Variation in Leg Color of California Gull

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According to the popular field guides, the legs of adult California Gulls (*Larus californicus*) are "yellow-green" (Sibley 2000), "greenish-yellow" (NGS 1999), or "bright yellow-green" (Farrand 1983). For most of the year, this character holds true and provides a useful field mark for the species. With this image in mind, I was taken aback by the leg color of many of the California Gulls I found loafing along the shoreline of Qualicum Beach on the eastern side of Vancouver Island, British Columbia, during a visit in mid-April 2003. The birds in the flock were predominantly adult or near-adult birds, and the legs and feet of most appeared to be a rich "school bus" yellow, with many verging on orange-yellow (Fig. 1). Almost all lacked any trace of green. To my eye, the leg color was closer to that of breeding condition Lesser Black-backed (*L. fuscus*) and Yellow-legged Gulls (*L. michahellis*) than to the familiar greenish-yellow of the California Gulls I have seen elsewhere.

I can find no clear reference in the literature to such a rich leg color. Both Grant (1986) and Winkler (1996) draw heavily on Behle and Selander's (1953) pioneering study of plumage and bare part coloration in banded birds of known age. The adult legs and feet of adults are described as green or yellow, except for an occasional individual whose legs and feet are flesh-colored; Behle and Selander do note, however, that the colors of the bare parts (especially the red bill spot and the yellow of the bill) become intensified during the breeding season.

The Qualicum birds appeared mainly to be breeding-condition adults, presumably waiting to move to inland breeding sites, and I was even treated to several bouts of display, including vigorous bursts of long-calling and posturing (Fig. 2). There are two recognized subspecies of California Gull: *albertaensis*, which breeds in the northern Great Plains, and nominate *californicus*, which occupies a slightly more southerly and westerly range including the large colonies on the Great Salt Lake in Utah and Mono Lake in California (Jehl 1987, Winkler 1996). With care and good views, adults of the two subspecies can be distinguished in the field (King 2000). The relatively heavy build and pale mantle shade of many Vancouver Island birds, as compared to neighboring Glaucous-winged (*L. glaucescens*) and Thayer's Gulls (*L. thayeri*), was suggestive of the larger *albertaensis* subspecies. This idea was supported by the bill shape, which tended to be of even depth, especially near the base, with a relatively shallow gonydeal angle. By comparison, the bills of most *californicus* are described as slightly narrower at the base and as a result may seem slightly more pinched in (King 2000). I did not have the foresight to study the wing tip patterns, which would have further strengthened the subspecific identification.

The main purpose of this note is to alert the ever-growing cadre of North

American gullwatchers, as well as state and provincial records committee members, to consider season when evaluating leg color in out-of-range California Gulls and other large gulls. The observation should also remind us that there is still much to learn about familiar North American birds. The orange-yellow legs and immaculate white head of California Gulls in this condition might even lead observers to think of something altogether more exotic, such as, say, Armenian Gull (*L. armenicus*) from central Asia, which shares the dark iris, red eye ring, and black band extending across both mandibles.

The article by Hardy (2003), which begins on p. 498 of this issue of *Birding*, may provide additional perspective on the reasons for the unusually bright leg color on the California Gulls that I describe above. It is known that leg color is determined in part by carotenoids—red or yellow pigments obtained exclusively from the diet. Recent studies have shown that carotenoids are also important for proper functioning of the avian immune system (Blount *et al.* 2003, Faivre *et al.* 2003). An appealing hypothesis is that males with brightly colored legs and bills are signaling that they are in good health and better able to defend against future parasitic infections. Unlike feathers, bare-part coloration may change rapidly in response to levels of carotenoids in the blood and thus may provide a day-by-day report on the health of a displaying male. Gulls with the fewest parasites or other underlying diseases may be most able to allocate enough carotenoids to produce brighter legs and bills. Once pair bonds are established, this character might become less important, thus allowing the color to fade.



Fig. 1. This adult California Gull shows most of the characteristic marks of an individual in breeding condition: a medium-dark mantle, a dark iris, and red-and-black smudging on the bill. Note, though, that its legs are orangish-yellow, in contrast to the more-typical grayish-yellow or greenish-yellow shown by most breeding adults of this species. *Victoria Island, British Columbia; April 2003. © Angus Wilson.*

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Fig. 2. A group of loafing California Gulls engage in a bout of display. The leg colors vary from bird to bird, ranging from a dull lemon-yellow (left) to a strong orange-yellow (right). *Victoria Island, British Columbia; April 2003. © Angus Wilson.*