

THE SPOTTED OWL AT ZION NATIONAL PARK, UTAH

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The first sighting of the Spotted Owl (*Strix occidentalis*) at Zion National Park was on 9 November 1963 (Wauer and Carter 1965). Although a pair was closely observed by Theron Twogood on 29 August of the following year, there were no more reports of this uncommon western owl for several years. Then, between 1974 and 1976, employees at Zion carefully identified this species at six different locations. In 1974 a total of six Spotted Owls was observed at three locations. In 1975 one of the 1974 sites was found inactive but a new one was discovered; a total of five owls was at three locations. In 1976 two new locations were found and, although two previously active sites were not investigated, five owls were seen at four locations. In light of the scarcity of information on the Spotted Owl in Utah (Behle and Perry 1975), these sightings are certainly heartening.

A brief look at the owl's habitat in Zion might help explain its abundance. All six locations show important geologic and climatic similarities. All sightings have been in or around very narrow, steep-walled canyons cut out of the Navajo sandstone formation by intermittent streams at an elevation of approximately 1560 m. Because of the highly resistant lower red portion of the Navajo, it is not unusual to find many canyons at this elevation. Owl canyons 1 and 2 are excellent examples of "hanging" canyons, left suspended about 270 m above, and on opposite sides of, the floor of Zion Canyon, which is about 1290 m at this point. They are no more than 15 m wide in most places with walls rising mostly vertically about 360 m. Both canyons are about 1.6 km in length. Canyon 3 is about 11.2 km long and was formed by a major tributary of the Virgin River. It is also about 360 m deep and at the place where the owl was seen is as narrow as canyons 1 and 2. Canyons 4 and 5 are extremely narrow, cool, vegetation-choked crevices that have eroded along fractures in the sandstone and run at steep angles into canyons of much larger size. Canyon 6 deviates from the usual pattern, being more open and thus warmer than the others. It does, however, have a few cool, vegetated crevices near the place where the owls were consistently seen. The approximate distance between each canyon and the nearest other canyon where owls were located is as follows: Canyon 1-canyon 2, 1.6 km; canyon 2-canyon 3, 5.6 km; canyon 2-canyon 4, 7.2 km; canyon 4-canyon 5, 2.4 km; canyon 5-canyon 6, 5.6 km.

The high elevation and extreme narrowness of these canyons and crevices results in summer temperatures perhaps 20°F cooler than one would expect at the bottom of Zion Canyon or on the plateau above. Outside the visitor center, at the bottom of Zion Canyon, temperatures may be close to 38°C during June, July and August with the plateau

only slightly cooler. The comparative coolness of the canyons is reflected in the growth of such trees as White Fir (*Abies concolor*), Douglas Fir (*Pseudotsuga menziesii*), Bigtooth Maple (*Acer grandidentatum*) and Boxelder (*A. negundo*) on their floors. Sixty-five percent of our sightings have been of an owl or owls perched at midday in this lush canyon bottom vegetation. A few Ponderosa Pines (*Pinus ponderosa*), Gambel Oaks (*Quercus gambelii*) and Shrub Live Oaks (*Q. turbinella*) are mixed in, but generally grow along the more exposed upper walls and rim, and are common on the plateau. The apparent absence of this owl from the plateau and the bottom of Zion Canyon further emphasizes the importance of these cool canyons. Also, as it has been noted in Arizona (Phillips et al. 1964), Spotted Owls appear to be absent from most or all areas inhabited by Great-horned Owls (*Bubo virginianus*), which at Zion are common everywhere except in these narrow canyons.

The abundant elevated potholes and crevices in the walls of these canyons may be very important to Spotted Owls as nest sites. Although no nests have been discovered, there is excellent evidence that the Spotted Owl is nesting successfully. In five of the six locations two adults, a young bird or all three have been seen on at least one occasion in the last three years. Pairs were noted at canyon 1 on 3 July 1975, at canyon 2 on 23 June, 13 and 22 August and 5 September 1976, and a pair with one young was at canyon 6 on 18 July 1974. This young owl was seen again on the night of 22 July. With the aid of flashlights observers could see distinct horizontal barring on the breast and clumps of down still in evidence there and on the belly. The young owl shrieked continually, especially in response to a prey-bearing adult. Two other well-developed young have been reported. One was perched with a single adult at canyon 4 on 9 August 1974 and one was perched alone at canyon 3 on 4 September 1975. Both were identified as young by the remaining tufts of down.

Woodrats may be an important source of food for these owls. The skulls of four woodrats (probably *Neotoma lepida*) and a pocket gopher (*Thomomys* sp.) were found in five pellets collected under a perch at canyon 2 on 23 June 1976. An adult passed to a young what appeared to be a woodrat on the night of 22 July 1974 at canyon 4. The fledgling experienced continued difficulties in trying to swallow the large rodent. At canyon 2 the casing of a rhinoceros beetle (subfamily Dynastinae) was found in a pellet collected on 3 September 1976.

The Spotted Owl has responded readily upon two occasions to taped recordings played in spring and early summer. In mid-May 1976 Tom Boner of the Utah Division of Wildlife Resources called in and recorded a single adult at canyon 4 by playing Spotted and Barred owl calls taken from Kellogg et al. (1962). The second response was on the night of 23 June 1976 when Nancy Sprague, Donna Sakamoto and I entered canyon

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2 hoping to verify the presence of Spotted Owls there. At 2015, while it was still light, we heard the “ho ho-ho hooo” call of a Spotted Owl from somewhere up in the canyon. At 2030 one flew to a perch 3.6 m up in a White Fir about 7.5 m away from us. At 2045 it was joined by its mate. They perched together for 15 minutes before moving away in the approaching darkness. At 2119 I played a short Spotted Owl recording and immediately both birds flew back and perched about 6.5 m above us. For 10 minutes they made an incredible variety of calls. They began with a series of short barks very similar to those of a small dog, and apparently designed to drive the intruder away. Occasionally one



Spotted Owls (*Strix occidentalis*). Zion National Park, Utah, 3 July 1975.

Photo by K. Kertell

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would issue a series of 10-13 hoots changing quality at the end, sounding like "hohohohohohohoho hu hu hu," as described by Burton (1973). After about 7 minutes of this and as the owls began moving away, apparently losing interest, they began giving whistles and a few "ho ho-ho hooo" songs.

The Spotted Owl appears to be enjoying excellent success at Zion National Park. With the large number of relatively inaccessible canyon sites meeting the owl's habitat demands at Zion, and in the surrounding plateau country, there is every reason to believe the owl will continue to thrive.

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