Thayer's Gull

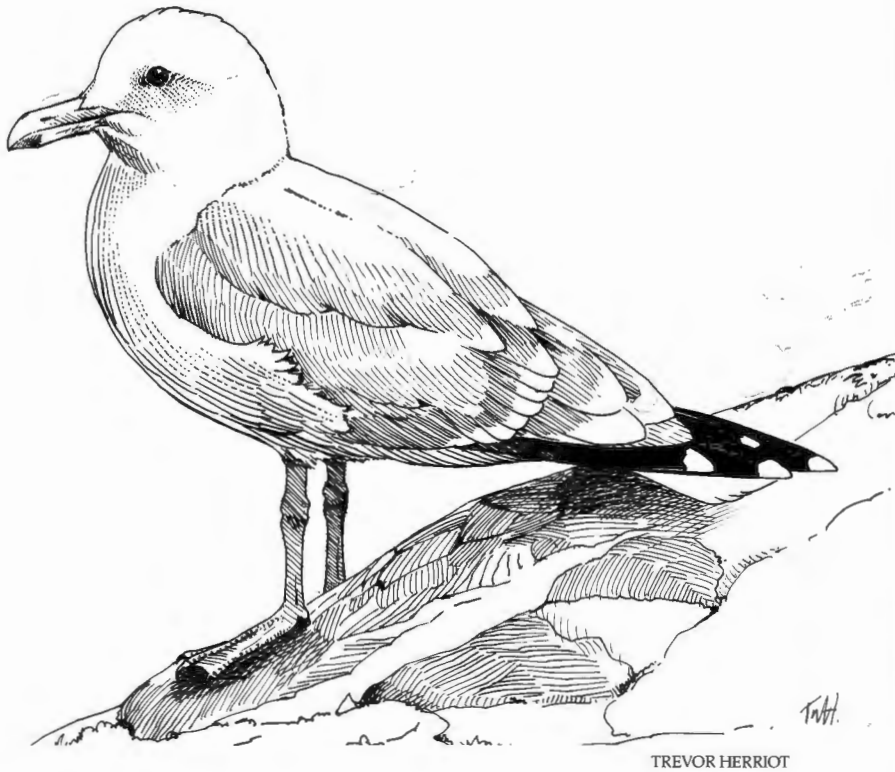
This juvenile Verdin had been drinking sugar water from a hummingbird feeder just before it was photographed at Tucson, Arizona, by Dale and Marian Zimmerman.

NEW PHOTO QUIZ

The birds in the last quiz were all juveniles. (Darned kids—they'll get you every time.) They were all photographed by the Zimmermans, active experts who are kids at heart. For our next quiz, we have more of a potpourri of birds and photographers. You decide what the birds are, and we'll be back in the next issue to agree with your identifications and to tell you who the photographers were. Have fun. The photos are on page 200. —K. K.

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TREVOR HERRIOT

This Gleanings might well be subtitled the "rise and fall of Thayer's Gull." Just when the birding community is becoming confident about the field identification of Thayer's Gull, it looks as if this task may need to be redefined.

The saga of Thayer's Gull began in 1915 when W. Sprague Brooks first described a gull nesting in the arctic archipelago of western Canada as a new species, *Larus thayeri.* In 1917 Jonathan Dwight, the then current authority on the gulls of the world, regarded several specimens as intermediate and concluded that *thayeri* was a subspecies of Herring Gull, and that another poorly known form, "Kumlien's Gull," was a hybrid between *thayeri* and Iceland Gull. Between the Second World War and the early 1960s, Canadian investigators found several sites where Thayer's and Herring gulls were nesting together with little or no interbreeding.* Because Thayer's and Kumlien's gulls are similar in the ways they differ from Herring Gull, and because they were not known to nest together, these workers suggested

*e.g., Macpherson, A. H. 1961. Observations on Arctic *Larus* gulls, and on the taxonomy of *L. thayeri* Brooks. *Arctic Institute of North America Technical Paper* No. 7:1–40.



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that *thayeri* was actually a dark, western race of Iceland Gull, connected by the variably gray-winged "Kumlien's Gull" to the typical pale-winged nominate Iceland Gull, which actually nests only in Greenland.

From 1959 to 1961 Neal G. Smith investigated the zone of overlap between these forms on Southampton Island and southern and eastern Baffin Island. He reported that Herring, Thayer's, and Glaucous gulls near Southampton Island could be found together in the same nesting colonies with no evidence of interbreeding. On southern Baffin Island, Herring, Kumlien's, and Glaucous gulls coexisted in similar fashion. Near Home Bay on eastern Baffin Island, Herring, Thayer's, Kumlien's, and Glaucous gulls were all found in close proximity to one another. In this area, according to Smith, Herring Gull is a bird of flat inland tundra and tundra lakes and ponds; it arrives and nests later on average than the other forms and is the least numerous. Glaucous Gull is a bird of sea cliffs and steep island ridges, usually arriving and nesting first and occupying the upper reaches of such sites. Thayer's and Kumlien's gulls both nest primarily on ledges of sea cliffs, usually below the cliff tops occupied by Glaucous Gulls; moreover, their nesting phenology is intermediate between those of Herring and Glaucous gulls.

These gulls differ in size and coloration, although the use of size differences as a field mark is complicated by great sexual dimorphism in all four forms. Glaucous Gull is the largest and the palest of the group, typically with a pale iris and a yellow orbital ring. Herring Gull is darker and somewhat smaller, and has black wing tips, a light iris, and an orange-pigmented orbital ring. Thayer's Gull is smaller still, even darker gray on the mantle and somewhat lighter gray on the wing tips than Herring Gull, and usually has a dark iris surrounded by a reddish-purple orbital ring. Kumlien's Gull is the smallest, with a pale mantle and a variable amount of gray markings on the wing tips; its iris is variable in color but the orbital ring is always reddish-purple—a pattern it shares with nominate Iceland and with Thayer's Gulls.*

*As noted below, later workers have not been able to distinguish Thayer's and Kumlien's gulls by any of these criteria.

Smith believed that the gulls had to be using one or more of these differences to properly segregate themselves into pairs. In an elegant series of experiments described in *AOU Monograph* No. 4 (1966: Evolution of some arctic gulls (*Larus*): an experimental study of isolating mechanisms) and in *Scientific American* (1967, 217:94–102), he captured gulls, altered their appearance by painting their orbital rings and wing tips the colors of the "wrong" species, and watched their subsequent behavior. Smith concluded that these gulls used the color and contrast of their eye and wing-tip patterns as recognition marks. He reported that mated pairs in which at least one member (usually the female) was inappropriately colored separated without producing offspring; that inappropriately colored, unmated males were unable to attract mates; and that he had even been able to induce mixed pairings between Thayer's and Glaucous gulls by making each sex resemble the opposite species! Kumlien's Gull, with its variable iris color, seemed to be anomalous, but Smith reported a strong correlation between iris color and wing-tip color† that

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accounted for the discrepancy (and led at least one reviewer of his work to ask why Iceland Gull also was not separated as a species). He speculated about ecological interactions among these gulls, and noted that in mixed colonies of Thayer's and Kumlien's gulls there was a random intermingling of nest sites (i.e., their nest-site requirements were the same), even though they did not interbreed. Smith suggested that all four forms were separate species, and his work is the basis of the AOU's current taxonomic treatment of them.

This neat story now has begun to unravel. Some of the problems have been discussed in previous Gleanings and in other publications. Several instances of gull hybridization elsewhere have been discovered in which comparable differences in pigmentation seem to have been ignored by the gulls in question. But we cannot expect the same behaviors necessarily to apply everywhere, even in the same species. Smith's experimental methods were so outstanding that other workers have tried to duplicate them with other gull species, to my knowledge always without success. An additional site where Kumlien's and Thayer's gulls occur together has been discovered, but here they interbreed freely (*Birding* 1987, 19(2):29). Finally, Richard R. Snell reports the "Status of *Larus* Gulls at Home Bay, Baffin Island" (*Colonial Waterbirds* 1989, 12:12–23), which includes some previously unpublished work conducted there by B. Knudsen in the mid-1970s. Snell's goal was to replicate at least some of Smith's experiments, given the contrary results that subsequent investigators had reported. He returned to Home Bay, where his surveys of gull colonies found no birds at six of nine sites reported as occupied by Smith. (Knudsen similarly had failed to find these sites.) Snell did, however, locate several "new" colonies but failed to find Herring Gulls in any of them. In mixed colonies, Thayer's and Kumlien's gulls appeared to interbreed freely. Further, in the specimens obtained by Smith and by subsequent workers, there was neither evidence of the association between eye color and wing pattern nor of the size differences between Thayer's and Kumlien's gulls reported by Smith. Snell noted that the effects of painting gulls would have lasted only one season, as the annual molt would restore all birds to their proper color, and that cross-fostering and induced hybridization could have produced only a few hybrids at most. He then assessed the logistical problems of working in this remote, rugged terrain, and concluded that it was not possible for a single investigator to have done all of the work that Smith reported doing in widely scattered sites, using only the canoe and dogsled available to Smith, especially given that he was conducting simultaneously a second study (of the Ringed Plover complex—see *Birding* 1984, 16:280). Smith's reports are quite vague about the way his time was distributed among experiments and among colonies. Snell suggested that all of Smith's results be used with great caution.

I would like to suggest two recent parallels to this controversy from the field of physics. In the past year or so we have read of "warm superconductors" and "cold fusion." While our understanding of both phenomena is

†i.e., individuals with darker irides show darker gray markings in the wing tips.

August Photo Quiz

Thayer's Gull
(continued from page 199)

undergoing revision, the scientific community as a whole accepts the reality of the first and doubts the second. The reason is simple. Any well-equipped lab can produce a warm superconductor (I have seen one myself), but only the original workers have been able to produce cold fusion (consistently). The controversy surrounding Thayer's Gull is exactly parallel, and the evidence to date puts it squarely in the "cold fusion" camp, a phenomenon produced only by the original investigator. I think that it is time to accept the consensus of Canadian ornithologists and reduce *thayeri* to a subspecies of Iceland Gull—like *kumlieni*. I would not be at all surprised to see the AOU adopt this position as well. The time birders have spent learning how to identify *thayeri* is not wasted, however, because, while this change will spare us the agony of deciding whether a particular gull is a Thayer's or a Kumlien's, separating it from Herring Gull, Glaucous-winged Gull, and various hybrids remains as challenging and as essential as ever.

—P. A. D.



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