

Aberrantly-coloured eggs of Double-crested Cormorant (*Phalacrocorax auritus*) from Lake Huron

Michael Patrikeev, Scott Parker and Jeff Truscott

Figure 1. A nest of Double-crested Cormorant with seven eggs from White Rock Island, Fathom Five National Marine Park, Lake Huron. May 2008. *Photo: Michael Patrikeev*



Double-crested Cormorants (*Phalacrocorax auritus*) are a familiar sight throughout the Great Lakes, and can be seen flying overhead, or loafing and roosting in trees, or on rocks, and man-made structures along shores of lakes and other water bodies. Many thousands of these dark piscivorous birds nest on islands in lakes Ontario, Erie, Huron and Superior, where they form dense colonies, often alongside gulls and terns.

Cormorant nests are built from materials available near colonies, usually finger-sized sticks, aquatic plants and other bulky materials, both natural and man-made (Hatch and Weseloh 1999, M. Patrikeev pers. obs.). One to seven eggs are laid, but most commonly 3 or 4 (Peck and James 1983, Stenzel *et al.* 1995). Eggs are pale blue and unmarked, but the pigmented layer is often obscured by an outer calcite cover that is initially white (Van Scheik 1985 in Hatch and Weseloh 1999) as can be seen in Figures 1 and 2. As incubation progresses, the eggs acquire a yellowish or brown stain from guano and dirt (Hatch and Weseloh 1999).

On 22 May 2008, several sets of cormorant eggs with a “mottled” or “speckled” appearance were found on Snake



Figure 2. A nest of Double-crested Cormorant with four eggs from Lake Superior. May 1995. Photo: Michael Patrikeev.

Island (45° 20' 16" N, 81° 37' 14" W) in Lake Huron, during a Parks Canada Herring Gull (*Larus argentatus*) survey. Snake Island is a relatively small (ca. 100 m x 500 m) rocky island with few shrubs and trees, lying ca. 8 km off the tip of the Bruce Peninsula, and just outside the boundaries of the Fathom Five National Marine Park. On 22 May, 30-35 ground-nests of Double-crested Cormorant were located in the southeastern part of the island. Most nests contained only 2 to 3 eggs indicating that laying was still underway.

Several nests contained eggs that appeared patterned (Figures 3 and 4) unlike typical eggs of Double-crested Cormorant. Although the background



Figure 3. "Mottled" eggs of Double-crested Cormorant. The visible pattern is mostly confined to the outer calcite layer. Snake Island, Lake Huron. May 2008. *Photo: Michael Patrikeev*



Figure 4. A clutch of heavily mottled eggs from Snake Island, Lake Huron. May 2008. *Photo: Michael Patrikeev*

but not collected. The prevalence of such "mottled" eggs in the colony could not be determined because many cormorant eggs were depredated or stolen by Herring Gulls. The cormorants had left the colony soon after we made landing, and did not return until some time after we had left. The Herring Gulls, on the other hand, lingered near the cormorant colony, and pecked and stole many eggs from unattended nests (Figure 5).

The senior author has seen thousands of cormorant clutches in colonies around the Great Lakes, but has never observed similarly patterned eggs. Several colonial waterbird experts who regularly visit cormorant colonies in the Great Lakes, also have never observed such clutches (C. Weseloh, CWS; S. Elliott retired OMNR, pers. comm.). Egg collections at Royal Ontario Museum (Toronto, Ontario), and Western Foundation for Vertebrate Zoology (Camarillo, California) do not contain any patterned eggs of the Double-crested Cormorant (M. Peck, R. James, R. Corrado, pers. comm.).

colouration (slightly bluish) was typical for freshly-laid eggs of this species, the eggs from Snake Island were mottled or speckled with tan and brown, and varied from very lightly- to heavily-mottled. Some eggs were mottled so heavily that their background colour had changed to tan. Close examination revealed that it was the outer calcite cover that was patterned. The clutches were photographed

It was suggested that some foreign substance on the plumage of the incubating bird (e.g., oil) may have been responsible for the “mottled” appearance of the eggs from Snake Island (L. Kiff in litt. to J. C. Eitnrear). The Pelecaniformes (including cormorants) probably do not have shell pigment glands, and thus production of “coloured” eggs is highly unlikely. It was also pointed out that in the past, the chalky external cover of Double-crested Cormorant eggs was disproportionately affected by DDE, and the bright blue colour of the actual eggshell was exposed in the most contaminated eggs (L. Kiff, pers. comm.).

Figure 5. Depredated clutch of Double-crested Cormorant. Snake Island, Lake Huron. May 2008.

Photo: Michael Patrikeev

Figure 6. Double-crested Cormorants in the colony at Pigeon Island, Lake Ontario. April 1994.

Photo: Michael Patrikeev



This is a plausible theory, however, pollution by oil or similar substances would likely have manifested itself in a similar manner in various cormorant colonies across the Great Lakes. However, we have found no reports of similarly coloured eggs from our region or elsewhere. Nor were there any reports of oil spills in that area.

We plan to revisit Snake Island in 2009, and arrange for a permit to collect several sets of “mottled” cormorant eggs (assuming that eggs with “mottled” appearance can be located next year). We will further look into natural or unnatural causes that might have been responsible for mottled appearance of Double-crested Cormorant eggs from Snake Island.

Acknowledgements

We would like to express our appreciation to the following individuals for assistance in and comments on the preparation of this manuscript: René Corado (Western Foundation for Vertebrate Zoology), Tammy Dobbie (Point Pelee National Park), Jack Eitnier (Center for the Studies of Tropical Birds), John Haselmayer (Parks Canada), Ross James (Ontario Field Ornithologists), Lloyd Kiff (Peregrine Fund), Mark Peck (Royal Ontario Museum), Steve Travis (Point Pelee National Park) and Chip Weseloh (Canadian Wildlife Service).

Literature Cited

- Hatch, J. J.** and **D. V. Weseloh.** 1999. Double-crested Cormorant (*Phalacrocorax auritus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/441> doi:10.2173/bna.441
- Peck, G. K.** and **R. D. James.** 1983. Breeding birds of Ontario: nidology and distribution. Volume 1: Nonpasserines. Life Sciences Miscellaneous Publications. Royal Ontario Museum, Toronto.
- Stenzel, L. E., H. R. Carter, R. P. Henderson, S. D. Emslie, M. J. Rauzion, G. W. Page** and **P. Y. O'Brien.** 1995. Breeding success of Double-crested Cormorants in the San Francisco Bay Area, California. Colonial Waterbirds 18:216-224.
- Van Scheik, W. J.** 1985. Thermal aspects of the reproductive ecology of the Double-crested Cormorant (*Phalacrocorax auritus*) in southern Alberta. Ph.D. dissertation, University of Alberta, Edmonton.
-
- Michael Patrikeev*, Bruce Peninsula National Park/Fathom Five National Marine Park, P.O. Box 189, 248 Big Tub Road, Tobermory, Ontario N0H 2R0
- Scott Parker*, Bruce Peninsula National Park/Fathom Five National Marine Park, P.O. Box 189, 248 Big Tub Road, Tobermory, Ontario N0H 2R0
- Jeff Truscott*, Bruce Peninsula National Park/Fathom Five National Marine Park, P.O. Box 189, 248 Big Tub Road, Tobermory, Ontario N0H 2R0