

WOODRAT (*NEOTOMA*) DEPREDATION OF A YELLOW-EYED JUNCO (*JUNCO PHAEONOTUS*) NEST

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ABSTRACT—While monitoring songbird nests using video cameras in May 2005, we documented a woodrat (*Neotoma*) depredating an adult female and nestling yellow-eyed junco (*Junco phaeonotus*) in the Santa Catalina Mountains, Arizona. Based on elevation (2,750 m) and the forest type surrounding the depredated nest, we believe that the woodrat was probably *N. mexicana* (although we cannot exclude *N. albigula*). Woodrats are considered herbivorous and have never been observed depredating vertebrate prey. This observation demonstrates that woodrats have greater dietary plasticity than previously thought.

RESUMEN—Durante el monitoreo de nidos de aves con cámaras de video en mayo de 2005, documentamos a una rata (*Neotoma*) depredando a una hembra adulta y a un pollito de gorrión ojos amarillos (*Junco phaeonotus*) en las Montañas Santa Catalina, Arizona. Con base en la elevación (2,750 m) y el tipo de bosque alrededor del nido depredado, creemos que la rata era probablemente *N. mexicana* (aunque no podemos excluir *A. albigula*). Ratas *Neotoma* son consideradas herbívoras y nunca han sido observadas depredando a presas vertebradas. Esta observación demuestra que ratas *Neotoma* tienen una mayor plasticidad alimenticia de la que se había pensado previamente.

While monitoring nests of ground-nesting songbirds in May 2005, we documented a woodrat (*Neotoma*) depredating an adult and nestling yellow-eyed junco (*Junco phaeonotus*) in the Santa Catalina Mountains, Arizona. We recorded the nest depredation using a time-lapse video camera equipped with infrared illumination for night photography (Fieldcam TLV, Fuhrman Diversified, Inc., Seabrook, Texas). The yellow-eyed junco nest was located on the ground in mixed-conifer forest at 2,750 m elevation (32°26'28"N, 110°47'7"W), approximately 350 m from the summit of Mount Lemmon, the highest point in the Santa Catalina Mountains, Pima County, Arizona. Dominant overstory trees around the nest included white fir (*Abies concolor*), Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), and quaking aspen (*Populus tremuloides*). In general, habitat characteristics at the nest site were similar to those at other yellow-eyed junco nests in the area (i.e., the nest site was typical). At the time of the initial depredation, a female yellow-eyed junco was brooding 3 nestlings (each 9 days old).

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At 0200 h on 18 May 2005, video footage showed a *Neotoma* slowly approaching the nest (Fig. 1). The female junco was awake and aware of the presence of the *Neotoma*. Within approximately 4 seconds of reaching the edge of the nest, the *Neotoma* lunged at the female and killed her in an explosion of feathers. The *Neotoma* immediately left the nest with the carcass of the female junco. A *Neotoma* (presumably the same individual) returned to the nest twice following the initial depredation. At 0420 h on the same morning, the *Neotoma* visited the nest for approximately 13 seconds and carried away 1 of the 3 nestlings. At 2111 h on 19 May 2005, the *Neotoma* returned for approximately 50 seconds to investigate the nest, which was empty by this time because a gray fox (*Urocyon cinereoargenteus*) had already depredated the 2 remaining nestlings earlier in the day. Although video footage did not actually show the *Neotoma* eating the adult and nestling juncos, we presume that both were consumed by the



FIG. 1—Still image from video footage showing a woodrat (*Neotoma*) moments before it attacked and killed a brooding female yellow-eyed junco (*Junco phaeonotus*; head of bird circled in image; note darker area around eyes, lores, and bill) on a nest located near the summit of Mount Lemmon, Santa Catalina Mountains, Arizona. Date and time are indicated in the upper left corner of frame.

Neotoma at some location away from the nest (we found only feathers in the vicinity of the nest after the depredation).

Two species of *Neotoma* occur within montane forest of the Santa Catalina Mountains (Lange, 1960). The white-throated woodrat (*N. albigula*) is generally found at lower elevations (<1,585 m; Hoffmeister, 1956) and is associated with presence of prickly-pear cactus (*Opuntia*; Lange, 1960; Macedo and Mares, 1988). The Mexican woodrat (*N. mexicana*) is confined to higher elevations (Lange, 1960; Cornely and Baker, 1986), including areas dominated by firs and pines (Hoffmeister, 1956). Based on the elevation and forest type surrounding the depredated nest, the *Neotoma* we observed probably was *N. mexicana*. However, *N. albigula* has been seen at high elevations (2,499 m) in the nearby Santa Rita Mountains (Macedo and Mares, 1988), and we can-

not say with certainty that the *Neotoma* we observed was *N. mexicana*, because this would require a close examination of identifying characters not visible in the video footage (e.g., basal color of throat hairs; Burt and Grossenheider, 1976).

The diet of *N. mexicana* is reported to consist of plant material (green vegetation, nuts, seeds, acorns, berries) and fungi, and *N. mexicana* has never been observed to depredate bird nests or kill and eat vertebrate prey (Cornely and Baker, 1986). Most species of North American *Neotoma* are herbivorous, and only the eastern woodrat (*N. floridana*) has been reported to eat anything other than plant material or fungi: a small percentage of the diet of *N. floridana* consists of invertebrate prey, such as grasshoppers (Orthoptera) (Murphy, 1952). Based on our observation of this single nest depredation, we cannot say whether *Neotoma*

depredate nests of ground-nesting birds regularly in montane forests of southeastern Arizona or if this was simply an isolated incident. Nevertheless, this is the first time that any species of *Neotoma* has been documented depredating a bird nest or killing vertebrate prey, demonstrating that *Neotoma* has greater dietary plasticity than previously thought.

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DIETARY STUDY OF BIG FREE-TAILED BATS (*NYCTINOMOPS MACROTIS*) IN BIG BEND NATIONAL PARK, TEXAS

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ABSTRACT—*Nyctinomops macrotis*, the big free-tailed bat, is relatively uncommon in the southwestern United States, and diet information for this species is sparse. The objective of this study was to examine the diet of *N. macrotis* in Big Bend National Park, Texas, by using fecal analysis to determine what these bats ate in an area where they were sympatric with 3 other species of free-tailed bats. We collected and analyzed fecal samples from 40 individuals and obtained the following results: Lepidoptera (87.5% volume, 100% frequency), Hemiptera (4.1% volume, 22.5% frequency), Coleoptera (4.6% volume, 17.5% frequency), Orthoptera (1.1% volume, 12.5% frequency), unidentified insects (2.4% volume, 30.0% frequency). The diet of *N. macrotis* largely overlapped that of the Mexican free-tailed bat (*Tadarida brasiliensis*) and pocketed free-tailed bat (*Nyctinomops femorosaccus*) in Big Bend National Park. However, *N. macrotis* consumed significantly more lepidopterans and significantly less hemipterans and coleopterans when compared to these other 2 molossid species. In addition, proportions of insects taken differed among the 3 bat species in some months.

RESUMEN—*Nyctinomops macrotis*, el murciélago-cola suelta mayor, es relativamente raro en el suroeste de los Estados Unidos y su información dietética es escasa. El objetivo de este estudio fue