

Articles

Taxonomic History of Thayer's Gull

Ron Pittaway

In this article, I present a chronological review and historical perspective on the taxonomy of Thayer's Gull (*Larus thayeri*). It is hoped that this overview will be a helpful contribution to the ongoing discussion of this confusing gull. I lay out the historical and current views on Thayer's Gull taxonomy so that you can make your own decision. In the end, I give you my opinion on Thayer's Gull.

In reading the following chronology, it is important to keep three points in mind: (A) Thayer's Gull was generally treated as a subspecies of the Herring Gull (*L. argentatus thayeri*) from 1917 until 1973 when the AOU (1973) gave it full species ranking; (B) Kumlien's Iceland Gull (*L. glaucooides kumlieni*) has always been the problem taxon because it is highly variable and it exhibits intermediate character traits between Thayer's and nominate Iceland Gulls; and (C) the limits of variation in both Kumlien's and Thayer's phenotypes have not been adequately defined by most of the following authors.

1. W.S. Brooks (1915) described a new species of gull, naming it Thayer's Gull (*L. thayeri*), based on

a very few specimens collected in 1901. The designated type specimen is from Ellesmere Island. He compared it to Kumlien's Gull (*L. kumlieni*), then considered a full species, and to Herring Gull (*L. argentatus*).

2. Dwight (1917) next considered Thayer's Gull to be a subspecies of the Herring Gull (*L. smithsonianus thayeri*), based on about 25 specimens, and supposed intergradation between *thayeri* and *smithsonianus*.

3. Dwight (1925), in his classic study of gulls, again treated Thayer's as a subspecies of the Herring Gull. He regarded Kumlien's Gull as a hybrid between Thayer's and Iceland Gulls. Interestingly, Dwight noted intergradation between Thayer's and Kumlien's Gulls, but still listed Thayer's as a race of the Herring Gull!

4. The AOU Check-list (1931) listed Thayer's as a subspecies of the Herring Gull. It placed Kumlien's Gull on the hypothetical list as a probable hybrid between Thayer's Gull and Iceland Gull.

5. Taverner (1933) regarded Kumlien's Gull as a separate species. He

challenged Dwight (1925) and the AOU (1931), who considered Kumlien's to be a hybrid between Thayer's and Iceland Gulls. Even if the Kumlien's population were of hybrid origin, Taverner believed that it should be treated as a separate species because it bred in pure colonies and not in association with either Thayer's or Iceland Gulls.

6. Taverner (1937), in his *Birds of Canada*, treated Thayer's as a subspecies of the Herring Gull. He treated Kumlien's Gull (*L. kumlieni*) as a full species. Taverner noted "much variation in the pattern [of the wingtips]. It may be unusually deep and extensive so to almost suggest the *thayeri* form of the Herring Gull".

7. A. Brooks (1937) believed that Thayer's Gull would prove to be a distinct species from Herring Gull. He was the first to challenge Dwight's (1925) treatment of *thayeri* as a race of the Herring Gull.

8. Peterson (1947) was the guide that I started with in the 1950s. It had a subspecies section in the back of the book that is still worth reading today. He said that some Thayer's come so close to Kumlien's that "it is a question exactly what they are".

9. Salomonsen (1950/51) reported a small population of Thayer's Gulls breeding in the Middle Thule District of northwest Greenland.

His description of Thayer's specimens from Greenland is similar to Canadian birds. Salomonsen stated that Thayer's Gull was the high Arctic form of the Iceland Gull. He mentioned two specimens of Kumlien's Gull from Greenland. Salomonsen said that the most natural explanation for *kumlieni* was a hybrid population between *glaucoides* and *thayeri*.

10. Manning et al. (1956) in an analysis of Thayer's Gulls on Banks Island, Northwest Territories stated: "There is no difficulty in deciding that the five adult specimens from Banks Island are typical of the *thayeri* population. A more complex question is the relationship of this population as a whole to *L.a. smithsonianus* on one hand and *L.g. kumlieni* on the other."

11. The AOU Check-list (1957) continued to list Thayer's Gull as a subspecies of the Herring Gull. There was very little interest in Thayer's among birders because it was thought to be only a race of the Herring Gull and virtually nobody knew how to identify it.

12. Parmelee and MacDonald (1960) treated Thayer's Gull as a separate species. They included a photograph of two adult Thayer's from Ellesmere Island. One is a typical Thayer's. In the second bird, the amount of dark in the folded wingtips is well within the range of many Kumlien's Gulls. The field

party from the National Museum of Canada collected specimens of Thayer's Gull near Eureka on Ellesmere (80 degrees north latitude). Parmelee and MacDonald described the wingtip patterns of the specimens: "The tips of the primaries (excluding white mirrors) grade from dark grey to grey to very light grey in the four males; from very dark grey (nearly black) to grey in four females. The fifth female has the entire wing tips white or nearly white and is the only one of the series (both sexes) that differs greatly in wing tip pattern from the type specimen (see Dwight, 1917:413-4). According to A.H. Macpherson (verbal comm.), Thayer's Gulls with grey to light wing tips appear to be numerous in the breeding range only at high latitudes. The Eureka specimens bear this out." The reason these pale winged birds from Ellesmere are classified as Thayer's and not Kumlien's is that they were collected well within the breeding range of Thayer's and they are part of an interbreeding population of Thayer's Gulls. However, these pale winged Thayer's suggest past introgression with Kumlien's, nominate Iceland Gull or even Glaucous Gull. Alternatively, they may just represent part of the variability found in this population. A pale winged Thayer's originating from Ellesmere Island would be impossible to tell from Kumlien's in the field on the winter range.

13. Macpherson's (1961) study of Arctic gulls was the most important and pivotal work of its time. The big hurdle then was to prove that Thayer's was not a race of the Herring Gull. Macpherson found that *thayeri* and *smithsonianus* Herring Gulls were breeding sympatrically (breeding ranges overlap without interbreeding). This is the best test of a biological species. Macpherson also recommended treating Thayer's Gull as a subspecies of the Iceland Gull. He said the characters shared by *kumlieni* and *thayeri* "include preference for cliff-nesting, gregarious breeding habits, and possession of a purplish-red orbital ring".

14. Godfrey (1966) was the first to treat Thayer's Gull as a separate species, based on Macpherson (1961) who reported Thayer's breeding sympatrically with Herring Gull and because Neal Smith's personal communications to Godfrey reported that *thayeri* and *kumlieni* bred sympatrically on Baffin Island. Godfrey also had access to Smith's PhD thesis. Godfrey's (1966) description and John Crosby's illustrations of adult Thayer's in the first edition of *The Birds of Canada* provided birders with the field marks of adult Thayer's for the first time.

15. Smith (1966) reported that his research done at Home Bay, Baffin Island, found *kumlieni* and *thayeri* to be reproductively isolated, thus

behaving as separate species. It is noteworthy that no subsequent researchers have reached this same conclusion. Smith reported that he conducted a number of ingenious experimental techniques; for example, he stated that he painted and changed orbital ring colour that induced hybridization by establishing 55 Thayer's x Glaucous pair bonds! I recommend that you visit a university or museum library to read this now infamous study which led the AOU (1973) to regard Thayer's Gull as a distinct species.

16. Smith's (1967) study was featured on the cover and in a major article of the October 1967 issue of *Scientific American*. A good library should have this issue or access to it.

17. Parmelee et al. (1967) reported on ornithological investigations of Victoria Island in the Northwest Territories. They listed Thayer's Gull as a separate species, probably based on Macpherson (1961) and personal communications with Neil Smith. An adult Thayer's Gull banded on 27 August 1962 at Cambridge Bay, Victoria Island was observed 58 days later in Vancouver, British Columbia. It was seen several times at the city dump from 24 October to 6 November 1962, when observations were discontinued. Remarkably, the observer read the band number with a telescope! Most Thayer's Gulls winter on the West Coast from British Columbia to San Francisco.

18. Sutton (1968) was the first to publish a skeptical review of Smith's (1966) study. George M. Sutton was an eminent ornithologist who knew Thayer's and Kumlien's Gulls in the Arctic. In his carefully worded review, Sutton wrote: "Smith's findings concerning 'super-eye-ringed' Thayer's Gulls perplex and discomfort me. In one breath he asks us to believe that the success of a gull's whole reproductive cycle depends on eyesight keen enough to keep it from wasting effort on a gull of opposite sex which does not have precisely the same eyelid colour as its own, and that this same gull will be fooled into considering a big black circle as an 'eyelid', an eye as a 'pupil', etc." Sutton further stated: "His findings ... are intensely interesting to speculate upon whether they be considered conclusive or not."

19. Andrie (1969) listed five specimens of Thayer's Gull from the Niagara Frontier Region, including the first specimen (first winter) taken in 1945 that was originally identified as *L.g. kumlieni*. In December 1967, three Thayer's (two adults and one second winter) were collected in the gorge of the Niagara River below the power dams. Andrie (1969) said: "The 1967 specimens might also be considered the first three for the Province of Ontario because these birds frequently flew back and forth across the International Boundary before

being collected on the United States side, and they probably were retrieved from the Canadian portion of the river." We now know that the Niagara River is one of the best places in eastern North America, south of the Arctic, to see Thayer's Gulls.

20. J. R. Jehl and B. A. Smith (1970) treated Thayer's Gull as a full species. Jehl was one of the reviewers of Neal Smith's (1966) monograph. Jehl and Smith's book has an excellent photograph of an adult Thayer's Gull, and text on separating it from Herring and Kumlien's Gulls. They also mentioned two immature specimens of *thayeri* from Churchill in the National Museum of Canada that were originally identified as *L.g. kumlieni* by Taverner and Sutton, once again illustrating the confusion between the two forms. They also describe "one call-note of *thayeri*, given both by flying and foraging birds, that is distinctly deeper-pitched than the comparable note of *argentatus*." I saw my first Thayer's Gulls in 1970 at Churchill, Manitoba.

21. The AOU (1973) gave Thayer's Gull full species status based on Macpherson (1961) who showed that *smithsonianus* and *thayeri* bred sympatrically without interbreeding, and Smith (1966) who reported *kumlieni* and *thayeri* breeding sympatrically. Until this decision, Thayer's Gull was regarded as a subspecies of the Herring Gull. This was the turning point. Thayer's Gull

was now official as a distinct species. Birders were now looking for this mythical gull and seeing it everywhere! Interestingly, we would know much less about Thayer's Gull today had the AOU not given it full species status in 1973.

22. On 11 November 1973, I found a first winter Thayer's Gull in Hull, Quebec near Ottawa. Richard Poulin of the National Museum (CMN 59224) collected it on 19 November 1973, and Earl Godfrey confirmed its identification. This specimen was the first record for Quebec. The specimen of *L.a. thayeri* listed for Tadousac, Quebec by Dwight (1917) and the AOU (1957) was re-identified as *L.a. smithsonianus* with a Thayer's-like wing pattern (Earl Godfrey, pers. comm.). Ottawa area birders soon became familiar with the field marks of Thayer's, finding them regularly in small numbers afterwards. During the 1970s a large series of Thayer's, Kumlien's and intermediate birds was collected at Ottawa area dumps by the National Museum, and upon analysis, Earl Godfrey began to have doubts about the validity of Thayer's Gull as a separate species.

23. Gosselin and David (1975) published the most detailed description of Thayer's Gull to date with photographs in *American Birds*. Now birders had more field marks, and Thayer's Gulls were seen everywhere!

24. Lehman (1980) wrote a comprehensive article in *Birding* on the identification of Thayer's Gull, with excellent photographs and illustrations of all ages. Birders had more field marks, and the sightings increased across North America.

25. Weber (1981) in a taxonomic review concluded that the Iceland-Kumlien's-Thayer's complex formed a single polytypic species.

26. Gaston and Decker (1985) of the Canadian Wildlife Service reported random interbreeding between Thayer's and Kumlien's phenotypes on Southampton Island in northern Hudson Bay. They reported a mix of light and dark eyed gulls, with varying wingtip pigmentation and patterns.

27. Grant (1986) revised his classic gull guide of 1983 and it now included North American species. Thayer's Gull was treated as a full species following the AOU (1973, 1983). Based on information from one Nova Scotia birder, Grant incorrectly said that Kumlien's Iceland Gull is not variable, when in fact it is extremely variable. This wrong information added to the confusion.

28. In the revised edition of *The Birds of Canada*, Godfrey (1986) treated Thayer's Gull as a subspecies of the Iceland Gull. Godfrey said: "Studies made by Brian

Knudsen for the National Museum of Natural Sciences in summers of 1975 and 1976 at Home Bay, Baffin Island (where in 1961 *thayeri* and *kumlieni* were thought by N.G. Smith [1966 Ornithological Monographs 4] to breed sympatrically with no observed interbreeding) produced no evidence of assortative mating of the morphs but indicated instead an area of widespread interbreeding among the phenotypes of these two taxa. Additional reasons for treating *thayeri* here as a subspecies of *L. glaucooides* include abundant specimen evidence from widely separated localities that colour and pattern differences between *thayeri* and *kumlieni* are completely bridged by individual variation." Godfrey's book has colour illustrations on Plate 36 by John Crosby of all three subspecies: *glaucooides*, *kumlieni* and *thayeri*. In addition, there is an illustration by S.D. MacDonald on page 264 showing the variation in the pattern and pigmentation in the primaries, ranging from pale extreme to average adult Thayer's.

29. DeBenedictis (1987), in a commentary on Gaston and Decker (1985) [incorrectly cited as A.J. Canaster and R. Zecher], stated that: "This paper may mark the beginning of the end of *thayeri* as a species."

30. Snell (1989, 1991) found non-assortative breeding between

Kumlien's and Thayer's Gulls at Home Bay, Baffin Island. He refuted the assortative mating of *thayeri* and *kumlieni* reported by Smith (1966). Snell assessed the logistical difficulties of Smith setting up experiments, collecting data and travelling long distances between study sites in the Arctic, concluding that it was impossible for Smith to have completed all the work reported. He stated that Smith's methodology and conclusions should be viewed cautiously.

31. DeBenedictis (1990) traced the history of Thayer's Gull. He stated that his article "might well have been subtitled the 'rise and fall of Thayer's Gull'." DeBenedictis discussed the studies of Macpherson (1961), Smith (1966, 1967), and how Snell (1989) tried to replicate some of Smith's experiments, "given the contrary results that subsequent investigators had reported". He concluded: "I think that it is time to accept the consensus of Canadian ornithologists and reduce *thayeri* to a subspecies of the Iceland Gull ... like *kumlieni*".

32. Gaston and Elliot (1990) described a colony of Kumlien's Gulls on Coats Island in northern Hudson Bay, which Smith (1966) previously identified as Thayer's Gulls. This is a good example of the confusion that existed and still exists about the appearance of these two taxa.

33. Sibley and Monroe (1990) treated Thayer's as a subspecies of the Iceland Gull. They stated that "*kumlieni* appears intermediate between *glaucoides* and *thayeri*, all these forms constituting one continuum of breeding populations representing a single species". They also cited Richard C. Banks who "suggests that *kumlieni* (and *thayeri*) is a distinct polymorphic species more closely related to *argentatus* than to *glaucoides*". Richard Banks is the current chair of the AOU Committee on Classification and Nomenclature. Interestingly, Burt L. Monroe, co-author listed above, was the previous chair of the AOU Committee on Classification and Nomenclature. Monroe died in 1994. Considering that Sibley and Monroe (1990) treated Iceland, Kumlien's and Thayer's as conspecific, I wonder if the recent AOU Check-list (1998) would have lumped Thayer's with Iceland had Monroe lived. Also of interest, the late Charles C. Sibley was Neil G. Smith's PhD supervisor at Cornell, but he did not follow his former student's conclusion in his book as stated above.

34. Zimmer (1990) provided a detailed treatment of the complex. He stated that "the problem of identifying Thayer's Gull has not gone away; it has become even more difficult" because "these gulls are confusingly variable". The presence or absence of pigmentation on

the sixth primary arbitrarily divides adult Thayer's and Kumlien's according to Zimmer.

35. Smith (1991) replied to Snell (1989) and to the earlier review by Sutton (1968). Smith agreed that there were some errors in his study, but claimed that they did not affect his findings and conclusions. I highly recommend that you read the two papers by Snell (1989, 1991), and Smith's (1991) reply in *Colonial Waterbirds*.

36. Zimmer (1991) had 19 photographs showing the tremendous range of variation in Iceland Gulls from Newfoundland, including several probable *kumlieni* x *thayeri* intergrades. The photo in Figure 14 shows four birds (three adults and one third winter); one bird has white wingtips, one bird has black wingtips, and the third and fourth birds are intermediate! Zimmer again arbitrarily separated Kumlien's and Thayer's by the pigmentation on the sixth primary. Southern Ontario birders also are aware of the incredible variation in Iceland Gulls, ranging from adults with pure white wingtips and clear yellow eyes to birds with black wingtips and dark eyes.

37. James (1991) treated *thayeri* as a subspecies of the Iceland Gull, following Godfrey (1986) and supported by a large series of specimens in the Royal Ontario Museum.

38. The British Ornithologists' Union (1991) treated Thayer's Gull as a subspecies of the Iceland Gull.

39. Snell and Godfrey (1991) presented their findings at the AOU meeting in Montreal. They said: "Iceland Gulls (*Larus glaucooides*) form a poorly understood and taxonomically controversial species complex. We analysed patterns of geographic variation among 317 museum specimens of adults collected throughout the breeding range of Greenland to Banks Island in the western Canadian arctic archipelago. Although east-west clinal increases in degree of mantle melanism, primary feather melanism, primary pattern score, and bill size are significant, there is substantial overlap in all characters among geographic regions. There is no evidence that any of the three subspecies (*L.g. glaucooides*, *L.g. kumlieni*, and *L.g. thayeri*) are morphologically discrete. Type specimens of *kumlieni* and *thayeri* (the type of nominate *glaucooides* is not extant) are simply points within clinal continua, rather than exemplars of differentiated groups." Richard Snell is of the "new school" of taxonomists. He considers the Iceland-Kumlien's-Thayer's cline to represent one highly variable species with no subspecies. Earl Godfrey is of the "traditional school" of taxonomists, believing that dividing the three forms into subspecies is a very useful way of sorting the populations.

40. Pittaway (1992) treated Thayer's as a subspecies of the Iceland Gull following Godfrey (1986) and James (1991). I often accompanied Richard Poulin of the National Museum to collect gulls at Ottawa area dumps. Seeing the fresh specimens in the hand and the wide degree of overlap between Iceland and Thayer's Gulls made me realize that they comprised one variable species.

41. Weir et al. (1995) reported on an invasion of Iceland Gulls that were killed by an oil spill at the British Shetland Islands in 1993. The adult specimens examined clearly demonstrated a *glaucooides-kumlieni* cline.

42. The video by Vanderpoel (1997) on *The Large Gulls of North America*, like Grant's classic guide, is a milestone in gull identification. It includes excellent footage and discussion of Thayer's and Iceland Gulls.

43. The AOU (1998) currently regards Thayer's Gull as a full species. The decision to give species status to Thayer's Gull in 1973 was based primarily on Smith (1966). The conclusions and methodology of Smith's study are now widely treated with skepticism based on information from Sutton (1968), Godfrey (1986), Snell (1989), DeBenedictis (1990), Snell and Godfrey (1991), Snell (1991), BOU (1991) and others. The AOU continues to disregard this information. Finally, the AOU (1998) says that

Thayer's Gull "is now generally regarded as a distinct species". To the contrary, many of the authorities cited in this article do not consider Thayer's Gull a distinct species.

44. Beaman and Madge (1998) regard Thayer's as a race of the Iceland Gull.

45. Howell (1999) gave a concise overview of the Thayer's debate. I found myself agreeing with most of his points. He questioned the AOU's (1998) statement that Thayer's "is now generally regarded as a distinct species", by pointing out that most recent non-AOU literature treats Thayer's Gull as a subspecies of the Iceland Gull.

46. Michel Gosselin (*in litt.*) of the Canadian Museum of Nature has made a careful study of 80 adult breeding specimens and additional winter adults of Thayer's-Kumlien's in the museum. His examination included measurements, primary pigmentation and pattern, and mantle colour. Gosselin arbitrarily considered as pure Thayer's, adult birds with five or more dark tipped primaries, occurring north or west of Home Bay, Baffin Island. Using a printer's grey scale (0 = white, 100 = black), he found that mantle colour taken from the small upperwing coverts ranged from 45 to 55 in Thayer's (n = 57, mean = 50) and from 30 to 50 in Kumlien's (n = 21,

mean = 38). He stated that the mean of nominate Iceland is probably around 30. The shade of the darkest wingtip markings ranged from 62 to 75 in Thayer's (n = 54, mean = 69) and from 35 to 70 in Kumlien's (n = 19, mean = 44). Gosselin concluded: "Given the great variability of Kumlien's Gull, its intermediate appearance, and the intermediate position of its breeding and wintering grounds, I firmly believe that Kumlien's Gull is an intergrade population between Iceland and Thayer's."

47. Richard Snell (in prep.) is doing the account of the Iceland Gull for *The Birds of North America* series. Based on his field work and museum studies, Snell (pers. comm.) will treat Thayer's Gull as a form of the Iceland Gull. Since Iceland Gull was the first described of the three taxa, it will become the name of the species.

Conclusion

The published and specimen evidence clearly indicate that Thayer's Gull is not a distinct biological species. The "new school" of taxonomists, such as Richard Snell, treats Thayer's as part of the Iceland Gull complex, but would not give it subspecies ranking because its clinal characters vary geographically at different rates and in different directions. I recommend following the traditional treatment of

Godfrey (1986) that lists three subspecies of the Iceland Gull: nominate *L. g. glaucooides*, *L. g. kumlieni*, and *L. g. thayeri*. The two approaches used by Snell and Godfrey are not incompatible. We could classify Iceland Gulls as Type I (*glaucooides*-like), Type II (*kumlieni*-like) and Type III (*thayeri*-like). Regardless of how we classify them, they are no more or less identifiable in the field. The AOU is bound to change its position as more authors independently adopt a taxonomy recognizing that Thayer's is a form of the Iceland Gull.

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Literature Cited

- American Ornithologists' Union.** 1931. Check-list of North American Birds. Fourth Edition. American Ornithologists' Union, Lancaster, Pennsylvania.
- American Ornithologists' Union.** 1957. Check-list of North American Birds. Fifth Edition. American Ornithologists' Union, Washington, D.C.
- American Ornithologists' Union.** 1973. Thirty-second supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 90: 411-419.
- American Ornithologists' Union.** 1983. Check-list of North American Birds. Sixth Edition. American Ornithologists' Union, Washington, D.C.
- American Ornithologists' Union.** 1998. Check-list of North American Birds. Seventh Edition. American Ornithologists' Union, Washington, D.C.
- Andrie, R.F.** 1969. "Thayer's" Gull in the Niagara Frontier Region. Auk 86: 106-109.
- Beaman, M. and S. Madge.** 1998. The Handbook of Bird Identification for Europe and the Western Palearctic. Princeton University Press, Princeton, New Jersey.
- British Ornithologists' Union.** 1991. Records Committee: Fifteenth Report (April 1991). Ibis 133: 438-441.
- Brooks, A.** 1937. Thayer's Gull (*Larus argentatus thayeri*) on the Pacific coast. Murrelet 18: 19-21.
- Brooks, W.S.** 1915. Notes on the birds of East Siberia and Arctic Alaska. Bulletin of the Museum of Comparative Zoology 59: 261-413.
- DeBenedictis, P.A.** 1987. Gleanings from the technical literature. Birding 19: 29-32.
- DeBenedictis, P.A.** 1990. Gleanings from the technical literature: Thayer's Gull. Birding 22: 197-200.
- Dwight, J.** 1917. The status of "*Larus thayeri*, Thayer's Gull." Auk 34: 413-414.
- Dwight, J.** 1925. The gulls (Laridae) of the world; their plumages, moults, variations, relationships and distribution. Bulletin of the American Museum of Natural History 52: 63-401.
- Gaston, A.J. and R. Decker.** 1985. Interbreeding of Thayer's Gull, *Larus thayeri*, and Kumlien's Gull, *Larus glaucooides kumlieni*, on Southhampton Island, Northwest Territories. Canadian Field-Naturalist 99: 257-259.
- Gaston, A.J. and R.D. Elliot.** 1990. Kumlien's Gull, *Larus glaucooides kumlieni*, on Coats Island, Northwest Territories. Canadian Field-Naturalist 104: 477-479.
- Godfrey, W.E.** 1966. The Birds of Canada. First Edition. National Museums of Canada, Ottawa.
- Godfrey, W.E.** 1986. The Birds of Canada. Revised Edition. National Museums of Canada, Ottawa.
- Gosselin, M. and N. David.** 1975. Field identification of Thayer's Gull (*Larus thayeri*) in eastern North America. American Birds 29: 1059-1066.
- Grant, P.J.** 1986. Gulls: A Guide to Identification. Second Edition. T & AD Poyser, London.
- Howell, S.N.G.** 1999. Shades of gray: the catch 22 of Thayer's Gull. Birders Journal 7: 305-309.
- James, R.D.** 1991. Annotated Checklist of the Birds of Ontario. Second Edition. Life Sciences Miscellaneous Publications, Royal Ontario Museum, Toronto.
- Jehl, J. R. Jr. and B.A. Smith.** 1970. Birds of the Churchill Region, Manitoba. Special Publication Number 1, Manitoba Museum of Man and Nature, Winnipeg.
- Lehman, P.** 1980. The identification of Thayer's Gull in the field. Birding 12: 198-210.
- Macpherson, A.H.** 1961. Observations on Canadian Arctic *Larus* gulls, and on the taxonomy of *L. thayeri* Brooks. Arctic Institute of North America Technical Paper 7: 1-40.
- Manning, T.H., E.O. Hohn and A.H. Macpherson.** 1956. The birds of Banks Island. Bulletin 143. National Museum of Canada, Ottawa.
- Parmelee, D.F. and S.D. MacDonald.** 1960. The birds of west-central Ellesmere Island and adjacent areas. Bulletin 169. National Museum of Canada, Ottawa.

- Parmelee, D.F., H.A. Stephens and R.H. Schmidt.** 1967. The birds of southeastern Victoria Island and adjacent small islands. Bulletin 222. National Museum of Canada, Ottawa.
- Peterson, R.T.** 1947. A Field Guide to the Birds. Houghton Mifflin Company, Boston.
- Pittaway, R.** 1992. Subspecies of the Iceland Gull. Ontario Birds 10: 24-26.
- Salomonsen, F.** 1950/51. The Birds of Greenland. Ejnar Munksgaard, Copenhagen, Denmark.
- Sibley, C.G. and B.L. Monroe, Jr.** 1990. Distribution and Taxonomy of Birds of the World. Yale University Press, New Haven, Connecticut.
- Smith, N.G.** 1966. Evolution of some arctic gulls (*Larus*): an experimental study of isolating mechanisms. Ornithological Monographs 4. American Ornithologists' Union, Washington, D.C.
- Smith, N.G.** 1967. Visual isolation in gulls. Scientific American 217(4): 94-102.
- Smith, N.G.** 1991. Arctic gulls 32 years later: A reply to Snell. Colonial Waterbirds 14(2): 190-195.
- Snell, R.R.** 1989. Status of *Larus* Gulls at Home Bay, Baffin Island. Colonial Waterbirds 12(1): 12-23.
- Snell, R.R.** 1991. Conflation of the observed and hypothesized: Smith's 1961 research in Home Bay, Baffin Island. Colonial Waterbirds 14 (2): 196-202.
- Snell, R.R.** (in prep.) Iceland Gull (*Larus glaucooides*). In The Birds of North America (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia.
- Snell, R. R. and W.E. Godfrey.** (1991). Geographic variation in the Iceland Gull (*Larus glaucooides*). Abstract Number 156. American Ornithologists' Union Meeting, Montreal.
- Sutton, G.M.** 1968. Review of: Smith, N.G. 1966. Evolution of some arctic gulls: an experimental study of isolating mechanisms. Ornithological Monographs 4. Auk 85: 142-145.
- Taverner, P.A.** 1933. A study of the Kumlien's Gull. Canadian Field-Naturalist 47: 88-90.
- Taverner, P.A.** 1937. Birds of Canada. The National Museum of Canada, Ottawa.
- Vanderpoel, J.** 1997. The Large Gulls of North America. Narrated by Jon Dunn. The Advanced Video Series. Video Number 1. Peregrine Video Production.
- Weber, J.W.** 1981. The *Larus* gulls of the Pacific Northwest Interior, with taxonomic comments on several forms (Part 1). Continental Birdlife 2(1): 1-10.
- Weir, D.N., R.Y McGown, A.C. Kitchener, S. McOrist, B. Zonfrillo and M. Heubeck.** 1995. Iceland Gulls from the 'Braer' disaster, Shetland 1993. British Birds 88: 15-25.
- Zimmer, K.J.** 1990. The Thayer's Gull Complex. Pp. 114-130 in A Field Guide to Advanced Birding (K. Kaufman). Houghton Mifflin Company, Boston.
- Zimmer, K.J.** 1991. Plumage variation in "Kumlien's" Iceland Gull. Birding 23: 254-269.

Ron Pittaway, Box 619, Minden, Ontario K0M 2K0