as typical perch hunters seem to be using a network of distinct hunting spots, rather than diffuse searching. The response would, therefore, not be strictly area dependent, but dependent on the specific location of these "hot spots" in the territory—a model that may also apply to other perch-hunting owls and raptors. A link to another result is interesting: during the course of a snowshoe hare cycle, the size of long-term territories was determined by intruder pressure, and not by food. Great horned owls, as a long-lived species, may try to maintain as large territories as possible in every situation.

RELATIONSHIPS OF MICROCLIMATE AND MICROHABITAT TO AMERICAN KESTREL NEST-BOX USE AND NESTING SUCCESS

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American kestrels (*Falco sparverius*) use nest-boxes in a non-random fashion and experience differential nesting success among boxes. Non-random use and differential success are presumably caused by environmental factors external to the box itself. Our objective was to determine if microclimatic and microhabitat characteristics associated with nest-boxes influenced nest-box use and nesting success. This research is important in determining how environmental factors influence the use patterns and nesting success of avian species using artificial nest sites. We measured internal reflected light intensity (IRLI), internal mean temperature (IMTE), percent nest-box concealment (NBCO), and nest-box orientation (NBOR) associated with 130 nest-boxes in southeastern Pennsylvania during 1991. We then compared these microclimatic and microhabitat characteristics to nest-box use patterns and nesting success observed during a five-year period (1987–91). The means (±SE) for IRLI, IMTE, NBCO, and NBOR were 5.9 ma (0.17), 21.7°C (0.28), 37% (3.00), and 157° (10.40), respectively. We used analyses-of-variance (ANOVA) and chi-square tests-of-independence to test for differences in microclimatic and microhabitat characteristics among levels of nest-box use and nesting success. We found nest-box use to be significantly influenced ($P \leq 0.05$) by IRLI, NBCO, and NBOR, whereas nesting success was influenced by IRLI alone. IRLI increased with increasing frequency of nest-box use ($F = 4.11, P = 0.02$), while NBCO decreased with increasing frequency of box use ($F = 3.02$, $P = 0.05$). Thirty-eight percent of the frequently used nest-boxes (boxes used ≥3 of 5 years) were oriented southeast ($\chi^2 = 14.64$, df = 6, $P \leq 0.025$). Nesting success increased with increasing IRLI ($F = 3.15$, $P = 0.04$). IMTE was not significantly different among levels of nest-box use or nesting success. These results will be used to develop a habitat model for the placement of nest-boxes in optimal habitat for American kestrels.

EYE COLOR OF COOPER'S HAWKS BREEDING IN WISCONSIN

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Though several authors have noted the progressive changes in eye color with age in North American accipiters, no studies have published such detailed information on eye color for a breeding population of marked birds. We use eye color recorded during 377 captures of 253 different breeding adult Cooper's Hawks (*Accipiter cooperii*) in Wisconsin over 13 years to examine the relationships of eye color with age, gender, and male fitness. In both sexes, eye color showed a progressive change from lighter yellow in younger hawks to dark orange or red in older birds. Males had darker eyes than females of the corresponding age. We found no support for the hypothesis that male fitness is associated with male eye color. We also discuss how our data on eye color are useful for elucidating aspects of the population ecology (including nest-site tenacity) of breeding Cooper's Hawks.

HOW ARE DECISIONS ABOUT THE INFLUENCE OF HUMAN ACTIVITIES ON RAPTORS INFLUENCED BY ABIOTIC FACTORS?

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Observer motivation, visibility, and animal activity are influenced by abiotic factors such as extreme temperatures, wind, and precipitation. Therefore, counts of abundance and quantification of behavior are likely to be dependent upon prevailing abiotic factors. Failure to account for these factors in assessments of human impact can result in misleading conclusions about the severity of impact and produce dubious management recommendations. We illustrate this problem with examples from our ongoing study of the potential impacts of military training on raptor behavior in the Snake River Birds of Prey Area. We counted raptors utilizing training ranges during periods of firing and during periods without firing. Climatic conditions were measured with portable "Weather Wizard" stations and found to correlate significantly with raptor abundance. Climate varied within and between observation sessions and therefore influenced our counts of raptors to an unknown degree. We statistically controlled for weather-related bias in our analyses by using weather variables as covariates in our comparisons of raptor abundance on firing and non-firing days. These analyses allowed us to conclude that intensive military training reduced the number of raptors in the immediate training area in 3 of 4 tests. Failure to control for variation in climate reversed our conclusions in 2 of 4 tests; one significant result con-