

Four-egg nests are apparently even less common than 3-egg nests, although a few have been recorded (Nice 1922, Moore and Pearson 1941). All accounts, including mine, indicate that this is a different phenomenon than that involved in previously discussed observations. On 29 March 1975, I flushed a bird from a nest containing 2 opaque eggs that was 2.25 m high in a red pine. By 15 April an adult evidently had been killed at the nest, but the nest and 2 eggs remained intact. On 26 April a bird was flushed from the same nest which then contained 4 eggs; the 2 newest were about 6 days incubated. All eggs were subsequently taken by a predator. This is undoubtedly the sequence in similar situations where 2 of the 4 eggs were added or a dove was incubating 2 of its own eggs in addition to those of another species in that species' nest (Nice 1922). Although neither has been reported from wild doves, other possible reasons for 4-egg nests include polygyny or female homosexuality. In none of the reported incidences was irregular incubation behavior evident as would probably be the case in either of these instances (Nice 1922).

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**Female Sharp-tailed Grouse copulates with Greater Prairie Chicken in Minnesota.**—Sharp-tailed Grouse (*Pedioecetes phasianellus*) × Greater Prairie Chicken (*Tyrannuchus cupido pinnatus*) hybrids have been recorded in practically all areas where the 2 species are sympatric (Ammann, The Prairie Grouse of Michigan, Mich. Dept. Conserv., Lansing, Michigan, 1957). We could find no published account of a copulation between the species, although there are at least 5 records in Wisconsin from 1947 through 1960 (Hamerstrom, pers. comm.) of a female sharptail copulating with a prairie chicken. Such a mating was also observed on a lek in Minnesota in 1977 and is reported here.

Observations from blinds were made at leks associated with the 575-ha Pembina Trail Preserve, 24 km southeast of Crookston. The primary lek ("Pembina") under observation had 18, 15 and 19 regular male prairie chickens in 1975, 1976 and 1977, respectively. A sharptail lek, 4.8 km from the Pembina lek, had 10, 11 and 7 males in 1975, 1976 and 1977, respectively. In 1977, a new sharptail lek with 3 males was established 400 m from the Pembina lek.

In the spring of 1975 we observed on the Pembina lek: 1 visit by a displaying hybrid male, several irregular visits by a displaying sharptail male, and a hybrid female copulating with a prairie chicken. In the spring of 1976 a sharptail male defended an exterior territory. In the spring of 1977 a hybrid male defended an exterior territory.

On 20 April 1977, TJK was in a blind on the Pembina lek. From 05:00–06:00 18 male and 4–6 female prairie chickens were present. Three copulations were observed. At 06:25 a prairie chicken and sharptail female walked onto the lek from the direction of the new sharptail lek. Both females came within 15 m of the blind, which allowed good comparative observations. The sharptail was noticeably lighter, had no pinnae, but did have distinct V-barring on the breast and the tail was pointed with white margins. At 06:50 the sharptail female walked directly to a centrally located prairie chicken male, crouched in a receptive posture and the male immediately mounted and copulated. There was little preliminary

display close to the female prior to mounting. After the male dismounted, the female shook her feathers and by 07:00 had left the lek.

On the same morning WDS watched from a vehicle the new sharptail dancing ground and at 05:20 recorded 3 sharptail males actively displaying and 1 inactive bird, whose behavior was typical of a female. The birds were flushed at approximately 05:35 and at least 1 flew in the direction of the nearby Pembina lek. It is possible that the sharptail female which copulated at 06:50 on the Pembina lek was flushed from this sharptail lek.

We suggest that the establishment of the sharptail lek in 1977 near the Pembina lek increased the likelihood of a receptive sharptail female encountering a receptive prairie chicken male. No sharptail females were observed on the Pembina lek during the 1975 or 1976 field seasons. Lumsden (pers. comm.), who has had extensive experience observing mixed leks of prairie chickens and sharptails, makes the following comment regarding this documentation. "It is likely that the sharptail female observed was pure, however, some hybrids can only be certainly identified in the hand. The history of observations of hybrids from previous years suggests that there could be some  $F_2$  or  $F_3$  which might be difficult to identify."

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**Cavity nesting of the Akepa on the island of Hawaii.**—Four races of the Akepa (*Loxops coccineus*) occur on different Hawaiian islands: *L. c. coccineus* on Hawaii, *L. c. ochracea* on Maui, *L. c. rufus* on Oahu and *L. c. caeruleirostris* on Kauai. The Oahu race has been considered extinct (Berger, Hawaiian Birdlife, Univ. Press of Hawaii, Honolulu, Hawaii, 1972), but a bird recently sighted on that island (Ralph and Pyle, *Am. Birds* 31:376–377, 1977) may reconfirm its existence. The Kauai race is still fairly common. Although the U.S. Fish and Wildlife Service (Federal Register, Pt. IV, 1976:47180–47198) lists the Maui and Hawaii races as endangered, we found the latter race relatively common between 1400 and 1900 m elev. in the Kau forest.

We found the first nest and eggs of the Akepa on the island of Hawaii on 12 May 1976, when a female flew from a cavity in an ohia tree (*Metrosideros collina*) 90 m east of the Kahuku Ranch cabin at 1884 m elev., near the upper edge of the Kau Forest Reserve. The tree was about 14 m tall and 79 cm in diameter at breast height; the opening of the nest cavity was 12.7 cm high, 5.1 cm at its widest and 83.8 cm above the ground. The nest contained 3 dull white eggs with brown spots circling the larger end. The 1 egg measured was 12.5 × 16.3 mm. The forest within 200 m of the nest-site was both closed canopy ohia, with a fern (*Dryopteris* sp.) understory, and open canopy ohia with a pukiawe (*Styphelia tameiameia*) understory. During preparation for a U.S. Fish and Wildlife Service bird survey of the Kau forest, we found the Akepa to be most numerous in this ecotone.

About 4 h after we discovered the nest, the adult female returned to incubate the eggs. An adult male Akepa was foraging about 35 m from the nest tree, and 30–40 adults were seen or heard near Kahuku Ranch cabin.

Nine days later, when we checked the nest, the female Akepa was incubating. We observed agonistic behavior between 2 male Akepa in an adjacent tree. An immature Akepa