



Credit Jim Williams

Common Goldeneye Minnesota Conservation Summary

*Audubon Minnesota
Spring 2014*



The *Blueprint for Minnesota Bird Conservation* is a project of Audubon Minnesota written by Lee A. Pfannmuller (leefann@msn.com) and funded by the Environment and Natural Resources Trust Fund. For further information please contact Mark Martell at mmartell@audubon.org (651-739-9332).

Common Goldeneye

Priority for Minnesota's Bird Conservation Plan:

- Boreal Hardwood Transition: Moderate Level Priority

Other Status Classifications:

- Federally protected migratory game bird in Canada, U.S. and Mexico
- Moderately High Concern in North American Waterfowl Plan
- Classifications in BCR11:
 - ✓ Breeding Importance: Moderately Low
 - ✓ Breeding Need: Moderately Low
 - ✓ Non-breeding Importance: Moderately Low
 - ✓ Non-breeding Need: Moderately Low
- Classifications in BCR12:
 - ✓ Breeding Importance: Moderately High
 - ✓ Breeding Need: Moderately High
 - ✓ Non-breeding Importance: Moderately High
 - ✓ Non-breeding Need: Moderately High
- Classifications in BCR22:
 - ✓ Breeding Importance: None
 - ✓ Breeding Need: None
 - ✓ Non-breeding Importance: Moderately High
 - ✓ Non-breeding Need: Moderately High
- Classifications in BCR23:
 - ✓ Breeding Importance: None
 - ✓ Breeding Need: None
 - ✓ Non-breeding Importance: Moderately High
 - ✓ Non-breeding Need: Moderately High
- The Common Goldeneye is a game species in Minnesota. The daily limit for Common Goldeneyes is six birds; the possession limit is twelve birds. The Minnesota harvest in 2007 was 9,448; the Minnesota harvest in 2008 was 1,198. Goldeneye comprised 1.68% of the total Minnesota harvest in 2007; 1.92% in 2008.
- The Common Goldeneye is important game for late-season hunters when other species have already moved south. Annual hunting kill estimates for the period 1971–1980 suggest that 188,300 Common Goldeneyes were shot in North America: 56% in Canada and 44% in U.S., representing 3.6% and 0.6% of total annual Canadian and U.S. waterfowl harvest, respectively (Carney et al. 1983, Canadian National Harvest Survey data, H. Levesque unpubl. data). More recent (1988–1991) Canadian harvest numbers are lower (average estimate 68,200; Levesque et al. 1993), but these numbers may underestimate actual kill. In North America, most birds are shot in Ontario or Quebec (64% of annual Canadian harvest, 36% of annual Common Goldeneye total harvest). In U.S., most birds are shot in Mississippi Flyway (18% of annual total Common Goldeneye harvest), with approximately equivalent proportions shot in Atlantic and Pacific flyways (11%). Only 3% of annual harvest occurs in Central Flyway. (BNA).

Population Information:

- At the national level the population trend for Common Goldeneyes appears stable
- Continental population estimate: 1,345,000 (U.S. Waterfowl Plan: 1994-2003)
- Population estimate from the mid-continental population survey: Common Goldeneyes are not differentiated.

- A crude estimate of population size in North America is about 1 million birds. Continentally, their populations appear to be stable, but there are indications of declines in the Atlantic coast based on winter counts and on numbers of harvested birds. (Sea Duck Information Series).
- Minnesota population estimate: 864 (2010 MNDNR estimate derived only from sampling stratum 1-3; so this is not a statewide population estimate).

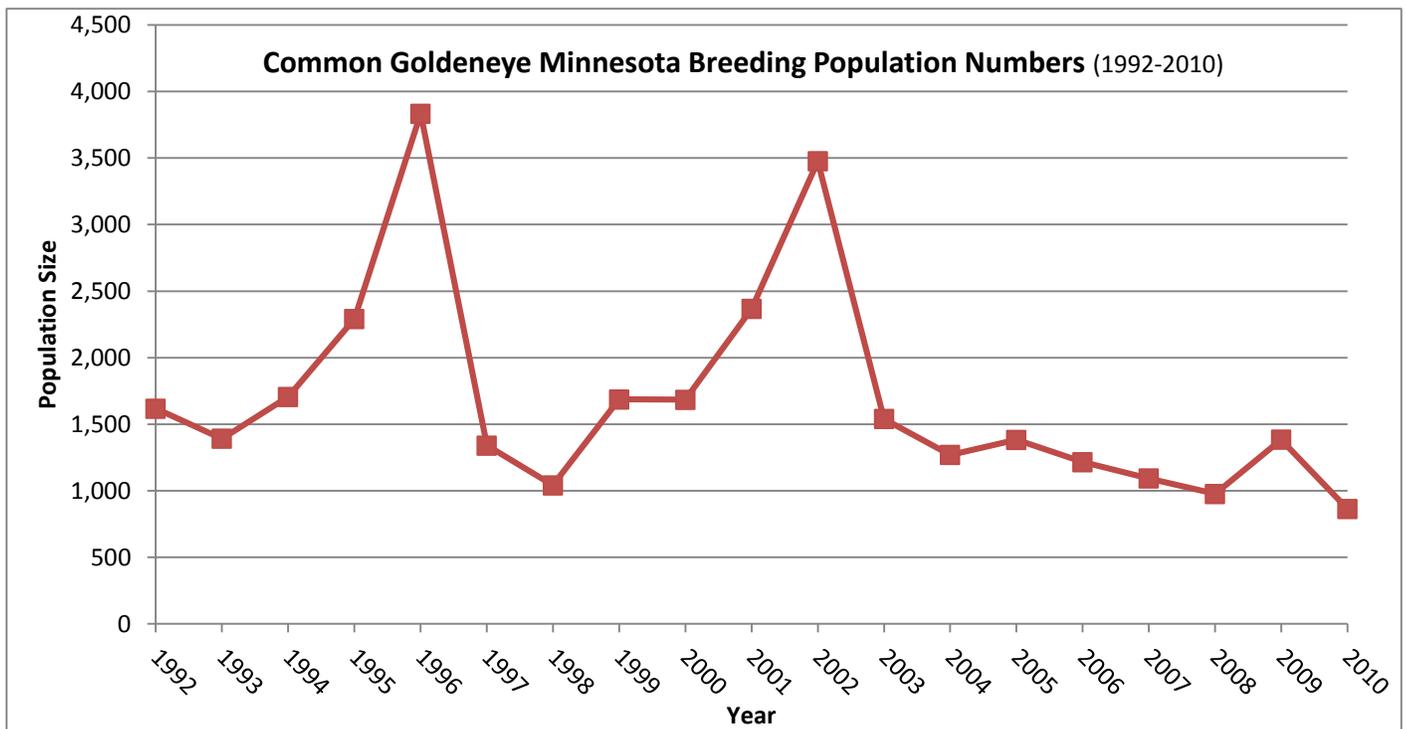
BBS Data:

- Red Level of Credibility
- 1966-2009: increasing trend (**not statistically significant**) of 5.0; 1999-2009; increasing trend of 5.4. Although the BBS shows a general increasing trend the waterfowl population survey data show an overall decreasing trend.
- Minnesota does include one of the species centers of highest abundance
- 1.1% of the Common Goldeneye's North American breeding range occurs in Minnesota

Minnesota Residency:

- Breeds in northern Minnesota; a migrant throughout the state; locally overwinters in some areas.

Minnesota Waterfowl Population Trend: Common Goldeneye



Habitat Requirements: Lake/Pond

The Common Goldeneye inhabits primarily wetlands, lakes, and rivers bordered by forests mature enough to provide suitable tree cavities (Birds of North America/Cornell Lab of Ornithology).

From Sea Duck Information Series:

- Common Goldeneyes nest in tree cavities and are found in forested areas where large dead and dying trees provide suitable nesting sites. They will also readily nest in artificial nest boxes.
- Nest sites are typically in wetlands or waterways bordered by trees large enough to have nest cavities.
- Goldeneyes prefer lakes that are fish-free, which ensures less competition for their aquatic invertebrate prey.

From Delta Waterfowl:

- In some northern areas, common goldeneyes have been known to use rock cavities as well.
- Ready availability of invertebrate prey may be a factor in influencing habitat choice.

From Birds of North America:

- Types of forest stands bordering aquatic habitats do not appear to be a factor in breeding-site choice; both coniferous and deciduous trees are used readily for nesting.
- In most areas, Common Goldeneyes prefer lakes with clear water and good visibility and with relatively low or simple shoreline configurations lacking significant emergent or submerged vegetation, although stands of bulrush may be used as foraging areas.
- During brood-rearing, lake clusters or lakes with high shoreline-to-surface-area ratios may be preferred.
- Availability of abundant invertebrate prey appears to influence choice of habitat. Some fish species (e.g. yellow perch) compete with goldeneyes for invertebrate prey; lakes where these fish are present have fewer invertebrates and are thus less suitable for Common Goldeneyes. Over the extent of its breeding range, this duck does nest successfully on lakes containing fish, but evidence suggest that it prefers when available, habitats with few or no fish.

Migration: Temperate

Climate Change Vulnerability: Low (1)

Threats/Issues:

From BNA Species Profile:

- PCBs, DDE and mercury have been detected in eggs collected in northern and western U.S., although the levels are generally considered low.
- For individuals breeding in areas affected by acid deposition, tissue concentrations of trace metals may be elevated, but usually do not reach levels of toxicological risk.
- Availability of suitable cavity-producing trees has been reduced by forestry practices.
- Acid precipitation has affected large portions of the eastern breeding zone.
- Because this species prefer fishless lakes for feeding, nesting, and rearing broods, lake acidification has caused shifts in their patterns of habitat use and diet in some regions. This is the only duck in North America known to derive short-term benefits from lake acidification. In some areas, populations may decline as lakes recover from acid rain.
- Nesting females may desert their clutch if scared off the nest or handled by observers during the first 2 weeks of incubation.

- Females generally do not breed until their second year, are highly philopatric to their natal area, and usually do not reneest in the event of nest loss. These factors make potential recovery of local populations slow if numbers of local adults are severely reduced.
- In recent years, Common Goldeneyes have shifted some traditional wintering sites to take advantage of warm, productive, open-water sites immediately downstream of industrial effluent discharges; care and monitoring of water quality and contaminant levels must be taken on the wintering grounds to minimize exposure of flocks to hazardous pollutants (oil or chemical spills, industrial effluent).

From Sea Duck Information Series:

- The availability of nest cavities is thought to be the most important factor limiting populations of common goldeneyes. Because they rely on tree cavities for nesting, they are at risk from deforestation by logging, particularly near riparian areas. Loss of mature forests is one of the most important factors affecting common goldeneyes.
- Common goldeneyes are particularly sensitive to changes in food quality. Consequently, they may be a good bio-indicator to monitor changes in environmental quality, including subtle long-term changes associated with climate change or pollution.

OVERALL MINNESOTA GOAL: Ensure the protection of a sustainable breeding population in Minnesota by supporting the Minnesota Department of Natural Resources' Long Range Duck Plan; the habitat protection and restoration goals of the Upper Mississippi Valley/Great Lakes Joint Venture; and Subsection Forest Management Plans and the Minnesota Forest Resources Council Landscape plans and Forest Management Practices that emphasize the protection of riparian forests and the retention of cavity trees.

BEST MANAGEMENT PRACTICES

From MNDNR Long Range Duck Plan:

- Broad habitat strategies are listed in the Long Range Duck Plan that, when implemented, will help increase Common Goldeneye populations in Minnesota.

From Sea Duck Information Series:

- Nest box programs can increase the density of breeding common goldeneye locally, but probably only up to a point at which territoriality and dump-nesting (laying eggs in other nests) inhibit further growth.

From Birds of North America:

- Forest management goals should include the establishment and conservation of cavity producing trees (>100 years old; >30 cm dbh) and the maintenance of riparian forested corridors and forests located within 1 km of suitable brood habitat.
- Nest box programs can provide nest sites in otherwise unsuitable habitat; but while valuable as educational and scientific tools, they have limited value for maintaining continental populations. If they are used, wood or metal boxes with appropriate openings are preferred over plastic buckets.
- Aquatic management goals should include the restoration and/or preservation of water quality and natural hydrology. Sedimentation, chemical runoff from agriculture, acid precipitation, and other pollutants impact food chains and foraging efficiency.
- In flood plain habitats, maintaining natural hydrologic cycles maintains tree species communities, minimizes tree kill and favors the proliferation of prey species adapted to historic hydrologic conditions.
- Protection and restoration of unaltered, natural rivers and lakes surrounded by forests with large trees suitable for nesting.

MONITORING RECOMENDATIONS

Most sea ducks are poorly monitored by traditional waterfowl surveys, and information on population size and trend for most species is unreliable. Sea ducks inhabit vast, remote breeding areas, and molting and wintering birds often gather on large lakes and coastal waters that are difficult to survey. The Waterfowl Breeding Population and Habitat Survey (WBPHS), flown in spring and used as a basis for setting population goals for many North American waterfowl, does not cover the core breeding ranges of about half the sea duck species and is not optimally timed to capture peak counts of breeding sea ducks, which generally nest later than dabbling ducks. Additionally, some groups of sea ducks have not been differentiated to species in the past during this survey (e.g., scoters, goldeneyes, mergansers). Consequently, for most populations of sea ducks, we cannot accurately estimate how many there are, relative densities, or the trajectories of their population trends. There is an urgent need for more intensive, precise surveys that will provide an index of population size for long term monitoring and robust detection of trends for all sea ducks. In addition, unlike most goose populations and some duck populations that have been defined as management units, sea ducks are not well delineated from historical surveys and banding to identify particular stocks that are oriented to the arctic, Great Lakes, or Pacific and Atlantic coasts. (Recommendations for Monitoring Distribution, Abundance, and Trends for North American Sea Ducks, 2007)

Action: Once the Minnesota Breeding Bird Survey is completed assess the species distribution and status and whether additional monitoring efforts are needed.

CONSERVATION ACTIONS

- Identify and target high priority landscapes and habitats for conservation action

Action: Identify Important Bird Areas that are a priority for this species in Minnesota

- **Upper Mississippi Valley/Great Lakes Joint Venture Region:** Adopt the habitat protection and restoration goals for two habitats that the UMVGL JV Plan recognize as benefitting the Common Goldeneye:

- Marsh habitat with associated shrub/forest: The focal species for this habitat is the Wood Duck; it was selected to also represent the habitat needs for the Common Goldeneye.

Action: Protect a total of 34,579 ha of marsh habitat with associated shrub/forest (18,186 ha in BCR12; 1,786 ha in BCR22 and 14,608 ha in BCR 23) and restore a total of 6,916 ha (3,637 ha in BCR12, 357 ha in BCR22 and 2,922 ha in BCR23).

- Extensive Open Water: The focal species for this habitat are the Canvasback and Lesser Scaup; it was selected to also represent the habitat needs for the Common Goldeneye.

Action: Protect a total of 9,028 ha of extensive open water (13,418 ha in BCR12; 371 ha in BCR22 and 5,239 ha in BCR 23) and restore a total of 4,003 ha (2,803 ha in BCR12, 81 ha in BCR22 and 1,120 ha in BCR23).

- **Minnesota**

Action: Support implementation of the Minnesota Department of Natural Resources Long Range Duck Recovery Plan

Background: The following vision, goals and strategies are from the Long Range Duck Recovery Plan (2006)

Strategic Vision

By 2056, Minnesota's landscape will support a productive spring breeding population of ducks averaging 1 million birds. The landscape necessary to support this population will also provide spring and fall migration habitat attracting abundant migrant waterfowl, 140,000 waterfowl hunters and 600,000 waterfowl watchers

Goal

Recover historical breeding and migrating populations of ducks in Minnesota for their ecological, recreational, and economic importance to Minnesota citizens. Progress towards this goal will be measured by the following long-term objectives: 1) a breeding population of 1 million ducks producing a fall population of 1.4 million ducks; 2) a fall duck harvest that is 16% or more of the Mississippi Flyway harvest; and. 3) an average of 140,000 waterfowl hunters and 600,000 waterfowl watchers.

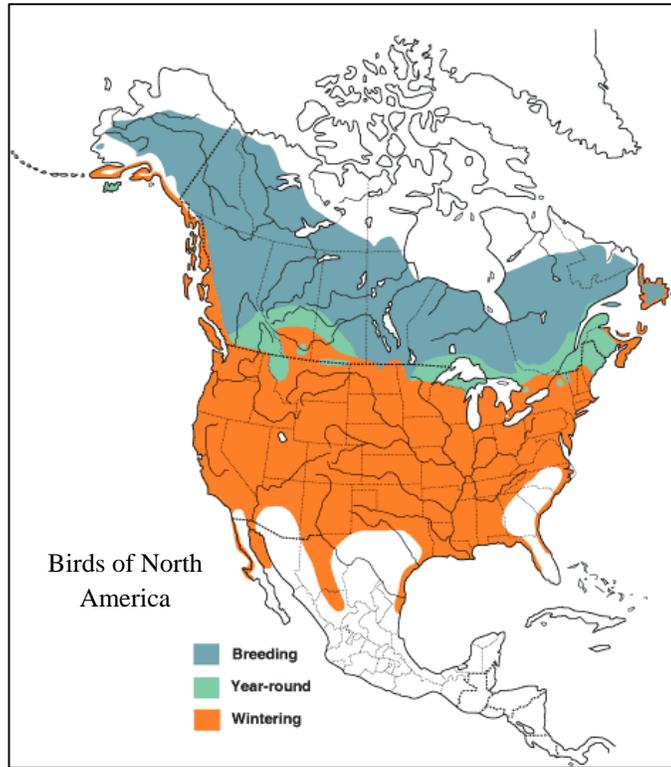
Primary Strategies: The primary strategies are focused only on the prairie pothole region and not the north central and northeastern region of the state.

RESEARCH NEEDS

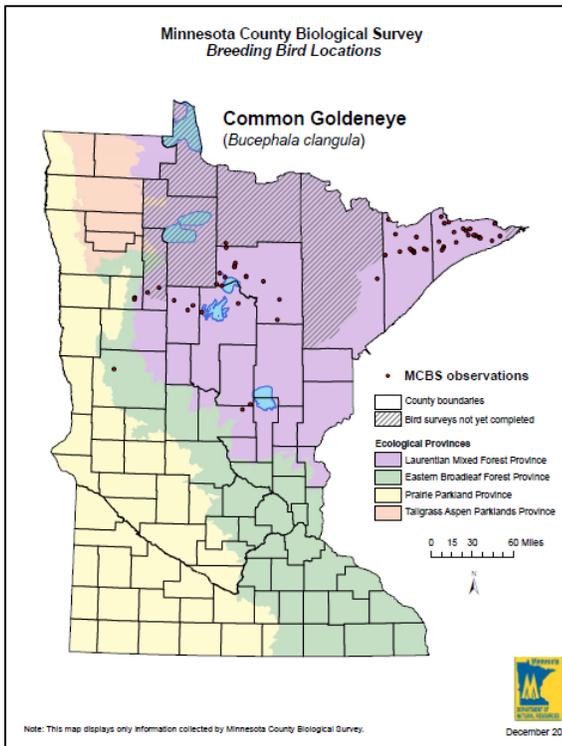
From Birds of North America:

- Nearly all recent studies of this species' breeding biology have been conducted on populations breeding in nest boxes. Patterns of behavior and success may vary considerably in natural cavities, but few studies have examined this dimension.
- As in most birds, the ecology of Common Goldeneyes during the period from fledging to first breeding is virtually unknown. Given that Common Goldeneyes exhibit delayed maturity and may not breed until they are 3-4 years old, this is an especially important period.
- The winter ecology of Common Goldeneyes is also poorly understood; this is a key period when pair bonds are established and when survival may be strongly influenced by habitat quality and the effects of environmental stress (oil spills, disturbance, changing thermal regimes).
- Research on the social behavior of Common Goldeneyes (territoriality, infanticide, brood parasitism, and brood amalgamation) has indicated a complex and rich social structure; additional research in these areas may provide new insight into current ecological and evolutionary theory.
- Finally, recent work in e. North America, Scandinavia, and Russia has shown that Common Goldeneyes respond directly and rapidly to changes in prey quality as a result of environmental degradation. Thus, the Common Goldeneye may prove to be an important bio-indicator species to monitor environmental impacts on aquatic habitats, particularly those of the poorly understood boreal regions of North America.

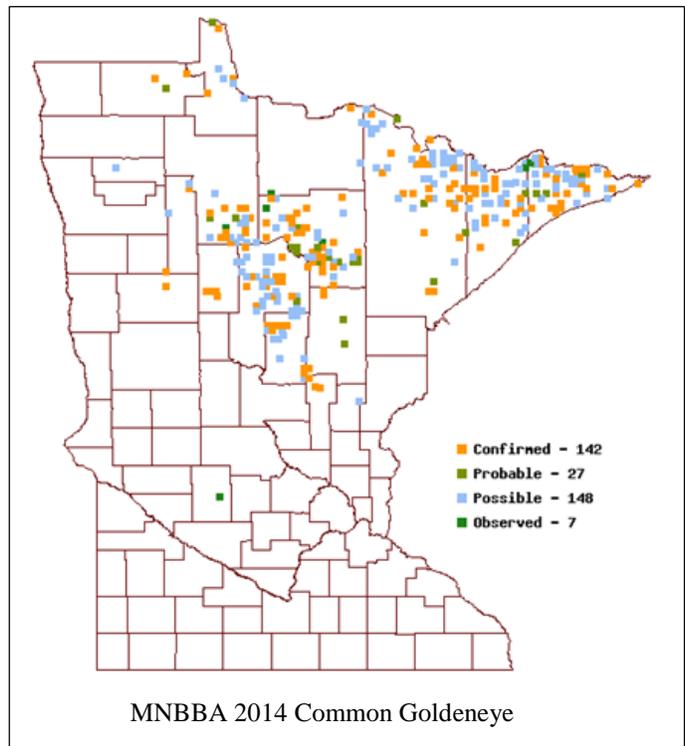
Common Goldeneye Distribution Maps



Birds of North America <http://bna.birds.cornell.edu/bna/>



MN DNR http://www.dnr.state.mn.us/eco/mcbs/bird_map_list.html



MN Breeding Bird Atlas <http://www.mnbba.org/>