

The Red-shouldered Hawk (*Buteo lineatus*) in Arizona

Clarification of the species' status illustrates the kind of information that only specimen material may provide

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BASED ON EARLIER evidence, Phillips *et al.* (1964) credit the occurrence of the Red-shouldered Hawk in Arizona to one 1853 specimen, bone relics and three sightings. The specimen, which supposedly had been lost even prior to the early distributional list of Arizona birds by Swarth (1914), was rediscovered in 1975 by Allan R. Phillips while he was examining specimens of Red-tailed Hawk (*Buteo jamaicensis*) in the U.S. National Museum collection. The supposed 1853 specimen of *B. lineatus* from northeastern Arizona was in fact a misidentified juvenile Red-tailed Hawk! Thus, the only remaining evidence of the Red-shouldered Hawk in Arizona was of relic bones, two sight records from northern Arizona in September 1926 and December 1937, and one sighting from the Colorado River, on the California bank, about 20 miles above Yuma in February, 1962. Phillips *et al.* (1964) stated that the "rare but probably regular" occurrence of *B. lineatus* in northeastern Arizona may possibly represent a relic population. They based this idea on the lost "Red-shouldered" specimen, the two northern sight records, and on excavations on the Hopi Indian Reservation at Awatovi, which uncovered a small number of bones, identified as from Red-shouldered Hawks, that had accumulated there during the 15th, 16th and 17th centuries.

Recently, three definite records of *B. lineatus* have been obtained in southern Arizona. The first was in 1970 (not 1968 as originally published) along the Colorado River in the southwestern corner of the state. Robert Wright, Special

Agent for the U.S. Fish and Wildlife Service, inspected a raptor nest in a grove of cottonwood (*Populus fremontii*) trees one-quarter mile north of Mitty Lake, Yuma County. He identified the defending adult hawks as Red-shouldered, then climbed to the nest, which was in the top quarter of a cottonwood tree, and found two nestlings two-to-three weeks old. The exact date of this visit was not recorded. Most unfortunately, about early summer, both adult hawks were shot by someone unknown, brought to Mr. Wright, then discarded. The nest site was again visited, but no nestlings were found. Shortly afterward, two boys surrendered to Mr. Wright two undernourished young Red-shouldered Hawks, which had come from the nest near Mitty Lake. The fully-feathered hawklets were then given to Mr. Charles Binder of Phoenix. Mr. Binder prepared a study skin of one of the juvenile hawks and the following year, in 1971, he prepared a study skin of the other bird, which by then had molted into adult plumage resembling that of *B. l. elegans*. In 1977 both specimens were given to the U.S. National Museum collection (USNM-575049 and USNM-575050). Roxie C. Laybourne (*pers. comm.*) confirmed the subspecies identification of *B. l. elegans*. The cottonwood grove where the Red-shouldered Hawks had nested was destroyed about 1973 when a waterfowl habitat improvement program was conducted in the area.

The second recent record of this raptor in Arizona was on March 9, 1975 when Ross E. Chapin of Tucson saw

and heard an adult Red-shouldered at "The Lake" on the Bellota Ranch northeast of Tucson (11 miles southwest of Redington, Pima County). Dr. Chapin again reported this hawk from the same area on December 20, 1975, and on January 15, 1976 William A. Davis of Tucson and I trapped this hawk at "The Lake." After photographing (Figure 1), measuring and banding this bird, we plucked a total of 18 feathers from seven diagnostic areas (upper wing coverts, crown-nape, side of head-throat, breast-upper abdomen, lower abdomen, tibia and crissum), then released the hawk. The color slides were deposited in the National Photoduplicate File (No. 339-ITA-P), and feathers were deposited in the University of Arizona bird collection (Accession No. 13054).

TO DETERMINE the subspecies of this captured hawk, Roxie C. Laybourne (*pers. comm.*) compared the feathers and slides with specimens at the U.S. National Museum Collection. She concluded that the feathers from the head, throat, upper breast and tibia areas are more similar to *B. l. lineatus* than to *B. l. elegans*. However, she determined that the photographs and a Red-shouldered remex collected by D. Chapin at "The Lake" in August, 1976 were of *B. l. elegans*. In 1979-80 Allan R. Phillips (*pers. comm.*) compared the collected feathers (excluding remex) with specimens at the San Diego Museum of Natural Science, U.S. National Museum and California Academy of Science, and concluded that the feathers collected from the crissum and

especially the tibiae are very characteristic of *B. l. lineatus*, and unlike *elegans*¹. Guy McCaskie and Joseph Jehl compared the plucked feathers with specimens in the collection at the San Diego Natural History Museum. They concluded that the feathers closely matched those of *B. l. lineatus*, *B. l. elegans*, *B. l. texanus* and *B. l. extimus*, but that the photographs revealed the heavy white and black checkering pattern on the back and top of the wings that seems characteristic of *B. l. elegans*. McCaskie informed me (*in litt.*) that, "It appears *B. l. elegans* is more strikingly marked with black and white on the upper parts, and also has more rufous present on the nape, upper back and on the upper wing coverts than do other races of the Red-shouldered Hawk."

The third record was of an adult bird first seen and heard on October 20, 1977 by Kenneth V. Rosenberg (*pers. comm.*) on the lower Bill Williams River, central-western Arizona, downstream from Planet Ranch. This bird was photographed by Rosenberg and subsequently seen in the same area by many observers (K. Kaufman, R. Glinski *et al.*) through late January 1978. The subspecies of this bird could not be determined by the photograph or observations.

In reporting the status of *B. l. elegans* in the western U.S., Wilbur (1973) stated, "It not only occurs throughout its former range generally, but may also be occupying areas not inhabited historically." He mentioned that Red-shouldered Hawks were recently discovered nesting in "residential areas. . . some distance from water, and are suspected of nesting at previously unoccupied inland areas in southern California and Nevada." In Clark County, Nevada, Red-shouldered Hawks are now regularly seen during the fall and winter (Charles Lawson, *pers. comm.*).

This present easterly range extension noted by Wilbur (*ibid.*) and others coincides temporally with the recent occurrences of this raptor in Arizona. Although evidence of Red-shouldered Hawks from Awatovi, if presently confirmable, suggests the possibility of a relic population in northeastern Arizona, there is no substantial relation-



ship between such a population, the sightings in 1926, 1937 and 1962, and the more recent records presented here. Rather, the recent reports of *B. l. elegans* in Arizona may be evidence of an eastward vagrancy trend in this race that may have existed to a lesser extent earlier. Such a trend may have resulted in a limited population of *B. l. elegans* in parts of Arizona. Presently, this state

may not afford the type of habitat required for this raptor to establish even a limited resident population since drought and land-use practices have resulted in xeric habitats that only one century ago were marshy (see Hastings and Turner, 1965, for a review of habitat changes in Arizona; also Rea, on Gila River Indian Reservation, Univ. Ariz Press, *in press*). Furthermore, the cur-

¹Unfortunately this correction failed to appear in Monson and Phillips (1981).

rent destruction rate of riparian habitat in Arizona, especially along the Colorado River, may preclude any stable breeding population of Red-shouldered Hawks in this state. Intensive raptor surveys conducted in the Gila River watershed by me from 1976 through 1979, and in the Bill Williams watershed by Brian Millsap (*pers. comm.*) from 1978 through 1981 have failed to produce Red-shouldered sightings.

The Red-shouldered Hawk that occurred at "The Lake" apparently resided there for more than one year. William Roe (*pers. comm.*) sighted it over "The Lake" on March 14, 1976, and Chapin collected the above-mentioned remex there in August 1976. The bright yellow color of the feet and cere, and the excellent plumage of this hawk indicated that it was thriving.

"The Lake" is actually a small pond formed by the construction of a dam in an intermittent wash at 1219 m elevation. The water level of this pond fluctuates in total depth and area from a nearly dry mud hole to its maximum volume of approximately five meters in depth and 1500m² in area. A variety of vegetation, including juniper (*Juniperus* sp.), oak (*Quercus* sp.), manzanita (*Arctostaphylos* sp.), mesquite (*Prosopis juliflora*), ocotillo (*Fouquieria splendens*) and even a few saguaro cacti (*Cereus giganteus*) grow sparsely in the rocky basin. Willow (*Salix* sp.) and cottonwood trees edge one side of the pond. Numerous birds and cottontails (*Sylvilagus* sp.) inhabit the area.

Some raptors that are used in the sport of falconry and escape from falconers may survive outside their normal ranges. Small (1974) reported that many exotic birds observed in California are merely escapees from zoos. Although the Red-shouldered Hawk is not presently popular among falconers in California, the possibility of its dispersion or displacement owing to losses or release by falconers is not impossible. However, the Red-shouldered Hawk trapped by us was in perfect plumage and showed no abrasions from having worn jesses in the wild or other signs of captivity. It was very secretive and difficult to approach.

Finally, in attempting to determine the origin of the Red-shouldered Hawks that have occurred in Arizona, and thus to provide insight on various ecological aspects of this species' life history, I recognize the value of collected specimens. If no specimens were in existence, comparison with the feathers collected would not have been possible. Basing subspecific identification solely on the photo (Figure 1), might have left unquestioned the possibility that the trapped bird could be an eastern migrant (*B. l. lineatus*), and not necessarily a western vagrant (*B. l. elegans*). Similarly, Phillips would never have been able to discover and correct the identification error made more than a century ago. Surely there is need to collect very few birds for specimens, and the case of the Red-shouldered Hawk in Arizona demonstrates the

value of incontrovertible evidence in hand, such as specimen skins, bones, and feathers, in addition to photographs.

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Red-shouldered Hawk (eastern race). Everglades National Park. Photo/ Brian G. Prescott.