

- Morris, P. 1979. Rats in the diet of the Barn Owl (*Tyto alba*). *J. Zool. Lond.* 189:540-545.
- Morton, M.L., J.L. Horstmann, and C. Carey. 1973. Body weights and lipids of summering mountain White-crowned Sparrows in California. *Auk* 90:83-93.
- Mugaas, J.N. and J.R. Templeton. 1970. Thermoregulation in the Red-breasted Nuthatch. *Condor* 72:125-132.
- Nelson, A.L. and A.C. Martin. 1953. Gamebird weights. *J. Wildl. Manage.* 17:36-42.
- Palmer, R.S. 1954. The mammal guide. Garden City, NY: Doubleday and Co. 384 pp.
- Poole, E.L. 1938. Weights and wing areas in North American birds. *Auk* 55:511-517.
- Porter, R.D. and C.M. White. 1973. The Peregrine Falcon in Utah, emphasizing ecology and competition with the Prairie Falcon. Brigham Young Univ. Sci. Bull. 18:1-74.
- Robertson, W.B., Jr. 1958. Investigations of Ring-necked Pheasants in Illinois. Ill. Dept. Conserv. Tech. Bull. 1. 137 pp.
- Schreiber, R.K. 1973. Bioenergetics of rodents in the northern Great Basin desert. Ph.D. Thesis. Univ. of Idaho. 133 pp.
- Seymour, R.S. 1973. Physiological correlates of forced activity and burrowing in the spadefoot toad *Scaphiopus hammondi*. *Copeia* 1973:103-115.
- Smith, D.G. and J.R. Murphy. 1973. Breeding ecology of raptors in the eastern Great Basin of Utah. Brigham Young Univ. Sci. Bull. Biol. Ser. 18:1-76.
- Southern H.N. 1954. Tawny Owls and their prey. *Ibis* 96:384-410.
- Stewart, P.A. 1937. A preliminary list of bird weights. *Auk* 54:324-332.
- Thomsen, L. 1971. Behavior and ecology of Burrowing Owls on the Oakland Municipal Airport. *Condor* 73:177-192.
- Trost, C.H. 1972. Adaptations of Horned Larks *Eremophila alpestris* to hot environments. *Auk* 89:506-527.
- Vermeer, K. 1970. Breeding biology of California and Ring-billed Gulls. Can. Wildl. Serv. Rep. 12. 52 pp.
- Welty, J.C. 1962. The life of birds. Philadelphia: W.B. Lander Co. 546 pp.
- White, C.M. and T.J. Cade. 1971. Cliff-nesting raptors and ravens along the Colville River in Arctic Alaska. *Living Bird* 10:107-150.
- Willson, M.F. 1966. Breeding ecology of the Yellow-headed Blackbird. *Ecol. Monogr.* 36:51-77.
- Withers, P.C. 1977. Energetic aspects of reproduction by the Cliff Swallow. *Auk* 94:718-725.

NEST SITE SELECTION BY PEREGRINE FALCONS

by

David A. Ponton

Los Alamos National Laboratory

P.O. Box 1663

Los Alamos, New Mexico 87545

The Peregrine Falcon (*Falco peregrinus*) is known to use different nest sites (nest ledges) at a particular cliff, either in successive years, or in response to the loss of a clutch of eggs (Herbert and Herbert, 1965; Porter and White, 1973; Ratcliffe, 1980). In Great Britain, at least 4 alternative nest sites are used at most eyries, and one had 8 (one involving a repeat clutch) in 9 seasons (Ratcliffe, 1980).

A peregrine eyrie in northern New Mexico is unusual in that 10 different nest sites were used in 10 consecutive seasons. The nest sites are eroded potholes in volcanic tuff along 1 km of cliff, where approximately 150 similar holes are available.

The large availability of suitable sites apparently facilitated non-repetitive selection. In the 11th and 12th years, the female apparently failed to lay eggs. A new female appeared in 1976 and laid eggs in 1977, 1978, and 1979, continuing the pattern of selecting new nest sites each year. However, two second (repeat) clutches were laid in previously used sites. Specifically, the 1978 second clutch was laid in the 1977 nest site, and the 1979 second clutch was laid in the site used for the first clutch in 1978. This pattern, i.e., the second choice of nest site having been the first choice the year before, I have termed the "fall-back-one" behavior.

The only historical event common to both second clutch sites is egg laying. I suggest that preference for location of the second clutch is for a site where egg laying and associated behavior have been ritualized in the nearest past. Previous nesting success at that site is incidental. If the "fall-back-one" behavior pattern is, in fact, common in peregrines, it should aid in predicting the location of second clutches.

I thank Wayne Hanson for locating nest sites in 1978, and John Hubbard and Wayne Pilz for reviewing earlier drafts.

Literature Cited

- Herbert, R.A. and K.G.S. Herbert. 1965. Behavior of Peregrine Falcons in the New York City Region. *Auk* 82:62-94.
Porter, R.D. and C.M. White, 1973. The Peregrine Falcon in Utah, Emphasizing Ecology and Competition with the Prairie Falcon. *BYU Science Bulletin*, Bio. Series, Volume XVIII, No. 1. 74 pp.
Ratcliffe, D. 1980. The Peregrine Falcon. Buteo Books, USA and T. & A.D. Poyser Ltd., Great Britain. 416 pp.

Carnus hemapterus NITZSCH FROM SWAINSON'S HAWK

by

Richard E. Fitzner

Ecological Sciences Department

Battelle, Pacific Northwest Laboratory

Box 999

Richland, WA 99352

and

Norman E. Woodley

Museum of Comparative Zoology

Harvard University

Cambridge, MA 02138

The wingless ectoparasitic fly (*Carnus hemapterus*, Nitzsch) was first reported on North American birds by Bequaert (1942) although in Europe, *C. hemapterus* seems to be fairly generally distributed. Bequaert (1942) identified the fly from 2 birds, a nestling flicker (*Colaptes cafer*) collected at Penn Yann, New York and a Screech Owl (*Asio otus*) taken in Florida. Capelle and Whitworth (1973) have since reviewed the distribution of *C. hemapterus* in North America, citing records for 9 host species, including 3 woodpeckers, starling (*Sturnus vulgaris*), Black-billed Magpie (*Pica pica*) and American Kestrel (*Falco sparverius*). Main and Wallis (1974) found *C. hemapterus* on nestling Osprey (*Pandion haliaetus*) in Massachusetts and Wilson (1977) found Pileated Woodpecker (*Dryocopus pileatus*) nesting material to contain the parasites. These records, seem to indicate that *Carnus* is widespread in the United States. Its distribution, however, will be unclear until there is a systematic study of bird ectoparasites in this country.

Bequaert (1942) reports the *C. hemapterus* has been observed on 12 families and 26 species of birds in Europe. Seven raptor species, White-tailed Eagle (*Haliaeetus albicilla*), Imperial Eagle (*Aquila heliaca*), Peregrine Falcon (*Falco peregrinus*), Kestrel (*F. tinnunculus*), Saker (*F. cherrug*), Barn Owl (*Tyto alba*), and Tengmalm's Owl (*Aegolius funereus*) have been noted as host.

In July of 1980, while examining nestling Swainson's Hawks (*Buteo swainsoni*), we found that 12 of the 15 nestlings we studied were parasitized by *C. hemapterus*. The flies occurred in groups of 3 to 5 and were found only in the axillary region of the hawks. No flies were attached and on being disturbed they moved from the bare axillary region to nearby feathered areas. The exact nature of the diet of *C. hemapterus* is unknown. Noller (1920) reports that the fly sucks blood from its host, while Hendel (1928) felt that *Carnus* feeds most probably on skin secretions. We observed dried blood spots on the hawks axillary region which is supportive of Noller's (1920) claim. The true diet of the fly is presently in question, but the fly could act as a vector of certain avian blood parasites.

Our findings are of interest, since few records have been reported for *C. hemapterus* in non-cavity nesting birds or from long-distance migrants like the Swainson's Hawk. Our report is also the first record of this dipteran parasite on the Swainson's Hawk.