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First Nesting of Osprey on Rock Pinnacles in British Columbia

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Ospreys (*Pandion haliaetus*) build large conspicuous stick nests (Figure 1) on suitable substrates near water. Key nest site requirements, in addition to their proximity to the food supply, include security from mammalian predators, a substrate base that is wide and stable enough to support a large nest, open access for landing and visibility, and the proximity of at least one elevated perch (Vana-Miller 1987, Poole 1989a). Known nest site substrates are most commonly live or dead trees, man-made structures such as power poles, pilings, navigational lights, and bridges, and the ground on predator-free islands (Poole et al. 2002). Rock pinnacles and stacks on cliffs are also used for nesting substrates, but selection of a rock substrate appears to be location-specific. In British Columbia (BC), Osprey nests have been documented only on trees (56% of 395 documented nests) or on man-made structures (44%), and nests on rock pinnacles have

Figure 1. Ospreys usually build their large branch and stick nests on top of dead trees, man-made nesting poles, or artificial structures in British Columbia. *Photo by Alan D. Wilson*.

not been reported (Campbell et al. 1990).

We discovered an active Osprey nest located on top of a rock pillar (Figures 2, 3) in southwestern BC, which, to our knowledge, is the first documented use of such a nest substrate for the province. The nest was located on the west bank of the Hurley River, about 2 km south of Gold Bridge, BC, in the Bridge River valley (50° 50'18"N, 122° 50' 28"W), at 715 m elevation. The outside dimensions of the stick nest were estimated at approximately 2 m wide and 0.5 m high, the size of the nest cup was approximately 1 m, and the nest was lined with mosses, grasses, and bark. We first discovered the nest on 9 June 2002, when we observed what appeared to be an incubation shift. The presence of three eggs was confirmed on 12 June with a 60 x spotting scope. Three small chicks approximately one-to-two days old were seen on 16 June, and 2 chicks remained in the nest on 27 June. On 14 July both chicks were still present with primaries emerging and they were observed being fed. The nest

Figure 2. Location of Osprey nest atop rock pinnacle (top centre) adjacent to the Hurley River, near Gold Bridge, BC. *Photo by Heidi Regehr 19 April 2015.*

Figure 3. Osprey nest with incubating adult on top of rock pinnacle adjacent to the Hurley River, near Gold Bridge, BC. *Photo by Heidi Regehr, 9 May 2015.*

appeared to be unoccupied in 2003, 2007, and 2009 (the site was visited on 5 April, 2 July, and 17 June in those years, respectively), but was again found occupied in 2015. In 2015, incubation was observed on 19 April, 9 May, and 2 June, and on 17 July the nest contained an adult with two nearly grown chicks. Other known nests in the area were built on power poles, including one nest about 1 km south of the rock pinnacle nest, also beside the Hurley River, and one along Carpenter Lake on Highway 40.

Average lifespan, age at first breeding, the tendency for Osprey pairs to reunite and reuse old nest sites, and the intervening unoccupied years suggest that it is unlikely but possible that the same breeding pair, or one member of that original pair, was observed at the rock pinnacle nest in 2015 as in 2002. Established pairs nearly always return to their old nest sites (Poole 1989a) and mate fidelity is high (Poole et al. 2002). Further, Ospreys can live to greater than 20 years of age. However, Poole (1989a) calculated that only 16–22% of individuals that survive to four years after fledging (at which point they would be breeders given an age at first breeding of approximately three years) are still alive eight years later. Thus the probability is small that even one member of the original pair seen in 2002 was still alive 13 years later.

Overall, rock pillar nests are rarely selected as nesting structures in the U.S. (Poole 1989a); however, the propensity for cliff nesting by Ospreys varies by location. Northern Quebec (Bider and Bird 1983), Yellowstone Park (Swenson 1981), Labrador (Chubbs 2004), Hokkaido, Japan (Shoiji et al. 2011), and the Cape Verde Islands (Palma et al. 2004) are examples of locations where cliff nesting may be common. In Yellowstone Park, 18% of documented nests were on rock pillars within the Grand Canyon of Yellowstone, and this seemed to be the preferred nesting substrate when both trees and rock pillars were available (Swenson 1981). However, in some locations, such as Scotland, use of rock substrates does not occur even though potential for it exits, and Poole (1989a) speculated that local nesting traditions differ among populations.

Our observation demonstrates that, although rare, Ospreys will use rock pillars for nesting structures in British Columbia. Ospreys prefer artificial structures for nest substrates when these are available and such nests are generally more successful than those on natural sites owing largely to their greater stability (Poole 1989a). Given that pairs that maintain multi-year pair bonds, nests are reused among years, and because pairs with previously established sites nest earlier and are more successful than those that need to establish new ones (Poole 1989a, Poole et al. 2002), nest stability has substantial reproductive value. Rock pinnacles can be highly stable substrates, similar to artificial platforms, and therefore supply potentially suitable breeding sites that are preferred by Ospreys over other natural substrates in some areas. It is curious that cliff nesting by Ospreys is not more common in British Columbia, especially as suitable natural nest sites may be a limiting resource (Poole 1989b) and man-made nest platforms are not as common here as they are in areas where they have been erected as part of conservation programs. Conversely, if selection of rock substrates is partly a learned behaviour that forms a nesting tradition, it is also interesting that one pair chose to establish a nest on a rock pinnacle in one location in British Columbia.

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