

THESIS ABSTRACTS

REVERSED SIZE DIMORPHISM, DETERMINANTS OF INTRASPECIFIC DOMINANCE, AND HABITAT USE BY AMERICAN KESTRELS (*Falco sparverius*) WINTERING IN SOUTH CAROLINA

This study examines the importance of sex, age, weight, and residency on the dominance status of wintering American Kestrels (*Falco sparverius*), examines habitat segregation by sex in kestrels wintering in South Carolina and Maryland, and experimentally tests the female dominance hypothesis proposed to explain reversed size dimorphism in raptors. Kestrels were randomly paired in an arena containing food (a mouse) either in aviaries at Clemson University or in the field. During 20 minute observation periods, all interactions between birds were recorded. Females tended to dominate males, and heavier birds tended to dominate lighter ones. The female dominance hypothesis was supported. Although sample sizes were too small for strong conclusions, there were indications that age and residency are also important determinants of dominance. Field observations revealed no habitat segregation, either in South Carolina, or in Maryland, but did suggest strong non-random habitat use. Both sexes were found significantly more in open habitats, such as plowed fields, pastures, and meadows, and significantly less often in wooded and residential areas. **Aborn, David A. 1989. M.Sc. Thesis, Dept. of Biological Sciences, Clemson University, Clemson, SC 29634-1903, U.S.A. Thesis Advisor: Dr. Sidney A. Gauthreaux, Jr.**

BIOSYSTEMATICS OF THE GRAY HAWK, *Buteo nitidus* (LATHAM)

Systematic relationships and taxonomy of the Gray Hawk (*Buteo nitidus*) at the generic, specific and subspecific levels remain unclear despite much research. This paper attempts to clarify these relationships. One-way ANOVAs and discriminant function analysis indicated that allopatric North and South American Gray Hawk populations differ significantly in both plumage and morphometric characters. Populations were probably isolated >10 000–12 000 B.P., when expanding tropical moist forests closed a dispersal route for arid adapted species (e.g., the Gray Hawk) on the Pacific slope of Costa Rica. Differentiation of these forms is sufficient that it might result in reproductive isolation if the populations come into contact. They should be recognized as allospecies (*Asturina nitida* in South America and *A. plagiata* in North America; generic name change discussed below). Within both allospecies, size varies as predicted by Bergmann's ecogeographic rule. In the southern allospecies variation is generally continuous, but the population west of the Mato Grosso Plateau (*A. n. pallida*) should be considered a distinct subspecies from that found elsewhere in South America (*A. n. nitida*). Size variation in the northern allospecies is discontinuous on the Pacific slope of Mexico in southern Sonora and at the Isthmus of Tehuantepec. Differentiation of northern populations might be the result of post-Pleistocene and ongoing isolation events. The 3 populations defined by clinal discontinuities warrant subspecific status (*A. p. maxima*, *A. p. plagiata*, and *A. p. micra*). Factor and cluster analysis show that the Gray Hawk superspecies does not possess the derived structure of the feet and legs characteristic of *Buteo*, but is morphometrically more similar to the subbuteonine genus *Leucopternis*. Three other species usually placed in *Buteo*, the Roadside (*B. magnirostris*), Ridgway's (*B. ridgwayi*) and Red-shouldered (*B. lineatus*) Hawks are also very similar morphometrically to *Leucopternis* and to the Gray Hawk superspecies. Roadside, Ridgway's and Red-shouldered Hawks share a derived plumage character with the Gray Hawk superspecies, which suggests that together they comprise a monophyletic subbuteonine clade. This clade warrants recognition at the generic level under the oldest available name, *Asturina*. **Millsap, Brian A. 1986. M.Sc. Thesis, Dept. of Biology, George Mason University, Fairfax, VA 22039 U.S.A. Thesis Director: David W. Johnston, Ph.D.**