

SCREECH-OWL DISTRIBUTION IN WYOMING

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The discovery that the Eastern (*Otus asio*) and Western (*O. kennicottii*) Screech-Owls are incipient (Marshall 1967) if not full species (AOU 1983) motivated field ornithologists along the presumed Rocky Mountain contact zone to learn how to distinguish the two and to determine their distributions. Progress toward this determination has been slow in Wyoming because there are few field ornithologists available to do the necessary studies. With this in mind, I sought to find evidence for these species from previous work and surveyed appropriate habitat to contribute original information.

Authors writing about Wyoming's bird life have mentioned Screech-Owls sparingly. Cary (1901) reported seeing a single Eastern Screech-Owl (*Otus asio maxwelliae*) in the Black Hills, part of which extends into northeastern Wyoming. Knight (1902:82) lamented, in the first popular treatment of birds of the state, that after 18 years of extensive travel throughout Wyoming he had "never heard any kind of screech owl," but he also mentioned two specimens of the Eastern Screech-Owl, one collected in Douglas in 1897 and the other in Cheyenne (no date). Neilson (1923) reported finding and collecting the eggs of an Eastern Screech-Owl in Wheatland. Skinner (1925), Bailey (1930), and Kemsies (1930) reported observations of Eastern Screech-Owls in Yellowstone National Park without describing what they had seen or heard. By the time McCreary (1937) summarized the species' distribution in Wyoming no additional information had been accumulated. Broderick (1952) was the first author to dispute the conventional wisdom that Yellowstone National Park is occupied by Eastern Screech-Owls. On the basis of range and the alleged presence of two color phases he asserted that the Western Screech-Owl (*O. k. macfarlanei*) is the resident species. Broderick gave no details of his observations, however, and did not refer to specimens. In their monumental work, Craighead and Craighead (1956) reported finding three Screech-Owl nests in 1947 and two in 1948 north of Jackson. Unfortunately, Frank Craighead (pers. comm.) could not identify those Screech-Owls to species. On the basis of known specimens, Marshall (1967) included Wyoming in the range of only the Eastern Screech-Owl. Pettingill and Whitney (1969) referred to the Screech-Owl as an uncommon resident in the Black Hills. Their evidence was several sight records and a male specimen (Nathaniel R. Whitney 207) of an Eastern Screech-Owl found dead near Canyon Lake, Rapid City, South Dakota. Whitney (pers. comm.) retrieved another dead Eastern Screech-Owl in February 1991 in Rapid City. The specimen was identified by Joe T. Marshall Jr. and is now in the Smithsonian collection.

In the Wyoming Avian Atlas, Oakleaf et al. (1982) reported the Screech-Owl as a common resident throughout the state below 2150 m elevation with its numbers greatly reduced in the winter. Out of 28 latilong blocks the atlas shows seven with confirmed breeding, two with probable breeding, and ten with observations only. Unfortunately, because no details are on file

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with the Wyoming Game and Fish Department, these records can not be ascribed to either the Eastern or the Western Screech-Owl.

Several recent publications distinguishing two species of Screech-Owl refer to Wyoming. McEaney (1988) listed the Western Screech-Owl as a rare confirmed breeder and resident in Yellowstone National Park. He (pers. comm.) reports that at least two separate observers made Screech-Owl identifications based on voice. Johnsgard's (1988) maps of the species' distributions in Wyoming are extrapolations (P. Johnsgard pers. comm). Kaufman (1990) showed three data points for Wyoming in a map of these two species. From his familiarity with the observers, Kaufman (pers. comm.) believes the two records of the Eastern Screech-Owl to be valid. The basis for the record of the Western Screech-Owl near Sheridan is unknown to Kaufman (pers. comm.). Dorn and Dorn (1990) repeated the latilong style of the "Wyoming Avian Atlas" without adding any original Screech-Owl reports. They segregated records for the two species, without citing supporting documentation. Most recently, the Wyoming Game and Fish Department (1991) published a "Draft Distribution and Status of Wyoming Birds and Mammals." Again, the historical records were allocated to the two species without supporting details.

The data in existing literature are thus insufficient to define the distribution of the two species in Wyoming, and further research was needed. Therefore, I searched for specimens and identifiable photographs of Screech-Owls from Wyoming, and surveyed appropriate habitat to determine the current distributions of the species.

METHODS

Search for Physical Evidence of Occurrence

I inquired of 32 institutions for information on skins, skeletons, tissues, or egg sets of Screech-Owls from Wyoming. I searched the bird collection at the Zoological Museum, University of Wyoming, Laramie, for Screech-Owl specimens. I asked knowledgeable observers for the location of specimens or identifiable photographs.

Screech-Owl identification in the hand requires practice with a large sample of museum skins. The subspecies of Eastern Screech-Owl reported for Wyoming, *O. a. maxwelliae*, is characterized by its large size, yellow to grayish-green bill, and extremely pale coloration (Marshall 1967). Rare red and intermediate morphs exist but are not likely to be seen in Wyoming (Joe T. Marshall Jr. pers. comm.). No subspecies of the Western Screech-Owl has been verified in Wyoming. There are two possibilities suggested from occurrence in neighboring states. In Idaho and Montana, *O. k. macfarlanei* is characterized by its large size, greenish-gray bill, brown dorsal plumage, and distinct dorsal pattern (Marshall 1967). A rare intermediate red morph is found in this subspecies (Marshall 1967). In Utah, *O. k. inyoensis* is characterized by its medium size, black bill, and pale gray dorsal plumage (Marshall 1967). All specimens and photographs for Wyoming listed in Table 1 have been identified to subspecies by Joe T. Marshall, Jr., National Museum of Natural History.

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Surveys

The purpose of the surveys was to determine the presence of either or both Screech-Owl species and not to census the population. I surveyed for Screech-Owls at locations of previous collections or reliable observations, and in other areas of suitable habitat. Assuming that Screech-Owls in Wyoming occupy habitats similar to those they occupy elsewhere (Marshall 1967, AOU 1983, Holt and Hillis 1987), I concentrated night-time survey effort in cottonwood- (*Populus* spp.) dominated riparian woodland and Quaking Aspen (*Populus tremuloides*) groves. Because these two habitats are often linear and near or briefly interrupted by other tree-dominated habitats, I was able to survey these habitats as well. In addition, while surveying at higher elevations for other species of owls, I often called for Screech-Owls. Cottonwood or aspen dominated at 63% of the survey locations; however, surveys were usually conducted in areas with more than one habitat type.

My surveys were conducted at 50 locations, 16 west and 34 east of the continental divide. These locations were visited a total of 56 times, 18 west and 38 east of the continental divide. Surveys were conducted from June to September 1988 and from March to May 1989, between 2000 and 2400 hr MST. I imitated each species once every 30 to 60 seconds for the first 5 minutes and once every 5 minutes for up to 40 minutes thereafter in appropriate habitat. In localities with sufficient habitat, survey points were located approximately 0.25 miles apart for up to six points total, but usually only two or three call points were surveyed. I identified the birds by their calls (Marshall 1967, Cavanagh 1986).

Screech-Owl identification on the basis of voice can be difficult, requiring patience and practice. Depending on the subspecies, season (Marshall 1967), sex, age, level of agitation, or interruptions due to usually unseen intra- or interspecific interactions (pers. obs.), a variety of calls is possible. Both species in Wyoming give a primary and a secondary call. The Western's primary call is a series of short notes on one pitch that start off slowly and rapidly speed up. Marshall (1967) describes this call's pattern as being like a "bouncing ball." The Western's secondary call is a short trill followed by a longer trill, all on one pitch. The Eastern's primary call is a quivering wail that starts slightly rising then gradually drops in pitch. This is often referred to as the "whinny call." The Eastern's secondary call is a long, low trill on one pitch. Although birds of both species emitted a variety of calls during the surveys, only primary or secondary calls were used to identify the owls.

RESULTS

Eastern Screech-Owl

The search for physical evidence resulted in 12 specimens (skins) from three institutions and two identifiable photographs (Figure 1 and Table 1). All specimens and photographs were from locations east of the continental divide. No information on habitat or elevation accompanies these records.

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Table 1 Specimens and Identifiable Photographs of Eastern Screech-Owls in Wyoming^b

County	Date	Collector or Photographer	Museum catalog number ^a
Converse	29 Jul 1895	?	UK 8737
Park	5 Jun 1910	A. Wetmore	USNM 208182
Park	27 Jun 1910	M. Cary	USNM 208183
Park	28 Jun 1910	A. Wetmore	USNM 208184
Park	28 Jun 1910	A. Wetmore	USNM 208178
Bighorn	16 Jun 1910	A. Wetmore	USNM 208176
Bighorn	16 Jun 1910	A. Wetmore	USNM 208177
Bighorn	16 Jun 1910	A. Wetmore	USNM 208185
Converse	10 Feb 1960	?	UW 1267
Sheridan	29 Dec 1983	H. Downing	UW C-07655 ^b
Sheridan	9 Jan 1984	H. Downing	UW C-04045 ^b
Sheridan	31 Dec 1984	H. Downing	WGFD ^c
Sheridan	Mar 1989	H. Downing	USNM 596887
Sheridan	Spring 1990	H. Downing	— ^c

^aUK, University of Kansas, Lawrence; USNM, United States National Museum, Washington, D.C.; Uw, University of Wyoming, Laramie; WGFD, Wyoming Game and Fish Department, Cheyenne.

^bIn museum freezer.

^cPhotograph.

Unfortunately, neither of the specimens referred to by Knight (1902) nor Neilson's (1923) egg set were among them.

I found Eastern Screech-Owls at four locations (Figure 1 and Table 2), all east of the continental divide and all in riparian woodland dominated by Plains Cottonwood (*Populus sargentii*) between 1500 and 1980 m elevation. I did not find the species in the Wind River Basin or along the upper reaches of the Laramie or North Platte rivers despite the existence of Plains Cottonwood riparian habitat there. Farther upstream of both the Laramie and North Platte rivers the dominant species of cottonwood changes rather abruptly from Plains Cottonwood to Narrow-leaved Cottonwood (*Populus angustifolia*). I surveyed for Screech-Owls along the transitional portions of these rivers and in nine attempts could locate neither species of Screech-Owl. Documentation of the first three sightings was submitted to and accepted by the Wyoming Bird Records Committee.

Western Screech-Owl

No specimens or identifiable photographs of this species in Wyoming were found. My surveys revealed the species at two localities, both in the Wind River Mountains (Figure 1 and Table 2). The dominant tree in this area was Quaking Aspen; Douglas Fir (*Pseudotsuga menziesii*) was second in abundance. The elevation was 2400 m. Documentation of the first sighting was submitted to and accepted by the Wyoming Bird Records Committee.

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DISCUSSION

It is probably adequate to continue regarding open habitats with tree cavities on the east side of the continental divide as the primary haunts of the Eastern Screech-Owl in Wyoming. The species appears to prefer cottonwood riparian habitat (Table 2). I believe that the Eastern Screech-Owl can be found along most major watercourses on the east side of the continental divide provided they have cottonwood groves. A possible exception to this is the Wind River Basin. Future research on this species should be focused on habitat use, occurrence in Yellowstone National Park, seasonal movements, and the extent of the distribution upstream along watercourses.

Obviously, very little is known of the abundance, habitat use, and distribution of the Western Screech-Owl in the state. Because this species occurs in aspens, there is no reason to assume the high mountains are an insurmountable physical barrier. Because the Western is found along the Wind

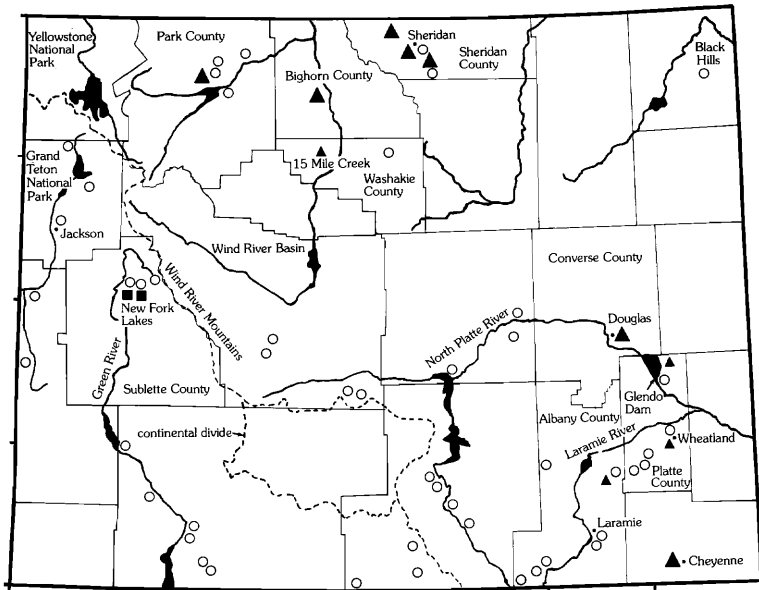


Figure 1. Location of Screech-Owl specimens, photographs, survey points, and observations in Wyoming. Open circles, no response; closed square, Western Screech-Owl survey response; closed small triangle, Eastern Screech-Owl survey response; large closed triangle, Eastern Screech Owl specimen or photograph; dashed line, continental divide.

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Table 2 Location of Screech-Owls Found During Night-time Surveys, Wyoming

Location	Date (n)	Habitat
Western Screech-Owl		
New Fork Lakes, Sublette Co.	13 Jul 1988 (2)	Quaking Aspen, Douglas Fir
New Fork Lakes Boy Scout Camp, Sublette Co.	13 May 1989 (1)	Quaking Aspen, Lodgepole Pine
New Fork Lakes Campground, Sublette Co.	14 May 1989 (1)	Quaking Aspen, Douglas Fir
Eastern Screech-Owl		
15 Mile Creek, Washakie Co.	5 May 1989 (2)	Plains Cottonwood, sagebrush
Wheatland City Park, Platte Co.	16 May 1989 (1)	Plains Cottonwood
1.5 miles west of Sibille Canyon Facility of Wyoming Game and Fish Department, Albany Co.	16 May 1989 (1)	Plains Cottonwood, willow
North of Glendo Dam, Platte Co.	17 Jun 1989 (1)	Plains Cottonwood

River Mountains, it may occur to the east of the continental divide, as the aspen habitat is nearly continuous. The Western Screech Owl's status in Grand Teton and Yellowstone national parks remains unclear. There are several older undocumented sight records of Screech-Owls for the Green River, so further searching may reveal the species there, although I could not find it and the habitat is highly fragmented.

The potential for furthering the knowledge of Screech-Owl distribution in Wyoming is tremendous. Every field ornithologist working in the state has an opportunity to contribute. In order to increase the value of Screech-Owl sightings, it is imperative that observers carefully record details of their observations and send them to the Nongame Bird Biologist, Wyoming Game and Fish Department, 260 Buena Vista Dr., Lander, WY 82520. This agency serves as secretary to the Wyoming Bird Records Committee, whose primary function is to curate and review documentation of bird sightings. Anyone finding a specimen of Screech-Owl in Wyoming should note the location, color of flesh parts, and details of the discovery. The Wyoming Bird Records Committee should be notified of the discovery and given an opportunity to assist the collector in getting the specimen to a competent taxidermist and museum. Only through the careful work of many field ornithologists will a clearer understanding of Screech-Owl distribution in Wyoming be gained.

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