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UNUSUAL OBSERVATION OF THREE RED-BACKED HAWKS (*BUTEO POLYOSOMA*) DEFENDING A NEST

Nest defense by more than two birds against potential human and natural predators has been reported for several diurnal raptors species that breed colonially (Newton 1979, Population ecology of raptors, T. & A.D. Poyser, London, U.K). It is less frequent in species defending breeding territories against conspecifics (Brown and Amadon 1968, Eagles, hawks and falcons of the world, Vol. 1, Country Life Books, London, U.K.; James and Oliphant 1986, *Condor* 88:533–534), but within the genus *Buteo* there are a number of reported cases of trios defending a nest (e.g., Wiley 1975, *Condor* 77:480–482; Santana et al. 1986, *Condor* 88:109–110; Cash 1989, *Condor* 91:727–728). Although the basic behavior, ecology, and natural history of the Red-backed Hawk (*Buteo polyosoma*) have been documented (Jiménez and Jaksic 1991, *Wilson Bull.* 103: 132–137; Jiménez 1995, *Hornero* 14:1–9), up till now no evidence of more than two birds defending a nest has been presented. Here, we report two cases of three Red-backed Hawks defending a nest against humans.

Observations were made in and around Fray Jorge National Park (henceforth, Fray Jorge; 30°40'S, 71°30'W) in north-central Chile. On 25 September 2000, we found a nest of Red-backed Hawks located 5 km east of the Fray Jorge Park. The nest was placed 15 m from the ground in an old poplar tree (*Populus* sp.) in a ravine. To determine if the nest was occupied, we watched it for 1 hr using binoculars and spotting scopes from the nearest hill (approximately 100 m). After 30 min, we observed an adult male Red-backed Hawk flying over the poplar and a female sitting in the nest. Then, the female left the nest and perched on an adjacent branch, affording us a view of the two white eggs inside the nest. When three cattle herders passed near the nest tree, the female gave an alarm call and the adult male and a juvenile (by plumage) Red-backed Hawk appeared, apparently responding to her vocalization. While the adult male and juvenile circled low above the poplar, the female perched near the nest. Subsequently, the adult male perched near the adult female and the juvenile kept soaring around the nest tree. Neither adult displayed aggression toward the juvenile.

On 27 September 2000, we found a new nest of Red-backed Hawks in a forest patch in Fray Jorge. The nest was 10 m above the ground in an old olivillo (*Aextoxicon punctatum*) within a ravine. Inside the nest were a chick about 1-wk old and an unhatched egg. At the beginning of the observation (1340 H), the adult female was perched on a neighboring tree. When we approached the perch tree, she responded by alarm-calling, then an adult male and another adult (probably female by size) flew toward the nest. The adult male and the second “female” soared low above the nest tree along with the first female. This response lasted almost 10 min. Later (1400 H), the three Red-backed Hawks joined together and flew around the vicinity of the nest tree. Afterward (1430 H), the male and probably the first female perched on a tree near the nest tree and the second “female” soared low over the nest.

Observations of more than two birds of prey defending a nest have generally been related to helping behavior or polygamy (Newton 1979; Bednarz 1988, *Condor* 90:311–323; Cash 1989; Dawson and Mannan 1989, *Auk* 106:408–483). Although we did not observe the third bird of each trio transporting prey or incubating, they clearly harassed human intruders and defended nesting territories, which suggests helping behavior. Alarm calls and circling flights are also utilized by other hawks that breed cooperatively (Mader 1975, *Condor* 77:482–485; Wiley 1975). In the two trios observed, the third birds differed in age (one a juvenile, the other an adult). Groups of one species may contain pairs with immature helpers, may have either immature or adult helpers, or may have only adult helpers (Dawson and Mannan 1989; Kimball et al. 2003, *Auk* 120:717–729). It is also possible that the both Red-backed Hawk trios actually consisted of a resident pair and a third bird from a neighboring territory (Cash 1986). A high level of stimulus (e.g., two adults calling loudly and stooping at an intruder) may draw other nonrelative birds and sometimes even stimulate them to participate in nest defense. However, at other times these neighbors may be driven away.

We suggest that previous studies on the Red-backed Hawk may not have been adequate to detect cooperative breeding and that such behavior may have been present. Only more detailed observations of the breeding behavior and of marked birds could elucidate the frequency and probable advantages of trio formation in the Red-backed Hawk.

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