

Common Murre Egg Recovery

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Abstract.—Common Murre (*Uria aalge*) breeding success has been monitored in 1996-2004 at Devil's Slide Rock, California as part of a restoration project related to the *Apex Houston* oil spill. During the 2001 breeding season, two separate cases of egg recovery by parent murrees were observed. During the first event an egg was secured and incubated 60 cm from the original nesting site, while in the second case an egg was retrieved after rolling 85 cm. The first egg was lost within 24 hours, and the second disappeared within a day of its expected hatching date. We describe the circumstances surrounding these events, including the behavior of the parent murrees during the egg recovery attempts, the subsequent fate of the recovered eggs, the microhabitat features associated with egg loss and other factors affecting the egg recovery ability of adult murrees. Received 17 October 2004, accepted 4 April 2005.

Key words.—Behavior; Common Murre; egg recovery; microhabitat; *Uria aalge*.

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The Common Murre (*Uria aalge*) nest in densely packed colonies on sea stacks and cliff faces, often so closely that they are touching their neighbors. This tendency, along with physical nest site characteristics (width of a ledge, slope, and number of rock walls) influences the susceptibility of an egg or chick to displacement from the nesting site (Birkhead and Nettleship 1987; Harris *et al.* 1997). Although nest site structure often aids in stabilizing eggs, they may still be displaced, resulting in many possible fates. Possibilities include adoption, predation, abandonment, nest site relocation, and egg retrieval. Although there are few detailed cases documented, it is known that murrees are capable of retrieving (returning an egg to its laid location) their egg (Johnson 1941; Tuck 1961; Gaston *et al.* 1993). The objective of this paper is to document two cases of egg recovery (regaining possession) at Devil's Slide Rock on the central California coast and to provide an outline of the circumstances influencing these events.

METHODS AND STUDY AREA

Common Murre breeding success was monitored between April and July 2001 at Devil's Slide Rock (37°34'39"N, 122°31'17"W) in San Mateo County, California. As part of this monitoring, murrees were observed daily from several vantage points using a spotting scope (65×-130×). These mainland-viewing areas range

from 300 to 400 m from the colony, and the colony was monitored intermittently from dawn until dusk. Egg recovery accounts were recorded and included the behavior of the birds involved, estimated distances and time to the nearest minute.

Following the breeding season, measurements of slope and distances relating to egg loss were taken based on observations, maps, and aerial photographs. Slope was measured with a Brunton 8099 Clinometer at each incubation location. Nest site locations and colony topography were mapped, using the RTK GPS system by Bestor Engineering (Monterey, California). Aerial photographs, taken during the breeding season, estimated distances. Based on the proximity of objects (rocks, cracks, and decoys) surrounding both incidents, measurements are accurate to within ±5 cm.

RESULTS

Case 1

On 29 May 2001, site #169's seven day-old egg was displaced from a nesting site (slope of 5°) when the incubating adult was disturbed by jabbing, from a nesting Brandt's Cormorant (*Phalacrocorax penicillatus*). Both parent murrees spent the next 4.25 hours making 31 observed attempts to regain possession of the egg, yet no attempts were made to return the egg to its original site. During recovery efforts, each murre independently shuffled rapidly towards the egg with its head low and then attempted to roll the egg onto its feet/tarsi, using its bill. During the recovery efforts, the murrees were harassed intermittently by the surrounding cormorants.

Observation ended with the egg being incubated at a new location, 60 cm downhill from the original nesting site, and out of reach of the surrounding cormorants. The egg was lost before observers returned the following day. Two murres were noted on subsequent days at the original nesting location.

Case 2

On 13 June 2001, at site #163, the 22 day-old egg was unattended 85 cm below the nesting site. One murre went down and incubated the egg where it lay. The mate, who was present throughout the recovery attempt, went back and forth between the egg and the original nesting site. The incubating murre faced up the slope towards its original nesting site with its wings low to the ground. Over a period of 105 minutes, the murre slowly moved the egg back to the original nest location (slope of 9°) using its body to push its egg forward. Afterward, the recovered egg was present and incubated at the site until it was missing on 22 June. The cause of the egg loss is not known but due to its age (31 days) it is possible the chick hatched then disappeared.

DISCUSSION

There are many factors that influence egg recovery. These factors include the morphological limitations of murres in addition to microhabitat, slope, and the number of surrounding nests (conspecifics and cormorants). Upon experiencing egg-loss, murres either lay a replacement egg, recover the lost egg, or give up attempting to breed. Out of the 19 sites that lost the first egg on Devil's Slide Rock in the 2001 season, five relaid, two were incidentally observed attempting to recover their eggs, and twelve neither relaid nor attempted to recover their eggs.

Once murres engage in retrieval, they are then faced with the topographical factors that may limit retrieval. Microhabitat such as walls and crevices can block and egg from rolling out of reach, but can also pose as barriers to retrieval. Due to morphological limitations of murres, an egg that rolls over a vertical or near vertical edge is not retrievable. Murres

are incapable of picking up the egg and flying back to the nesting site. If the topography is less steep, murres are capable of retrieving their egg and returning to their original nesting location to continue incubation (as in Case 2). In doing so, the murre use the bill to pull eggs towards itself (as demonstrated in Case 1) or carry the egg on the tarsi (Tuck 1961) (as possibly demonstrated in Case 2).

Retrieval may also be inhibited when an egg rolls amongst other nesting birds. Conspecifics may physically block the way, whereas other species may present an impassible barrier by aggressive behavior (e.g., jabbing) (as in Case 1). When a displaced egg is not retrievable, the parents may incubate the egg at its new location (Norrevang 1957 referred in Johnsgard 1987; Gaston *et al.* 1993) (as in case 1).

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