First, Kelly (2001, The range expansion of the northern Barred Owl: an evaluation of the impact on Spotted Owls. M S. thesis, Oregon State Univ., Corvallis, OR U.S.A.) addressed whether Barred Owls affected reproduction of northern Spotted Owls in five long-term Spotted Owl demographic study areas in Washington and Oregon from 1974–98. She found no significant difference in reproduction in Spotted Owl territories with versus without Barred Owl detections within 0.8 km of the activity centers. However, Kelly (2001) allowed that "it is possible that the only reason that spotted owls were able to persist after barred owls were detected was because the barred owls moved on and settled elsewhere." She suggested that a "multivariate model that included the number of years the barred owls were present and the actual distance between the barred owls and spotted owls in each year" (p. 37), and "the number and reproductive status of barred owls that were detected each year, might better explain relationships between the species" (p. 38).

Second, Anthony et al. (2004, Status and trends in demography of northern Spotted Owls, 1985–2003, U.S. Geological Survey, Corvallis, OR U.S.A.) tested whether the presence of Barred Owls affected reproduction of northern Spotted Owls in 14 study areas in Washington, Oregon, and California from 1985–2003. Their "exploratory," "coarse-scale" (p. 19) Barred Owl covariate was the proportion of Spotted Owl territories in which Barred Owls were detected annually by study area. Their results also did not show any negative effects of Barred Owls on Spotted Owl reproduction. However, they recognized that even though "the impacts of barred owls were more likely to occur at the territory level, the only data that were available from all of the study areas was this year-specific covariate" (p. 19), and recommended that "[a]ny barred owl covariate should be territory-specific and should be used to look at the barred owl effect on territory occupancy as well as fecundity and survival of spotted owls" (p. 69).

Recent studies have shown negative effects of Barred Owls on northern Spotted Owl survival (Anthony et al. 2004) and territory occupancy (Gremel 2003, Spotted Owl monitoring in Olympic National Park: 2003 annual report, Olympic National Park Service, Port Angeles, WA U.S.A.; Kelly et al. 2003, *Condor* 105:45–53; Pearson and Livezey 2003). To test whether Barred Owls also negatively affect the reproductive success of Spotted Owls who survive and stay on their territories despite the presence of Barred Owls may require long-term studies with sufficient sample sizes employing methods such as those recommended by Kelly (2001) and Anthony et al. (2004).

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USING A PORTABLE, ANCHOR-BOLT LADDER TO ACCESS ROCK-NESTING OSPREY

Successful and safe captures of raptors, and access to nestlings is an important component of long-term ecological studies. Capture of adults and nestling Ospreys (*Pandion haliaetus*) and Bald Eagles (*Haliaeetus leucocephalus*) at the nest site can be quite difficult. Often, it involves climbing tall, solitary structures to access nests. Capture methods for these species are usually dictated by the type of nesting structure, which include trees, transmission line structures, utility poles, artificial platforms, and towers (Bent 1937, Life histories of North American birds of prey, Part 1, *Natl. Mus. Bull.* 170, Washington, DC U.S.A.; Poole 1989, Ospreys: a natural and unnatural history, Cambridge Univ. Press, Cambridge, U.K.). Rock islands, isolated boulders, and inland rock pillars are used to a lesser extent by both species (Bent 1937, Bider and Bird 1983, Pages 223–230 *in* D.M. Bird [ED.], Biology and management of Bald Eagles and Ospreys, Harpell Press, Ste. Anne de Bellevue, Québec, Canada). However, because Bald Eagles and Ospreys have high nest-site fidelity (Buehler 2000, *In* A. Poole and F. Gill [EDS.], The birds of North America, No. 506. The Birds of North America, Inc., Philadelphia, PA U.S.A.; Poole et al. 2002, *In* A. Poole and F. Gill [EDS.], The birds of North America, No. 683. The Birds of North America, Inc., Philadelphia, PA U.S.A.), nests established on rock structures are potential candidates for the installation of permanent access equipment.

Herein, we describe a technique that we developed to quickly and safely access raptor nests built on large rock structures to capture and tag adult and nestling Ospreys. Specifically, we describe the use of a portable, anchor-bolt ladder to access an Osprey nest on a 10-m high inland-rock pinnacle.

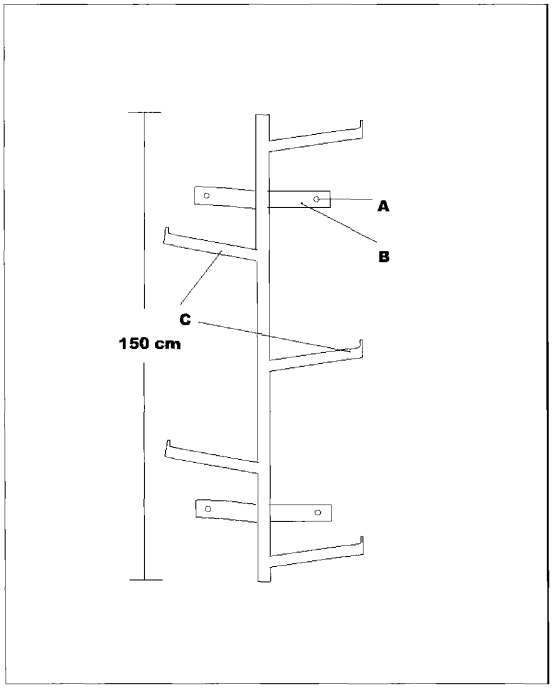

Figure 1. Portable anchor-bolt ladder used in central Labrador in 2002 to access a rock-nesting Osprey (A = bolt holes 12.7 mm diameter, B = brackets for attachment to rock surface, C = alternate ladder steps angled at 10 degrees).

We accessed the Osprey rock-nest site using a Bell 206L helicopter capable of carrying four passengers and pilot, while ensuring ample space to carry several sections of ladders, capture equipment, and assembly tools. We accessed the Osprey nest 1–2 wk before fledging.

We constructed five, 150-cm-long sections of portable ladders composed of 5-cm square iron stock that was 3 2-mm thick with five alternating steps (Fig. 1). Ladder steps, 30-cm long and spaced 40-cm apart, were welded to the main support angled up at 10 degrees with a 2.5-cm edge plate at the end to prevent foot slippage. Each ladder section had two attachment brackets composed of flat iron 6-cm wide, 45-cm long and 3.2-cm thick offset 10-cm from the attached surface to permit foot clearance from the rock surface. Both brackets had two, 12.7-mm diameter holes, one drilled at each end for attachment to the rock surface. Each ladder weighed ca. 10 kg and was spray-painted orange-gold using rust-inhibiting-metal spray paint to camouflage the ladder against the side of the lichen-covered rock.

We secured each ladder section using four (two per bracket) 9.5-mm diameter, 7.6-cm long galvanized Redhead® (American Bolt and Nut Co., Inc., Chelsea, MA U.S.A.) wedge-anchor bolts. Bolt holes were drilled into the face of the rock using an electric-rotary-hammer drill powered by a portable 700 W gas-powered generator via a 15-m electric-extension cord. Brackets were secured on each side by a single bolt tapped into place using a small sledgehammer and cemented using a waterproof adhesive. The lowest ladder section was attached 1.5 m above the ground to prevent access by potential terrestrial predators. Ladder placement was staggered to both conform to the shape of the rock face and to detract from the enhanced visibility of a linear configuration.

On 3 September 2002, we installed five sections of ladder to access an Osprey nest (53°48.25′N, 63°35.64′W) on a 10-m high inland-rock pinnacle (Fig. 2). It took ca. 45 min to attach the sections on the rock. The nestlings remained in the nest bowl or on the edge of the nest during the installation of the access structure. Once the ladder structure was attached, it took <5 min to access the nest and remove the two nestlings for processing. Adult Ospreys departed the nest upon our arrival and circled the nest site for ca. 10 min, then perched in nearby trees. Both adult Ospreys defended the nest during nestling removal, and then returned to their respective perches while the nestlings were processed for ca. 80 min. Nestlings were returned to the nest once banded, measured, and 35 g solar-satellite trans-

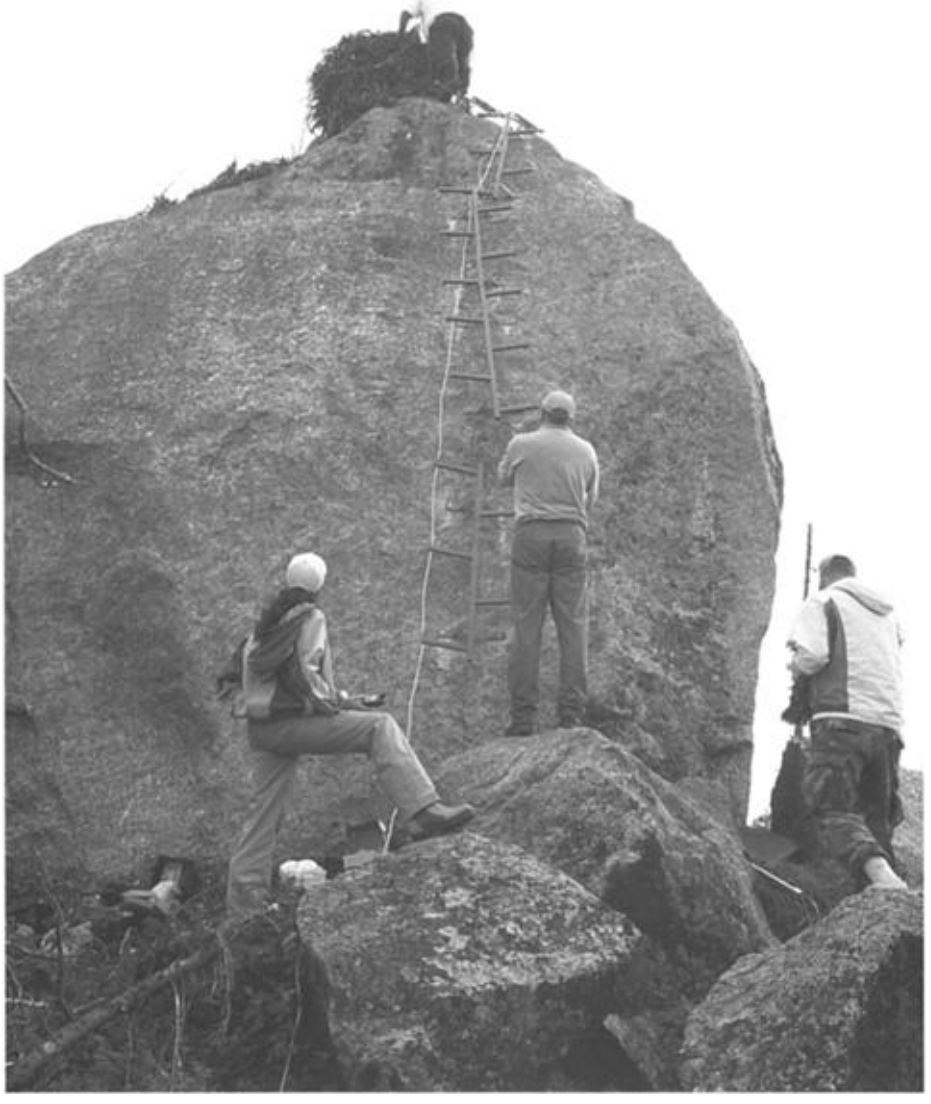

Figure 2. Rock pinnacle with five anchor-bolt ladder sections attached to provide access to an Osprey nest with two young in central Labrador, 3 September 2002. Photo by D.K. Laing.

mitters (Microwave Telemetry Inc., Columbia, MD U.S.A.) were attached. Adults defended the nest again during replacement of nestlings into the nest and returned to the nest immediately after our departure from the nest area.

Both young fledged successfully and both adults returned to the nest site the following year and defended their territory but did not produce young. This breeding failure was correlated with lower productivity that was observed throughout the area in 2003, possibly due to poor spring weather conditions (T. Chubbs unpubl. data). Although the anchor-bolt ladder did not deter adults from returning to the nest site, additional monitoring would be necessary before a reasonable impact assessment of the ladder on Osprey productivity can be made.

Cost is an important factor to consider when using anchor-bolt ladders over conventional climbing techniques using experienced, qualified climbers in remote areas. The associated hardware and welding costs were ca. $80 U S per 150-cm ladder section. Rental costs for installation equipment were ca. $40 U.S. per day. We required a helicopter to access our remote site at a cost of approximately $2000 U.S. (ca. $1000 U.S./hr). Our technique also offers permanent access at nest sites with high reoccupancy rates, at no additional costs for future nest visits during subsequent years.

In our particular situation, the utilization of a permanent ladder was appropriate for a remote-inaccessible area that would be accessed repeatedly during our study. We do not advise using this type of access structure where there is human access or predators capable of accessing the nest or where this would bias study results. This technique proved valuable, not only as a tool for accessing nestlings, but as a mechanism for quick access to retrieve trapped birds, lessening the chance of injury and stress on the birds.

In areas that are relatively accessible, alternative techniques involving climbing and the attachment of a static rope may be more economical. In our situation, professional climbers were unavailable locally and the travel and contract costs of acquiring such expertise were prohibitive.

We recommend that fall-safety equipment be used when employing anchor-bolt ladders to scale any high rock face. To eliminate disturbance to raptors, access structures should be installed where possible on known nesting rocks during the nonbreeding season. Preinstalled access structures will decrease the disturbance time associated with the use of climbing equipment and negate the requirement for experienced climbers. We recommend that in regions where access by predators may be of greater concern, the bottom ladder section be temporarily attached using bolts or a quick release mechanism. Researchers could carry the bottom section to each nest site, further reducing the set up cost at each site by $80 U.S. Once the study has concluded, ladder sections can be removed from rock surfaces, returning natural aesthetics to sites. Our technique was effective for accessing Osprey nests and may be applicable to a variety of studies where the scaling of rocks or low cliffs is required to capture raptors.

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ATTEMPTED PREDATION ON A LARGE-TAILED NIGHTJAR (*CAPRIMULGUS MACRURUS*) BY AN EASTERN MARSH-HARRIER (*CIRCUS SPILONOTUS*) IN COASTAL VIETNAM

This note describes a predation attempt on a Large-tailed Nightjar (*Caprimulgus macrurus*) by an Eastern Marsh-Harrier (*Circus spilonotus*) at Nha Trang Airport (109°11′0″E, 12°14′0″N), Vietnam. Observations took place from 0650–0700 H on 28 February 2004.