

Identification of Cackling and Canada Geese in Iowa

Paul Hertzell, W. Ross Silcock, and Stephen J. Dinsmore

When the American Ornithologists' Union (AOU) (AOU 2004) recently split the Cackling Goose (*Branta hutchinsii*) from Canada Goose (*B. canadensis*), the subsequent confusion over taxonomic divisions and the similarity of the two species immediately created a field identification challenge. This has resulted in a myriad of published references on the identification of the two species, and in some cases subspecies, although these sources have not always been consistent. Here, we briefly review the most current knowledge on the taxonomy and distribution of the two species, discuss the status of the species and associated subspecies in Iowa, and provide some guidance for their identification in the field. We stress that the identification techniques described below will not work on every bird, and that there is still much to learn about the status, distribution, and identification of these two species in Iowa.

TAXONOMY

The name "White-cheeked Goose" is widely used to refer to the various taxa included within the two species, Canada Goose and Cackling Goose, as constituted by the AOU (AOU 2004). Ten subspecies of White-cheeked Goose were described by the AOU (1957),

including only the following whose described ranges included Iowa: *interior*, *maxima* (then considered extinct), and *hutchinsii*. Since then there have been further attempts to delineate subspecific relationships within White-cheeked Geese. Palmer (1976) attempted to clarify the evolutionary histories and relationships among populations and modified the AOU (1957) classification. His work and others' have left considerable taxonomic confusion that also impacts our understanding of the populations found in Iowa. The most recent treatment of this species pair is that of Mowbray et al. (2002), who listed 11 subspecies of White-cheeked Goose. Genetic studies have shown that two groups can be discerned within these 11 subspecies, one containing seven large subspecies and the other four small subspecies. It was these two groups that the AOU (2004) elevated to full species: Canada Goose, consisting of the seven large subspecies, *canadensis*, *interior*, *maxima*, *moffitti*, *parvipes*, *occidentalis*, and *fulva*; and Cackling Goose, consisting of the four small subspecies, *hutchinsii*, *taverneri*, *minima*, and *leucopareia*.

STATUS AND DISTRIBUTION IN IOWA

According to ranges described by Bellrose (1976), Palmer (1976), and Mowbray et al. (2002), subspecies of Canada Goose likely to occur in Iowa are *interior*, *maxima*, *parvipes*, and *moffitti*, and of Cackling Goose the only likely subspecies is *hutchinsii*. Mowbray et al. (2002) are unclear on the occurrence of *parvipes* in Iowa, although it likely occurs as a migrant. Below, we briefly summarize what is currently known about the distribution of each of these subspecies in Iowa.

B. c. *interior* is a medium-large goose that breeds in east-central Canada and migrates primarily along the Mississippi Flyway, with small numbers using the Missouri Valley, and winters from Squaw Creek NWR in northwest Missouri southward. This subspecies would be expected in Iowa as a migrant, but is a large goose and thus is difficult to separate in the field from *maxima* and *moffitti* and their intergrades (see below).

B. c. *maxima* was the historical breeding White-cheeked Goose in Iowa, but was virtually extinct by 1900. Its rediscovery and re-introduction throughout Iowa have once again made it a common bird in the state. Introductions to Iowa of *moffitti*, whose currently-described breeding and wintering ranges are west of the Great Plains (Mowbray et al. 2002), have confused the genetic makeup of resident Iowa birds. Indeed, Palmer (1976) merged these two taxa as *moffitti*. Both *maxima* and *moffitti* and their introgressants^a winter in Iowa; many are probably resident, and most large Canada Geese in Iowa are in this *maxima/moffitti* group. Interestingly, these large resident geese, especially first and second year nonbreeders, but also a few failed adult breeders, undertake a major molt migration in June to the western Hudson Bay area, returning in fall with other migrant White-cheeked Geese. This explains why many fall migrant goose flocks include some very large Canada Geese.

B. c. *parvipes* is of uncertain status in Iowa due to difficulty of separating this subspecies in the field from larger subspecies and from Cackling Goose. Its range, as currently understood (Mowbray et al. 2002), suggests that it migrates generally west of Iowa, but in decreasing numbers eastward perhaps to central Iowa. As the smallest of the Canada Goose subspecies, it is difficult to separate from Cackling Goose, with which it has been thought to interbreed to a considerable extent in northern Canada (Mowbray et al. 2002). Recent studies, however, indicate that gene flow is minimal, allowing recognition of *parvipes* and *hutchinsii* as distinct taxa and the consequent split of White-cheeked Geese into separate

species (Shields and Wilson 1987; Van Wagner and Baker 1990; Pearce et al. 2000; AOU 2004; McLaren 2004). Separation in the field of *parvipes* from smaller individuals of *moffitti* also is difficult. Small, pale-breasted Canada Geese, most likely in western Iowa, are likely to be *parvipes*, however.

B. c. moffitti, as described by Mowbray et al. (2002), in its natural state occurs at the west edge of the Great Plains. However many “park” and re-established geese in Iowa are intergrades of *moffitti* and *maxima* (see above).

B. h. hutchinsii is a small pale-breasted Arctic goose, which migrates through most of Iowa. In general, they are an earlier fall and later spring migrant than Canada Geese. They arrive in early October, small numbers often over-winter, and most have departed by late March. Although typical individuals can be separated in the field from *parvipes*, many small White-cheeked Geese are difficult to identify to species.

GENERAL FIELD IDENTIFICATION

Now that ornithologists have separated the Cackling Goose from the Canada Goose at the species level, it falls upon field observers to separate the two in the field. This would be a straightforward affair involving little more than an assessment of body size were it not for the fact that the most robust Cackling Geese approach, and may actually overlap, the most diminutive Canada Geese. So, while birds at the extremes of the range in sizes of these two taxa are readily identified, often even to subspecies, those in the middle of the range require a more careful, critical look. Some intermediate birds may not be safely separable in the field. In the sections that follow, our focus is to provide details that will enable observers to be certain they are looking at Cackling Geese, at least some of the time.

An arbitrary member of the Cackling/Canada Goose complex possesses a familiar set of characteristics known to nearly every birder. Perhaps the most distinguishing mark is the black head and neck with the striking white patch emanating from the throat, covering

the cheek, and terminating behind the eye (Figure 1). This mark gave rise to the name “White-cheeked Goose” to refer to the complex. The black coloration of the neck stops abruptly at or above the breast, giving the appearance that a sock has been pulled over the head of the bird. Body colors range from light gray or grayish-brown to dark brown with varying degrees of texture and scalloped edges to feathers, particularly



Figure 1. This photo of a mixed species flock of Canada and Cackling Geese illustrates the general features that identify these taxa, including the black “sock” over the head and neck and contrasting white cheek. Photograph by Jay Gilliam, Norwalk, IA.



Figure 2. This Canada Goose (larger bird in rear, probably *B. c. maxima*) and Cackling Goose (smaller bird in front, *B. h. hutchinsii*) illustrate clearly the differences in size and structure between the two species. Photograph by Jay Gilliam, Norwalk, IA.

both groups, meeting approximately at *B. c. parvipes*, *B. h. hutchinsii*, and *B. h. taverneri*. Thus, the midrange of this complex contains a confusing array of geese, with identification made even more difficult by variation in each subspecies, and possibly by hybridization between populations. The problems associated with field identification of a particular goose from this size range may never be completely resolved.

FIELD IDENTIFICATION IN IOWA

In Iowa, the light-bodied Cackling Goose, *B. h. hutchinsii*, which appears to be a regular and common migrant, and the light-bodied Canada Goose, *B. c. parvipes*, which appears to be a rare migrant, offer the greatest identification challenge to birders. While both share

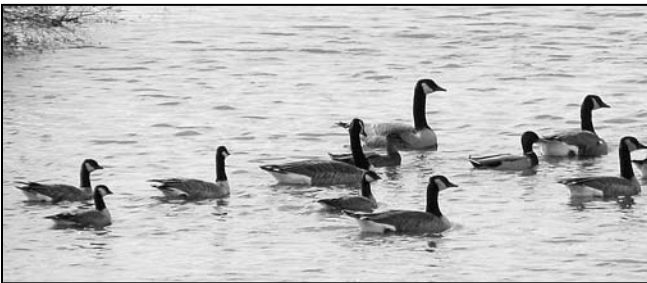


Figure 3. The three leftmost birds and the bird fifth from the left are Cackling Geese. Note that two of these individuals are roughly the size of the Mallards and are noticeably smaller than the three Canada Geese. Photograph by Paul Hertzfel, Mason City, IA.

in the appearance of the folded wing. In contrast, the vent and both upper and lower tail coverts are white. The tail itself is black, and the feet and bill are black.

This general set of characteristics fits both Canada and Cackling Geese, but it is doubtful anyone could confuse *maxima*, the largest and a light-bodied Canada Goose, with *minima*, the smallest and a dark-bodied Cackling Goose. The size difference between these extremes is striking and it is not difficult to accept that genetic studies indicate we should recognize the existence of at least two matriarchal clades⁹. The large-bodied group, now called Canada Goose, has nearly all members larger in size than nearly all members of the small-bodied group, now Cackling Goose (Figures 2 and 3). However, size varies within the respective subspecies of

the common characteristics of White-cheeked Geese described above, a direct comparison of body size with nearby known species, combined with a careful look at head and bill shape and neck proportion, will enable the identification of most Cackling Geese in Iowa. The following is a brief summary of these

Figure 4. Nearly the same size as a Lesser Snow Goose, this Cackling Goose with its blocky head and stubby bill is most likely a male *hutchinsii*. Photograph by Paul Hertzell, Mason City, IA.



characteristics in *hutchinsii*, ranked from most to least important when trying to identify one in the field:

1. **Size.** There is considerable variation in both size and weight, with females averaging smaller than males, and birds at the northern edge of the breeding range averaging smaller than those at the southern edge. Mowbray et al. (2002) give a range in the mean weight of males from north to the south of 1.92–2.38 kg and for females 1.65–2.10 kg. These figures put an extremely small female at barely 55% of the size of a large male. In the field, this translates to a rather wide range that lies roughly between the size of a Ross's Goose and the size of a (Lesser) Snow Goose (Figure 4). Many individuals can be quite small, even smaller than a Mallard. At the large end, a White-cheeked Goose that exceeds a Greater White-fronted or Snow Goose in size is a candidate for *parvipes*, and would need some definitive *hutchinsii* features listed below before being identified as a Cackling Goose.



Figure 5. This Cackling Goose shows the typical blocky head shape of the species. Note the concave angle between the bill base and forehead, rather flat crown, and bump at the rear of the crown. Photograph by Jay Gilliam, Norwalk, IA.

2. **Head shape.** A blocky head shape is thought to be the most reliable mark in identifying *hutchinsii* (Figure 5). We agree it is probably a sufficient condition, but it seems not to be a necessary condition. Many individuals do exhibit a squared or knobby shape to their heads, especially birds at the heavy end of the weight range where males dominate the population, but every flock seems to contain many individuals lacking this feature entirely, with many others having an intermediate, wedge-shaped appearance to the head. Whether or not this variation is along gender lines within *hutchinsii* is unknown, but *parvipes* is not known to show



Figure 6. Differences in neck length are apparent in this photo of a mixed species group of Canada and Cackling Geese. Beginning on the left, we believe these birds are a Lesser Canada Goose (*B. c. parvipes*), a Canada Goose (*B. c. interior*), a pair of Cackling Geese (*B. h. hutchinsii*; female on the left, male on the right), and the right goose is a Canada Goose (*B. c. maxima*). Photograph by Jay Gilliam, Norwalk, IA.

a knobby or blocky head. Therefore, a small white-cheeked goose with a knobby head, especially with a steep forehead line, is almost certainly *hutchinsii*.

3. **Bill shape.** Because *hutchinsii* is on average smaller than a Canada Goose, its bill also is smaller. However, there is more to it than this — the bill is *proportionately* smaller, and noticeably so. Most individuals have a stubby, triangular bill similar to the bill of a Ross's Goose. Measurements given by Leafloor et al. (1998) and Mowbray et al. (2002) show minimal overlap in culmen length with Canada Goose (*B. c. parvipes*), which tends to have a longer, flatter bill.
4. **Neck length.** Perhaps the most variable structural feature in *hutchinsii* is the shape and length of the neck. Many birds have extremely short necks, as measured along the ventral surface from the chin to the bottom of the sock (Figure 6). Some are barely longer than they are wide. This short, thick-necked appearance is a good mark for *hutchinsii*, but it is not a necessary condition. It is complicated by the fact that an individual goose has an inherent ability to alter the apparent length of its neck from a relaxed posture to an alert posture. Small *hutchinsii* with a long neck are unknown, but some birds at the large end, probably males, do have necks of a very different proportion. Some appear to have a sock length that is two or more times as long as its average width. The longer, thinner neck is typical of *parvipes*, so its occurrence is problematic in identifying *hutchinsii*. Thus, while a relaxed *parvipes* can appear to have a fairly short neck, any small White-cheeked Goose studied long enough to determine that its neck (sock length) is not much longer than it is wide can be safely identified as a Cackling Goose. If it is light-bodied, then it is almost certainly *hutchinsii*.
5. **Individual bird versus flock.** Identifying a lone bird with no direct comparison to other waterfowl can be an inconclusive endeavor. However, if such a bird is judged to have a blocky head, a stubby bill, and a short, thick neck, then there can be little doubt it is a Cackling Goose. If it is also light-bodied and found in Iowa, it is surely a member of the *hutchinsii* subspecies. On the other hand, encountering Cackling Geese in a flock can provide considerable additional assurance of their identity. Besides giving multiple examples of the variation in size and structural features, the flock behavior is also noteworthy. Cackling Geese are extremely gregarious but seem to prefer their own company, often remaining segregated from other White-cheeked Geese when found in large, mixed-species flocks. In flight, the flocks are often dispersed, with multiple lines and/or V formations intersecting patches of loose birds. Their high-pitched cackling calls are distinctive and differ from the lower-pitched and more spaced vocalizations of Canada Geese.

Identifying a Canada or Cackling Goose to species can certainly provide an identification challenge in Iowa. However, safely labeling a particular individual to a subspecies requires even more careful study, although the study of subspecies will almost surely improve your ability to recognize the two species.

SUMMARY

The identification of Canada and Cackling Geese in Iowa is indeed challenging, but with good views and a careful consideration of subspecific variation, many individuals can be safely identified to species. Our knowledge of the distribution of the various subspecies in Iowa is still not fully known, however, so birders are encouraged to study, photograph, and report their sightings of known subspecies so that our knowledge of both species will increase. Lastly, we note that we have correctly identified the birds in the photos to the best of our ability, although we were not unanimous on the identity of all individuals in all photos!

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^a Introgression is the introduction of genes from one species into the gene pool of another species, occurring when matings between the two produce fertile hybrids.

^b A clade is a taxonomic group of organisms classified together on the basis of homologous features traced to a common ancestor.

Paul Hertzell, 1432 East State Street, Mason City, IA 50401 (phertzell@rconnect.com); W. Ross Silcock, P.O. Box 57, Tabor, IA 51653 (silcock@rosssilcock.com); Stephen J. Dinsmore, Department of Natural Resource Ecology and Management, 339 Science II, Iowa State University, Ames, IA 50011 (cootjr@iastate.edu)