

# A SPECIMEN OF THE NOMINATE SUBSPECIES OF THE RED-SHOULDERED HAWK FROM CALIFORNIA

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The Red-shouldered Hawk (*Buteo lineatus*) is a polytypic species with a disjunct North American breeding range. Four or five subspecies in two distinct groups are recognized (AOU 1957, Stresemann and Amadon 1979, Wheeler 2003a). Three or four of these (in one group) breed in the eastern half of North America, whereas one well-marked subspecies, *B. l. elegans*, resides along the Pacific coast, primarily in California, but also in southern Oregon, western Nevada, western Arizona, and Baja California (Wilbur 1973, Glinski 1982, 1998, Howell and Webb 1995, Marshall et al. 2003, Wheeler 2003b). The nominate subspecies, *B. l. lineatus*, is migratory, breeding primarily in the northeastern United States and migrating as far south as Florida and central Mexico (Stresemann and Amadon 1979, Howell and Webb 1995, Wheeler 2003b). Three other resident subspecies from the southeastern United States and northern Mexico have been recognized, *texanus*, *alleni*, and *extimus*; however, Wheeler (2003a) synonymized *texanus* with *alleni*.

On 21 September 1996 Moore found a dead *Buteo* hawk along Interstate 5, 5.8 km north of Twin Cities Road, Sacramento County, California. It was very fresh, having presumably been struck and killed by a motor vehicle within the previous 24 hours. The specimen (T. B. Moore 677) was donated in September 1999 to the Museum of Wildlife and Fisheries Biology (WFB), Davis, California. In February 2001 English prepared it (A. English, Jr., 2258) as a freeze-dried whole specimen with the left wing extended (WFB 4819). The bird was in a state of partial decomposition (because of a previous freezer malfunction), so the specimen could not be weighed accurately and the gonads could not be examined to ascertain sex. It was in fresh definitive plumage, and it showed no signs of prior captivity or evidence that it had been unnaturally transported by motor vehicle. In March 2001 Pyle and English tentatively identified the specimen as *B. l. lineatus*, the first record of this subspecies in California (cf. Patten et al. 2003). This identification was confirmed by Pyle during direct comparison with other Red-shouldered Hawk specimens at the National Museum of Natural History (USNM), Washington, D.C., in August 2001.

The specimen from California was larger than most other Red-shouldered Hawks at USNM. In size it is typical of female *lineatus*, particularly in wing and tarsal lengths (Table 1, Figure 1), but too large to be any of the other subspecies or a male *lineatus*. The plumage of the California bird was also typical of *lineatus* but not of *elegans* (Figure 1) or the other subspecies. Important characters shown by the California bird and diagnostic of *lineatus* in definitive plumage include a dark-centered crown, upperpart feathers with thin rufous edging, dusky greater coverts and secondaries with indistinct grayish bars, dusky rectrices with seven narrow and indistinct whitish bars, a dark throat, and distinct and relatively wide blackish streaks on the breast (Figure 1). By contrast, in definitive plumage, *elegans* shows a paler crown, upperpart feathers with broader rufous edging, blacker greater coverts and secondaries with more distinct white bars, fewer (3–5) and broader bars on the rectrices, a paler throat, and an unstreaked breast with a brighter rufous-orange wash (Figure 1). In addition to being

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Figure 1. Red-shouldered Hawk specimens WFB 3251 (left), WFB 4819 (center), and WFB 4856 (right) showing dorsal (top) and ventral (bottom) aspects. All three specimens are adult females in typical plumage. WFB 3251 (*elegans*) was collected near Stinson Beach, California, in 1984 or 1985; WFB 4819 (*lineatus*) was collected in Sacramento County, California, on 26 September 1996; WFB 4856 (*lineatus*) was collected in Lincoln County, North Carolina, on 14 December 2000. See text for subspecific diagnosis.

*Photos by Andrew Engilis, Jr.*

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**Table 1** Measurements (mm) of Subspecies of the Red-shouldered Hawk<sup>a</sup>

	<i>n</i>	Wing chord	Tail length	Culmen from cere	Tarsus
California specimen <sup>b</sup>		350	212	23.9	83.2
<i>B. l. elegans</i>					
Female	55	290–322	185–215	20.2–23.7	72–79
Male	46	276–309	180–210	19.6–22.5	71–78
<i>B. l. lineatus</i>					
Female	48	326–360	209–236	22.6–25.1	77–85
Male	34	309–341	197–223	20.8–23.1	74–81
<i>B. l. texanus</i>					
Female	12	322–345	191–220	20.6–24.7	75–82
Male	9	304–329	179–211	18.9–23.1	73–79
<i>B. l. alleni</i>					
Female	24	294–338	182–209	21.2–24.1	76–82
Male	43	278–321	173–200	19.4–22.3	73–80
<i>B. l. extimus</i>					
Female	13	287–315	173–204	19.9–23.6	73–81
Male	10	272–301	163–194	18.2–21.9	70–78

<sup>a</sup>Ranges are based on 95% confidence intervals as estimated by means plus or minus 2 standard deviations from values given in the literature (Friedmann 1950, Oberholser 1974, Palmer 1988, Crocoll 1994) and from 105 specimens measured by Pyle and Engilis at the Museum of Wildlife and Fisheries Biology, University of California, Davis, the U. S. National Museum, Washington, D.C., the California Academy of Sciences, San Francisco, and the Museum of Vertebrate Zoology, University of California, Berkeley.

<sup>b</sup>WFB 4819; measurements recorded by Engilis.

smaller (Table 1), the two or three southeastern subspecies differ from *lineatus* and the California bird in having generally paler and grayer crowns and/or upperparts, fewer white bars on the rectrices (4–6 in “*texanus*” and 4–5 in *alleni* and *extimus*), and paler reddish underparts with thin or no black streaking on the breast. Thus the combination of size and plumage confirm the California specimen as an adult female *B. l. lineatus* (cf. Friedmann 1950, Johnson and Peters 1963, Oberholser 1974, Wheeler 2003a).

North of Mexico, Red-shouldered Hawks are rarely recorded far from the species’ breeding range. In western North America, the AOU (1998) referred to extralimital records from Washington, southern Idaho (sight report), Montana, southern Saskatchewan (sight reports), Utah, and southern Arizona, but few of these have apparently been confirmed to subspecies. Specimens of two fledglings taken in southwestern Arizona during the summer of 1970, another bird photographed near Tucson on 15 January 1976, and a sight record from Valencia, New Mexico, 17 February 2002 were identified as *B. l. elegans* (Glinski 1982, Williams 2002; but see Glinski 1998 concerning the fledglings). A specimen reportedly taken at Elgan, Utah, on 28 September 1939 by biologists studying locust ingestion in birds (Knowlton and Harriston 1943) was identified uncritically as *B. l. lineatus* and accepted as such by Friedmann (1950). However, the specimen was not saved (Hayward et al. 1976), Behle (1944) apparently did not accept this subspecific diagnosis, and Behle et al. (1985) and Crocoll (1994) attributed Utah records to *elegans*. In Colorado, a Red-shouldered Hawk collected in El Paso County, on an unknown date, was identified as *lineatus* by Allan R. Phillips (Bailey and Niedrach 1965). Ten records from Colorado summarized by Andrews and Righter (1992) were primarily during migration in the eastern half of

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the state, suggesting that they represent *lineatus* more likely than *elegans*. A photo of an over-wintering bird from Colorado published by Webb (1978) appears to be of *lineatus*. We could locate no other published records of *lineatus* closer to California than Colorado. Farther east, *lineatus* breeds and winters rarely and is an uncommon migrant through the eastern Great Plains (AOU 1957, Thompson and Ely 1989, Sharpe et al. 2001, Tallman et al. 2002).

Recent sight observations indicate an expansion of Red-shouldered Hawks into Washington and throughout the Great Basin, primarily during spring and fall (e.g., Truan and Percival 2000, Floyd 2002, Mlodinow et al. 2002, Trochlell 2002), but none of these observations has been attributed to subspecies. We encourage observers in these areas to identify and publish the occurrence of these well-marked subspecies groups. On the basis of this information and the California specimen, we surmise that *B. l. elegans* is expanding its range north and east, perhaps as far as Utah and New Mexico, and that *B. l. lineatus* migrates uncommonly through the Great Plains and can rarely stray as far west as California. Late September, the date of the California specimen, is early for migration of *lineatus* (Wheeler 2003a), suggesting the possibility that this individual arrived previously (as a fall, winter, or spring vagrant) and remained in the region for the summer.

## ACKNOWLEDGMENTS

We thank James Dean of the U. S. National Museum, Douglas J. Long of the California Academy of Sciences, and Carla Cicero of the Museum of Vertebrate Zoology for access to collections under their supervision and for further information. We also thank Jon Dunn, Ted Floyd, and Steve N. G. Howell for critical reviews that improved the manuscript. This is publication 215 of the Institute for Bird Populations.

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*Accepted 19 April 2004*