

Recognizable Forms

Black-crested and White-crested Double-crested Cormorants

by

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Introduction

Double-crested Cormorants (*Phalacrocorax auritus*) are large loon or goose-like birds. They often fly in lines or V-formations like geese, but are silent. Double-crested Cormorants dive for fish like loons, but unlike loons they perch upright on trees, posts or rocks, often holding their wings spread half open like a vulture or Anhinga (*Anhinga anhinga*), "sometimes waving them gently" (Godfrey 1986). The reason for wing spreading is uncertain.

Double-crested Cormorants are now more abundant on the Great Lakes than at any time in recorded history, having recovered from the DDT era that ended in the 1970s (Weseloh and Collier 1995). They also now occur regularly on many inland lakes where until recently there were few records. The opportunities to observe this fascinating bird in Ontario have never been better. Cormorants are hated by most commercial and sport fishermen. They are calling for control programs despite numerous studies proving that cormorants do little economic harm to game fish. As well, a Lake Ontario study found that the amount of forage fish eaten by cormorants was not a threat to the food supply of game fish (Weseloh and Collier 1995, Weseloh 1996, Mackey 1996).

The Double-crested Cormorant has two recognizable forms: a black-crested form and a white-crested form (Figure

1). These two forms are illustrated on pages 45 and 47 of the *National Geographic Guide* (Scott 1987), the only field guide to do so. In this account, we discuss the taxonomy, identification, plumages and molts, and the occurrence of the two recognizable forms of the Double-crested Cormorant in Ontario.

Taxonomy

The American Ornithologists' Union Check-list (1957) lists four subspecies (races) of the Double-crested Cormorant: (1) nominate *P.a. auritus* breeds from Alberta to Newfoundland (including Ontario) south to the next subspecies; (2) *P.a. floridanus* breeds from North Carolina and Texas south to Florida and Cuba; (3) *P.a. albociliatus* breeds from the coast of British Columbia and interior of Oregon south to Arizona and Mexico; and (4) *P.a. cincinatus* breeds in Alaska. A recently described small fifth subspecies, *P.a. heuretus*, is resident only on San Salvador Island in the Bahamas (Johnsgard 1993).

Palmer (1962) describes the geographical variation in the proportion of black and white plumes in the crests. Southeastern birds are the darkest with the crest plumes always dark. Eastern birds occasionally have white or partly white plumes, especially in the mid-continent populations. West coast birds have mainly white plumes. Alaskan birds often have all-white plumes. In



Figure 1: Black-crested and white-crested forms of the Double-crested Cormorant in spring. Autumn juvenile at centre.
Drawing by *Peter Burke*.

Canadian populations, Godfrey (1986) says the crests are black in the eastern race and largely white in the western races.

The black-crested form occurs in three subspecies: *auritus*, *floridanus* and *heuretus*. The white-crested form occurs in the two western subspecies: *albociliatus* and *cincinatus*; it also may occur infrequently in nominate *auritus* as reported below under the white-crested form.

Plumages, Molts and Ages

The sexes are similar in all ages. Plumage and molt terminology used here follows Humphrey and Parkes (1959), Palmer (1962), and Pittaway (1995). Double-crested Cormorants have two annual molts. The first prebasic (postjuvenile) molt and prealternate (prebreeding) molts are partial, replacing the head, neck and part of the body feathering. The second and subsequent prebasic (postbreeding) molts are complete; all feathers are shed and replaced.

The sequence of plumages is: *juvinal*, *first basic*, *first alternate*, *second basic*, *second alternate*, *definitive basic*, *definitive alternate*. Once definitive plumages are acquired between two and three years of age, they are repeated for the life of the bird.* There is much individual variation in predefinitive plumages and aging is not always possible.

Juvinal (juvenile) plumage is fully acquired at the age of two months, usually by late summer and is worn until late winter or spring. Juveniles are sooty-brown, paler buff on the throat, foreneck and breast, becoming much darker on the belly. Juveniles have distinctly scaly upperparts. The scaly appearance of the back is caused by the

decidedly grayish-brown feather centres of the scapulars and wing coverts contrasting with the blackish feather margins.

First Basic and *First Alternate* (first winter and first summer) plumages probably are acquired by two overlapping partial molts. Almost year-old birds returning to Ontario in spring are in (or molting into) first basic plumage. They acquire first alternate plumage into the summer. Year old birds in first basic/first alternate plumages are like juveniles, but show a mixture of blacker and glossier feathering. There is great individual variation in year old birds.

Second Basic (second winter) plumage is acquired by a complete molt in the fall and is retained until late winter. Compared to juveniles, second basic birds are darker and more adult-like, but with some paler brown on the foreneck. The new flight feathers are black versus brown in juveniles.

Second Alternate (second summer) plumage is acquired by a partial molt in late winter and retained until the fall. Most second alternate birds are like definitive alternate, but they do not have crests. Some breed in second alternate plumage.

Definitive Basic (adult winter) plumage is acquired after the breeding season by a complete prebasic molt and worn until late winter. Third basic is the earliest definitive basic plumage. Coloration is similar to definitive alternate, but duller and less glossy.

Definitive Alternate (adult breeding) plumage is acquired by a partial prealternate molt of the head, crests, neck and some body feathers in February and March and, except for the crests, is retained until late summer. Third alternate is the earliest definitive

alternate plumage. Definitive alternate birds are mainly black in colour; the head, neck and underparts show green reflections and the upper back and wing coverts show bronze reflections at close range. Also, definitive alternate birds show a few scattered, filament-like, white feathers on the head and neck projecting beyond the black feathers (Roberts 1955).

Crests: The upcurled nuptial crest plumes (tufts), along each side of the crown behind the eyes, are found on both males and females only in high definitive alternate plumage from March to May (Figure 1). The crest plumes are narrow and filamentous (threadlike), usually 40 to 60 per side in the male (fewer in the female) with as many as 88 recorded, and are mostly under 5 cm (2 inches) long, with the longest recorded at 7.8 cm (3 inches) (Palmer 1962). Crests are shed early in the nesting season (during incubation) with a few plumes retained into June (Bent 1922). There is no information in the literature on the function of the crests, but as suggested by Bent (1922), they must play a role in courtship and pair formation.

Much of the above information is from Palmer (1962). See also Bent (1922), Roberts (1955) and Oberholser (1974) for more information on plumages and molts.

Black-crested Form

The black-crested form is common in Ontario. Spring adults in high breeding plumage have black crests from March to May. See Figure 1. The crests are often inconspicuous on the black-crested form because they are the same colour as the head, but are noticeable if you look for them. At the nesting colony in Hamilton Harbour, Rob Dobos (pers.

comm.) reports that the crests are quite visible on cormorants in April and May when they are courting, nest building and copulating.

Birds with black nuptial crests are illustrated on Plate 6 in Godfrey (1986), and on the plate opposite page 185 in Palmer (1962). Also compare black-crested and white-crested forms on pages 45 and 47 of the *National Geographic Guide* (Scott 1987).

Caution: In flight, Double-crested Cormorants wearing aluminum bands have been misidentified as Great Cormorants (*Phalacrocorax carbo*) because the light reflecting off a band on a flying bird can give the appearance of a white flank patch!

White-crested Form

The white-crested form is very rare in Ontario. Because the crests are white and contrast with the black head, they are much easier to see than the crests on a black-crested form. See Figure 1. There is a beautiful photograph of a white-crested form of the subspecies *albociliatus* in Johnsgard (1993).

We know of two sightings of the white-crested form in Ontario. First, Alvaro Jaramillo (e-mail) remembers seeing a white-crested form among a flock of flying black-crested Double-crested Cormorants in May about 10 years ago at Stoney Point on Lake St. Clair, Essex County. Second, Matt Holder (*in litt.*) saw a white-crested Double-crested Cormorant on 14 May 1993 on Lake Superior at the Thunder Cape Bird Observatory. Matt describes his sighting: "Whilst lake watching from the bird observatory, I noticed a Double-crested Cormorant with white crests instead of the usual dark crests displayed by the typical form seen in Ontario. At a distance of about 200 yards with a

Kowa TSN2, the crests could clearly be seen flattened against the sides of the head contrasting with the all-black plumage. Everything else on the bird was typical of the dark-crested Double-crested Cormorant." Interestingly, Chip Weseloh (pers. comm.) of the Canadian Wildlife Service has seen many thousands of Double-crested Cormorants, but he has not seen the white-crested form in Ontario.

Nominate *auritus* is the subspecies found in Ontario (James 1991). Without a specimen (and maybe with one), it is impossible to determine if the white-crested form seen in Ontario is one of the western subspecies or an extreme variant of *auritus*. A few white plumes occur occasionally in the crests of *auritus* (Bent 1922, Palmer 1962). Alternatively, Dennis Paulson (e-mail) of the State of Washington says, "with the population explosion of western, as well as eastern cormorants, and their widespread distribution on the big interior reservoirs, I certainly wouldn't be surprised if representatives of one of the white-crested races showed up in your area."

Summary

Two forms of the Double-crested Cormorant occur in Ontario: a black-crested form and a white-crested form. The black-crested form is common and the white-crested form is very rare in the province. The curly crests (tufts) are present only on adults in high adult breeding (definitive alternate) plumage from March to May.

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