evolutionary considerations. Ph.D. thesis, Queen's University at Kingston, Kingston, Ontario, Canada.

SCHARF, W. C. AND F. HAMERSTROM. 1975. A morphological comparison of two harrier populations. Raptor Res. 9:27–32.

WATSON, D. 1977. The hen harrier. T. and A. D. Poyser, Berkhamsted, Hertfordshire, England.

WEIGAND, J. P. 1967. Cock pheasants rout Marsh Hawk. Auk 84:114.

DAVID S. HIK, *Dept. Biology, Queen's Univ., Kingston, Ontario K7L 3N6, Canada;* SUSAN J. HANNON, *Dept. Zoology, Univ. Alberta, Edmonton, Alberta T6G 2E9, Canada;* AND KATHY MARTIN, *Boreal Inst., Univ. Alberta, Edmonton, Alberta T6G 2E9, Canada.* *Received 7 Jan. 1986, accepted 14 Apr. 1986.*

Wilson Bull., 98(4), 1986, pp. 600–601

Predation on Black and Turkey vultures.—Reports of predation on communally roosting or perching Black Vultures (*Coragyps atratus*) and Turkey Vultures (*Cathartes aura*) are rare. Reported predation of vulture adults, eggs, and nestlings by mongoose (Scott 1892), fox (Howes 1926, Grube 1953), opossum (*Didelphis marsupialis*), and domestic dogs (*Canis familiaris*; Jackson 1983) took place at nests. We have also found canid scat and tracks in a freshly predated Turkey Vulture nest in Pennsylvania. Bald Eagles (*Haliaeetus leucocephalus*) sometimes pursue vultures, compel them to disgorge, and then consume the regurgitated material (Oberholser 1906). There is also a report of a Bald Eagle killing a vulture (Bent 1937). Although these reports indicate that vultures are susceptible to predation, we have been unable to find documentation of predation on vultures roosting or gathered in communal groups. Their large size, habit of roosting in tall trees, and congregation in large numbers seem to make Black and Turkey vultures unlikely candidates for predation. Here we report predation and what appeared to be attempted predation of communally perched and roosting vultures.

On 20 November 1984, at Gettysburg National Military Park, Pennsylvania, we observed what may have been attempted predation on Black Vultures by a Golden Eagle (*Aquila chrysaetos*). At 08:58 h, approximately 200 Turkey Vultures suddenly took off from a mixed flock of 300 Black and Turkey vultures perched in trees, on a fence, and in a pasture within 300 m of a permanent roost. The Black Vultures, which remained perched on the fence and ground, began shifting positions and looking up toward the sky. At 09:01 h an immature Golden Eagle stooped on the Black Vultures and chased one a short distance into the forest. The eagle then wheeled around and grabbed the back of a vulture still perched on the fence. Both birds fell to the ground. The vulture struggled free and flew off. The eagle perched on the ground as the remaining vultures took off and soared. After perching in a nearby tree for several minutes, the eagle landed on the ground and fed. The eagle departed at 09:33 h.

Upon investigation, we found that the eagle had been eating animal tissue containing several deer (*Odocoileus virginianus*) hairs. The material had the appearance and smell of meat recently regurgitated by vultures. Presumably the eagle attack caused one of the vultures to regurgitate its crop contents. Black Vultures regurgitate crop contents when disturbed, possibly as a defense mechanism (Jackson 1983). Whether the eagle was intent on catching a vulture or was pursuing the vultures to obtain regurgitated material is unclear. Our ob-

servations and the one by Oberholser (1906) suggest that regurgitation does not prevent attack by either Bald or Golden eagles, although it may distract pursuers.

On 5 April 1984, at Hopewell Furnace National Historic Site, we found 2 decapitated, but otherwise intact, vultures underneath a small group of trees in which vultures roosted regularly. During the winter approximately 100 Black and Turkey vultures roosted in these trees. The week before, however, only 15 to 20 vultures had been using the roost, probably because of dispersal to nesting areas (Coleman 1985). Although the roost area was frequented by visitors and park personnel, the dead birds had not been seen the previous day. This and the lack of tissue decomposition suggested that at least one of the birds had died that night. A necropsy showed heavy musculature, numerous subcutaneous fat deposits, and no signs of disease. Because there were no talon marks on the bird we concluded that mammalian predation, possibly raccoon (*Procyon lotor*), was the most likely cause of death. Park personnel reported finding 4 other decapitated and partially eaten Black Vultures in the previous 2 months.

Our observations suggest that predation on communally perched and roosting vultures may be more common than previously thought.

Acknowledgments.—We thank the Eastern Parks and Monument Association, the National Park Service, and Virginia Polytechnic Institute and State University for funding this research.

LITERATURE CITED

BENT, A. C. 1937. Life histories of North American birds of prey. Pt. I. U.S. Natl. Mus. Bull. 167.

COLEMAN, J. S. 1985. Home range, habitat use, behavior, and morphology of the Gettysburg vultures. M.Sc. thesis, V.P.I. and S.U., Blacksburg, Virginia.

GRUBE, G. E. 1953. Black Vulture breeding in Pennsylvania. Wilson Bull. 65:119.

HOWES, P. G. 1926. A turkey vulture nest in the state of New York. Bird Lore 28:175–180.

JACKSON, J. A. 1983. Nesting phenology, nest site selection, and reproductive success of the black and turkey vulture. Pp. 245–270 *in* Vulture biology and management (S. R. Wilbur and J. A. Jackson, eds.). Univ. California Press, Los Angeles, California.

OBERHOLSER, H. C. 1906. The North American eagles and their economic relations. U.S. Biol. Surv. Bull. 27.

SCOTT, W. E. D. 1892. Observations on the birds of Jamaica. Auk. 9:120–129.

JOHN S. COLEMAN AND JAMES D. FRASER, *Dept. Fisheries and Wildlife Sciences, School of Forest and Wildlife Resources, Virginia Polytechnic Institute and State Univ., Blacksburg, Virginia 24061.* (Present address of JSC: *Florida Game and Fresh Water Fish Commission, 3991 SE 27th Court, Okeechobee, Florida, 33474.*) *Received 20 Feb. 1986, accepted 5 May 1986.*