

W · I · N · G · S · P · A · N

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MESSAGE FROM THE PRESIDENT

Dear Members,

In 1971, when I was a young graduate student at the University of Idaho, I joined a relatively new organization called the Raptor Research Foundation (RRF). At that time, I had no idea where I or RRF would be nearly 3 decades later. I certainly never thought I would eventually be at the helm of that organization in 1998. When I joined RRF it was a small foundation, barely 5 years old, with only a few hundred members and a focus in the United States. Its publication was a bit more than a newsletter. Other professional organizations considered RRF a small collection of raptor enthusiasts or, God help us, "raptor freaks."

During those 3 decades, I have matured (at least my beard is gray now), and so has RRF. Over those years, it has evolved into a diverse, international organization of some 1,200 members. This international diversity is reflected in the current structure of the RRF Board of Directors and the numerous international conferences RRF has sponsored. RRF has gained in reputation and stature as a scientific and conservation organization within the ornithological community. The Foundation is a member of Ornithological Societies of North America (OSNA) and was invited by the American Ornithologist Union (AOU) to co-host a joint meeting in Boise in 1996. RRF's involvement in conducting this highly successful conference of more than 900 participants demonstrated to our AOU colleagues that RRF was far from a collection of raptor enthusiasts. The Foundation's image continues to increase. RRF is represented on the Board of the Ornithological Council, and the Foundation is one of the co-sponsors of the OSNA meeting in St. Louis this April. The exemplary efforts of the editors are increasing the quality of the publications. *The Journal of Raptor Research* is attracting numerous scientists as indicated by the 100-page issues, and *Wingspan* continues to be a professional newsletter.

RRF has made great strides in enhancing its image as a scientific organization; however, as illustrated by Dave Andersen and Jim Bednarz in the September 1997 *Wingspan*, there may be room for improvement in the Foundation's role as a leader in raptor conservation issues. I believe that RRF can and should be actively involved in raptor conservation issues, but it should not be a reactionary organization. The Foundation should be proactive and methodically engage in issues in an informed and professional manner. This proactive and methodical philosophy is reflected in the fashion RRF handles resolutions. Its members should provide technical evaluation and approach situations with professional expertise, and--as Dave and Jim pointed out--RRF should approach conservation issues in a timely and professional manner in concert with other scientific societies. The key word here is professional, which implies the best technical experts approaching issues with all scientific and other facts available. As pointed out by Dave and Jim, this is no easy task. Although we have a standing Conservation Committee chaired dutifully and capably by Jim Bednarz, the job takes more people and their contributions of time and expertise.



As RRF developed as a scientific organization through the hard work and dedication of its members, so will it become the preeminent organization in terms of international raptor conservation. Enlarging the standing Conservation Committee may help, but increasing the pool of experts serving on ad hoc committees to deal with specific, arising issues will be most beneficial. The conservation issues are too numerous and complex for just a few people to handle. RRF needs members willing to identify conservation issues and contribute their expertise and, most importantly, their time to the issues. By stepping forward and volunteering to take on one conservation issue, you will make a significant contribution to RRF and raptor conservation.

Where will RRF go in the next few decades? The direction depends on the expectations and dedication of the membership and of those they elect into office. One fact I realized over the last 27 years is that the members made RRF what it is today. You, as a member, influence the Foundation's future direction, even if you do nothing. However, collectively if members do nothing, the organization does nothing. To keep the Foundation on its positive course, members need to be actively involved in its functions. For example, there will be a search for a new editor-in-chief of the Journal this year, and this will provide an excellent opportunity for someone with the expertise to make a significant contribution to the Foundation and to raptor conservation. Members could also contribute by volunteering to help on the Conservation Committee or to help on the other committees. If nothing else, members must convey their views to the Board and officers, the individuals elected to represent the members. RRF outgoing president David Bird did an excellent job of discussing how people make a difference in his last few "Messages from the President" in *Wingspan*.

Having served as president for only a month, I find that David Bird was correct. Not a day goes by without RRF on my mind or on my computer monitor. It will be a busy and challenging job, but I look forward to the next 2 years. For nearly 30 years, I've watched RRF develop, and I feel privileged to be a part of that development. Although RRF has attained stature and reputation as a professional organization, I enjoy most the organization's allegiance to the informal and unassuming ambience of the small fledgling organization I joined nearly 30 years ago.

Mike

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.

RAPTOR RESEARCH FOUNDATION 1997 ANNUAL MEETING Savannah, Georgia, October 30 - November 1

by Brian Millsap, North American Director

The 1997 Annual Meeting of the Raptor Research Foundation was held from 30 October - 1 November at the Savannah Marriot Riverfront Hotel, on the historic Riverwalk, in Savannah, Georgia. Our host for this meeting was Georgia Southern University, and true to tradition, we were treated in fine southern style. The formal program consisted of a Symposium on the Status and Biology of Kites (see Ken Meyer's article below); nine general paper sessions; a poster session; a Burrowing Owl Workshop; and a series of field trips to barrier islands, the Okefenokee National Wildlife Refuge, the Savannah River Ecology Laboratory, local birding hotspots, and historic downtown Savannah. All-in-all, 54 scientific papers and 15 posters were presented at the conference. This meeting was the most lightly attended RRF conference on record, with only 168 registered attendees. Reasons for the lower-than-normal attendance included the distance from centers of raptor-biologist richness in the western states, competition from the joint ornithological conference coming in April 1998, and the higher costs associated with a meeting in downtown Savannah. Though we missed those of you who were not there, those of who did attend found many positive sides to a smaller meeting. We had lots of fun (Savannah has some great blues bars), plenty of opportunities to interact and get to know one another, and some serious scientific debates. The highlight of the conference had to be spending a foggy Halloween night at historic Fort Jackson, where we enjoyed a traditional low county boil and some great music. Savannah may go down on record as a small meeting in size, but it will be remembered for good debate, good food, and good times! Hats off to the local committee: Steve Hein, Wendy Denton, Dan Varland, Michelle Pittman, Fran Aultman, Todd Schneider, and Tim Breen.

A SUMMARY OF THE KITE SYMPOSIUM AT THE 1997 RRF MEETING IN SAVANNAH, GEORGIA

by Ken Meyer

A symposium on the status and biology of kites was held in conjunction with the 1997 meeting of the Raptor Research Foundation in Savannah, Georgia, 30 October to 1 November 1997. The symposium, organized by Brian Millsap (Florida Game and Fresh Water Fish Commission) and Ken Meyer (Avian Research and Conservation Institute), was the first of its kind at a RRF meeting. The event's 12 papers, most of which were presented during a plenary session on the opening morning of the meeting, addressed ecological and conservation issues for six species of kites with a broad geographic distribution. Species and research topics included White-tailed Kites (nesting and roosting ecology in California), Snail Kites (nesting ecology, survival, and statistical considerations for viability analyses in Florida), Mississippi Kites (a range-wide review), Swallow-tailed Kites (nesting ecology in South Carolina, Louisiana, Guatemala, and Brazil; migration and wintering biology in Florida and South America), Plumbeous Kites (comparative nesting ecology in Guatemala), and Black Kites (nesting ecology in Japan). A universal theme was the application of research results to assessing population status and to addressing conservation needs of this diverse set of raptors. There will be no published proceedings of the symposium. Please refer to the meeting program and abstracts for titles and authors, or contact Ken Meyer at 411 N.E. 7 Street, Gainesville, FL 32601 or 352-335-4151.

REFLECTIONS ON A PRESIDENCY

by David M. Bird, Past-President, 1996-97

Well, before one can blink an eye, it's over. I am referring, of course, to my presidential stint for the Raptor Research Foundation, Inc. (RRF). It took me about a year to get a feel for the job and the organization, although serving on the board and on several committees since the late 1970s gave me a fairly good idea as to how things worked. My second year saw me hit my stride, actually seeing the fruits of my labour as well as those of many others come to pass. Then, just like that, it was over. As I've said once before, maybe RRF should consider a three-year term for the Presidency.

In any event, I have no intention of abandoning RRF after having "worn the crown" for two years. Far from it. In my parting remarks at the Savannah conference, I spoke of RRF as a second family to me. This could not be more true. Many of you watched me "grow up" within the organization, sometimes wincing at my painful faux-pas and other times having a great laugh (sometimes, but not always, at my expense) at a conference or two. For example, those who attended the small but intimate Savannah conference last fall undoubtedly derived great pleasure at my "impeachment," which many referred to as "payback time." I know I did. Incidentally, aside from the occasional butchering of people's names during the board meeting, e.g., Pe-e-e-tra, Elliott Coues (My Canadian accent translated that into "Cows"--thanks, Lloyd!), allow me to go on record to categorically state that there is absolutely no truth to any of the charges expressed by Rosenfield et al. A terrific display of imagination though, by two tall guys, one extra small guy, and a medium-sized chap--well done, fellas! Incidentally, the framed peregrine painting by British artist, Allen Hunt, given to me "posthumously" by RRF, was deeply appreciated; it now hangs in a prominent place by my fireplace.

Unequivocally, my most cherished moments at the Savannah conference were giving the President's Award to two of the most deserving RRF and raptor people I know, Ed and Judy Henckel, and honoring Jim Fitzpatrick with a special achievement award for his years of devotion to RRF. I must also take the opportunity here to offer my heartfelt thanks to Pat Hall, the Secretary and chair of the Nominations Committee of RRF, for all her hard work during my presidency. She never sat on any task assigned to her, ranging from cajoling members to run for office to counting ballots to getting out the board meeting minutes in supersonic time. RRF could use a few more dedicated members like her.

And just where is RRF headed? Having watched it evolve in fits and starts from both back-row and front-row seats, I offer the following thoughts as to where I would like to see it go. First, RRF must clearly be an international organization. Yes, there are substantial numbers of North American members, but we also have members in 55 countries around the world. Why? Because we have a great product to sell! Think about it. For \$35 U.S., one gets four issues of a reputable, refereed journal containing papers on raptor biology and conservation from all over the world. One also receives two issues of a solidly packed, professional-looking newsletter called *Wingspan*, as well as a bimonthly newsletter from the Ornithological Societies of North America (OSNA) containing all sorts of news, including notices of meetings around the world, listings of services and items for sale, research needs, etc. Finally, RRF does not just hold an annual meeting in North America, but it is clearly moving toward also convening biannual meetings elsewhere in the world! And, RRF members get reduced registration fees at these meetings. That's a bargain to my mind. It should be an easy sell for us, but we need to get the word out. Here, not in any order of importance, are some suggestions for marketing RRF.

First, we need to ensure that our brochure is well-designed, up-to-date, and available to all those who are in a position to distribute it, particularly in developing countries. Also, if a board member or officer is attending a meeting of another society, how hard can it be to bring along thirty or so brochures and leave them on a

table in the main meeting venue. The first step is well underway, as a brochure update is currently in the works.

Second, our Web Page is also in the throes of getting a major face-lift. It too should contain up-to-date information on the history of RRF, its products, and membership costs, as well as the names and contact information (phone numbers, e-mail addresses, etc.) of all of the current board members, officers, and committee chairs, so that visitors to the Page can contact the right people directly without going through the President. A few pretty pictures of raptors wouldn't hurt either. And why not use the Page to advertise the contents of our journals and conservation issues we are tackling? The possibilities are endless. Above all, RRF needs a Web Master to ensure that the Page is continually updated.

Third, we now have a professional-looking poster to entice people to join us. The trouble is that we only have one copy of this highly attractive item. I suggest that RRF spend some money to have dozens of copies made in a fairly inexpensive format. A black-and-white format can work if color is prohibitively costly. More important, getting them translated into other languages, e.g., Spanish, French, German, etc., should not be a major problem, considering the modest amount of writing and the make-up of our membership.

Fourth, lapel pins (we have these now) and patches depicting our logo and, more important, the name of the organization should be produced and sold as inexpensively as possible so as to achieve a balance between raising funds and raising profile. And, who should undertake these marketing efforts? There are three possibilities: the Education Committee, the Public Relations Committee, and the Membership Committee. My guess is the latter. After all, the objective of creating brochures, web pages, posters, etc. is to increase membership. Thus, those individuals who kindly take on the above tasks should accordingly be members of the Membership Committee.

Back to the products of RRF. It is my opinion that both *The Journal of Raptor Research* and *Wingspan* are in good shape, and as long as they continue to be mailed out on time and with goodly substance to them (with no small thanks to past and current editors!), there are no immediate needs for major improvements. That leaves our conferences. Each RRF conference (and I do not hesitate to remind you that I have not missed one since 1973) takes on a life of its own. Some members regard small, localized conferences as a waste of time and travel funds, while others regard joint meetings with other societies as overly large and unfriendly. In my opinion, both have their merits. The Savannah conference, with less choices, e.g., concurrent events, and a modest attendance, offered a wonderful opportunity to fraternize, as everybody bumped into one another day in and day out. My students, for instance, found it more enjoyable and profitable than the huge, but nevertheless highly successful, Boise meeting. With so many meetings coming at us nowadays, it just makes good sense to me at least to combine them once in awhile.

While our conferences are not meant to be fund-raisers, those bottom-line figures on the organizers' balance sheets have literally meant the life or death of RRF from time to time (which is surely unacceptable!). But, it doesn't take a mega-meeting like the 1996 Boise meeting to produce big profits either. Let us recall the Flagstaff conference for instance. Whatever the size of the meeting, based on recent experiences, it is probably safe to say that RRF cannot afford to hire professional conference centers to organize our meetings, simply because our conferences are too small and are attended by people with relatively modest incomes. The recipe for a memorable RRF meeting is a strong local committee unafraid of rolling up their sleeves and backed by an army of volunteers.

Probably the biggest problem I have noted in recent RRF conferences (Boise aside) is the tendency to repeat mistakes of the past. This, of course, can be avoided by first updating the Conference Guidelines, and second and more important, ensuring that they get into the hands of the conference organizers immediately upon a board-approved decision for them to hold an RRF conference. Having these available to be downloaded from

the RRF Web Page would make the most sense. We also need to formalize a pre-agreement with local conference organizers so that it is fully understood what is expected of both RRF and the local committee. Some standards, such as use of the RRF logo, must be set, and a full financial report should be submitted within eight months of the event.

As for meeting venues, RRF should definitely continue with its annual meetings in Central and North America, occasionally holding joint meetings with other OSNA societies to acquire some cross-pollination. An "international" meeting should be undertaken at least every other year somewhere outside of our continent and without conflicting with the meetings of the World Working Group on Birds of Prey which are held every four years or so. While I am currently serving as chair of the Conference Committee, I am seeking to groom someone to take it over. It is quite rewarding when things go right, and occasionally you even get a free trip to check out a conference venue!

And what about our RRF awards? The Awards Committee is functioning fairly smoothly, although some committees, e.g., the Dean Amadon Grant, appear to need more members, and some awards, e.g., the Andersen Award, desperately need an infusion of funds. Other improvements that come to mind are the inclusion of descriptions of the various awards and the e-mail addresses of the appropriate contact people on our Web Page. Any future awards to be established should be considered carefully to avoid excessive proliferation, not to mention the potential embarrassment of having to extinguish an award, and hence someone's immortality, due to lack of financial support.

The Resolution Committee, while functioning smoothly, perhaps partly due to an apparent constant lack of resolutions, needs more members and a more proactive approach to encourage the submission of resolutions on important issues. Even more critical is the post-electoral step: getting passed resolutions into the hands of those who can put them to some good use. A close liaison with the Conservation Committee is needed.

In the last issue of *Wingspan*, the chair of the Conservation Committee, along with the Vice-President, laid out clearly the problems that have plagued this committee for years, and they offered some solutions. In general, it will take some synergistic combination of young, energetic members with older, experienced soldiers to best serve RRF's conservation interests. We all know that there is no shortage of conservation issues plaguing raptors around the world.

On to what we now call the Education Committee. In Savannah, the board affirmed its belief that it is not RRF's job to create educational tools, but instead to act as a conduit or clearing house for sources of educational materials. Probably the best tool in that regard is the Web Page. Listings of raptor-related educational materials, e.g., CD-ROMs, books, teachers' handbooks, videos, could be provided to potential users. On the other hand, public education is nowhere more badly needed than in Latin America and Africa. Perhaps RRF could play an instrumental role in having already produced educational materials translated into appropriate languages, e.g. Spanish. For example, a collaboration between RRF and the Hawk and Owl Trust to translate some of the latter's excellent education kits would be invaluable. Of course, it costs money, but that's where the Development Committee comes into play.

You know, RRF has been talking about "development" for years. While it has been generally equated with raising funds for say, an endowment fund, there is much groundwork to do prior to sending out requests for money to wealthy donors. First, we need a clear vision of RRF's future, as well as specific, measurable goals for the next 5, 10, and 20 years. Second, we need a detailed plan of action to achieve these goals.

I proposed the following at the Savannah meeting. RRF should establish a Development Committee consisting of Past-Presidents (if they are willing) plus two or three enthusiastic members who have experience in raising funds. Any letter accompanying a solicitation for funds that has been signed by all

surviving Past-Presidents would be hard to ignore! On the other hand, finding skilled fund-raisers among our ranks is not easy. Those RRF members with such abilities and experience are already understandably devoted to the organizations which employ them and moreover, they could find themselves in a potential conflict-of-interests in seeking money from prospective donors.

The Development Committee would have four main roles: 1) to write a vision for RRF with clearly stated goals and a plan of action; 2) to decide how to utilize unsolicited major donations so that they best benefit RRF and the donor, and then make recommendations to the board; 3) to establish an endowment fund for RRF; and finally, 4) to solicit funds from appropriate donors for the endowment fund as well as other desirable and worthy RRF projects. Currently RRF already has donations that are not yet earmarked, and there is an urgent need for the organization to decide how to best disburse these funds to satisfy both the donor and our needs.

Finally, RRF has a Public Relations Committee. This need not be a busy committee, but there are two obvious functions that it could fulfill: 1) ensure that an effective press conference takes place at each meeting by liaising with the local committee; and 2) respond to public enquiries about raptors, including those from members of the media. There may be other roles.

Well, that is enough rambling on my views of RRF. The next couple of years, as we sail rapidly toward a new millennium, should be most interesting. I thank each and every one of you from the bottom of my heart for giving me the opportunity to lead RRF, and I wish you all love, health and wealth ... and time to enjoy them.

RAFFLE RAISES \$1300 FOR RRF!

by Ed Henckel, '97 Raffle Chair

My deepest and sincerest thanks to all those listed below who gave a donation and raised \$1300 for the support of RRF. Also to Wendy Denton of the Savannah Local Committee for her hard work with arrangements, and to Dave Bird and Judy. And of course to all you lucky winners who went home with all that good stuff! I understand that Dick Clark will be running the raffle next year, so let's all dig deeper and help support this means of funding for RRF.

List of Donors

Academic Press	Katona, Robert	Schempf, Phil
Bicking, Marilyn & John	Keeler, Nancy	Shimmel, Louise
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Henckel, Ed & Judy	Rogers, Pamela	

1997 RRF AWARD RECIPIENTS

by Petra Bohall Wood, Chair, Awards Committee

Dean Amadon Grant (Selection Committee: Clayton M. White, Chair) The Dean Amadon Grant was not awarded in 1997; no applications were received.

Stephen R. Tully Memorial Grant (Selection Committee: Kimberly Titus, Chair; Robert Murphy; Robert N. Rosenfield) Recipients: **Jennifer Jacoby**, Ohio State University, "The Genetics of a Reintroduced Population of an Endangered Bird, *Falco peregrinus*" and **Stacy Lindemann**, Georgia Southern University, "Factors Affecting Biparental Care in the American Kestrel, *Falco sparverius*."

Leslie Brown Memorial Grant (Selection Committee: Jeffrey Lincer, Chair; Dean Amadon; Gary Duke; Richard Howard; Alan Kemp) Recipients: \$1,000 to **Patrick C. Benson**, University of the Witwatersrand, for his study of the breeding status, reproductive success, and mortality factors of Cape Vultures (*Gyps coprotheres*) at the Kranberg Colony, Northern Province, South Africa and \$500 to **Reuven Yosef**, International Birdwatching Center Eilat, for his study of a new subspecies of the Booted Eagle (*Hieraetus pennatus*) from southern Africa.

William C. Andersen Student Paper Award (Selection Committee: John A. Smallwood, Co-Chair; James C. Bednarz; Massimo Pandolfi; Robert N. Rosenfield) Recipient: **Brian L. Herting**, Boise State University, for his POSTER titled, "Testosterone Induced Variation in the Vocalizations of Male Western Screech-owls." Runners-up: **Brian W. Smith**, Boise State University, for his oral presentation titled, "Burrowing Owls Prefer Large Nest Chambers: Results of an Experiment Using Artificial Burrows," and **Kim J. Fernie**, McGill University, for her oral presentation titled, "Electromagnetic Field Exposure Affects American Kestrels (*Falco sparverius*): An Explanation."

James R. Koplín Travel Award (Selection Committee: Patricia A. Hall, Chair; Robert Lehman; Jeffrey Smith) Recipient: **Brian Smith**, Boise State University, "Burrowing Owls Prefer Large Nest Chambers: Results of Experiments Using Artificial Burrows."

Fran and Frederick Hamerstrom Award (Selection Committee: David E. Andersen, Chair; Rick Knight; Karen Steenhof) The Fran and Frederick Hamerstrom Award was not presented in 1997; no nominations were received.

Tom Cade Award (Selection Committee: Brian James Walton, Chair; Steve Sherrod; Jack Barclay; Christian Saar) The Tom Cade Award was not presented in 1997.

RRF ELECTION RESULTS, 1997

A total of 306 ballots was cast, representing 31% of the voting membership. Results are as follows:

International Director #2: Reuven Yosef
North American Director #2: Petra Bohall Wood
Director At Large #2: Robert E. Kenward
Director At Large #5: John A. Smallwood

RAPTOR DISPERSAL PATTERNS AND MECHANISMS SYMPOSIUM

Petra Bohall Wood, Convener

Sponsored by the Raptor Research Foundation, Inc.

North American Ornithological Conference, St. Louis, Missouri, 7-11 April 1998

Avian dispersal patterns and the mechanisms responsible are important aspects of a species' biology and are of great interest to ornithologists. Patterns of dispersal have been described for several avian species, particularly raptors, but the mechanisms behind these patterns are more difficult to determine. This symposium focuses on dispersal patterns and mechanisms in raptors because this group of birds has been studied extensively and their large body size often facilitates use of radio-tracking in studies of dispersal. Each presentation will focus on a particular species of raptor (or closely related species). The species represented display a variety of dispersal strategies; they include migratory and sedentary species as well as species with delayed breeding. Dispersal patterns and mechanisms observed in raptors may provide insights for other avian species in which dispersal is more difficult to study.

Program

"Dispersal Patterns and Possible Mechanisms for Juvenile Bald Eagles" (Petra Wood, Brian Millsap & Grainger Hunt)

"Why do Raptors Disperse? Some Insights Based on Physiology and Hormones" (James R. Belthoff & Alfred M. Dufty, Jr.)

"Natal and Adult Dispersal in Barn Owls" (Carl D. Marti)

"Dispersal and Annual Recruitment in the Mexican Spotted Owl" (Peter B. Stacey)

"Pre-breeding Dispersal of Crested Caracaras: Habitat Selection, Survival, and Conspecific Attractions" (Joan L. Morrison)

"Natal Dispersal of Red-shouldered Hawks and Red-tailed Hawks in Southern California" (Peter Bloom, Jeff Kidd, Edmund Henckel, Judith Henckel, Michael McCrary & David Choate)

"Dispersal Patterns and Mechanisms in Juvenile Northern Goshawks (*Accipiter gentilis*)" (Michael Ingraldi)

"Natal and Breeding Dispersal of American Kestrels in Southern Idaho" (Karen Steenhof & Marc Bechard)

CALL FOR PAPERS

URBAN RAPTOR SYMPOSIUM FIFTH WORLD CONFERENCE ON BIRDS OF PREY AND OWLS

August 4-11, 1998, Midrand (Johannesburg), South Africa

We are seeking participants for a symposium focusing on raptors living in urban environments at the Fifth World Conference on Birds of Prey and Owls. Presenters will be expected to hand in a manuscript prior to the conference. Abstracts are due no later than April 15, 1998. For further information, please contact either: **David M. Bird, Avian Science and Conservation Centre, McGill University, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Quebec H9X 3V9, Canada, phone: 514-398-7760, fax: 514-398-7990, e-mail: bird@nrs.mcgill.ca** or **Greg Septon, Milwaukee Public Museum, 800 Wells Street W, Milwaukee, WI 53233, phone: 414-278-6132, e-mail: septon@mpm.edu.**

3rd INTERNATIONAL RAPTOR BIOMEDICAL CONFERENCE

Midrand, Republic of South Africa, August 9-11, 1998

The Scientific Committee of the 3rd International Raptor Biomedical Conference is happy to announce the preliminary programme of this conference which is scheduled as part of the 5th World Conference on Birds of Prey and Owls (August 4-11, 1998) and close to the International Ornithological Conference (August 16-22, 1998). The conference will start with practical labs on raptor orthopaedics, raptor ophthalmology and raptor rehabilitation techniques on Sunday, August 9. The main conference is scheduled for August 10 and 11. On Monday evening, August 10, there will be a poster and free communications session. Proposals for free communications and posters can be sent to the Chairman of the Scientific Committee: J. T. Lumeij, Division of Avian and Exotic Animal Medicine, University Utrecht, Yalelaan 8, 3584 CM Utrecht, The Netherlands, e-mail: J.T.Lumeij@ukg.dgk.ruu.nl. For further information on registration, hotel accommodations, the social program and field trips, please contact the Local Arrangements Manager: Dr. Gerhard H. Verdoorn, P.O. Box 72155, Parkview 2122, South Africa, phone: 27-11-646-4629/8617, fax: 27-11-646-4631, e-mail: neshier@global.co.za. He can also be contacted for more information on the 5th World Conference on Birds of Prey and Owls. Please consult the websites of the respective conferences: <http://www.uniud.it/DSPA/wildvet/rapmed/rapmed.htm> and <http://ewt.org.za/raptor/conference> for updates on programme and registration procedures. For information on the International Ornithological Conference, please contact BirdLife South Africa in Durban: Dr. Aldo Berutti, e-mail: aldo@birdlife.org.za or the website http://www.ioc.org.za/other_org.html.

Preliminary Scientific Programme

Sunday, August 9

Practical Sessions (Wet Labs)

Ophthalmology of birds of prey and owls (R. Korbel)

Orthopaedics in raptors (P.T. Redig)

Rehabilitation techniques in raptors? (No further information available at this moment)

Monday, August 10

Opening by Chairman of Scientific Committee (J. T. Lumeij)

Pathology and Microbiology I (Chair: J. E. Cooper)

Neoplasms of birds of prey (N. Forbes, J. E. Cooper, and R. J. Higgins)

The pathology and diseases of the Mauritius Kestrel (*Falco punctatus*) (C. J. Dutton, J. E. Cooper, and A. F. Allchurch)

Detection of *Mycoplasma* spp. in raptorial birds in Germany (M. Lierz, R. Schmidt, T. Göbel, and M. Runge)

Chlamydia psittaci in Strigiformes and Falconiformes in Austria (U. Pohl)

Pathology and Microbiology II (Chair: O. Krone)

Newcastle disease virus in raptors (R. J. Manvell, U. Wernery, and D. J. Alexander)

Clostridial enterotoxaemia: an emerging disease in Falconiformes in the United Arab Emirates (U. Wernery, J. Kinne, A. Sharma, H. Boehmel, and J. Samour)

Endoparasites of raptors: a review and update (D. Lacina and D. M. Bird)

Parasitological findings in captive falcons (*Falco* spp.) in the United Arab Emirates (J. Samour)

Environmental Disease and Mortality Factors (Chair: R. E. Kenward)

The probable reasons for the decline of the Greater Spotted Eagle (*Aquila clanga*) in Russia (V. Belik)

Diseases and causes of death in captured and free-living Bearded Vultures (*Gypaetus barbatus aureus*) (A. Scope and H. Frey)

Mortality of nestlings in Bonelli's Eagles (*Hieraetus fasciatus fasciatus*) in Algarve, Portugal - a multi

disciplinary approach to the problem (J. M. Blanco, U. Höfle, L. Palma, and P. Melo)
 Trichomoniasis in American Kestrels (*Falco sparverius*) and two Eastern Screech Owls (*Otus asio*) (S. N. Ueblacker)

Management of Captive Raptors and Falconry Birds (Chair: J. D. Remple)

Veterinary implications during the hunting trip (J. H. Samour)

Medicine and Therapeutics (Chair: J. T. Lumeij)

(Patho)physiology, diagnosis and treatment of renal function disorders in birds of prey (J. T. Lumeij)

Reconsideration of abnormal leucocyte and differential white blood cell counts as aids to diagnosis of different disease conditions in free-living birds of prey (U. Höfle and J. M. Blanco)

Considerations on the production of a 'safe and efficacious' falcon herpes vaccine (J. D. Remple)

Serological changes in Snowy Owls (*Nyctea scandiaca*) with aspergillosis (B. Gollob)

Free Communications and Poster Presentations (Evening, Chair: J. D. Remple)

Trichomonas sp. and falcon health in the United Arab Emirates (T. C. Bailey, J. H. Samour, and T. A. Bailey)

Reconciling conservation interests with health and medical issues of the Laggar Falcon (*Falco jugger*) in Pakistan (T. A. Bailey, N. C. Fox, A. Mukhtar, and J. H. Samour)

Herpes virus infections in raptors (R. E. Cough and U. Wernery)

Raptor diseases in zoological institutions (C. Bertram)

Assessing rehabilitation success of raptors through band returns (M. Martell, J. Goggin, and P. T. Redig)

Tuesday, August 11

Surgery and Anaesthesia (Chair: P. T. Redig)

Advances in the treatment of avian pododermatitis (bumblefoot) using antibiotic impregnated polymethylmethacrylate beads (J. D. Remple and N. A. Forbes)

Osteology of the falcon wing (P. Zucca and J. E. Cooper)

Ophthalmology of birds of prey (R. Korbel)

Orthopaedic techniques in raptors (P. Redig)

Tendon repair and replacement in the pelvic limb in birds of prey I. Anatomical considerations (N. H. Harcourt-Brown)

Tendon repair and replacement in the pelvic limb in birds of prey II. Surgical aspects (N. H. Harcourt-Brown)

Rehabilitation and Post-release Monitoring and Survival (Chair: D. Csermely)

Aspects of management within the European Bearded Vulture (*Gypaetus barbatus aureus*) reintroduction project (H. Frey)

Outdoor housing and release conditioning of raptors (S. N. Ueblacker)

Fitness levels as a determining factor in the survival of rehabilitated raptors released back into the wild (P. Holz and R. Naisbitt)

Intra abdominal implantation of a multi sensor telemetry system in a free-flying Griffon Vulture (*Gyps fulvus fulvus*) (C. Walzer, R. Bögel, R. E. Karl, G. Fluch, and R. Prinzing)

Rehabilitation of birds of prey and their survival after release (D. Csermely)

Breeding and Genetics (Chair: N. Fox)

DNA-sex determination and sex-related variation in morphometric, hematologic and biochemical parameters in Iberian Imperial Eagle (*Aquila heliaca adalberti*) and Bonelli's Eagle (*Hieraetus fasciatus fasciatus*) (U. Höfle, J. M. Blanco, and M. Wink)

Legal and Ethical Aspects (Chair: M. E. Cooper)

Legal considerations in the collection and transportation of diagnostic and research specimens from raptors (M. E. Cooper)

Health monitoring of birds of prey - the ethical and legal arguments for non-invasive or minimally invasive techniques (J. E. Cooper)

Closing remarks by Chairman of Organizing Committee (P. T. Redig)

ON THE PULSE OF THE RAPTOR RESEARCH FOUNDATION

by Richard J. Clark, Chair, Membership Committee

We often use characteristics of the human pulse to get some idea of the vigor and vitality of a person. Membership may be thought of as an analogous measure of the vigor and vitality of an organization. So, as Chair of RRF's Membership Committee, I offer a picture of the "pulse" of RRF. Total membership first exceeded 1,000 in 1986, following the big annual conference in Sacramento, and has exceeded 1,000 each year since 1993. Healthy signs are that international membership has increased over the past 12 years and Canadian membership has remained fairly stable. Some areas for concern are the recent downward trend in international membership, and declines in USA and student membership in 1996. Those are some quantitative aspects of membership. A healthy qualitative aspect is that members live in over 50 countries. Another potentially important piece of information is how many memberships are renewed. This allows us to follow the attrition (dropout) rate of members, which is crucial in getting a readout on member satisfaction with what the organization is doing. An even more important way in determining this is communications which come to the RRF leadership from members. This seems to be very minimal. I urge members to let our leaders know what is being done right as well as what needs to be improved or abandoned. Our leaders may assume that "no news is good news" unless they hear otherwise.

The Project International Colleague (PIC) program was started in 1988 to encourage interested persons outside North America and western Europe to become RRF members. At that time it was difficult for persons in other countries to pay in either American or Canadian currencies, and sometimes it would have cost RRF more to exchange the currency involved than the cost of membership. Also, at that time RRF did not allow the use of credit cards. In 1995, RRF had 48 PIC-sponsored members: Argentina 4, Australia 2, Belarus 1, Brazil 4, Canada 2, Chile 3, Columbia 1, Cuba 1, Czech Republic 4, Ecuador 1, Germany 2, Latvia 1, Malawi 1, Mexico 8, Namibia 1, Panama 1, Philippines 1, Poland 2, Republic of Russia 6, South Africa 1, and Zimbabwe 1. These represent about 21% of RRF's international members or 4% of the total membership.

It's obvious that the primary purpose of the PIC program has been fulfilled. A factor that was not taken into consideration when the program was started was that PIC-sponsored members have tended to rely on their sponsors to continue their membership beyond the initial year. If those that are sponsored by the program would pick up their renewals following the first or second year, sponsors could then get other persons started in the organization. Originally, the RRF Treasurer played a key role in matching sponsors and those seeking sponsorship. Since RRF membership is now shepherded by OSNA, that familiarity with the process and those members involved has been lost. The Membership Committee is presently exploring the possibility of a reduced PIC sponsorship rate based on the actual cost of providing membership benefits.

Having identified some challenges, we must now determine what can be done about them. With regard to student memberships, RRF feels that student membership is extremely important because students represent the future of our organization. Encouragement has been offered by lower membership and conference registration rates, flat room rates versus individual rates at the annual

conferences to keep housing costs low, scholarships for travel, cash awards, and other means. Other incentives certainly must exist, and RRF members are hereby asked to offer suggestions (which RRF can afford to implement).

The Membership Committee is currently preparing a new membership flyer; once that is available, we plan on using it in conjunction with major efforts to substantially increase the number of members and advance the work of the Raptor Research Foundation. I would greatly appreciate hearing your ideas on how that can be accomplished. The Membership Committee also needs your assistance to help us achieve our goals. Please send your ideas and offers to help expand the membership to: Richard J. Clark; Chair, RRF Membership Committee; RD #7 Box 7238; Spring Grove, PA 17362-9019. An idea for boosting membership might be to make the non-member registration fee for annual conferences high enough that it would be cheaper for non-members to become members than register as non-members. Something like this was done for the 1985 conference, and it did boost membership temporarily. However, a slump the following year might be interpreted as a "backlash" to that approach.

Once again, I am asking readers to contribute ideas that could strengthen RRF membership. In order to improve the organization, the leaders that you elect need to know where improvement is needed, and it is always reassuring for them to hear about things they are doing well. The bottom line is that COMMUNICATION to the appropriate person(s) (and a copy to the Membership Committee) is essential. So that you know who they are, an abbreviated leadership listing (prepared by your Secretary) is provided on the following pages. Thank you in advance for your willingness to help your organization for the betterment of raptors and the communities they live in.

RAPTOR TOURS OFFERED IN CONJUNCTION WITH FIFTH WORLD CONFERENCE ON BIRDS OF PREY AND OWLS

Raptours is offering pre- and post-conference raptor tours in conjunction with the upcoming Fifth World Conference on Birds of Prey and Owls to be held in South Africa in August 1998. Both tours will be led by Bill Clark, co-author of various raptor field guides, with several local raptor co-leaders on each tour. Three tour options are available:

Pre-Conference Tours (South Africa)

Option 1: 16 days (July 19 - August 3); \$2990; from Cape Town, Kalahari Park, plus Option 2 below, ending in Johannesburg.

Option 2: 9 days (July 26 - August 3); \$1890; join tour in Johannesburg, Drakensburg Mountains, north Zululand, and Johannesburg.

Post-Conference Tour (Zimbabwe)

5 days (August 12-16); \$850 + \$305 airfare from Johannesburg; Victoria Falls and Matabo Hills (ends in time for IOC in Durban).

For more information, contact: **Raptours, P.O. Box 9021, Wilmington, DE 19809 USA, phone: 302-529-1085 or 800-362-0869, fax: 302-529-1085, e-mail: raptours@focusnature.com.** Visa and Mastercard are accepted. Raptours will make a contribution to the conference for each participant.

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Fran and Frederick Hamerstrom**Award**

David E. Andersen
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RRF SEEKS NEW EDITOR FOR *THE JOURNAL OF RAPTOR RESEARCH*

Marc J. Bechard, current editor-in-chief of *The Journal of Raptor Research*, is stepping down at the end of 1998 after a successful 3-year term. RRF President Mike Kochert has asked RRF North American Director Karen Steenhof to chair a search committee to find a capable successor. Carl Marti, past JRR editor, and Marc Bechard will serve on the committee. Editing *The Journal of Raptor Research* is the most challenging and rewarding position available in RRF. While working harder and longer for RRF than any other single member, the editor reaps the benefits of working closely with the Foundation's most active scientists; shepherding worthy manuscripts through the publication process; and developing her/his own writing, editing, and communications skills. If you are ready for a very rewarding challenge, or if you wish to nominate someone who is, please contact Karen by mail (U.S. Geological Survey, Biological Resources Division, 970 Lusk Street, Boise, ID 83706), phone (208-331-5206), or e-mail (ksteenho@eagle.id.bsu.edu).

CALL FOR NOMINATIONS: 1998 RRF ELECTIONS

RRF will have the following positions opening at the end of 1998: President-Elect, International Director #3, North American Director #3, and Directors At Large #1 and #4. Please contact Pat Hall, Lloyd Kiff, Brian Millsap, or Massimo Pandolfi (see preceding pages for addresses, phone numbers, etc.) if you are interested in running for one of these positions or wish to nominate someone else. Nominees will be contacted to verify their willingness to run and to serve if elected. All RRF officers and directors are expected to attend the official RRF annual meeting.

THE RAPTOR INFORMATION SYSTEM: INTERACTIVE ACCESS FROM THE WORLD WIDE WEB

by Karen Steenhof, North American Director

The Raptor Information System (RIS) can now be accessed on the World Wide Web at <http://www.ris.idbsu.edu>. The RIS is a bibliographic data base that catalogues approximately 29,000 references on raptor biology and management. Users can search the database from the web using keywords, authors, title strings, year, citation, or any combination of the above. Hard copies of references are housed at the Richard R. Olendorff Memorial Library, possibly the largest collection of literature on birds of prey in the world. The RIS developed from a merger of two collections formerly managed by the Bureau of Land Management (BLM): the Snake River Birds of Prey Area Literature File developed at the Boise District Office, BLM and the Raptor Management Information System (RMIS), developed by the late Dr. Richard Olendorff at the California State Office of BLM, with the assistance of the Edison Electric Institute. The database is updated regularly and has been expanded to include all publications of the Raptor Research Foundation, an extensive reprint collection donated by Dean Amadon of the American Museum of Natural History, and reprint files used to prepare bibliographies published by the National Wildlife Federation on Bald Eagles, Peregrine Falcons, and Golden Eagles. The collection includes reprints of published papers as well as a significant amount of "gray literature" in the form of popular articles, theses, dissertations, unpublished government reports, and progress reports. The RIS is now administered by the Snake River Field Station of the U.S. Geological Survey / Biological Resources Division's Forest and Rangeland Ecosystem Science Center.

THE WILLIAM C. ANDERSEN MEMORIAL AWARD

by Laurie Goodrich, Co-Chair, Andersen Award Subcommittee

Dr. Andersen was a chemistry professor, but his first love was raptors. He established the Ornithology Research Center at Otero Junior College in La Junta, Colorado, as a medium for raising funds for the field research he conducted with his students. His interest in raptors of southeastern Colorado grasslands naturally evolved into developing a solution to the universal problem of raptor persecution. He established a rehabilitation facility and tirelessly lectured to service clubs and school groups about the benefits of raptors. He was a strong supporter of the Raptor Research Foundation, and a number of students accompanied him to each of the annual meetings. His enthusiasm, sincerity, and humor sparked an interest in raptors among many of his students and associates.

While participating in the 1980 North American Peregrine Falcon Survey, Bill and a partner were canoeing on the Churchill River in northern Manitoba. They unexpectedly encountered extremely turbulent water and capsized. Bill disappeared and presumably drowned. In that instant, raptors and raptorphiles lost one of their strongest allies.

In honor of Dr. William C. Andersen, the Raptor Research Foundation established an award for the best student paper presented at each annual RRF meeting. This award has been given annually since 1982; the first recipient was Jimmie Parrish. Andersen Award Subcommittee chairs have included Robert Kennedy, Keith L. Bildstein, and Laurie Goodrich and John Smallwood (current co-chairs); reviewers have included Jim Fraser, Jim Ruos, Karen Steenhof, Petra Wood, Pat Kennedy, Jim Bednarz, Jim Gessaman, Isabel Bellocq, Dan Varland, Jim Dawson, and Bob Rosenfield.

Participation in the Andersen Award competition has dramatically increased in recent years. The number of papers considered in the 1980s ranged from 5 to 15 for oral and poster papers combined. Since 1994, over 35 students have competed annually. This increase in interest has generated a need to increase both the funds in RRF's Andersen Award Fund and the number of people on the subcommittee. Anyone interested in donating money to support the award, please contact the RRF Treasurer. People interested in helping review papers should contact either Petra Wood or Laurie Goodrich.

Currently, two awards are given for best oral and poster presentation by a student. To be eligible, a student must be registered part- or full-time at a recognized educational institution within 12 months preceding the presentation; the information in the paper must have been collected and synthesized primarily by the student; and the paper must have been organized and written by the student with only minor editorial assistance from faculty or colleagues. The paper may, if necessary, contain the names of supervisors or colleagues as joint authors. To be considered for the award, the student must indicate her/his eligibility and interest in being considered when submitting the paper or poster abstract to the annual meeting's scientific program chair. Each award consists of a plaque and a 1-year membership in RRF.

Questions on the Andersen Award can be directed to: Laurie J. Goodrich, Co-Chair, Andersen Award Subcommittee; Raptor Research Foundation; c/o Hawk Mountain Sanctuary; Route 2, Box 191; Kempton, PA 19529; phone: 610-756-6961, e-mail: goodrich@hawkmountain.org.

RAPTOR RESEARCH FOUNDATION AWARDS 1998 GUIDELINES

by Petra Bohall Wood, Chair, Awards Committee

DEAN AMADON GRANT

This grant of \$200-\$400 is designed to assist persons working in the area of distribution and systematics (taxonomy) of raptors. Systematics covers a wide array of interests from molecular work to differential migration of populations from various geographic regions, for example. Distribution also covers a wide array of interests but should have something to do with where raptors live or why they are there. To apply, send a letter indicating how your project fits into the area of distribution and/or systematics, and also an abstract of the specific work you are doing. Students involved in thesis work may submit an outline of their thesis proposal.

To apply or obtain more information, contact: Dr. Clayton White, Department of Zoology, Brigham Young University, Provo, UT 84602, phone: 801-378-3860, e-mail: whitem@acd1.byu.edu. *Application deadline: 15 August 1998.*

STEPHEN R. TULLY MEMORIAL GRANT

The Stephen R. Tully Memorial Grant for \$500 is given to support research, management and conservation of raptors especially to students and amateurs with limited access to alternative funding. Agency proposals are discouraged. The award is given in memory of Steve Tully, a young raptor biologist, who lost his life in an automobile accident in 1978. To apply, send a proposal (no more than 5 pages) outlining your background, the study goals and methods, your anticipated budget, and a list of other funding sources, both requested and received.

To apply, or obtain more information, contact: Dr. Kim Titus, Alaska Department of Fish and Game, Division of Wildlife Conservation, P.O. Box 240020, Douglas, AK 99824, e-mail: kimt@fishgame.state.ak.us. *Application deadline: 15 August 1998.*

LESLIE BROWN MEMORIAL GRANT

The Leslie Brown Memorial Grant is given in memory of one of the most inspired and productive raptor biologists of recent decades. RRF provides a grant of up to \$1000 to support research and/or dissemination of information on raptors. Proposals concerning African raptors will receive highest priority among proposals of otherwise equal merit. Applicants must send a resume, specific study objectives, an account of how funds will be spent, and a statement indicating how the proposed work would relate to other work by the applicant and to other sources of funds.

To apply, or obtain more information, contact: Dr. Jeffrey L. Lincer, Lincer and Associates, 15644 Kingman Road, Poway, CA 92064 USA, e-mail: jllincer@aol.com. *Application deadline: 15 August 1998.*

WILLIAM C. ANDERSEN STUDENT PAPER AWARD

This award is given to both the best student oral and poster presentation at the annual RRF meeting. The

winner in each category will receive a plaque and a 1-year free membership to RRF. If less than 5 posters are in contention, there will be no separate poster award given. Information on how to prepare and give a scientific presentation and criteria used to judge the presentations are available from the committee chair. Award recipients will be announced at the banquet. The student must indicate on the meeting abstract form that he/she is competing for the student paper award. The paper cannot be part of an organized symposium to be considered. Student paper sessions will be scheduled early in the meeting in most cases.

To obtain more information, contact: Laurie Goodrich, Hawk Mountain Sanctuary, 1700 Hawk Mountain Road, Kempton, PA 19529, phone: 610-756-6961, e-mail: goodrich@hawkmountain.org. *Application deadline: due date for abstract form, no special application needed.*

JAMES R. KOPLIN TRAVEL AWARD

The travel award of \$200 is given to a student who is a member of RRF and who is the senior author of a paper or poster to be presented at the meeting for which travel funds are requested. Application materials include: 1) copy of conference paper abstract, 2) itemized budget of costs associated with attending the meeting and an explanation of how the expenses not covered by this award will be met, and 3) a letter of recommendation, preferably by the student's major professor, evaluating the applicant's academic abilities, the significance of the research being reported, the student's contribution to this research, and the potential for future contributions by the student to the field of raptor biology.

To apply, or obtain more information, contact: Patricia Hall, 436 David Drive E, Flagstaff, AZ 86001, phone: 520-774-0041, e-mail: pah@alpine.for.nau.edu. *Application deadline: 15 July 1998.*

FRAN AND FREDERICK HAMERSTROM AWARD

There are no restrictions to eligibility for this award, although active membership in the Raptor Research Foundation, Inc., is encouraged. To be considered for this award, candidates must be nominated by a member of the Raptor Research Foundation, Inc. Nominations should include: 1) name, title, and address of nominee; 2) name, title, and address of nominator; 3) names of 3 persons qualified to evaluate the nominee's scientific contribution to the study of raptor ecology and natural history; 4) a brief summary of the scientific contribution of the nominee; and 5) a complete list of publications authored by the nominee.

To submit a nomination or obtain more information, contact: Dr. David E. Andersen, Chair, Fran and Frederick Hamerstrom Award Committee, Minnesota Cooperative Fish and Wildlife Research Unit, University of Minnesota, 200 Hodson Hall, 1980 Folwell Avenue, St. Paul, MN 55108, phone: 612-626-1222, fax: 612-625-5299, e-mail: dea@fw.umn.edu (preferred). *Application deadline: 15 August 1998.*

TOM CADE AWARD

This non-monetary, honorary award recognizes an individual who has made significant advances in the area of captive propagation and reintroduction of raptors. It is not necessarily awarded every year. To be considered for this award, candidates must be nominated by a member of the Raptor Research Foundation, Inc. International nominations are encouraged.

To obtain more information, contact: Brian Walton, Predatory Bird Research Group, Long Marine Laboratory, University of California, Santa Cruz, CA 95064, phone: 408-459-2466, e-mail: walton@cats.ucsc.edu. *Application deadline: 15 August 1998.*

ANNOUNCEMENTS

UPCOMING MEETINGS

1998

April 6-12

NORTH AMERICAN ORNITHOLOGICAL CONFERENCE

St. Louis, Missouri

Contact: Bette Loiselle, Department of Biology, University of Missouri--St. Louis, 8001 Natural Bridge Road, St. Louis, MO 63121-4499, phone: 314-516-6224; fax: 314-516-6233, e-mail: bird_stl@umsl.edu.

August 4-11

FIFTH WORLD CONFERENCE ON BIRDS OF PREY AND OWLS

Midrand (Johannesburg), South Africa

Contact: Gerhard Verdoorn; EWT Raptor Conservation Fund; Vulture Study Group, Raptor Conservation Group, Poison Working Group; P.O. Box 72155; Parkview 2122; South Africa; phone: 27-11-646-4629, 27-11-646-8617, or 27-82-446-8946 (mobile); fax: 27-11-646-4631; e-mail: neshher@global.co.za; or Robin Chancellor, e-mail: WWGBP@aol.com, www: <http://ewt.org.za/raptor/conference>.

September 30 - October 4

RAPTOR RESEARCH FOUNDATION

Ogden, Utah

Contact: Carl Marti, Department of Zoology, Weber State University, Ogden, UT 84408-2505, phone: 801-626-6172, fax: 801-626-7445, e-mail: cmarti@weber.edu, www: <http://www.weber.edu/rff/>.

1999

September

RAPTOR RESEARCH FOUNDATION

Trebon, Czech Republic

Contact: Petr Vorisek, Working Group on Protection and Research of Birds of Prey and Owls, Czech Society for Ornithology, Hornoměřolupská 34, CZ-102 00 Prague 10, Czech Republic, phone / fax: 420-2-7866700, e-mail: cso.vorisek@bbs.infima.cz.

November 9-13

RAPTOR RESEARCH FOUNDATION

La Paz, Baja California Sur, Mexico

Contact: Ricardo Rodriguez Estrella, Centro de Investigaciones Biologicas del Noroeste, Division de Biologia Terrestre, km 1 Carretera San Juan de la Costa, La Paz 23000 B.C.S. MEXICO, phone: 112-536-33, fax: 112-553-43, e-mail: estrella@cibnor.mx.

2000

April 2-8

INTERNATIONAL CONFERENCE ON RAPTORS AND OWLS, 2000

Eilat, Israel

Contact: Reuven Yosef, Raptors 2000, IBCE, P.O. Box 774, Eilat 88106, Israel, phone: 972-7-6374276, fax: 972-7-6370890, e-mail: ryosef@bgumail.bgu.ac.il or ryosef@aquanet.co.il.

POSITIONS AVAILABLE

VOLUNTEERS are needed for conducting observations of Griffon Vulture breeding behavior at the Gamla Nature Reserve in Israel. The Nature Reserves authority will supply local transportation, lodging, and board. Volunteers are required to pay for their travel to and from Israel. Interested persons should send a CV and 2 letters of recommendation to: **Dr. Reuven Yosef, IBCE, P.O. Box 774, Eilat 88000, Israel, fax: 972-7-6370890, e-mail: ryosef@bgumail.bgu.ac.il.**

PUBLICATIONS AVAILABLE

"A FASCINATION WITH FALCONS" Bill Burnham has drawn upon thirty years of professional and recreational experiences with falcons to create this new book, subtitled "A Biologist's Adventures from Greenland to the Tropics." Supported by color photos and illustrations by John Schmitt, this book is a blend of information and experiences. The book may be purchased directly from the publisher:

Hancock House Publishers, 1431 Harrison Avenue, Blaine, WA 98230, phone: 800-938-1114, fax: 800-983-2262, e-mail: hancock@uniserve.com.

NEWS OF MEMBERS

Heimo Mikkola has a new address: **FAO REPRESENTATIVE, Private Mail Bag nr. 10, BANJUL, The GAMBIA, WEST AFRICA;** phone: 220-228 477, 220-223 626, or 220-228 824 (direct line); fax: 220-228 634; e-mail: **FAO-GMB@field.fao.org.**

Alberto Resende Monteiro has returned to Brazil. He may be reached at: **Rua José Euclides Santana, 230; Bairro Santa Clara; 36570-000 - Viçosa - Minas Gerais - Brasil;** fax: 0055-31-891-3903, e-mail: **jbrm@ufv.mail.br.**

REQUESTS FOR ASSISTANCE

A GOLDEN (EAGLE) INVITATION David H. Ellis and James W. Lish extend an invitation for you to participate with us in the publication of a large format book on the biology and lore of the Golden Eagle. Part of that book will be an anthology of favorite personal experiences with the Golden Eagle. We are particularly interested in stories that provide insight into the ecology,

behavior, and natural history of this bird both in captivity and in the wild. Please take a moment to reflect: if a remarkable account comes to mind (your own or by someone else who can supply the necessary details), please send us a one paragraph account of the experience. If it is unique, notable, and otherwise suitable for inclusion, we will recontact you for a full (200-500 word, rarely longer) account. We also invite high quality or unique photos: please send black and white photocopies of prints or duplicates of transparencies for review. A credit line will accompany each published submission. Send to: **David H. Ellis, HC 1 Box 4420, Oracle, AZ 85623, phone: 520-896-3226, e-mail: david_h_ellis@usgs.gov.**

FOR SALE

RRF ITEMS Several items are available. Logo pins (\$8, flying Prairie Falcon on a cream-colored background); decals (\$3); T-shirts from the 1995 (Duluth) annual meeting (\$8); and coffee mugs from the 1995 annual meeting (\$8). To purchase, contact: **Jim Fitzpatrick, 12805 St. Croix Trail S, Hastings, MN 55033, phone: 612-437-4359, fax: 612-438-2908, e-mail: jmfitzpatrick@aol.com.** Payment may be via check or credit card; prices include shipping. For T-shirts, be sure to specify size (S, M, L, XL).

WINGSPAN CONTRIBUTIONS

The Raptor Research Foundation wishes to thank the following people who contributed material to this issue of *Wingspan*: **Jim Bednarz, David Bird, Bill Clark, Richard Clark, Kort Clayton, Gordon Court, Steve Desimone, David Ellis, Jim Fitzpatrick, Laurie Goodrich, Pat Hall, Ed Henckel, Mike Kochert, Jeff Lincer, J. T. Lumeij, Carl Marti, Kurt Mazur, Ken Meyer, Heimo Mikkola, Brian Millsap, Alberto Monteiro, Karen Steenhof, Ted Swem, Keith Swindle, Richard Walker, Petra Bohall Wood, and Reuven Yosef.**

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: 360-943-7394, e-mail: wingspan@msn.com).** The deadline for the next issue is August 7, 1998.

RECENT THESES ON RAPTORS

Chen, H. 1997. OBSERVATIONS OF THE BREEDING BIOLOGY AND THE EFFECTS OF HABITAT FRAGMENTATION ON FORMOSAN CRESTED GOSHAWKS (*ACCIPITER TRIVIRGATUS FORMOSAE*) IN KENTING NATIONAL PARK, TAIWAN. M.S. Thesis, Arkansas State Univ., State University. 122pp.

Habitat fragmentation is probably the most serious threat to the conservation of many forest raptors, but its effects on accipiters in Asia are poorly known. The development of land in Taiwan has resulted in the destruction and fragmentation of native habitats. The ecology and biology of the forest-dwelling Formosan Crested Goshawk (*Accipiter trivirgatus formosae*) is poorly understood, and nothing is known about the effects of fragmentation on this species. Knowledge of the habitat needed for successful raptor nesting is essential to implementing conservation and management strategies, but is essentially not available for tropical Asian birds of prey. Three scales of characteristics were measured in this study to describe the breeding habitat of Formosan Crested Goshawks: 1) nests and nest trees, 2) nest site or microhabitat (i.e., habitat within a 730 m² plot centered on the nest), and 3) nesting habitat or macrohabitat (i.e., habitat that is representative of characteristics found within the nesting home range). In this study, I address three objectives: 1) provide a description of crested goshawk breeding biology, 2) compare the density and reproductive success of goshawks in contiguous and fragmented habitats in Kenting National Park, Taiwan, and 3) compare the characteristics of occupied nest sites and random sites to determine the habitat parameters that may be selected by breeding crested goshawks. During 1995 and 1996 field seasons, 24 nests on the Kenting-Olanbi Peninsula, two nests in the Tsenio Hill area, and three nests in Nangzeng Mountain Ecological Protection Area were located in this study. Nests were located by point observations from trees or other structures that emerge above the forest canopy and intensive foot searches for goshawk nests. Crested goshawks began courtship behavior before February, and most young hawks fledged in early June. Both male and female Formosan Crested Goshawks shared nest building duties, but only the females incubated the eggs. The clutch size varied between 1-2 eggs (n = 6). The incubation period was 36-38 days, and the brood-rearing period was 45-53 days. Of 26 nests monitored, 73% were successful, and a mean of 1.20 young fledged per nest. The breeding density and reproductive success of crested goshawks were higher in fragmented areas (7.4 nests / 1,000 ha or 8.3 fledglings / 1,000 ha; \bar{x} = 1.2 fledglings / nest) than in contiguous forest (5.8 nests / 1,000 ha; no nests were successful). Reproductive success may have been better in the fragmented area because goshawks were food generalists and experienced reduced nest predation. The nest site selection of Formosan Crested Goshawks was mostly regulated by the effects of winter monsoons on the habitat and partially by predator avoidance. Among the nest and habitat parameters measured, goshawks selected taller trees on steeper slopes and tended to place their nests in the interior of forest patches. Euphorbiaceae and Moraceae species were the most often used nest trees, and goshawks tended not to build nests on *Acacia confusa*. Goshawks used a higher portion of slopes west of the main ridge than were available, and west, southwest, or south facing slopes were most often used for nesting. More goshawk nests were found at the base of coral reef cliffs and in stream valleys than in other topographic situations. The most often used forest type was evergreen broad-leaf forest (73%, n = 26), especially the *Ficus-Machilus* forest type (62%). Forest structural characteristics selected by goshawks included forest patches with a higher canopy, higher *Ficus* cover percentage, higher vine cover percentage, more small palms, more shrubs, more large trees, and thicker litter depth. Understory parameters of habitats used by nesting goshawks included higher fern, debris, and bare ground cover percentages than at random sites. Occupied goshawk nests were only found in forest patches, and these tended to be located in the interior of the forest patches. Although goshawks had better reproductive success in fragmented habitats, goshawks were not seen using large open areas or urban areas. Conservation management for goshawks should involve maintaining suitable forest patch sizes, specifically forest patches with sheltered topography. Also, to insure the conservation of goshawks, I recommend restricting human use or activities to a lower

level. Finally, the growing macaque populations are a threat to the goshawk populations, and these populations and their impact to nesting birds should be monitored.

Clayton, K. M. 1997. POST-FLEDGING ECOLOGY OF BURROWING OWLS IN ALBERTA AND SASKATCHEWAN: DISPERSAL, SURVIVAL, HABITAT USE, AND DIET. M.S. Thesis, Univ. Saskatchewan, Saskatoon. 66pp.

The Burrowing Owl (*Speotyto cunicularia*) occupies an extensive range throughout North and South America. In Canada, at the northern end of its range, this species is listed as endangered. Landscape alterations resulting in direct loss, degradation, and fragmentation of habitat have likely hampered the survival and productivity of Burrowing Owls. Research and management efforts employed thus far have failed to reveal critical limiting factors or reverse the decline of this species in Canada.

This study focused on monitoring the movements, habitat use, diet, and survival of Burrowing Owls during late summer and autumn in southern Alberta and Saskatchewan. The Alberta study area was primarily native rangeland. Less than 10% of the original native prairie remains on the Saskatchewan study area. Over two years, 44 radio-transmitters were deployed on Burrowing Owls in Alberta, and 33 in Saskatchewan. Alberta juveniles dispersed significantly earlier and further from nest sites, and moved more frequently than juveniles on the Saskatchewan study area. Directional analysis of post-fledging or pre-migratory movements revealed a southerly focus in both populations, but was more variable among juveniles than among adults. Owls consistently migrated from both study areas in late September or early October.

Adult females exhibited the highest mean survival (0.83), whereas adult male (0.46) and juvenile (0.48) rates were similar. Most mortality occurred during the post-fledging period when owl activity peaked around the nest. Mortality from vehicle collisions was higher, and predation lower on the Saskatchewan study area. Population modeling revealed that average productivity from the Alberta study area (3.5 young/nest attempt), coupled with mortality for the study period, was not high enough to cause the annual rate of decline found in this population (0.67). This suggests about 32% of annual mortality occurs off the breeding grounds.

Habitat use/availability analysis revealed that owls preferred pastures with shorter grass for both roosting and nesting. Tame and native grass pastures were used about equally by owls for both roosting and nesting.

A relationship was found between abundance of Burrowing Owl prey and vegetation structure. Deer mouse (*Peromyscus maniculatus*) and grasshopper (Acrididae) abundance were negatively correlated with vegetation height and density. In a high vole year, microtine vole numbers were positively correlated with vegetation height and density.

Desimone, S. M. 1997. OCCUPANCY RATES AND HABITAT RELATIONSHIPS OF NORTHERN GOSHAWKS IN HISTORIC NESTING AREAS IN OREGON. M.S. Thesis, Oregon State Univ., Corvallis. 78pp.

The ability of Northern Goshawks (*Accipiter gentilis*) to persist in intensively managed and selectively harvested forest habitats is largely unknown. To address the concern that populations of Northern Goshawks in eastern Oregon may be declining in response to habitat alteration, I studied occupancy rates and habitat relationships of nesting goshawks on the Fremont National Forest and adjacent private lands during 1992-1994. My objectives were to determine if historic territories (i.e., those occupied ≥ 1 season during 1973-1991) were still occupied, document current site conditions and quantify changes in forest cover on those territories between 1973-1994, and compare present conditions of forest vegetation between nest sites that were currently occupied and those where I did not detect the presence of territorial goshawks (no-response sites). In 1994, I surveyed a forest-wide random sample of 51 historic nest sites, stratified by forest cover type. Occupancy of historic sites by goshawks was 29% (15 of 51), compared to 79% (30 of 38) mean annual occupancy rate of current territories (found initially during 1992-1994). Across all strata, 86% of current nest sites (n = 38) were in Mid-aged or Late structural stage forest (trees >23 cm DBH) with >50% canopy closure. Among the historic territories used for analysis (n = 46), those found occupied (n = 15) in 1994 had significantly more Mid-aged Closed forest (average stand DBH 23-53 cm, <15 trees per ha >53 cm DBH; >50% canopy closure) and Late Closed forest (≥ 15 trees per ha >53 cm DBH; >50% canopy closure)

than no response sites ($n = 31$). The relationship was significant ($P < 0.05$) for circular scales of 12, 24, 52, 120, and 170 ha surrounding goshawk territory centers. Within the 52 ha scale around historic nest sites surveyed in 1994, occupied sites had 49% (SE = 6.6) total Late Closed and Mid-aged Closed forest, while sites with no response has 19% (SE = 3.0) total Late and Mid-aged Closed forest. Historic sites had 51% (SE = 3.8) total Late and Mid-aged Closed forest when last known occupied before 1992. Among historic territories, mean percent area of habitat in Late Closed forest at the 12 ha nest stand scale was 4 times greater in occupied (27%) than in no-response sites (6%) ($P < 0.05$). A logistic regression model for occupied sites confirmed the importance of Late Closed and Mid-aged Closed forests as indicators of quality habitat within the 52 ha scale on historic sites where goshawks were still present in 1994. Goshawk pairs were more likely to persist in historic territories having a high percentage of mature and older forest (about 50%) in closed-canopied conditions within the 52 ha scale, suggesting that little or no habitat alteration within aggregate nest stands is important to ensure the persistence of nesting pairs. I recommend preserving multiple nest stands within the 52 ha scale and discourage further cutting of large, late and old structure trees (>53 cm DBH) within the PFA to preserve stand integrity, maintain closed canopies, maintain connectivity to alternate nest stands, and optimize conditions for breeding goshawk pairs to persist.

Johnstone, R. M. 1998. ASPECTS OF THE POPULATION BIOLOGY OF TUNDRA PEREGRINE FALCONS (*FALCO PEREGRINUS TUNDRIUS*). Ph.D. Diss., Univ. Saskatchewan, Saskatoon. 130pp.

A population of Tundra Peregrine Falcons (*Falco peregrinus tundrius*) was studied over 4 breeding seasons at Rankin Inlet, NWT, Canada. Data from these 4 years were combined with data from the 10 previous consecutive seasons. As the study area and methodology were consistent during the entire study, I summarized and analyzed information from all 14 years to investigate paradigms in avian biology.

Levels and temporal trends of eggshell thinning, and organochlorine residues in egg contents, blood plasma of adults and juveniles, tissue samples, and prey species, were determined to: 1) assess the effect of contamination on the breeding performance of the peregrine population; 2) test predictions of a temporal decline in levels; and 3) test the hypothesis that contamination is due to the continuing use of organochlorines within the peregrines wintering range. Residue levels in peregrines and their prey, and eggshell thinning reflect a population that still is likely to experience some contaminant-related reproductive failures, however, the levels are not high enough to seriously affect production of the population. Contrary to predictions, no improvement in shell thickness was detected between decades and residue levels changed little. Results suggest that peregrines accumulate organochlorines on their wintering grounds, and also from contaminated aquatic species that range only within North America.

Parentage analysis of 55 broods (including 144 young) of Peregrine Falcons using single-locus minisatellite and microsatellite DNA profiling revealed a low frequency of extra-pair paternity (1.3% of young) but no intra-specific brood parasitism. The low frequency of extra-pair paternity justifies the use of traditional measures of reproductive success in this population but fails to support the hypothesis that floaters contribute substantially to their lifetime reproductive success before holding a territory. A low frequency of extra-pair paternity is consistent with studies of other raptors but fits poorly with the predictions of the Paternity Assurance Hypothesis; inconsistencies with this hypothesis are discussed.

The pattern of nesting territory occupancy and reproductive performance over 14 years was analyzed to determine the importance of density-dependent processes in regulation of the population, and test the predictions of two hypotheses explaining density-dependent fecundity. Breeding attempts at preferred territories (frequently occupied territories) produced young more often than attempts at avoided territories (infrequently occupied territories) supporting the hypotheses that occupation frequency is an indirect measure of habitat quality. Mean production of the population declined with increasing density because proportionally more breeding attempts occurred at infrequently occupied territories where the frequency of failure after laying or during brooding was high. Mean production at frequently occupied territories, however, did not change with density. Density-dependent fecundity was, therefore, consistent with predictions of the "habitat heterogeneity" hypothesis, but not the "interference" hypothesis.

14 adult peregrines were removed from their territories for 24 hours to test whether breeding densities

were limited and elucidate the relative importance of territory quality and territoriality in population limitation. Rapid replacements at 11 territories provided evidence of a surplus of non-breeding adults (i.e. 'floaters') and population limitation. All six vacancies for females (at 5 good quality territories and one poor quality territory) were filled within 24 hours. Males were replaced at four good quality territories but only one of four poor quality territories. The observed pattern of territory defense and replacements in this population does not support territoriality as a main mechanism of population limitation. Instead, breeding densities may ultimately be limited by food, with the combination of individual and habitat quality determining whether a breeding attempt occurs at any given vacant territory.

I analyzed capture and resighting records of colour-banded adult peregrines collected from 1982 to 1995 to provide accurate estimates of survival using Cormack-Jolly-Seber capture-recapture methodology and traditional turnover methodology. Results were indicative of little or no difference in survival between males and females. Differences between estimates from the two methods were minimal. Low sample size of marked birds contributed to a lack of fit to the capture-recapture model, however, and assumptions of the model were not met. While capture-recapture methodology is a powerful technique for estimating population parameters, its practical application among raptor species may be limited by the sample size required and the difficulty of meeting assumptions implicit to the model. Estimates represent minimum survival because of the confounding effects of emigration.

Kaltenecker, G. S. 1997. WINTER ECOLOGY OF BALD EAGLES IN THE UPPER BOISE RIVER DRAINAGE, IDAHO. M.S. Thesis, Boise State Univ. 73pp.

Chapter 1. We compared results from aerial and road surveys of Bald Eagles (*Haliaeetus leucocephalus*) conducted over 2 winters in a 4000-km² area of southwest Idaho. Road surveys were scheduled within 1 day of bi-monthly aerial surveys. Aerial surveys consistently underestimated numbers of Bald Eagles relative to road surveys. Detectability differed between age classes: adults were underestimated by 31%, and immatures were underestimated by 49% during aerial surveys. Immatures were undercounted more along reservoirs than along rivers; aerial counts were 60% of road counts along rivers and 37% of road counts along reservoirs. Though results from aerial surveys are biased, they can be precise. Thus, their utility for assessing long-term trends in population is valid, and as a monitoring tool, they are useful to managers, but may not yield true population numbers.

Chapter 2. We studied Bald Eagle foraging ecology on the South Fork Boise River, Idaho, during the winters of 1990-92. We compared habitat variables at 29 foraging sites, 93 perch sites, and 131 random sites. Habitat variables included river habitat type (pool, riffle, run), distance to the nearest river habitat change, distance to nearest available perch trees, number and species of surrounding perches, and average river depth and velocity. Eagles foraged more at pools than expected and closer (within 15 m) to river habitat changes than expected. Eagles perched less at riffles and more at sites where trees were available than expected. Eagles foraged at riffles that were slower than riffles where they perched or were available at random. Eagles foraged at runs that were shallower and faster than runs at perch or random sites. Low surface turbulence may increase vulnerability of fish to eagle predation.

Chapter 3. We studied Bald Eagle distribution within the upper Boise River Drainage, Idaho, during the winters of 1990-92. Eagle distribution was influenced by a combination of factors including abundance and availability of prey, water temperatures and ice cover, elevation, and the presence of dams. Counts of Bald Eagles were made during aerial surveys, and ice cover and water temperatures were recorded during road surveys. Within our study area, eagles were most numerous on the South Fork between Anderson Ranch and Arrowrock Reservoirs, and least common on the Middle Fork and South Fork between Featherville and Pine. Less ice cover, higher water temperatures, and more consistent flows on the South Fork between Anderson Ranch and Arrowrock Reservoirs contributed to greater fish densities and more consistent foraging opportunities for eagles. Big game carrion was an important but less consistent food source for eagles on reservoirs. Carrion became more abundant during periods of harsh weather, but these foraging opportunities were scattered and inconsistent.

Mazur, K. M. 1997. SPATIAL HABITAT SELECTION BY BARRED OWLS (*STRIX VARIA*) IN THE BOREAL FOREST OF SASKATCHEWAN, CANADA. M.S. Thesis, Univ. Regina, Regina, Saskatchewan. 85pp.

The Barred Owl (*Strix varia*) is a forest owl with relatively narrow habitat requirements. Its space use and habitat selection in the boreal forest, the northern portion of its range, are poorly understood. This study examined home range size and habitat selection of Barred Owls in the boreal forest of central Saskatchewan from 1993 to 1995. Fifteen adult Barred Owls (11-F, 4-M) were fitted with radio-transmitters. Locations of these owls were determined throughout the year to estimate home range size and habitat use. Breeding and non-breeding home range size, calculated with the 95% Minimum Convex Polygon estimator, averaged 148.6 hectares (SD = 111.6), and 1234.0 hectares (SD = 630.7) respectively. The large home range size during the non-breeding period was thought to occur as a result of a decrease in prey availability. Breeding and non-breeding home ranges overlapped entirely for all but two of the owls.

Habitat selection was investigated at two levels: home range selection and owl habitat use. Mann-Whitney U-tests and Log-ratio Compositional Analysis were used to examine habitat selection based on home range placement. Barred Owl breeding home ranges contained more old mixedwood forest than expected from random, and non-breeding home ranges contained more mature and old mixedwood, and mature and old deciduous forest than expected randomly. Both breeding and non-breeding home ranges contained low proportions of young forest and treed muskeg. Breeding home ranges were found to contain higher proportions of old mixedwood than non-breeding home ranges. Habitat composition of home range core areas, of both breeding and non-breeding home ranges, did not differ from habitat composition of total home ranges. Bonferroni Confidence Intervals and Log-ratio Compositional Analysis revealed that habitat use by Barred Owls for foraging and roosting differed from the proportions of habitat available within the study area. During the breeding period, Barred Owls selected mature and old mixedwood, and mature deciduous forests. Similarly, in the non-breeding period, mature and old mixedwood, and mature and old deciduous forests were selected. Barred Owls are highly territorial, restricting their movements to within and defending their entire home range. During the breeding period, owls used habitat in proportion to its availability within their home range, with the exception of young mixedwood forest which was selected against. Owls selected old mixedwood within their non-breeding home ranges and avoided young and coniferous forests, treed muskeg and open areas. Barred Owl habitat use in the breeding and non-breeding periods did not differ. The results show that Barred Owls in the boreal forest of Saskatchewan were not using habitat at random, but selected certain habitats. Mature and old mixedwood forests were most strongly selected followed by mature and old deciduous forest. The existence of old mixedwood forests is often at odds with the objectives of commercial forestry management. Proper management of forest harvesting is necessary to ensure representation of all forest types, ensuring the retention of forest biodiversity. The Barred Owl, with its relatively narrow habitat needs, is a potential candidate as a good forest management indicator of old mixedwood forest in the boreal forest. This study provides important baseline data in order for the Barred Owl to be used as a forest management tool in the boreal forest of Saskatchewan.

Monteiro, A. R. 1997. BIOLOGY OF RAPTORS IN THE FOREST--NAVARRA MEDIA--NORTHERN SPAIN. Ph.D. Diss., Univ. Navarra, Pamplona, Spain. 417pp.

This study was developed in the "Valle de la Valdorba" (90 sq. km) in the Navarra State (41° 54'34"N - 0° 43'23"W) near the west of the Pyrenees Mountains (Northern Spain) during the spring-summer from 1989 to 1992. The study area was in protected and non-protected forest areas neighbouring agriculture lands or hunting areas and involved five species of the Accipitridae: *Buteo buteo*, *Circaetus gallicus*, *Hieraëtus pennatus*, *Milvus migrans*, and *Milvus milvus*. *Circaetus gallicus*, *Hieraëtus pennatus*, and *Milvus migrans* are migratory in this area. Different vocalisations of each species were recorded (n=20) to prepare sonograms, and the playback technique was used to census. The nesting activity, perch tree, incubation period and breeding period of the young of each species, as well as parental care were documented. Reproductive success was observed in *Buteo buteo* (100%), *Circaetus gallicus* (100%), *Hieraëtus pennatus* (100%), *Milvus migrans* (95%), and *Milvus milvus* (100%). Biometrics data and weights were taken from

young in the nest to calculate the breeding ratio. Finger data fitted a logarithmic curve of breeding, and the other parameters (tail, wing, beak, spread, length) including weight data, fitted a sigmoid curve of breeding. Pellets and remains of diet in the nest and on the ground were collected to determine the correlates between species and prey by Factorial Correspondence Analysis. Two young of *C. gallicus* were equipped with a radio transmitter each, and telemetry locations were used to determine the nesting home range (9.63 sq. km average) before migration. Eggshells ($n=20$) were analysed, and very low levels of α -, β -, γ -, and δ -HCH, HCB and P-P'-DDE (ppb) were found. Analyses of unfertilised eggs ($n=6$) were also done, revealing low levels of β -HCH, HCB and P-P'-DDE (ppm). The heavy metals Cr (0.45 ± 0.33), Mn (2.20 ± 1.85), Cu (6.67 ± 1.18), Pb (1.53 ± 0.65), As (0.04 ± 0.04) and Se (0.15 ± 0.27) were found in feathers ($n=30$); these levels do not represent any hazard to these birds.

Swem, T. R. 1996. ASPECTS OF THE BREEDING BIOLOGY OF ROUGH-LEGGED HAWKS ALONG THE COLVILLE RIVER, ALASKA. M.S. Thesis, Boise State Univ., Boise, Idaho. 78pp.

I studied the breeding performance of Rough-legged Hawks (*Buteo lagopus*) nesting on cliffs along 350 km of the Colville River in northern Alaska in 1985 and 1987-1995. Territories were visited by boat or foot twice each year during the late incubation/early brood-rearing and late brood-rearing/fledging periods. The number of pairs occupying breeding territories varied from 40-103 ($\bar{x} = 81.8$, $CV = 26.1\%$) among years. In most years, pairs were spaced an average of about 1 km apart where nest sites were not limited, but a lack of suitable nesting cliffs in much of the study area limited the distribution and spacing of rough-legs. Among years, mean brood size varied from 1.7-3.5 young per nest, and the proportion of pairs that successfully raised young to the late brood-rearing stage varied from 34-84%. The cause of most nest failures was unknown, but 25% of failures were caused by nests or cliffs disintegrating and falling. Additionally, nests subjectively considered to be accessible to mammalian predators were more likely to fail (27.0% failed, $n = 237$) than those considered inaccessible (19.2% failed, $n = 317$, $\chi^2 = 4.68$, d.f. = 1, $P = 0.03$). Median egg-laying dates varied from 17-27 May among years, and median laying dates were negatively correlated with average daily minimum temperatures in the 20 d period prior to egg-laying ($r_s = -0.85$, $P = 0.002$). When undisturbed pairs were compared to those that were disturbed by entering their nests or interrupting their incubation/brooding for up to 90 minutes, there were no significant differences in nest failure rates (Fisher's exact test, one-tailed, $P = 0.69$), brood sizes ($\chi^2 = 1.67$, d.f. = 4, $P = 0.80$), or reoccupancy of territories in the subsequent year (Fisher's exact test, one-tailed, $P = 0.18$). Prey remains in nests included 1067 individuals of 32 species; by number, 62.3% were microtine rodents, 30.0% were birds, and the remainder (7.7%) were Arctic ground squirrels (*Spermophilus parryii*) and snowshoe hares (*Lepus americanus*).

Swindle, K. A. 1997. LANDSCAPE COMPOSITION AROUND NORTHERN SPOTTED OWL NESTS, CENTRAL CASCADE MOUNTAINS, OREGON. M.S. Thesis, Oregon State Univ., Corvallis. 97pp.

This study describes the composition of forest landscapes surrounding Northern Spotted Owl (*Strix occidentalis caurina*) nests in the central Cascade Mountains of Oregon. I compared forest composition around 126 owl nests in 70 pair territories with forest composition around 119 points drawn randomly from all terrestrial cover-types, and around 104 points drawn randomly from the old-forest (closed canopy, > 80 yrs) cover type. All nest sites and random points were drawn from U.S. Forest Service lands and were not drawn from privately owned lands or Wilderness Areas.

Forest cover was classified on a Landsat Thematic Mapper image. I quantified the percentage of old-forest within 200 concentric circular plots (0.04-5.0-km radii), centered on each analyzed point, using a geographic information system. I used logistic regression to make spatially-explicit inferences.

Owl nests were surrounded by more old-forest when compared to points drawn randomly from all terrestrial cover types: there was significantly ($P < 0.05$) more old-forest around the owl nests in plots as large as 1.79 km in radius. When compared to points drawn randomly from the old-forest cover type, owl nests were surrounded by significantly ($P < 0.05$) more old-forest in plots with 0.17-0.80-km radii.

Exploratory analyses suggest that the landscape scales most pertinent to Northern Spotted Owl nest site

positioning in this study area appear to be (in descending order): the surrounding 10-15 ha (\approx 200-m radius), the surrounding 25-30 ha (\approx 300-m radius), the surrounding 200 ha (800-m radius), and possibly the surrounding 700 ha (1,500-m radius).

This study supports the assertion that Northern Spotted Owls are strongly associated with older forests. The results also indicate that owl nests are most associated with higher proportions of old-forest near the nest implying that the arrangement of habitat is important for nest-site selection/positioning. Since Spotted Owls in the central Cascade Mountains of Oregon are known to have home ranges that average 1,769 ha, it is important to recognize that these results apply to nest-site selection/positioning on the landscape and not to the amount of habitat necessary for pair persistence or successful reproduction.

1998 ANNUAL MEETING

The Raptor Research Foundation, Inc. will hold its 1998 annual meeting in Ogden, Utah from 30 September through 4 October at the Ogden Egyptian Conference Center. Details about the meeting and a call for papers will be mailed to members in the spring of 1998. A site on the World Wide Web contains information about the meeting, accommodations, transportation, and the geographic setting (<http://www.weber.edu/rrf>). A half-day symposium on the Mexican Spotted Owl will be included in the meeting, and a two-day workshop on the conservation of Burrowing Owls will precede the RRF meeting. Contact Carl D. Marti for more information on the RRF meeting (801-626-6172, cmarti@weber.edu) and Geoff Holroyd on the Burrowing Owl symposium (403-951- 8689, geoffrey.holroyd@ec.gc.ca).



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