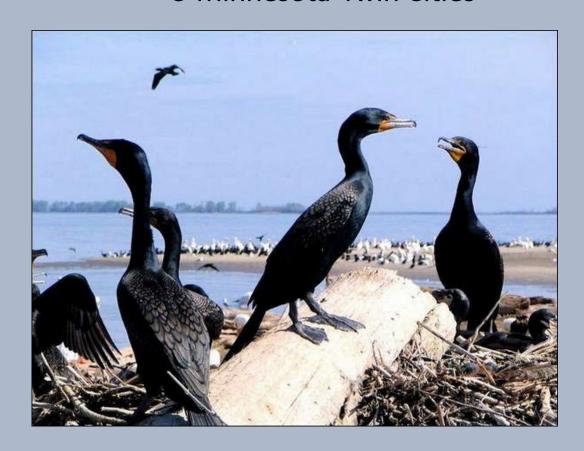
### Double-crested Cormorants: Overview

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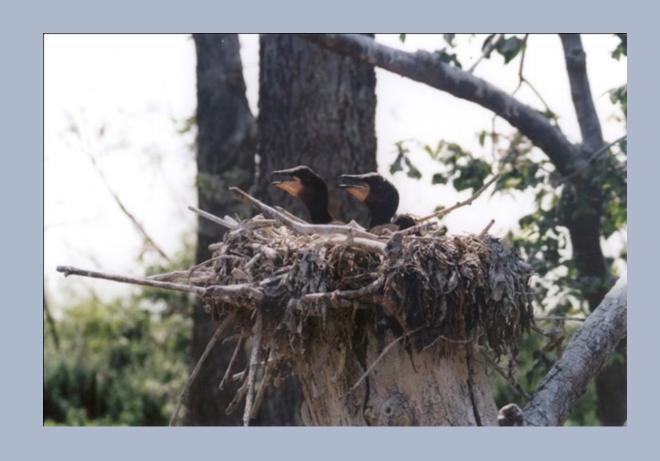
- Migrates fall and spring
- Minnesota has both breeding and migrating birds

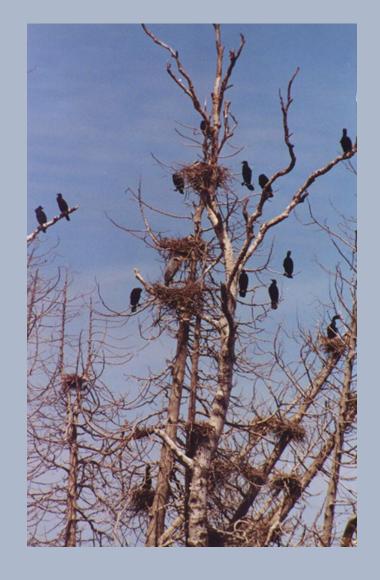
#### **Public Concerns:**

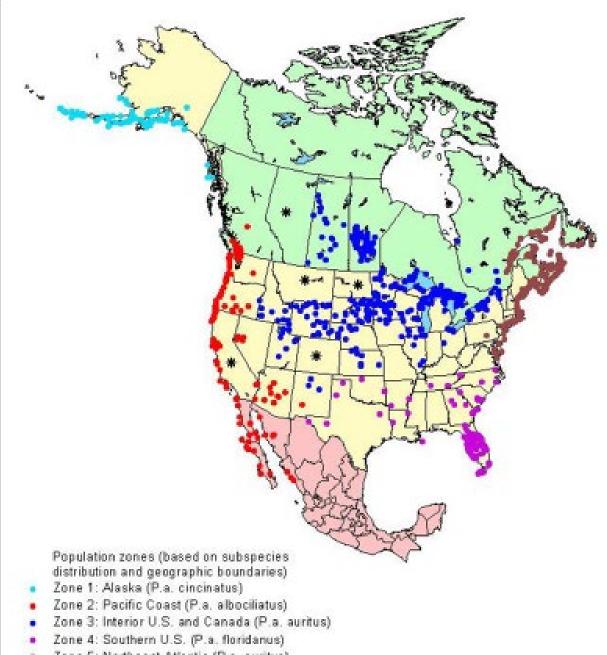
Exclusively eats fish ~(1 lb/day)
Consumes about 1 pound fish/day
Nests/roosts in dense colonies
Waste kills vegetation and smells
Physical appearance



#### May nest on ground or in trees; only roost in trees







Breeding Distribution of DCCO in North America, 1970-2000, Wires et al. 2001

- Zone 5: Northeast Atlantic (P.a. auritus)
- \* Colony locations not available



## **Methods: Ground Counts**



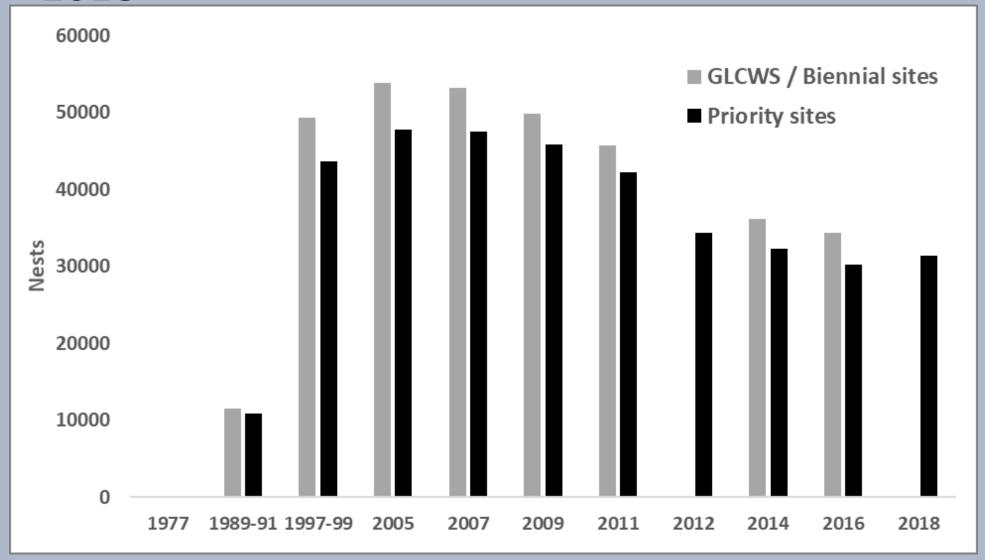




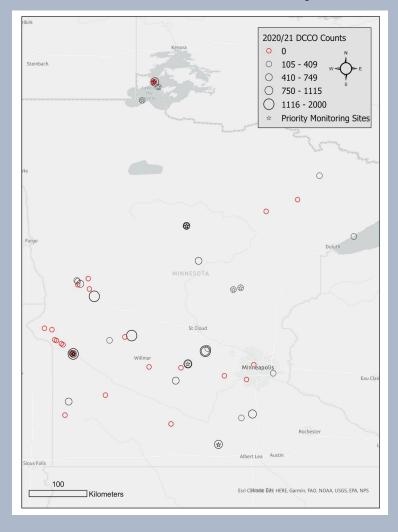
#### Aerial estimates of nesting cormorants can be made from small aircraft and also using drones



#### US Great Lakes Double-crested Cormorant Monitoring 1977 – 2018.



Distribution and estimated number of nesting pairs of Double-crested Cormorant (DCCO) across 53 sites surveyed in **Minnesota** in 2020/21



# Unknowns about DCCOs and Augusta Lake

Are they nesting/roosting
Did birds kill trees
Did high water kill trees
How do DCCOs affect water quality
Where do birds go during day

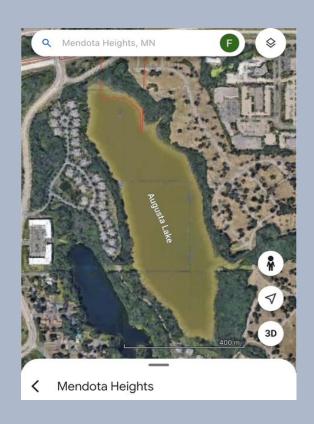


Photo from Google Earth 7/12/24