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OCCURRENCE OF AMELANISTIC MARBLED MURRELETS IN SOUTHEAST ALASKA AND NORTHERN BRITISH COLUMBIA

SEAN E. McALLISTER, 417 Second Street, Suite 201, Eureka, California 95501

JANET NEILSON, Glacier Bay National Park & Preserve, P.O. Box 140, Gustavus, Alaska 99826

Authors' note: Although the terminology commonly used to describe abnormal pigmentation in birds (e.g., albinism, leucism) is generally understood, confusion and disagreements over the exact definitions of such terms can be problematic, and may result in misrepresentations of the actual source of associated abnormalities (van Grouw 2006, Davis 2007). Therefore, in this paper we use the more general term "amelanistic" to refer to birds that lack melanin, either partially or completely, when the cause is not known.

On 5 July 2009, McAllister was part of a team surveying by boat for Marbled (*Brachyramphus marmoratus*) and Kittlitz's (*B. brevirostris*) Murrelets in Glacier Bay, southeast Alaska. In calm and clear conditions, toward the end of a survey transect at North Sandy Cove (58.7° N, 135.9° W), he saw in the distance a small, bright white object on the water. His initial impression was that it was Styrofoam or other debris, but closer inspection revealed it to be a lone live bird the size and shape of a Marbled Murrelet (see this issue's back cover). Although largely white, the bird had a dark eye, ruddy brown bill, and pale brown pigmentation in some feathers of the back and wings, indicating the bird was partially amelanistic. In addition, the bird also appeared to have a slightly malformed bill, with the tip of the maxilla curving beyond and below the tip of the mandible. The possibility of a stray Long-billed Murrelet (*B. perdix*) could not be fully dismissed, but McAllister's impression of the overall size of the bird and the relative length and depth of the bill was more consistent with a Marbled Murrelet.

After sharing photos of this striking bird and discussing it with several murrelet experts, it became apparent that amelanism in murrelets was largely unrecorded. However, seven years earlier, in August 2002, Neilson photographed a small all-white alcid (Figure 1) near Leland Island in Glacier Bay (58.6° N, 135.9° W), within 10 km of the bird seen in 2009. Observed with two Marbled Murrelets also in view, the bird resembled a murrelet in appearance and behavior. However, the low quality of the image, scanned from a black and white negative, precludes positive identification. In particular, the bill of the bird appears too large and conical for a Marbled Murrelet, being more typical perhaps of a juvenile Rhinoceros Auklet (*Cerorhinca monocerata*), but a Rhinoceros Auklet should have appeared larger in comparison to the nearby Marbled Murrelets, and the eye appears disproportionately large for that species.

Notwithstanding, Neilson photographed another white alcid (Figure 2), which we consider is definitely a Marbled Murrelet from its overall shape and proportions of the eye and bill, at the mouth of Idaho Inlet (58.2° N, 136.3° W), approximately 25 km southwest of the mouth of Glacier Bay, in June 2012. The photo shows a dark eye, dark bill, and all white plumage except for a blackish lining on the tip of the outer primary and at least one of the tertials.

S. G. Sealy and H. R. Carter also informed us of a specimen of an apparently totally amelanistic Marbled Murrelet that they had examined at the Royal British Columbia Museum (RBCM 6023) in Victoria (Figure 3). The bird was collected by M. Lohbrunner in August 1936 near Price Island on the northern mainland coast of British Columbia

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Figure 1. Unidentified amelanistic alcid (possibly a Marbled Murrelet) in Glacier Bay, Alaska, 19 August 2002.

Photo by Janet Neilson



Figure 2. Partially amelanistic Marbled Murrelet at the mouth of Idaho Inlet, southeast Alaska, 19 June 2012.

Photo by Janet Neilson

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Figure 3. Amelanistic Marbled Murrelet (Royal British Columbia Museum 6023) collected on 17 August 1936 by M. Lohbrunner at Price Island, British Columbia.

Photo courtesy of Lesley Kennes, Royal British Columbia Museum

(52.4° N, 128.7° W), and its identity was confirmed by measurements. No obvious pigment was evident in any of the feathers, and the bare parts (bill and feet) appeared yellow to flesh colored (not dark). It is possible, however, that the pale appearance of the bare parts resulted from age-related foxing of the specimen rather than a lack of melanin in the bare parts of the living bird.

Gross's (1965) compilation of 54 bird families for which albinism had been reported, included 7 species of the family Alcidae: the Razorbill (*Alca torda*), Common Murre (*Uria aalge*), Thick-billed Murre (*U. lomvia*), Dovekie (*Alle alle*), Black Guillemot (*Cepphus grylle*), Pigeon Guillemot (*C. columba*), and Atlantic Puffin (*Fratercula arctica*). Sealy (1969) reported an additional three species, the Parakeet Auklet (*Aethia psittacula*), Least Auklet (*A. pusilla*), and Crested Auklet (*A. cristatella*). An Internet search for unpublished alcid observations produced a recent (January 2009) photo from an undisclosed location of an amelanistic Rhinoceros Auklet and a brief account of a reportedly well-seen, but unphotographed, all-white Kittlitz's Murrelet off the east side of Kodiak Island in September 2002 (J. Allen, fide G. van Vliet). Those, along with our examples of the Marbled Murrelet, bring the total number of alcid species in which amelanism is known to 13 of the total 25, including the extinct Great Auk (*Pinguinus impennis*).

In the Marbled Murrelet, the body plumage is molted twice per year, during prealternate molt in late winter to spring and prebasic molt in late summer to early fall, while the remiges are molted once per year during the complete prebasic molt (Carter and Stein 1995). Prior to the prebasic molt in mid to late summer, some individuals' body plumage and primaries are heavily worn and faded (at times, only the rachis remains on the distal part of the outer primaries), but they still appear light brown when viewed from a relatively close distance (H. R. Carter pers. comm.). Whitish, lighter colored, or basic plumaged murrelets during the breeding season have been reported throughout the breeding range, without photographs or careful descriptions and often from a distance (Carter and Stein 1995; H.R. Carter pers. comm.). Such observations may include second-year birds in incomplete or delayed alternate plumage (Pyle 2008), birds in faded alternate plumage, juveniles with lighter brown coloration, or amelanistic adults with less white than those depicted in this paper. Strikingly white individuals like these have never been recorded south of northern British Columbia or north of southeast Alaska.

The pattern of dark markings on the left wing (in both the primaries and tertials) appears similar in the 2002 and the 2012 photos, although the poor quality of the 2002 photo makes it difficult to discern pigmentation from shadow or artifact. Slight differences in the appearance of the dark markings in all of the photos could be affected somewhat by molt, feather wear, and/or artifact. Photographic artifact may have also contributed to the appearance of a massive bill in the 2002 photo of the 2002 bird. But any two of these three photos of live birds may be of the same individual, suggesting that amelanistic murrelets may survive for many years with-

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out the cryptic alternate plumage that Carter and Stein (1995) and Nelson (1997) thought to be vital for successful breeding. But although the Marbled Murrelet nests in trees in the southern part of its range from British Columbia to California, it nests on the ground in the treeless northwestern part of its range at Kodiak Island, on the Alaska Peninsula, and in the Aleutian Islands. In northern southeast Alaska, where these amelanistic birds were observed, Marbled Murrelets nest both in trees and on the ground (DeGange 1996). As much as 50% of one population studied near Port Snettisham, in southeast Alaska, was found to nest on the ground at higher elevations above the tree line (Nelson et al. 2009, Barbaree 2011). Of all of Marbled Murrelet nests known in Alaska, 45–50% have been found on the ground (Nelson et al. unpubl. data), or in a few cases in rock cavities (e.g., Johnson and Carter 1985). These habitats can retain significant amounts of snow/ice through the nesting season. Largely white amelanistic individuals without the typical cryptic plumage may be able to breed successfully in these habitats. However, any adaptive value of amelanism for the Marbled Murrelet and other alcids is unlikely.

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“Featured Photo” by © S. E. McAllister of Eureka, California: Amelanistic Marbled Murrelet (*Brachyramphus marmoratus*), Glacier Bay, Alaska, 5 July 2009.

