

statistically. Raw growth data also were compared graphically by inspection. No statistical difference was found in either measure of growth when data were grouped by nesting habitat, year, or size of brood from which young fledged. Visual inspection of graphs of the raw data similarly revealed considerable overlap of measurements with no subgroup departing substantially from any other group. Mortality rates did not differ by year, but were significantly lower in mixed habitats than in cropland and pastureland. Mean size of broods at fledging was significantly larger in 1982 than the preceding two years. Dates of hatching did not differ significantly among years, habitats, or between nests in which one or more young died and nests from which all young fledged. The evidence is used to suggest that Red-tailed Hawks respond to major differences in prey availability according to year (but not by nesting habitat) by adjusting the number of eggs laid. No other reproductive parameter examined, including the growth of the young, is significantly affected by varying levels of prey availability.

Cress, Gary A. 1983. Growth and Productivity of Red-tailed Hawks (*Buteo jamaicensis*) in South-central Kansas. MSc. Thesis, Wichita State University, Department of Biology, 537 Hubbard Hall, Wichita, KS 67208.

### MOVEMENTS OF BALD EAGLES ASSOCIATED WITH AUTUMN CONCENTRATIONS IN GLACIER NATIONAL PARK

Movements of Bald Eagles (*Haliaeetus leucocephalus*) associated with autumn concentrations in Glacier National Park were studied during 1979-81. The objectives of the study were to describe movements and habitats used by this group of eagles and to identify a conceptual framework for management of bald eagles and their habitats at the regional level.

Twenty eagles were captured and equipped with radio transmitters at Glacier National Park during autumns 1979 and 1980. Eagles moved south from Glacier through the Flathead and Swan valleys of northwestern Montana. Three eagles remained in these valleys during winter, but most continued south through eastern Idaho. Wintering areas were documented at American Falls Reservoir on the Snake River, Idaho; the Snake River headwaters region of Wyoming, Idaho, and Utah; the Weber River Valley, Utah; the Rush Valley, Utah; the Snake River near Ontario, Oregon; the Carson Valley, Nevada; and the Klamath Basin, Oregon-California. All wintering areas were within the intermountain region. Sightings of additional eagles equipped with colored patagial wing markers at Glacier during autumns 1977-80 fell predominantly (93%) within the intermountain region and were made most frequently in areas used by transmitter-equipped eagles.

In spring, adult eagles followed converging routes from wintering areas to northwestern Montana and continued north along the foothills of the Rocky Mountain through southern Alberta. Near Lesser Slave Lake, Alberta, 2 routes diverged. Some eagles moved north-northeast toward Lake Claire in Wood Buffalo National Park and the east arm of Great Slave Lake, Northwest Territories. Others moved north-northwest toward the west end of Great Slave Lake and Great Bear Lake, N.W.T. Summer ranges were documented at Lake Claire, the Taltson River, N.W.T., Great Slave Lake, and Great Bear Lake.

The most coherent unit for management of bald eagles and their habitats at the regional level appears to be a broad north-south zone, i.e., a flyway. A flyway system that transcends international boundaries seems to offer the greatest potential for long-term conservation of the species.

Young, Leonard Stephen. 1983. Movements of Bald Eagles associated with autumn concentrations in Glacier National Park. M.S. Thesis, University of Montana, Missoula. 102 pp. (Current address: School of Forestry, U. of Montana, Missoula, Mt. 59812)

### HAWK MOUNTAIN RESEARCH AWARD

The Hawk Mountain Sanctuary Association is accepting applications for its eighth annual award for raptor research. To apply for the \$500 award, students should submit a description of their research program, a curriculum vita, and 2 letters of recommendation by 30 September 1984, to James J. Brett, Curator, Hawk Mountain Sanctuary, Rt. 2, Kempton, Pennsylvania 19529. The Association's Board of Directors will make a final decision late in 1984. Only students enrolled in a degree-granting institution are eligible. Both undergraduate and graduate students are invited to apply. The award will be granted on the basis of a project's potential to improve understanding of raptor biology and its ultimate relevance to conservation of North American raptor populations.

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## BOOK REVIEWS

**Eric Hosking's Owls.** Eric Hosking with Jim Flegg. 1982. 169 pages, with numerous photographs, many in color. Pelham Books, London, 12.95.

Owls have fascinated Britain's leading photographer of birds for many years. In 1945 he did an earlier book "Birds of the Night" with C.W. Newberry on owls of the British Isles which contained many black and white photographs. This newest addition contains many photographs of owls from England as well as photographs of zoo kept owls in special settings. Also included are many photographs taken by Mr. Hosking during travels to Australia, Africa and elsewhere. The text is extensive and informative. The book contains the best broad coverage photographic illustrations of Old World members of the Order Strigiformes. Some of the species pictured, such as the West African fishing owls (*Scotopelia*), are little known and considered very rare. — Dean Amadon.

**Vanishing Eagles.** Test by Philip Burton, illustrations by Trevor Boyer. 1982. 140 pages, numerous color plates, maps, and other illustrations. Eagle Star Insurance Co. No price available.

This work provides a more formal vehicle for Mr. Boyer's artwork accomplished on consignment to the Eagle Star Insurance Co. Thirty-three of the world's known eagles are depicted in color illustrations. Some of the species represented are declining, some are more or less stable in numbers, and others, such as the Bald Eagle, perhaps recovering. Some of the paintings are very good and only an occasional illustration appears a bit garish or overly dramatic. Some of the black and white illustrations of habitat are quite charming. Dr. Burton is best known as editor and co-author of a standard reference on the owls of the world. In this work he has provided a full and authentic text. It is recommended to anyone desiring a visually striking introduction to the eagles. The book is available from the Royal Society for the Preservation of Birds who co-sponsored the publication. — Dean Amadon.

**Vogelwelt Schleswig - Holsteins Band II - Greifvögel.** V. Looft and G. Busche. 1981. Numerous photographs, many in color. Karl Wachholtz Verlag, Neumünster, West Germany. 35 DM. In German.

Translated "The Birds of Schleswig-Holsteins District, Volume II - Raptors", the book contains a great deal of interesting and new information. For example, one photograph depicts two Common Buzzards (*Buteo buteo*) engaged in combat in the snow over a dispute of ownership of nearby carrion. The combat eventually led to the death of one of the participants. Another photograph depicts 4 "brancher" Peregrines adjacent to a buzzard nest used by the adult Peregrines.

**Understanding the Goshawk,** 1981. R.E. Kenward and I.M. Lindsay (eds.) Proceedings of a conference sponsored by the International Association for Falconry and Conservation of Birds of Prey, 29 September - 1 October 1981, Oxford, United Kingdom. 195 pp. (Available from: Ian Lindsay, Department of Zoology, South Parks Road, OXFORD OX1 3PS, U.K., for 8.00 sterling, postpaid. Make all checks and international money orders payable to: "British Falconers' Club Conference Account.")

The 21 papers in these proceedings are divided into seven sections: systematics, population trends and human impacts, pollution, population dynamics, behavior, predation and management, and veterinary medicine and domestic breeding.

In the section on systematics, Jan Wattel concludes that *Accipiter gentilis* has evolved "from