species for bi-national action. There are now only 25 pairs of Burrowing Owls left in San Diego County, California--10 percent of what was present in the late 1970s and early 1980s.

The Wildlife Research Institute's (WRI) Comprehensive Burrowing Owl Management Project stems from the findings of the first and second international Burrowing Owl symposia, a national assessment of Burrowing Owl status, WRI's scientific review of the Burrowing Owl status in San Diego County, as well as presentations at the recent California Burrowing Owl Symposium. The proposed work includes monitoring and selective capture and relocation of Burrowing Owls, construction of a captive breeding facility and support mouse colony facility, and the hacking of captive-bred owls. Because of development, the lack of fossorial mammals, and other causes, there are very few places in San Diego County where Burrowing Owls can successfully nest. Therefore, this work also includes a task, funded by the City of San Diego, to identify optimum sites and modify and manage them for Burrowing Owls. Results of these efforts will be presented in a report that characterizes methods, provides results, and make recommendations for subsequent captive breeding, relocation, and related conservation efforts so that this information can be transferred to other counties, states, and provinces where similar management approaches would be useful.

Participation at the local, regional, state, and federal levels is high. It includes over 50 WRI volunteers, members of the Ramona Planning Group, the City of San Diego, students from Mesa College and Ramona High School, California Department of Fish and Game, USFWS, and other agencies. This project will be featured at each of WRI's free public events, including the weekly Hawk Watch and Children's Hawk Watch. The project specifically addresses the overall needs of the Burrowing Owl, a Neotropical migrant, in a comprehensive way that will provide a model for other communities to follow. The project contributes to the conservation of priority bird species assemblages that depend on upland habitat, by identifying and protecting habitat that is not only important to the Burrowing Owl but also extends that management and conservation potential to six the seven raptor Focal Species listed by the Partners in Flight Program for the regional Grassland habitat. Importantly, it also leads to the protection of the disappearing Grassland habitat, which is critical to the survival of at least 36 additional Neotropical migrant species in the study area including the Ferruginous Hawk and eight other raptors.

(Editor's note: Jeffrey L. Lincer is Director of Research with the Wildlife Research Institute, Inc. in Ramona, California. Those interested in WRI or its Comprehensive Burrowing Owl Management Project may contact Dr. Lincer at jefflincer@tns.net or 1-760-789-3992)

ANNOUNCEMENTS

UPCOMING MEETINGS

2004

November 10-13

RAPTOR RESEARCH FOUNDATION
Bakersfield, California

Contact: http://www.calhawkingclub.org/field_meet/34th_Annual/ or Rick Holderman, phone: 1-619-660-2175, fax: 1-619-670-8388, e-mail: parabuteol@cox.net.

2005

RAPTOR RESEARCH FOUNDATION
Green Bay, Wisconsin

POSITIONS AVAILABLE

FIELD ASSISTANT AND VOLUNTEERS

needed for goshawk monitoring on the Caribou-Targhee National Forest in southeastern Idaho. One field assistant and 1-2 volunteers needed early June through mid-August (dates somewhat flexible) to conduct broadcast surveys to locate nesting goshawks at historical territories for an expanded long-term monitoring project. Looking for enthusiastic, independent individuals who enjoy hiking and route finding in rugged mountain forests. Positions require strenuous hiking, map and GPS navigation skills, the ability to identify hawks, and keep accurate field notes. Field assistant salary is US\$1200/month plus housing and mileage. Volunteer per diem is US\$15/day plus housing and mileage. Housing provided in a Forest Service facility near Soda Springs, Idaho. Volunteers need binoculars, daypack, outdoor clothing for a range of conditions, and vehicle (4wd preferred). Send resume and names of 3 references to Susan Patla, Northern Rockies Conservation Cooperative, P.O. Box 505, Driggs, ID 83422, USA; e-mail: susan_patla@hotmail.com.

RAPTOR MIGRATION BANDERS (10-12 positions) needed for fall projects in Washington, Oregon, Nevada, and New Mexico. Projects will run from late August through October 2004. Applicants must have experience with bird capture, handling, and banding techniques, preferably involving raptors. Applicants must be in good physical condition, be able to endure long hours in the field and variable weather, and must be able to work well in a team environment. Banders will work 6 days per week in teams of 2 to 6, supplemented when possible by other crew members and qualified volunteers. All projects are in high-elevation remote areas, experience highly variable weather, and require camping on site. All crew members must supply their own camping gear. Banders will work as volunteers receiving a non-taxable daily per diem of US\$28-35/day (US\$850-1100/month) plus a US\$150 travel stipend. Send cover letter, detailed resume, 3 current references with phone numbers or e-mail addresses, and dates of availability preferably by email to jsmith@hawkwatch.org or by regular mail to Jeff Smith, HawkWatch International, Inc., 1800 Temple SW, Suite 226, Salt Lake City, UT 84115, USA. Visit www.hawkwatch.org for project descriptions and past technical reports. Positions are open until filled.

PUBLICATIONS AVAILABLE

BEARDED VULTURE MONOGRAPH

Angelika Adam and Alejandro Llopis have published a 115-page monograph on "El Quebrantahuesos (*Gypaetus barbatus*): Características de la Edad y Proceso de Muda" (The Bearded Vulture [*Gypaetus barbatus*]: Age Features and Molt Process). The monograph, which includes 28 color plates, is available for a small charge to cover publication and shipping costs. Those interested in acquiring a copy may contact Dr. Llopis at alexlllopis@gypaetus.org.

"HAWKS AND OWLS OF EASTERN NORTH AMERICA" (ISBN 0813533503) is a new, 203-page, hardcover book by Donald S. Heintzelman that provides an introduction to raptors east of the Mississippi River. Published by Rutgers University Press, the book features 30 color and 80 black-and-white photographs.

"OWLS OF THE WORLD: THEIR LIVES, BEHAVIOR AND SURVIVAL" (ISBN 1-55297-845-1) is a new, 319-page, hardcover book by James R. Duncan, published by Firefly Books. Illustrated with more than 300 color photographs, the book addresses owls as a group, then individually profiles each of the world's 205 owl species.

SEA EAGLE 2000: PROCEEDINGS FROM AN INTERNATIONAL SEA EAGLE CONFERENCE (ISBN 91 558 1551 0) is the proceedings of the international conference "Sea Eagle 2000" held in Björkö, Sweden in September 2000. The proceedings comprises 446 pages and includes more than 100 colour photos. It consists of 48 original papers and 6 abstracts arranged into five sections (population status and trends, population dynamics and genetics, pollutants - contamination and effects, food and feeding, and sea eagle and man - legislation, management and manipulations) presenting studies on the White-tailed Sea Eagle (*Haliaeetus albicilla*) as well as some on the Steller's Sea Eagle (*Haliaeetus pelagicus*), and the Bald Eagle (*Haliaeetus leucocephalus*). All papers are in English.

The first section includes a comprehensive update of the status of the White-tailed Sea Eagle in 17 areas in Europe, from Greenland and the Kola Peninsula in the north to the Danube River Basin in the south. Examples of papers from the other sections include the results from recent studies on survival rates, dispersal patterns and causes of mortality, use of the Bald Eagle as a bio-monitor, retrospective studies on organochlorine pollutants in eggs, lead poisoning, sea eagles and lamb predation, energetics of Steller's and White-tailed Sea Eagles in mixed settlements, protection of nesting areas, nest-site selection in relation to human activities, the potential impacts of oil exploration on sea eagles, reintroduction

programmes, and public viewing of sea eagles.

Copies are available for SEK400 or US\$56, including postage and handling; see the Swedish Society for Nature Conservation's website for ordering details (<http://www.snf.se/snf/english/seaeagle.htm>).

"SO WHAT, SAW-WHET?" (ISBN 0-9746792-0-8) is a new, read-aloud children's book about a Saw-whet Owl by Rochelle Frank, illustrated with photographs by Linda Gast. For ages 3 and up. The book may be purchased directly from the publisher for US\$9.95 + 2.50 shipping: Hummingbird Mountain Press, P.O. Box 971, Mariposa, CA 95338, USA; e-mail: lindagast@sierratel.com; web: <http://www.sierratel.com/hummingbirdmountain/book.htm>.

REQUESTS FOR ASSISTANCE

MERLIN SIGHTINGS WANTED Detailed year-round observations are needed for scientific research of the Merlin in Washington and British Columbia. Your notes are requested and should include an exact location/map, the date/time, a description of the bird(s), and the behavior for a grateful acknowledgment. Please contact: David Drummond, Coastal Forest Merlin Project, P.O. Box 4123, Bellingham, WA 98227, USA; phone: 1-360-671-3804; e-mail: merlinology@hotmail.com.

STRAIT OF MESSINA RAPTOR SURVEY AND ANTI-POACHING CAMP Migration Unlimited (Italia) is organizing the 21st annual raptor survey and anti-poaching camp at the Strait of Messina for April 1 - May 31, 2004. The Strait of Messina is a narrow sea passage between Sicily and mainland Italy. Being the narrowest sea crossing between the island of Sicily and the Italian Peninsula, the strait concentrates many of the raptors migrating between Africa and breeding areas in Central/Eastern Europe. The camp, now in its 21st year, was organized to stop poaching and gather data on migrating birds of prey. Thanks, in part, to the camp's efforts, documented poaching has declined from 1185 raptors shot in

1984 to just 16 shot in 2002. Volunteers are needed to continue the survey in 2004; every single person who would like to participate is welcome. A fee of 15 euros/day covers food, lodging, and other expenses. Those wishing to participate in the 2004 camp should visit Migration Unlimited's website for details: <http://www.migrazione.it>.

FOR SALE

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 (Penny Wendland, P.O. Box 1897, Lawrence, KS 66044, USA; phone: 1-800-627-0629 x233; fax: 1-785-843-1274; e-mail: osna@allenpress.com).

RECENT THESES ON RAPTORS

The U.S. Geological Survey's Richard R. Olendorff Memorial Library would greatly appreciate receiving a copy of each thesis or dissertation 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.

Bostrom, M. R. 2003. POSSIBLE RELATIONSHIPS BETWEEN AND AMONG INDIVIDUAL QUALITY, TERRITORY QUALITY, AND HUNTING BEHAVIOR OF MALE AND FEMALE AMERICAN KESTRELS (*FALCO SPARVERIUS*). M.S. Thesis, Eastern Kentucky Univ., Richmond. 56pp.

Carotenoid-based coloration of skin and plumage has been found to be correlated with various features of individual quality in many species of birds. However, most studies to date have focused on the importance of coloration during the breeding season. Less is known about the possible role of these signals during the non-breeding season, particularly among non-passerines that defend winter territories. American Kestrels (*Falco sparverius*) are sexually dimorphic raptors that defend winter territories and possess carotenoid-based morphological features known to be correlated with individual quality. Much is known about winter territory use and habitat segregation by male and female kestrels, but possible relationships between and among morphological features, individual quality, habitat quality, or hunting behavior have not been examined. The objective of this study was to examine possible relationships between the plumage and skin color in male and female American Kestrels and their morphology, hunting behavior, time budgets, and territory quality.

Fieldwork was conducted from October 2000 - late April 2001 on the Bluegrass Army Depot in Madison County, Kentucky. American Kestrels were captured using a bal-chatri trap, banded, and

morphological measurements were taken. Several feathers were removed from six body areas for color analysis using a reflectance spectrometer, and the fourth right rectrix was also removed to determine tail feather growth rates. Skin color of the cere, lore, and tarsus were also scored using a six-color chart comprised of Munsell color chips. The hunting behavior and time budgets of focal male and female kestrels were observed, and the characteristics of perches and foraging areas used were quantified.

The hunting behavior of male and female American Kestrels was similar, and the absence of differences in the characteristics of hunting areas by males and females likely contributed to this similarity. Females did spend more time on perches prior to either initiating attacks or giving up than did males, perhaps because flying requires a greater expenditure of energy for larger female kestrels than it does for smaller males.

The time budgets of male and female American Kestrels were also similar. Male kestrels did spend more time preening and performing comfort behaviors than females. Male kestrels may preen more because their smaller size (and greater surface area) may, particularly if plumage is in poor condition, increase their susceptibility to heat loss during cold weather. Male kestrels with brighter skin tended to hover hunt more than males with duller skin. Brighter males may be in better condition and, as a result, may have more energy to allocate to hovering.

Plumage reflected strongest in the red portion of the spectrum for both male and female American Kestrels, with reflectance values higher for feathers from the upper and lower breast of males and for feathers from the right wing coverts of females. Plumage color of male and female kestrels was not correlated with any measure of quality (individually or territorially), suggesting that plumage may not be a reliable indicator of individual quality during the non-breeding season. Similarly, the skin color of female kestrels was not correlated with any measure of quality. However, the skin color of male kestrels was positively correlated with both size (brighter males were larger) and territory quality (brighter males used areas with less canopy and more grass cover). Thus, the skin color of male American Kestrels does appear to represent an honest indicator of quality (nutritional condition and size) that could potentially serve both intrasexual (territory acquisition) and intersexual (mate choice) functions during the breeding and non-breeding seasons.

Byholm, P. 2003. REPRODUCTION AND DISPERSAL OF GOSHAWKS IN A VARIABLE ENVIRONMENT. Ph.D. Diss., Univ. Helsinki, Finland. 24pp.

(Editor's note: Dr. Byholm's dissertation may be viewed at <http://ethesis.helsinki.fi/julkaisut/mat/ekolo/vk/byholm/reproduc.pdf>.)

Duxbury, J. M. 2004. STABLE ISOTOPE ANALYSIS AND THE INVESTIGATION OF THE MIGRATIONS AND DISPERSAL OF PEREGRINE FALCONS (*FALCO PEREGRINUS*) AND BURROWING OWLS (*ATHENE CUNICULARIA HYPUGAEA*). Ph.D. Diss., Univ. Alberta, Edmonton. 194pp.

The study of migration leads to comprehension of the connectivity between a species and its ecological requirements in different regions. To understand migration patterns is important since many animals spend significant amounts of time in geographically and potentially ecologically different areas. If conservation and management of Peregrine Falcons (*Falco peregrinus*) and Burrowing Owls (*Athene cunicularia hypugaea*) are to be successful, the population dynamics during a complete annual life cycle of these species need to be understood.

Sample sizes are limited with bird banding due to very low recovery rates and with radio/satellite

tracking due to the requirement of substantial resources. Traditional methods of tracking migrants have been effective in providing information about Peregrine Falcons and Burrowing Owls, but the information has taken decades to accumulate. The frustrations of low recovery rates associated with standard migration tracking techniques are being alleviated by new or improved techniques such as stable-isotope analysis (SIA).

SIA provides a relatively new method to trace migratory birds back to their natal or breeding grounds without them having been previously banded. Herein, SIA was used to determine the breeding origin of Peregrine Falcons migrating along the Gulf Coast of southern Texas, and of Burrowing Owls wintering in central Mexico and southern Texas. SIA was also used to determine the scale of inter-year dispersal of Burrowing Owls.

Of 105 feather samples from migrant Peregrine Falcons, only 10% were estimated to originate east of 102° W. The majority of the falcons were estimated to have originated in the western Arctic. Most of the Burrowing Owls wintering in central Mexico appear to be short-distant migrants. SIA established five links between Mexico and Canada and two more feather samples had values consistent with regions adjacent to the Canadian border. Finally, SIA demonstrated that many Burrowing Owls relocate >500 km between breeding seasons. Dispersal between populations in Canada and the adjacent US states is leading to a net loss of Burrowing Owls from Canada to the US.

Currently, SIA cannot replace the precision of band recoveries or transmitter relocations. However, since each bird that is analyzed for a stable-isotope signature equates to a band recovery in terms of making a link between two locations, large amounts of data can be collected in a few years rather than a few decades.

Richards, N. L. 2003. EXPOSURE OF THE EASTERN SCREECH-OWL (*OTUS ASIO*) TO SELECTED CONTAMINANTS IN APPLE ORCHARDS OF SOUTHERN QUEBEC. M.S. Thesis, McGill Univ., Montreal. 122pp.

This study examined the exposure of the Eastern Screech-owl (*Otus asio*) to contaminants in apple orchards of southern Quebec. Using a worst-case scenario approach, secondary exposure to three organophosphorus insecticides (phosmet, azinphosmethyl and phosalone), two anticoagulant rodenticides (chlorophacinone and diphacinone), and residues of previously applied organochlorines, particularly DDT and metabolites, was assessed. Exposure to PCBs and trace metals was also considered. Small mammal species preyed upon by Screech-owls were captured in orchards for residue analysis on a continual basis for persistent compounds or after insecticide and rodenticide applications. Beginning in the winter of 2000, 98 nest boxes were constructed and installed in woods inhabited by Screech-owls, adjacent to orchards. These boxes were then repeatedly inspected for pellets and prey remains. Estimated exposure of adult and juvenile Screech-owls 0-60 hr post-application was 0.85 and 1.17 mg/kg, respectively, for phosmet and azinphosmethyl and 0.53 and 0.73 mg/kg, respectively, for phosalone. Exposure of juvenile and adult owls to both phosmet and azinphosmethyl at this level may warrant concern. The acute poison zinc phosphide is now the primary means of small mammal control in the study area and the possibility of exposure to anticoagulant rodenticides is diminishing. Observed DDE residues were most elevated in the short-tailed shrew (*Blarina brevicauda*) and ranged from <1.00 to 26.29 µg/g (wet wt) in whole-body pools. A Screech-owl egg found in a nest box between two orchards may have been thinned by as much as 19.8%, of concern because thinning maintained at 15.0 - 20.0% has been linked to population decline. Only background levels of PCBs and trace metals were detected.

Finally, over 950 Screech-owl case files were also obtained from one Canadian and seven United

States wildlife rehabilitation facilities and analyzed for evidence that pesticide exposure was an underlying or contributing cause of admissions. At the scale of analysis conducted, and based on the data available within the case files, it was not possible to fully determine whether or not this was the case. Most problematic was that few toxicological analyses were carried out on incoming owls. Difficulties of analyzing and interpreting this type of data are also discussed.

Sissons, R. A. 2003. FOOD AND HABITAT SELECTION OF MALE BURROWING OWLS (*ATHENE CUNICULARIA*) ON SOUTHERN ALBERTA GRASSLANDS. M.S. Thesis, Univ. Alberta, Edmonton. 75pp.

Detailed investigation of Burrowing Owl (*Athene cunicularia*) foraging habitat use during the breeding season is restricted to heavily modified regions of Saskatchewan. In 1998 and 1999, I investigated components of male Burrowing Owl foraging ecology on the native grasslands of southern Alberta. Specifically, I described and analysed home range and foraging habitat selection using radio telemetry; food habits through pellet analysis; and the structural habitat characteristics for the dominant prey groups. Home ranges (95% minimum convex polygon) for 11 owls in Alberta ranged from 0.34 to 7.56 km² and averaged 0.87 km² larger than previously reported for Saskatchewan (3.28 vs. 2.41 km²). Male owls tended to select low-lying, ephemeral wetland areas and associated edges over grasslands and anthropogenic features at the scale of home ranges and foraging sites. Structurally, foraging sites were found to have a significantly denser vegetative cover than random sites. Dominant prey items by biomass include the deer mouse (*Peromyscus maniculatus*), sagebrush vole (*Lagurus curtatus*), beetles in the families Silphidae and Carabidae, and grasshoppers. Deer mice were found to respond negatively and beetles and grasshoppers responded positively to a grazing index of current grazing pressure on a site. Beetles also responded positively to litter depth, while grasshoppers responded positively to litter cover. These results suggest that Burrowing Owls are selecting different features at home range versus foraging sites. Foraging and nesting sites have distinctive habitats qualities that can be managed for by grazing practices that emphasize landscape heterogeneity.

Smith, R. D. M. 2003. RAPTOR ASSEMBLAGE, ABUNDANCE, NESTING ECOLOGY, AND HABITAT CHARACTERISTICS UNDER INTENSIVE FOREST MANAGEMENT IN THE CENTRAL APPALACHIAN MOUNTAINS. M.S. Thesis, West Virginia Univ., Morgantown. 119pp.

Raptor diversity and abundance were examined in three treatments (20-, 40-, and 80-yr harvest rotations) on an industrial forest in the central Appalachian Mountains of West Virginia. I conducted diurnal broadcast surveys, compared nocturnal survey protocols, examined habitat characteristics at two spatial scales (564 m and 1000 m buffers), and described nesting ecology (including prey composition) of 3 *Buteo* species. I detected 17 species and found no significant differences in abundance among treatments for all raptors. Forest species were detected more often than edge species and Red-shouldered Hawk (*Buteo lineatus*) was the most abundant. Using a Barred Owl (*Strix occidentalis*) vocalization nocturnal survey protocol, Barred Owls were detected most often and most owls were detected. I monitored fourteen nesting attempts of five species. For three *Buteo* species, mammals were the most common prey delivered to the nest. My study suggests that at current levels of disturbance, forest raptors are able to survive and successfully breed on an active, industrial forest.

(Editor's note: Ms. Smith's thesis may be viewed at http://kitkat.wvu.edu:8080/files/3013.1.Smith_Rebecca_Thesis.pdf.)

Wiley, F. E. 2003. AN INVESTIGATION OF INTESTINAL FLORA AS A POTENTIAL BIOMARKER OF CONTAMINANT EXPOSURE IN AVIAN SPECIES. M.S. Thesis, Clemson University, Clemson, S.C. 94pp.

The effects of bioaccumulative contaminants on the intestinal flora of Bald Eagles (*Haliaeetus leucocephalus*) and domestic chickens (*Gallus domesticus*) were examined in a field study and two laboratory dosing experiments. The objective of these studies was to determine if any changes observed in the intestinal flora could be used as a new biomarker of exposure to bioaccumulative contaminants. The first laboratory study involved dosing white leghorn chicken eggs with four concentrations of polychlorinated biphenyl (PCB) 126, 0.100 ng/g, 0.175 ng/g, 0.250 ng/g, and 0.325 ng/g, via air cell injection. Cloacal swabs were obtained to observe the microbial flora at two weeks and five weeks post-hatch. Significant differences were observed among dose groups for both microbial composition and antibiotic susceptibility of bacterial isolates. A second laboratory dosing study was conducted in which chickens were exposed *in ovo* to an extract obtained from Double-crested Cormorant (*Phalacrocorax auritus*) eggs collected from Green Bay, Wisconsin. Methods of bacterial analysis were the same as in the first study. The concentrations of the extract, 0.0625 egg-equivalents (egg-EQ), 0.125 egg-EQ, 0.1875 egg-EQ, and 0.250 egg-EQ, also produced significant differences in bacterial populations. In both laboratory studies, however, the differences seen were not clearly dose-dependent and the mechanisms involved in the changes were not evident. Effects of bioaccumulative contaminants on Bald Eagles were examined by obtaining cloacal swabs from nestling eagles in Michigan and Minnesota. Bacterial populations were compared to blood plasma contaminant levels. Few significant correlations were observed between contaminant concentrations and microbial flora and contaminant levels did not seem to affect the composition of eagle flora or the antibiotic susceptibility of the bacteria present. It does appear that bioaccumulative contaminants may exert some effect on avian intestinal flora, but the mechanism of those effects is unknown. Due to the uncertainty in the mechanism and the lack of dose-response relationship for the field samples, it was determined that alterations in microbial flora do not hold much promise as a potential biomarker of exposure to bioaccumulative contaminants.

WINGSPAN CONTRIBUTIONS

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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 August 7, 2004.

RAPTOR RESEARCH FOUNDATION, INC.**CALL FOR NOMINATIONS**

Nominations are open for election of the following positions, to begin at the end of the annual meeting in the year elected: **President** to serve as President-elect for one year (2005) prior to assuming the duties of the Presidency for a two-year term (2006-2007), **Vice-president** to serve a two-year term (2005-2006), **North American Director #1** (USA & Canada), **Southern Hemisphere Director** (includes Mexico, Central America, and the Caribbean; replaces International Director #1), **Director At Large #1** (no geographic restriction), and **Director At Large #4** (no geographic restriction). Terms and duties are described in the RRF By Laws (see <http://biology.boisestate.edu/raptor/>). Qualifications for each position: 1) current membership, 2) resident of the representative geographical district (if applicable), 3) attend the annual board meeting during the annual conference, and 4) communicate on official business by e-mail. Deadline for nominations ends, and a biographical sketch of the candidate stating the position for which the nomination is made, must be submitted by May 15, 2004 to Judith Henckel at ednjudy@epix.net or 1752 Robin Hood Road, Mount Bethel, PA 18343, USA. Additionally, the position of **Secretary** will be open for vote by the Board of Directors at the 2004 annual meeting.



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