

## THESES AND DISSERTATIONS

### DISTRIBUTION OF DDE RESIDUES IN PREY SPECIES OF CALIFORNIA PEREGRINE FALCONS

A total of 18 inviable peregrine falcon (*Falco peregrinus anatum*) eggs obtained in California during 1980 and 1981 contained a geometric mean concentration of 19.5 parts per million of DDE, wet weight, indicating that environmental levels of this pollutant are still sufficiently high to impede reproduction at many nesting sites. Principal prey species of the peregrine falcon were analyzed individually for DDE and PCB residues. Among resident prey species, DDE levels in the mid-coastal area, where natural productivity remains very low, were an order of magnitude higher than in the northern interior, where the majority of peregrine falcons are currently breeding. Highest DDE levels were recorded in killdeers (*Charadrius vociferus*), starling (*Sturnus vulgaris*), and American robins (*Turdus migratorius*). In addition, several other species known to migrate from Latin America to California also contained DDE levels considered to be harmful to peregrine falcons. Consumption of a single individual of contaminated prey could significantly increase the levels of DDE and other organochlorine biocides in peregrine falcon eggs.

Monk, James Geoffrey. 1981. Distribution of DDE residues in prey species of California peregrine falcons. M.S. Thesis, University of California, Berkeley. 29 pp.

### PRAIRIE FALCON FLEDGLING PRODUCTIVITY IN THE MOJAVE DESERT, CALIFORNIA

Mean Mojave Desert prairie falcon fledgling productivity, over a six year period during the 1970s, was below the continental mean for the species and outside the lower limit of the 95 percent confidence interval. Human disturbance was thought to be responsible for the low fledgling productivity. I studied human disturbance and physiographic variables at prairie falcon nesting sites from 1977 to 1979 to determine whether fledgling productivity was in any way related to these variables.

Significant differences in mean values between successful nests (fledging 3 to 5 young) and unsuccessful nests (fledging 0 to 2 young) were found for elevation of the nest, position of the nest with respect to the bottom of the nesting cliff, the amount of time required to walk to the nest from the nearest road, the number of roads near the nest, ease of which the cliff can be climbed by humans, shooting, and eggshell thickness. The aforementioned variables, except for eggshell thickness, are all variables that isolate prairie falcon nests from man. Nests that were easily accessible to man had significantly lower productivity than nests in more remote locations. Evidence of man-created chemical pollution also exists because mean prairie falcon eggshell thickness was 14.5 percent thinner than pre-DDT levels. Human disturbance appeared to play a significant role in affecting prairie falcon fledging success in the Mojave Desert.

Boyce, Douglas A. Jr. 1982, Prairie Falcon fledgling productivity in the Mojave Desert, California. M.S. Thesis, Humboldt State University, California. 97 pp.