

LETTERS

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GULLS (*LARUS* SPP.) IN THE DIET OF FERRUGINOUS HAWKS

Ferruginous hawks (*Buteo regalis*) eat various types of prey, but in most areas rely heavily on just a few species such as jackrabbits (*Lepus* spp.), ground squirrels (*Spermophilus* spp.), pocket gophers (*Thomomys* spp.), and prairie dogs (*Cynomys* spp.) [M. J. Bechard and J. K. Schmutz 1995, *The Birds of North America*, No. 172, A. Poole and F. Gill, eds.]. Twenty studies examining the dietary habits of ferruginous hawks have identified 6,203 prey items [R. R. Olendorff 1993, U. S. Dept. Inter., Bur. of Land Manage., Boise, ID.]. Mammals comprise 95.3% of the prey taken by biomass (83.3% by frequency) and passerines and other birds comprise only 4.1% of the overall diet by biomass (13.2% by frequency). Shorebirds are taken infrequently and account for only approximately 0.09% of the overall diet by biomass (0.08% by frequency). Gulls (*Larus* spp.) have never been reported in the diet of ferruginous hawks, despite the fact that they are a common species that occurs throughout much of the hawk's breeding range. Herein, we document the occurrence of both California (*Larus californicus*) and ring-billed (*Larus delawarensis*) gulls in the diet of ferruginous hawks in Washington state during the breeding season.

In 1994 and 1995, we collected pellets from occupied ferruginous hawk nest sites on and adjacent to the U. S. Department of Energy's Hanford Site in southcentral Washington (Benton County). While collecting pellets, we observed piles of gull remains at 3 nest sites. At one site, remains from at least eight gulls were found in 1994, and numerous piles were again found at the same nest in 1995. Piles were scattered on the ground up to 50 m from the nest. Pellets collected at this nest contained mandibles, feet, and feathers from gulls verifying that the ferruginous hawks, and not some other mammalian predator, were indeed eating both species of gulls. Remains were mainly those of juvenile birds.

At a second nest site, remains from at least 3 gulls were found scattered near the nest in 1994. Again, evidence in pellets verified that the gulls had been eaten by the ferruginous hawks. We did not return to collect pellets at this nest in 1995. At a third nest in 1995, a gull wing was seen hanging from the edge of the nest during the nesting period. After the young had fledged, we returned and found several piles of gull remains scattered near the base of the nest structure.

Gulls were common in the study area during spring and summer months and were frequently observed in large groups foraging on crickets. There were also several breeding colonies in the study area. Under conditions such as these, it appears that gulls can provide an alternative food source for ferruginous hawks that has not been previously reported.

These observations were made during a study on ferruginous hawks that was funded by the U. S. Department of Energy under contract number DE-AC06-76RLO-1830, and Associated Western Universities Northwest. We would like to thank the Washington Department of Fish and Wildlife for assistance with field work during our studies of ferruginous hawks in Washington and Marc J. Bechard for logistical support. —**Alan W. Leary, Aimee L. Jerman, Raptor Research Center, Dept. of Biology, Boise State Univ., Boise, ID 83725 U.S.A., and Rosemary Mazaika, Battelle Pacific Northwest Laboratory, P.O. Box 999, Richland, WA 99352 U.S.A.**

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STOMACH CONTENTS OF A SWAINSON'S HAWK FROM ARGENTINA

The Swainson's Hawk (*Buteo swainsoni*) is known to feed on a wide array of prey including mammals, birds, reptiles and insects (J.C. Bednarz 1988. *Condor* 90:311–323; J.K. Schmutz et al. 1980. *Can. J. Zool.* 58:1075–1089). In Argentina,

the species is known as the "aguilucho langostero" (grasshopper hawk) due to the fact that grasshoppers are considered to be an important prey item (B. Woodbridge et al. 1995. *J. Raptor Res.* 29:202–204). Observations on predation are scarce in Argentina, although an unusual incident has been reported (D.C. Rudolph 1993. *Wilson Bull* 105:365–366).

A specimen was shot 11 January 1991 by a rural worker in Monte Nievas, Conhelo department, La Pampa, Argentina, and brought to the Museo Provincial de Historia Natural of Santa Rosa, La Pampa, where it was prepared as a study skin and the stomach preserved. An analysis of the stomach contents revealed a total of 40 prey items, of which most were grasshoppers (26 *Dichroplus elongatus*, 2 *Xileus* spp.). The remainder were either undetermined grasshoppers (2 adults), lepidopterans (8 larvae) or chrysomelid beetles (1 adult, 1 larva).

It is obvious that in this case, acridid grasshoppers (called "tucuras" in Argentina) were an important and well represented item in the diet of this bird. The genus *Dichroplus* of acridid grasshoppers has been reported in Swainson's hawks pellets and have been mentioned as a hazard for hawks because of insecticides used against them (B. Woodbridge et al. 1995. *J. Raptor Res.* 29:202–204).

The bird was a female that had been banded near Edmonton, Alberta, Canada, in July 1982. This is further evidence that this portion of La Pampa province is used as the wintering grounds by Swainson's hawks from western Canada.

We wish to thank G. B. Siegenthaler for permission to study the specimen.—**Ramón Serracín Araujo, Departamento de Ciencias Naturales, Universidad Nacional de La Pampa, Uruguay 151, 6300 Santa Rosa, La Pampa, Argentina and Sergio I. Tiranti, Department of Biological Sciences, Texas Tech University, Lubbock, TX 79409-3131 U.S.A.**

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AN ASSESSMENT OF MORTALITY OF SWAINSON'S HAWKS ON WINTERING GROUNDS IN ARGENTINA

Swainson's hawks (*Buteo swainsoni*) migrate from breeding areas in grasslands and shrubsteppe areas of North America to spend the austral summer in similar habitat in Argentina (White et al. 1989, *Raptors in the Modern World*, Berlin, Germany). The overall population, estimated at 450,000 birds, appears to be stable although declines have been reported in California (P.H. Bloom 1979, USDI BLM Dept. Fish and Game W-54-R-12, Sacramento, CA U.S.A.), Oregon (C.D. Littlefield et al. 1984, *Raptor Res.* 8:1–5), Nevada (G.B. Herron and P.B. Lucas 1978, Nev. Dept. Fish and Game, Perform. Rept. W-43-R, Reno NV U.S.A.), and Alberta and Saskatchewan (C.S. Houston and J.K. Schmutz 1995, *J. Raptor Res.* 29:198–201).

To better describe the migration route of the Swainson's hawk, two satellite radio transmitters were attached to females in 1994. Following radio-transmitter locations to La Pampa Province in Argentina, a roost with over 700 dead Swainson's hawks was encountered in 1995 (Woodbridge et al. 1995, *J. Raptor Res.* 29:202–204). The hawks arrived at the roost after feeding in a sunflower field and died during the following three days. The landowner stated that the field had been sprayed with the organophosphate (OP) monocrotophos. Although monocrotophos is used widely abroad, it is not registered in the United States. One possible reason is that this pesticide has been related to large-scale bird mortalities in the past (H. Mendelsohn and U. Paz 1977, *Biol. Conserv.* 11:163–169).

In a follow-up study in 1996, we observed Swainson's hawks roosting in groves of exotic *Eucalyptus* sp. trees and feeding on grasshoppers (*Dichroplus* spp.) in sunflower and alfalfa fields in La Pampa Province. We surveyed approximately 2,500 km² and encountered large flocks of up to 12,000 hawks scattered throughout the area. In late January, we recorded four incidents of large-scale mortality with an estimated total of approximately 4,100 dead hawks. Chemical-use data from these incidents were obtained from landowners or applicators. Two incidents involved monocrotophos applications on alfalfa fields for grasshopper control. A total of 982 dead Swainson's hawks were found in fields and roosts adjacent to fields where the pesticide had been applied. In a third incident, 103 hawks were found dead after the OP dimethoate was sprayed on alfalfa for grasshopper control. In all three incidents, we found no age-class differences in mortality.

The largest incident of Swainson's hawk mortality occurred in a 120 ha alfalfa field sprayed with an unknown pesticide. An estimated 3,000 hawks were killed after this application. In this case, an estimated 75% of the dead hawks were adults. Overall results of this study indicate that continued large-scale mortalities from OP pesticide applications in Argentina wintering areas may threaten the future status of this species.