LITERATURE CITED

ASCHOFF, J. 1981. Thermal conductance in mammals and birds: its dependence on body size and circadian phase. Comp. Biochem. Physiol. 69A:611–619.

——— AND H. POHL. 1970. Rhythmic variations in energy metabolism. Fed. Proc. 29: 1541–1552.

CASTRO, G. 1987. High basal metabolic rate in Sanderlings (*Calidris alba*). Wilson Bull. 99:267–268.

HERREID, C. F. AND B. KESSEL. 1967. Thermal conductance in birds and mammals. Comp. Biochem. Physiol. 21:405–414.

JOHNSTON, D. W. AND R. W. MCFARLANE. 1967. Migration and bioenergetics of flight in the Pacific Golden Plover. Condor 69:156–168.

KENDEIGH, S. C., V. R. DOL'NIK, AND V. M. GAVRILOV. 1977. Avian energetics. Pp. 127–204 *in* Granivorous birds in ecosystems (J. Pinowski and S. C. Kendeigh, eds.). Cambridge Univ. Press, Cambridge, England.

KERSTEN, M. AND T. PIERSMA. 1987. High levels of energy expenditure in shorebirds; metabolic adaptations to an energetically expensive way of life. Ardea 75:175–187.

LASIEWSKI, R. C. AND W. R. DAWSON. 1967. A re-examination of the relation between standard metabolic rate and body weight in birds. Condor 69:13–23.

NEUMANN, R. L., J. W. HUDSON, AND R. J. HOCK. 1968. Body temperatures. Pp. 338–339 *in* Metabolism (P. L. Altman and D. S. Dittmer, eds.). Fed. Amer. Soc. Exptl. Biol., Bethesda, Maryland.

PETER M. MATHIU, *Dept. Physiology, Univ. Hawaii, Honolulu, Hawaii 96822*; OSCAR W. JOHNSON AND PATRICIA M. JOHNSON, *Dept. Biology, Moorhead State Univ., Moorhead, Minnesota 56560*; AND G. CAUSEY WHITTOW, *Dept. Physiology, Univ. Hawaii, Honolulu, Hawaii 96822.* *Received 31 Oct. 1988, accepted 28 Feb. 1989.*

Wilson Bull., 101(4), 1989, pp. 654–655

Intraspecific nest usurpation by a Yellow-eyed Junco.—Although the nesting activities of a number of avian species have been well studied, there are few published accounts of either inter- or intraspecific nest usurpation (Whitmore, Emu 81:111–112, 1981). We report here an observation of intraspecific nest usurpation by a pair of Yellow-eyed Juncos (*Junco phaeonotus*). Yellow-eyed Juncos are small (19 g) passerines that are monogamous, maintain all-purpose territories and build concealed cup nests on the ground (Sullivan, Ecology 69: 118–124, 1988). We made these observations at Rustler Park (elev. 2560 m, 31°55′N, 109°17′W) in the Chiricahua Mountains (Coronado National Forest) of southeastern Arizona during the 1984 breeding season (see Balda, Ph.D. diss., Univ. Illinois, Urbana, Illinois, 1967, for a detailed description of the study site and breeding biology of the Yellow-eyed Junco).

On 29 June, J. Cole found the nest of an unbanded pair of Yellow-eyed Juncos at the base of a clump of orange sneezeweed (*Helenium hoopsii*). This nest contained four warm eggs. He checked the nest on 3 July and flushed the incubating female off the four eggs. The next day (4 July) a banded female (female B) from an adjacent territory was observed entering the nest while the unbanded female (female U) was incubating. Female U flew off and began foraging when female B entered the nest. Female B remained in the nest for a few minutes but did not lay an egg. Female B and her banded mate had successfully fledged three young

from a nearby nest on 11 June. This pair ceased feeding their fledglings and evicted them from the family territory on 3 July. On 5 July, J. Cole flushed female U off the nest and counted five eggs in the nest. On 7 July, the nest was checked again and found to contain seven eggs. We did not mark the original four eggs in the nest, but we were able to identify them as they were considerably longer and narrower than the other three eggs.

E. Villalobos watched the nest from 06:30 to 09:30 on 8 July. Female B spent 165 min (78.6%) of the observation period on the nest, while the unbanded female spent only 13 min on the nest (6.2% of the period). On three occasions, both females attempted to incubate the eggs, and female U spent 4 min perched on female B's back. During this observation period, female B's mate chased female U from the nest site twice and her mate three times.

Female B was incubating the double clutch and the unbanded female was foraging near the nest when the nest was checked on 9 July. By 10 July the unbanded pair had disappeared from their territory and did not return during the remainder of the breeding season. Female B continued to incubate the clutch, and on 15 July one of the original eggs in the clutch pipped (incubation usually takes 13 days in Yellow-eyed Juncos). That afternoon and evening, rain washed away the contents of the nest. The next morning we found two eggs near the nest site. One egg had pipped, and the other egg had never developed. The banded pair renested nearby, and a clutch of three eggs was completed by 25 July. Three young fledged from the nest on 18 August. The male of the usurping pair disappeared from the population during the following winter. Female B was still present in the 1988 breeding population and has been one of the most successful females (in terms of the number of offspring entering the breeding population) in the study population.

This case of nest usurpation appears to be aberrant behavior for Yellow-eyed Juncos. This is the only case of nest usurpation we have observed in monitoring 292 nesting attempts over a five year period. Under most situations, the usurping female's eggs would hatch several days later than the first female's and the young would be ill-prepared to leave the nest when the first female's clutch fledged (10–13 days after hatching, Sullivan 1988). Among Yellow-eyed Juncos, nest usurpation may be related to intraspecific brood parasitism. On two occasions females laid three eggs in their own nest and we observed them lay a fourth egg in a neighbor's nest. We suspect, based on egg shape and the timing of egg laying (clutch size increasing by two eggs in one day), intraspecific brood parasitism has occurred at additional nests.

Acknowledgments.—We thank S. Land for finding nest S5, the Southwestern Research Station of the American Museum of Natural History for providing housing and laboratory space, the Douglas ranger district office of the Coronado National Forest for their cooperation and the American Philosophical Society, Frank M. Chapman Memorial Fund, National Institute of Health (HD-06552) and the National Science Foundation (BSR-88-02577) for providing financial support.

KIMBERLY A. SULLIVAN, *Dept. Biology, Univ. Rochester, Rochester, New York 14627*; JEFFREY COLE, *91 Eagle Valley Road, Sloatesburg, New York 10974*; AND ETHEL M. VILLALOBOS, *Dept. Biology, UCLA, Los Angeles, California 90024.* (Present address KAS: *Dept. Biology, Utah State Univ. Logan, Utah 84322-5305.*) *Received 31 Oct. 1988, accepted 5 Mar. 1989.*