

RETARDED WING MOLT IN BLACK-LEGGED KITTIWAKES

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Prebasic molt of the primaries in most species of northern hemisphere gulls occurs between April and December (Dwight 1925, Grant 1986, Cramp and Simmons 1983, pers. obs.). Exceptions are mainly transequatorial migrants, both those that molt primaries after they have reached their southern hemisphere winter grounds (e.g., Sabine's Gull, *Xema sabini*; Grant 1986) and those that suspend primary molt between the summer and winter grounds (e.g., Baltic Lesser Black-backed Gull, *Larus fuscus fuscus*; Jonsson 1998). The complete second prebasic molt of the Black-legged Kittiwake (*Rissa tridactyla*) reportedly occurs from May to November, the adult prebasic molt from June to December (Cramp and Simmons 1983, Baird 1994). During the spring of 1999 we noted adult Black-legged Kittiwakes in central California that had not completed their prebasic primary molt. Here we document and discuss this phenomenon.

On 21 April 1999, off Bodega Head, Sonoma Co., Corben noted a kittiwake that appeared to have an outer primary only partially grown and that showed a large black patch along the leading edge of the underwing, anterior to the black wing tip. We thought little of this until, on 2 May 1999, we examined a kittiwake specimen found freshly dead on Southeast Farallon Island, San Francisco Co., on 11 March 1999. On this bird, primaries 9 and 10 (P9–10) on the right wing were worn and retained and the new P8 was slightly less than full length; on the left wing P10 was retained, P9 missing (presumed shed), and P8 full length. The tertials and outer secondaries had been replaced, while the middle secondaries were retained and worn; the inner two subscapulars (nearest the body) had been replaced, while the outer two were old and worn. Rectrix 5 on each side was old and frayed in contrast to the other tail feathers, which had been replaced. We detected no active molt (i.e., pin feathers) on the head, body, or scapulars. The pattern of the retained feathers on this bird indicated that it was at least in its fourth calendar year (CY4), and the specimen has been deposited at the California Academy of Sciences (CAS 5507).

Subsequent to this discovery we recorded molt data on 33 CY3 and older kittiwakes observed during May 1999: single birds off Bodega Head, Sonoma Co., on 10 and 11 May, one bird in Monterey Bay, Monterey Co., on 15 May, and 30 birds at Pescadero Creek, San Mateo Co. (nine on 15 May, 21 on 17 May). Of these birds, only two were CY3, both of which had full-grown new primaries. None of the remaining 31 birds had full-grown outer primaries: one had P9–10 retained on both wings (and P8 about 85% grown), seven had P10 retained on both wings (P9 65–100% grown), four had P10 retained on one wing and shed on the other wing, and the other birds had P10 growing but not full length. Of the 19 birds with P10 growing, this feather was 90–95% of its full length on nine birds (with P9 full grown) and 40–70% grown on the other ten birds (P9 90–100% grown). The retained outer primaries of five birds studied carefully on 17 May had a pattern typical of a second basic or older (versus juvenal) feather, and thus these individuals were at least in their fourth calendar year.

The head patterns of birds with retarded molt varied considerably, but no bird had the clean white head typical of alternate plumage. All birds with retained primaries had head markings typical of basic plumage (with a dark auricular smudge and a variable dusky wash to the crown and nape). All birds with P10 growing had white heads with scattered dusky gray feathers on the auriculars, hindcrown, and nape: at

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long range, a few appeared to have all-white heads. This suggests that those birds with the least retarded primary molt may have been attaining alternate head plumage concurrently with the completion of their prebasic primary molt.

Howell examined winter through spring specimens of kittiwakes at the CAS to determine whether or not the spring 1999 birds were anomalous. Two of 21 CY3 and older birds collected in central California from February to April 1907 exhibit retarded molt: CAS 10873 (18 February) with P8–10 retained on the right wing, P9–10 on the left with P8 shed, and CAS 10822 (13 March) with P10 80% grown. Three of eight CY3 and older birds collected from December 1907 to February 1908 also show ongoing primary molt, although two of these probably would have completed molt in January. The third specimen (CAS 10888, 17 January) has P8–10 retained, P7 5% grown, and P6 full length. An additional specimen (CAS 21944, 22 March 1899) also has retarded molt of the outer primaries: P9–10 retained, P8 85% grown, and P7 full length. All of these late-molting birds appear to be CY4 or older, from the pattern of the primary coverts and retained outer primaries (Grant 1986, pers. obs.), and they constituted 20% (4 out of 20) of the January to April CAS specimens of this age group.

None of the January to March specimens shows suspended molt, i.e., full-grown inner primaries adjacent to retained outer primaries. Rather, they suggest a protracted over-winter molt, with a given primary not shed until the preceding feather is almost or completely full grown. The retarded but relatively synchronized schedules of birds in May 1999, however, suggest that their primary molt may have been suspended earlier in the winter, as has been documented for some species of shorebirds wintering in northern temperate latitudes. For example, adult Black-bellied Plovers (*Pluvialis squatarola*) wintering in northwestern Europe start primary molt in August and September. Birds unable to complete molt before the advent of adverse winter weather suspend molt and retain their outer one to three primaries until the following spring, when they may complete the molt from March to May (Cramp and Simmons 1983).

A combination of factors could be responsible for retarded molt in kittiwakes, ultimately reflecting reduced energy intake. The most direct factor might be a particularly bad storm, or storms, in early winter before birds completed molt. Environmental conditions during preceding seasons might also contribute to a pattern of retarded molt. For example, following particularly stormy winters birds might be weakened and unable to start molt until later than usual. Consequently, they might not complete molt before the next winter. During a strong El Niño, winters of 1996–97 through 1998–99 were unusually stormy in the northeastern Pacific Ocean, and the food supply of many seabirds was reduced through summer 1998, as evidenced by widespread breeding failures of many species (PRBO unpubl. data; pers. obs.). A combination of any or all of these factors could have contributed to the retarded molt schedules of the kittiwakes we observed during spring 1999.

In conclusion, at least during some years suspended or very protracted wing molt occurs in a proportion of the adult Black-legged Kittiwakes wintering off California. In some birds, primary molt does not finish until May or June, taking almost a year to complete.

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LITERATURE CITED

Baird, P. H. 1994. Black-legged Kittiwake (*Rissa tridactyla*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 92. Acad. Nat. Sci., Philadelphia.

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- Cramp, S., and Simmons, K. E. L. (eds.). 1983. Handbook of the Birds of Europe, the Middle East, and North Africa, vol. 3. Oxford Univ. Press, Oxford, England.
- Dwight, J. 1925. The gulls (Laridae) of the world: Their plumages, molts, variations, relationships, and distribution. Bull. Am. Mus. Nat. Hist. 52:63-408.
- Grant, P. J. 1986. Gulls: A Guide to Identification. Academic Press, San Diego.
- Jonsson, L. 1998. Baltic Lesser Black-backed Gull *Larus fuscus fuscus*—moult, ageing, and identification. Birding World 11:295-317.

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Bonaparte's Gull

Sketch by Sven Achtermann