

trolling for weather was not significant when weather was not controlled and one nonsignificant result became significant. Reversal of significance was less likely in large samples pooling data from more than one year. We conclude that abiotic conditions suspected to influence observers or subjects must be identified, measured, and controlled during impact studies to prevent incorrect assessment of disturbance.

#### PEREGRINE POPULATION DYNAMICS IN WEST-CENTRAL GREENLAND

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Peregrine falcons around Sondrestrom Fjord were studied to document their population dynamics during recovery efforts for this endangered species. Capture probabilities, survival estimates, and population estimates were obtained from color-banded adult females. Program JOLLY provided the basis for analyses and model D was selected to generate the estimates. From 1983 to 1991, our capture probability was 97.8% and the annual survival was 78.0%. The assumptions associated with these models are discussed in light of the fieldwork, birds' biology, and interpretation of results. Yearly population estimates were standardized based on sampling effort. A significant increase in the population occurred during the 9-year study.

#### MANAGEMENT OF THE THREATENED SOUTHEASTERN AMERICAN KESTREL IN FLORIDA: POPULATION RESPONSES TO A REGIONAL NEST-BOX PROGRAM

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The resident population of Southeastern American Kestrels (*Falco sparverius paulus*) declined by over 80% in northcentral Florida during recent decades. Similar declines occurred throughout the state and this subspecies currently is listed as threatened in Florida. A statewide decrease in the availability of suitable cavity trees, isolated or scattered pine snags in open habitats, was closely correlated with the decline in the number of breeding pairs. The objectives of this study were 1) to evaluate the effect that increasing the availability of nesting sites has on kestrel population densities in northcentral Florida, and 2) to develop a strategy for selecting specific nest-box loca-

tions. In order to monitor population densities, kestrels were censused each August, 1989 to 1992, along 20 16-km roadside transects in northcentral Florida. In 1989, prior to erecting nest-boxes, population densities ranged from 0 to 0.83 kestrels/km<sup>2</sup>. A total of 336 nest-boxes subsequently was erected within 10 km of 10 transects with low kestrel densities; the 10 transects with the highest initial densities served as controls. Census data from 1989 through 1992 revealed that mean densities along the control transects did not change significantly with time, while mean densities along experimental transects increased geometrically; three of the four highest densities observed in 1992 occurred along experimental transects. Recommendations for selecting nest-box locations were developed by quantifying the habitat surrounding active nest-boxes (those in which kestrels bred) and nearby inactive nest-boxes, and examining the association of kestrel occupancy rates and breeding success with vegetative structure and land use patterns.

#### THE EFFECT OF PREY AND WEATHER ON GOLDEN EAGLE REPRODUCTIVE RATES

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We studied golden eagle (*Aquila chrysaetos*) populations nesting in the Snake River Canyon from 1971 through 1991, and analyzed eagle reproduction in relation to black-tailed jackrabbit (*Lepus californicus*) populations and several weather variables. The best predictor of eagle productivity was jackrabbit abundance prior to the breeding season. Winter weather (as expressed by heating degree days during December and January) was associated with eagle productivity primarily when jackrabbit populations were low; cold winter temperatures were associated with reduced numbers of eagle pairs that laid eggs. Hatching dates were inversely related to jackrabbit density, but were not associated with winter weather variables, even in low jackrabbit years. Extreme heat during brood-rearing was associated negatively with eagle nesting success in years with low jackrabbit populations.

#### THE USE OF MAN-MADE STRUCTURES FOR RED-TAILED HAWK NEST SUBSTRATES IN SOUTHEAST WISCONSIN

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Raptors commonly nest on powerline towers in the western United States. This phenomenon usually occurs on open plains, prairie, or savannah, and is attributed to the absence of suitable nest sites. In the eastern U.S. and Canada, Osprey are the only raptor that commonly nest on powerline towers. In southeast Wisconsin, Red-tailed Hawks almost exclusively nest in deciduous trees. There is only one report of two successful Red-tailed Hawk nests on



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