



Credit Rebecca Field

# Blue-winged Teal Minnesota Conservation Summary

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

# Blue-winged Teal

## Priority for Minnesota's Bird Conservation Plan:

- Prairie Parkland: Highest Level Priority
- Boreal Hardwood Transition: High Level Priority
- Prairie Hardwood Transition: Moderate Level Priority

## Other Status Classifications:

- Federally protected migratory game bird in Canada, U.S. and Mexico
- Focal Species for Upper Mississippi Valley/Great Lakes Joint Venture Region
- Focal Species for the Prairie Pothole Joint Venture Region
- Continental Priority: Moderately High (North American Waterfowl Plan)
- Classifications in BCR11:
  - ✓ Breeding Importance: High
  - ✓ Breeding Need: Highest
  - ✓ Non-breeding Importance: Moderately High
  - ✓ Non-breeding Need: Moderately High
- Classifications in BCR12:
  - ✓ Breeding Importance: Moderately Low
  - ✓ Breeding Need: Moderately Low
- Classifications in BCR22:
  - ✓ Breeding Importance: Moderately Low
  - ✓ Breeding Need: Moderately Low
  - ✓ Non-breeding Importance: Moderately High
  - ✓ Non-breeding Need: Moderately High
- Classifications in BCR23:
  - ✓ Breeding Importance: Moderately High
  - ✓ Breeding Need: Moderately High
  - ✓ Non-breeding Importance: Moderately High
  - ✓ Non-breeding Need: Moderately High
- The Blue-winged Teal is a game species in Minnesota. The daily limit for teal is 6 birds; the possession limit is 12 birds. The Minnesota harvest in 2007 was 60,196; the Minnesota harvest in 2008 was 60,752. Blue-winged teal comprised 10.67% of the total Minnesota harvest in 2007; 10.40% in 2008. All statistics are for Blue-winged Teal and Cinnamon Teal combined (because in the fall the birds are indistinguishable).
- Harvest of Blue-winged Teal is relatively low in Canada and controlled in the U.S. by altering annual hunting season regulations in response to annual spring breeding survey estimates and is therefore not expected to have a negative impact on spring populations. However, accurate estimates of harvest in Central and South America are unavailable and there are suggestions that harvest may be substantial (WBCI)
- The Blue-winged Teal is not heavily harvested in regular waterfowl seasons in Canada or U.S. because of their early southward migration and because most birds winter south of the border. To increase hunting opportunity of this species, many southern states hold special "September teal seasons" that coincide with fall migration (Birds of North America/Cornell Lab of Ornithology (BNA)).
- Blue-winged Teal comprise less than 6% of the annual duck harvest in the United States (Waterfowl Mgmt Handbook).

## Population Information:

- At the national level there is no discernable population trend
- Continental population estimate: 7,500,000 (1994-2003) (NAWMP 2004 Strategic Guidance)

- Population estimate for the mid-continental population survey: 5,875,000 (1994-2003) (NAWMP 2004 Strategic Guidance)
- Population goal for the mid-continental population: 4,7000,000 (Cinnamon and Blue-winged combined) (NAWMP Strategic Guidance 2004); goal is based on population numbers from 1970s, a period when most waterfowl populations were thought to be relatively healthy (BNA)
- Blue-winged Teal numbers in the late 1990s were highest since standardized surveys were initiated in 1955. The increase was likely in response to above average wetland conditions on prairies. Population subject to declines if wetland conditions in prairies deteriorate due to drought; population estimates during past droughts have been < 3.5 million individuals. (BNA)
- Based on annual breeding ground estimates, blue-winged teal comprise over 14% of the continental duck population. (Waterfowl Mgmt Handbook)
- The Upper Mississippi Valley/Great Lakes Joint Venture Population Goal is 390,840; the current breeding estimate is 325,700 (deficit of 65,140)
- Minnesota population estimate: 32,742 (2010 MNDNR estimate derived only from sampling stratum 1-3; so this is not a statewide population estimate)

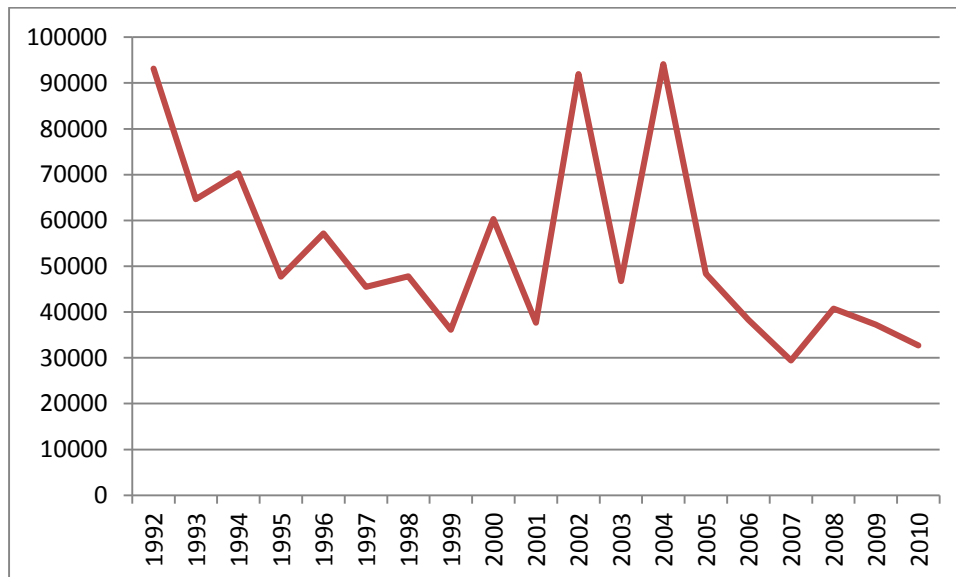
BBS Data:

- Blue Level of Credibility
- 1966-2009: decreasing trend (**statistically significant**) of -2.2; 1999-2009; decreasing trend of -1.5
- Minnesota does not include one of the species centers of highest abundance
- 3.49% of the Blue-winged Teal’s North American breeding range occurs in Minnesota

Minnesota Residency:

- Breeds throughout Minnesota

Minnesota Waterfowl Population Trend: Blue-winged Teal



Habitat Requirements: Lake/Pond

The Blue-winged Teal inhabits seasonal wetlands and wet meadows as well as shallow semi-permanent marshes (BNA).

*From WBCI Species Profile:*

- Cattail and bulrush-rimmed marshes with permanent water and open, freshwater areas, including most lakes and artificial ponds, provide breeding habitat for Blue-winged Teal
- Important predictors of breeding habitat include water level, benthic invertebrate abundance, and the availability of undisturbed nesting cover adjacent to water.
- Grasslands are the preferred nesting cover, but croplands also are used.
- Nests are almost always placed in upland habitats with residual cover from the prior year's growth.
- Females seeks high density stands of short to moderate grasses such as bluegrass, bromegrass, quackgrass, alfalfa, switchgrass, and other herbaceous vegetation.
- Pairs mostly use temporary and seasonal wetlands in early spring, but later shift to semi-permanent wetlands.

*From Waterfowl Management Handbook:*

- The proportion of blue-winged teal breeding in the Prairie Pothole Region is correlated with annual numbers of ponds in May.
- Few teal nest in the northern boreal forest or arctic habitats although some birds are displaced to these areas when drought conditions occur in the Prairie Pothole Region.
- Nests are usually located near water, but may be as far as 1 mile from the nearest wetland.
- Alfalfa and bluegrass in cultivated or grazed areas can provide suitable nesting cover.
- Semi-permanent wetlands located near nests are important habitats for broods.

*From Upper Mississippi Valley/Great Lakes Joint Venture Species Profile:*

- Open, un-forested settings of semi-permanent wetlands, ponds, linear waterways, and seasonal wetlands surrounded by grassland provide optimal breeding habitat.
- Species nests in grass, hayfields, sedge meadows, and other herbaceous cover.
- Highest pair and brood densities occur in shallow (<1 m deep) wetlands with hemi-marsh conditions (50:50 cover-water mosaics), especially when complexes of several wetland basins occur in close proximity.
- Abundant aquatic insects and other invertebrates must be present to meet the high energy requirements of egg-laying females and ducklings.
- Wetlands >0.5 ha in size and >0.3 km from forest cover are believed to be most productive; optimal complexes of grassland/meadow and open water are >50 ha in size with a ratio of 4:1 nest cover to brood marsh.
- Most nests are found > 150 m from marsh wetland.
- Wetlands > 2 ha in size may contain territories of multiple pairs.

Migration: Neotropical

Climate Change Vulnerability: Low (1); climate change models predict that the Blue-winged Teal will both decrease its distribution in Minnesota and its abundance as the climate warms.

Threats/Issues:

*From BNA Species Profile:*

- Although banned from use in the U.S. and Canada, persistent pesticides (e.g. DDT, dieldrin) are widely used in Central and South America, major wintering areas for Blue-winged Teal.
- Lead ingestion was a problem but hunting waterfowl with lead shot was banned in the Mississippi Flyway during the late 1970s.

- Power lines near or crossing wetlands are associated with collisions.
- Prairie regions of Canada and U.S. severely impacted by wetland drainage and grassland loss; in U.S. most of the prairie states have lost about 50% of their original wetlands. Seasonal and temporary wetlands, which Blue-winged Teal tend to prefer, are more subject to degradation from agriculture than are permanent wetlands.
- Habitats used by migrating and wintering Blue-winged Teal in Louisiana, Texas, and Florida have been severely impacted and are continually threatened by agricultural development, industrial and urban encroachment, hydrologic alternations and pollution,

*From WBCI Species Profile:*

- Blue-winged Teal populations fluctuate greatly depending on wetland conditions in the prairie pothole region.
- Harvest of birds in Central and South America may be substantial and contributing to the species declining numbers
- Fire suppression and intensive agriculture result in a long-term reduction in suitable nesting habitat.
- High nest predation may impact some local populations.
- Disease and parasites are also a problem to local populations.

**OVERALL MINNESOTA GOAL: Increase current populations in Minnesota by supporting Minnesota Department of Natural Resources Long Range Duck Plan, the Minnesota Prairie Landscape Conservation Plan, and habitat protection goals (6,582 ha in BCR12, 22 and 23) of the Upper Mississippi Valley/Great Lakes Joint Venture in Minnesota.**

### **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 American Black Duck populations in Minnesota.

*From WBCI Species Profile:*

- Management efforts should focus on protecting remaining grasslands, particularly in those areas where numerous wetlands exist.
- Managers should consider establishing idle grasslands adjacent to existing wetlands to provide nesting cover.
- The recommended patch size for nesting areas is 32-40 ha, preferably in a square-like configuration.
- However, landscape-level programs, such as CRP, may be more meaningful than actions that focus only on increasing nesting habitat patch size.
- Maintenance of optimal nesting habitat may require active management, e.g. allowing dead vegetation to accumulate and periodic burning, mowing, or grazing to prevent it from becoming too dense.
- Wetland drawdowns that encourage growth of mudflat annuals, regenerate stands of emergent vegetation stimulate primary productivity and, in turn, improve the detrital base should benefit Blue-winged Teal.

*From BNA Species Profile:*

- The Conservation Reserve Program converted > 1.8 million ha of cropland back to grasslands in north-central plains states, much to the benefit of prairie nesting waterfowl.

*From Waterfowl Management Handbook:*

- Success of breeding pairs is higher in native plant communities than in exotic vegetation communities.
- During the spring migration and nesting, pairs find an abundance of aquatic invertebrates in highly productive temporary and seasonally flooded wetlands.
- Semi-permanent wetlands with gently sloping basins and both emergent and submergent vegetation provide foraging and brood-rearing sites.
- Restoration of temporary and seasonal wetlands is particularly needed in agricultural landscapes.
- High densities of these wetland types in areas with high-quality nesting cover allow teal to establish nesting territories and avoid long overland brood movements.
- In native prairie grass communities, dead vegetation should accumulate over several growing seasons to provide matted mulch used for nest sites.
- Periodic disturbance is required to keep grass cover from becoming too dense. Burning, mowing and grazing can be used effectively to maintain range conditions for blue-winged teal nesting.
- Seeded dense nesting cover used by mallards and gadwalls seems to be less attractive to blue-winged teal.

*From UMVGL JV Species Account:*

- Water must persist through August brood rearing period.
- Optimal habitat includes a mix of seasonal and semi-permanent herbaceous wetlands in an open (non-forested) meadow setting. The grassland-wetland complex should have about 2 ha of herbaceous cover (grass, sedge, rush) to each 0.5 ha of shallow hemi-marsh wetland, thus  $\geq 2.5$  ha habitat /pair.

### MONITORING RECOMENDATIONS

- Population estimates are subject to considerable bias and error because annual spring surveys are conducted in May to coincide with the peak of mallard nesting, and in some years, many blue-winged teal do not arrive on surveyed areas until after counts are conducted (Waterfowl Mgmt Handbook).
- In addition, significant proportions of the blue-winged teal breeding population may occupy locations outside the surveyed area, particularly in years when habitat conditions are poor in the Prairie Region (Waterfowl Mgmt Handbook).
- Current surveys are adequate for population monitoring; periodic surveys to refine visibility correction factors (VCF) needed in some areas. A regional survey useful in monitoring vital rates (e.g. recruitment parameters) is necessary to measure breeding habitat quality (UMVGL JV Account).

### 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

- **Prairie Pothole Joint Venture Region:** Adopt the Minnesota Prairie Landscape Conservation Plan (2010) habitat and restoration goals that target native prairie, grasslands and wetlands that benefit Blue-winged Teal.

**Action:** Use the Minnesota Prairie Landscape Conservation Plan (2010) to guide habitat protection and restoration goals by conservation partners within Minnesota’s Prairie Pothole Landscape and by Minnesota Audubon and conservation partners within Important Bird Areas located within the Prairie Pothole Landscape (see habitat protection and restoration goals in tables in the following pages).

*Native Prairie and Grassland Goals for the Prairie Pothole Region of Minnesota (BCR11)*

			Habitat
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Conservation Action	Prairie Landscape Conservation Areas	Specific Conservation Action	Native Prairie	Other Grasslands
Protection	Core Areas	Acquisition	71,480 acres	91,656 acres
		Voluntary management or conservation contracts		154,277 acres of grassland and wetland
	Corridor Areas (complexes & general corridors)	Acquisition	6,850 acres	79,224 acres
		Voluntary management or conservation contracts		131,825 acres of grassland and wetland
	Matrix Landscape	Acquisition	18,119 acres	532,482 acres of grassland and wetland
		Voluntary management or conservation contracts		1,243,927 acres of grassland and wetland
<b>Protection Total</b>			<b>96, 449 acres</b>	<b>170,880 acres of grassland; 2,062,511 acres of grassland and wetland</b>
Restoration	Core Areas			97,762 acres of grassland
	Corridor Areas (complexes & general corridors)			84,218 acres of grassland and wetland
	Matrix Landscape			250,880 acres of grassland and wetland
<b>Restoration Total</b>				<b>97,762 acres of grassland; 335,098 acres of grassland and wetland</b>

Wetland Goals for the Prairie Pothole Region of Minnesota (BCR11)

Conservation Action	Prairie Landscape Conservation Areas	Specific Conservation Action	Habitat	
			Wetlands (all types)	Wetlands & Grasslands
Protection	Core Areas	Acquisition	62,621 acres	
		Voluntary management or conservation contracts		154,277 acres
	Corridor Areas (complexes & general corridors)	Acquisition	13,295 acres	13,150 acres
		Voluntary management or conservation contracts		131,825 acres
	Matrix Landscape	Acquisition		177,074 acres
		Voluntary management or conservation contracts		1,243,927 acres
<b>Protection Total</b>			<b>75,916 acres</b>	<b>1,720,253 acres</b>
Restoration	Core Areas		82,161 acres	
	Corridor Areas (complexes & general corridors)		20,731 acres	26,428 acres
	Matrix Landscape			250,880 acres
<b>Restoration Total</b>			<b>102,892</b>	<b>277,308</b>

- **Upper Mississippi Valley/Great Lakes Joint Venture Region**

**Action:** Maintain (protect) existing 157,862 ha of breeding habitat area and quality at sites within current or historic range (39,215 ha in BCR12; 3,691 ha in BCR22 and 114,596 ha in BCR23) and restore/enhance 31,572 ha of breeding habitat (7,843 ha in BCR12; 738 ha in BCR22; and 22,991 ha in BCR23). Annual habitat loss must be determined and factored into restoration objectives (i.e. there must be an overall net increase in quality habitat).

**Note:** In the Upper Mississippi Valley/Great Lakes Joint Venture Region the Blue-winged Teal is considered a Wet Meadow with open water species so the habitat recommendations above are for wet meadow habitat.

- **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 the citizens of the state. 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. 3) An average of 140,000 waterfowl hunters and 600,000 waterfowl watchers.

### **Primary Strategies:**

1. Protect 2 million additional acres of habitat (30% wetland, 70% grassland) in wetland/grassland habitat complexes. Assuming no net loss to the existing habitat base, Minnesota will need to protect and restore an average of approximately 40,000 additional acres of habitat per year.
2. Continue the ongoing management of 1800 shallow lakes across Minnesota.

## **RESEARCH NEEDS**

*From Wisconsin Bird Conservation Initiative Species Profile:*

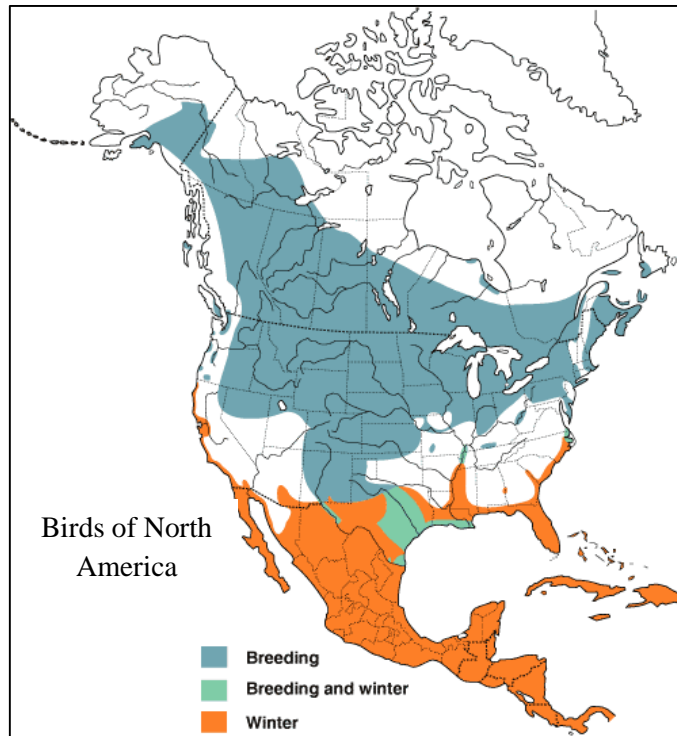
- More information is needed on the wintering ecology and harvest of this species south of the U.S. border.
- Management practices that enhance production need further study along with whether dense cover actually improves nesting success.
- Current research in Wisconsin is attempting to elucidate the causal factors of this species' decline in the state and concomitant increase in Mallard populations.

*From UMVGL JV Species Account:*

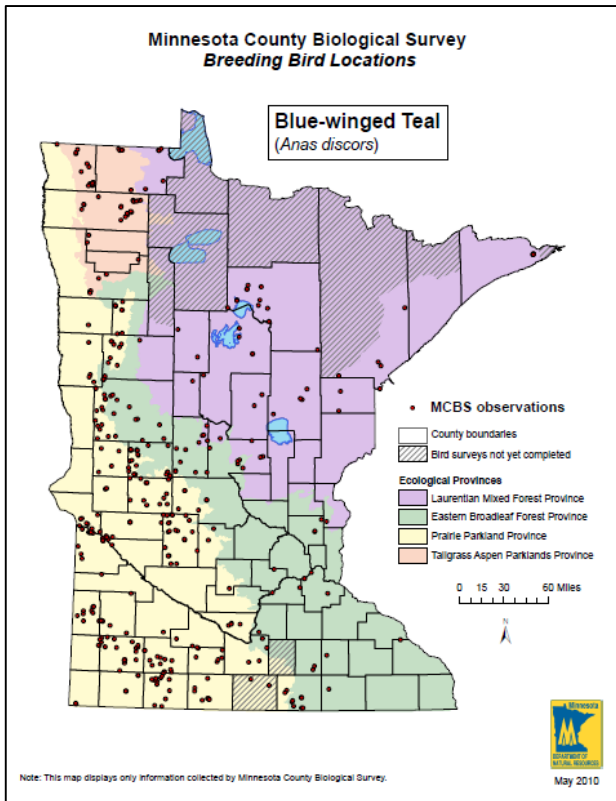
- A study is being completed to determine limiting factors during breeding in BCR23.
- Another study is underway across the JV region to examine general duck use of wetland types, food availability and selection, and habitat quality during spring migration.
- Need better understanding of how individual vital rates influence population growth, and how change in landscape features (e.g. forest encroachment and maturation) influence breeding habitat quality

**Effectiveness Measures:** Eliminating the current population deficit requires a 20% population increase or an average annual increase of 1% over a 15 year period.

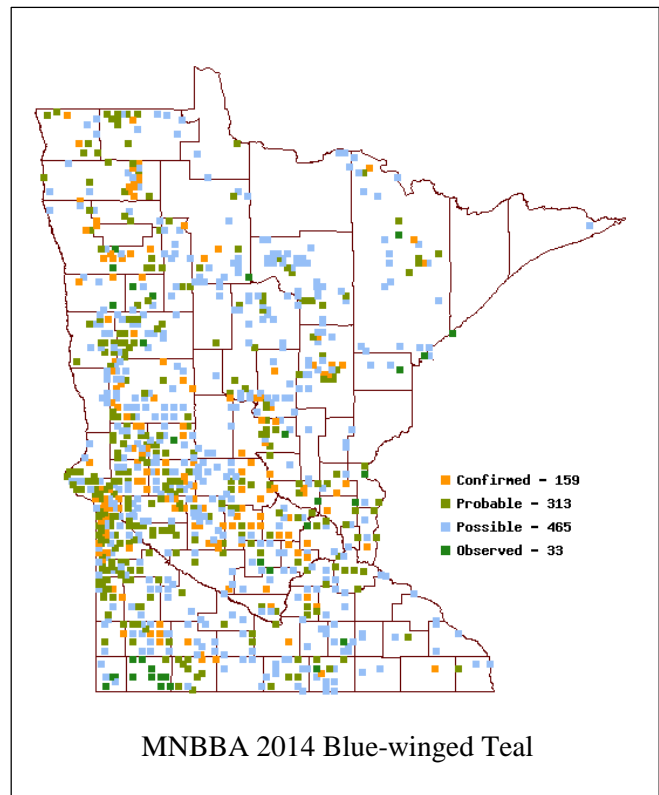
## Blue-winged Teal Distribution Maps



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



MN DNR [http://www.dnr.state.mn.us/eco/mcbs/bird\\_map\\_list.html](http://www.dnr.state.mn.us/eco/mcbs/bird_map_list.html)



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