



Credit Rebecca Field

Belted Kingfisher

Minnesota Conservation Summary

Audubon Minnesota
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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).

Belted Kingfisher

Priority for Minnesota's Bird Conservation Plan:

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

Other Status Classifications:

- Identified by Partners in Flight (PIF) as a Common Species in Steep Decline (53%)
- Identified as a PIF Priority species in Minnesota
- PIF BCR12: Regional Stewardship Species; Action is Planning and Responsibility

Population Information:

- U.S. and Canada population estimate: 2,000,000 (U.S. PIF Plan)
- Continental Population Objective: Increase 50% (PIF)
- Estimated Minnesota population: 29,000; Target (increase 50%) is 44,000
 - ✓ Estimated MN population in BCR11: 4,400; target is 6,600
 - ✓ Estimated MN population in BCR12: 12,000; target is 18,000
 - ✓ Estimated MN population in BCR22: 3,900; target is 5,900
 - ✓ Estimated MN population in BCR23: 8,900; target is 13,000

Minnesota BBS Data:

- Yellow level of regional credibility
- 1966-2009: decreasing trend (**statistically significant**) of -2.1; 1999-2009: decreasing trend of -2.6
- Minnesota does not have one of the highest centers of the species abundance
- 2.25% of Belted Kingfisher's breeding range occurs in MN; 1.3% of its global population occurs in Minnesota
- Average # birds/route is .33; found on 49 of 74 routes

Minnesota Residency:

- Breeds throughout Minnesota

Habitat Requirements: Lake/Pond

Waters w/aquatic animal populations & nearly vertical earth exposures for digging nesting burrows are important; favors streams, rivers, ponds, lakes, or calm waters where prey are visible. Stream riffles are important for assessing prey abundance & habitat quality; prefers open running waters; absent from turbid waters. Surrounding landscape includes an array of terrestrial communities, but availability of suitable nesting sites is a decisive factor. (Birds of North America)

From New York Department of Conservation, Species Profile

This species is found in the vicinity of streams, wooded creeks, rivers, ponds, lakes, and estuaries where prey is clearly visible. Areas where streams form small rippled waves can be a major source of prey and multiple individuals can be found there. On lakes, it prefers sheltered coves or shallow bays. It perches in trees, on branches hanging over the water, posts, and utility wires. At night, it roosts high in leafy trees near the water. In some areas availability of foraging sites may be more limiting than the availability of nest sites. The surrounding landscape may include a wide array of terrestrial communities, but availability of suitable nesting sites is likely a decisive factor determining local abundance. Water quality, cover, and the availability of suitable nesting sites appear essential for breeders. Kingfishers are also sensitive to disturbance and may avoid or vacate habitats that are frequented by humans, particularly when breeding.

From WBCI:

Kingfishers inhabit riparian areas with extensive open running waters in which prey are clearly visible. In Wisconsin it occurs in northern swamps and bogs, Lake Superior coastal wetlands, southern Wisconsin floodplain forests, sedge meadows, cranberry bogs, deep marshes and shallow open water habitats and other upland and lowland sites with appropriate nesting substrates. Foraging areas can be up to 3.2 km from nest sites, which generally consist of earthen banks devoid of vegetation. Kingfishers excavate burrows extending 1-2 meters into sand banks, gravel pits, or other steep, exposed sandy soil sites.

Migration: Temperate

Climate Change Vulnerability: Low (0)

Threats/Issues:

From Wisconsin Bird Conservation Initiative Species Account:

- Local populations may be most limited by the availability of suitable nest sites which are ephemeral and largely dependent on erosion.
- Flood control and bank stabilization activities often result in loss or alteration of natural nest sites.
- Factors that reduce availability and visibility of aquatic prey, such as sedimentation, water pollution, and proliferation of carp and other invasive species can lessen the suitability of foraging areas.

OVERALL MINNESOTA GOAL: Focus on riparian forest conservation in BCR12; identify and conserve known nesting burrows; support stream restoration efforts

BEST MANAGEMENT PRACTICES

From Wisconsin Bird Conservation Initiative Species Profile:

- Measures that improve or maintain high water quality standards will help protect the integrity of foraging sites for the Belted Kingfisher.
- Because this species may be limited by the availability of nest sites, all sites with active burrows or suitable substrates should be identified and conserved.
- Managers should consider maintaining natural cycles (i.e. flooding and erosion) in riparian ecosystems, which will benefit many riparian-associated species. However, public education on the importance of these natural cycles is needed.
- Because high levels of human disturbance can prevent the use of otherwise suitable habitat, nest sites at quarries and other human-altered habitats would benefit from fewer disturbances during the breeding season.

From BNA, Species Account:

- Factors critical to the species maintenance include: water quality, cover and the availability of suitable nesting sites
- Sensitive to disturbance and may avoid or vacate habitats that are frequented by humans, particularly when breeding

From New York Department of Conservation Species Profile:

- Maintain water quality
- Create vegetative buffers along water edges that can provide cover and hunting perches

From PIF Plan for Boreal Hardwood Transition Area:

Recommendations for Wetland Priority Species in BCR12 (Belted Kingfisher, Willow Flycatcher, Northern Rough-winged Swallow, Bank Swallow, Common Yellowthroat, Swamp Sparrow, Rusty Blackbird)

- Restore and protect wetland complexes that increase overall wetland connectivity and provide important post-breeding foraging habitat for priority species. Conduct restorations that integrate lake, stream, and wetland components within a watershed whenever possible.
- Maintain wetland function and biodiversity by minimizing impervious surfaces, limiting development, and reducing soil loss and nutrient delivery within watersheds.
- Manage for a variety of wetland sizes and habitat conditions (e.g., emergent cover, water level) to support a diverse suite of species.
- Encourage wetland management, protection, and restoration efforts on private lands through existing federal and state programs and by educating private landowners on wetland stewardship.
- Enforce existing nonpoint source pollution regulations to protect emergent marshes from the increased sedimentation caused by development.
- In marshes dominated by dense, monotypic stands of nuisance aquatic plants such as hybrid cattail, common reed, purple loosestrife, and reed canary grass, diversify site conditions by using appropriate management techniques such as using a marsh master to create higher and lower elevations and a resultant mosaic of marsh vegetation.
- Before manipulating water levels in impoundments, determine management objectives:
 1. If managing for nesting species, minimize water fluctuations during the breeding season (April-August) and maintain a 50:50 ratio of emergent vegetation interspersed with open water in some units to establish hemi-marsh conditions (Linde 1969).
 2. If invasive species are present, further management may be needed to prevent them from spreading after the drawdown.
- To benefit burrow-nesting species such as Bank Swallow, Northern Rough-winged Swallow, and Belted Kingfisher, use “soft-engineering” approaches to bank stabilization and repair rather than “hard engineering” approaches such as dams, levees, channelization, and riprap (NRC 1992).
- Remove unneeded dams, dikes, or levees to reestablish hydrological connections between riparian and floodplain habitats and provide a greater variety of successional habitats (NRC 1992).
- Convert portions of mowed lawn to native plant species and increase the amount of coarse woody debris along developed shorelines to provide escape cover and habitat complexity (Newbrey et al. 2002, Elias and Meyer 2003).

From PIF Plan for Physiographic Area 20 (BCR12); the Boreal-Hardwood Transition Zone relevant to Belted Kingfishers:

- Identify causal factors and develop strategies to reverse population declines of Belted Kingfisher.
- Remove unneeded dams, dikes, or levees to reestablish hydrological connections between riparian and floodplain habitats and provide a greater variety of successional habitats.
- Work with local zoning boards to guide housing densities and the legal setback of buildings from shorelines.
- Advise homeowners to limit the use of pesticides and other harmful chemicals in important nesting and foraging areas.

MONITORING RECOMENDATIONS

The Breeding Bird Survey does a reasonable job of monitoring this species but the Minnesota Breeding Bird Atlas will help provide more detailed information on distribution and abundance.

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:**

Note: Among the focal species selected for the UMVGL Joint Venture none are good surrogates for a riparian species like the Belted Kingfisher.

- Additional broad conservation actions for landbirds from the UMVGL JV LBP:
 1. Follow available “best practices” guidelines for land managers.
 2. Promote landbird planning and conservation across ownerships, states, JV regions, and international boundaries
 3. Focus on land supporting viable populations of JV Focal species in relatively unfragmented landscapes >10,000 ha and with fewer threats.
 4. Emphasize conservation on landscapes >70% intact (undeveloped) and contain core sites with source populations of JV focal species. Landscapes with <70% natural cover should also be conserved if focal species habitat needs are met, especially if there are few or no landscapes meeting the 70% criteria. In landscapes with <70% natural cover, retain or increase size of forest and grassland tracts, especially in central parts of the JV region.
 5. Improve monitoring for species whose main breeding range is north of the BBS coverage area.
 6. Create coordinated conservation programs in countries where birds winter and migrate, including identification, protection and management of key sites.
 7. Identify and/or maintain critical breeding areas for species where this JV is particularly important to breeding populations.

RESEARCH NEEDS

From UMVGL JV LP Broad Landbird research needs (A set of even more specific objectives is listed for each of these items)

- Identify landscape and habitat characteristics (e.g., composition, structure, configuration) associated with high productivity and/or survivorship, including source populations. This information is needed to help ensure viable breeding populations at objective levels set for the region.
- Refine breeding density estimates across the JV region and improve models used to calculate habitat objectives. JV focal species whose estimated habitat requirements exceed the estimated habitat available should be completed first. This information is necessary to determine the location and amount of habitat needed to meet population objectives.
- Improve understanding of habitat requirements, management needs, and landscape attributes for species of high conservation concern (e.g., Kirtland’s Warbler). This information is needed to develop site specific management protocols for bird population maintenance and restoration.
- Quantify fine scale site characteristics important to JV focal species by providing information for explicit habitat prescriptions and identifying research/monitoring needs for fine scale characteristics that are unknown. This information is needed to develop site specific management protocols for bird population maintenance and restoration.

From the BCR12 PIF Plan, section on wetland birds

The following actions should be taken to further the conservation of wetland birds in the BCR 12. These actions will also ensure adequate monitoring of populations to assess the effectiveness of management activities over time.

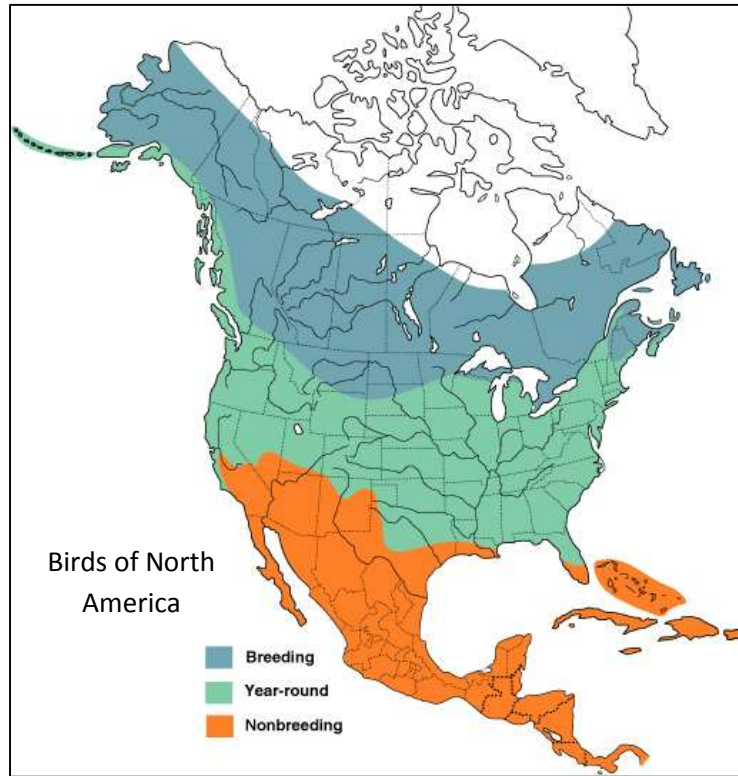
- Conduct breeding ecology studies of species for which little is known, such as Northern Rough-winged Swallow, Common Yellowthroat, and Rusty Blackbird.
- Develop and implement targeted surveys for rare or uncommon species that are not well-covered by standardized monitoring programs, such as Belted Kingfisher and Rusty Blackbird.
- Identify causal factors and develop strategies to reverse population declines for Belted Kingfisher, Northern Rough-winged Swallow, Bank Swallow, and Rusty Blackbird.

- Assess natural wetland habitat abundance, condition, and trends across the planning unit to prioritize conservation opportunities.
- Evaluate wetland bird response (e.g., productivity, abundance, diversity) to several different management techniques:
 - a. Cattail control
 - b. Mowing
 - c. Water level management
 - d. Burning
 - e. Chemical control of invasive plants
 - f. Impacts of landscape-scale management
- Determine the impacts of lake and river shoreline development on priority wetland birds.
- Determine the effects of commercial “mossing,” commercial wild rice production, mining of peat, and cranberry bog development on sedge- and bog-nesting birds.

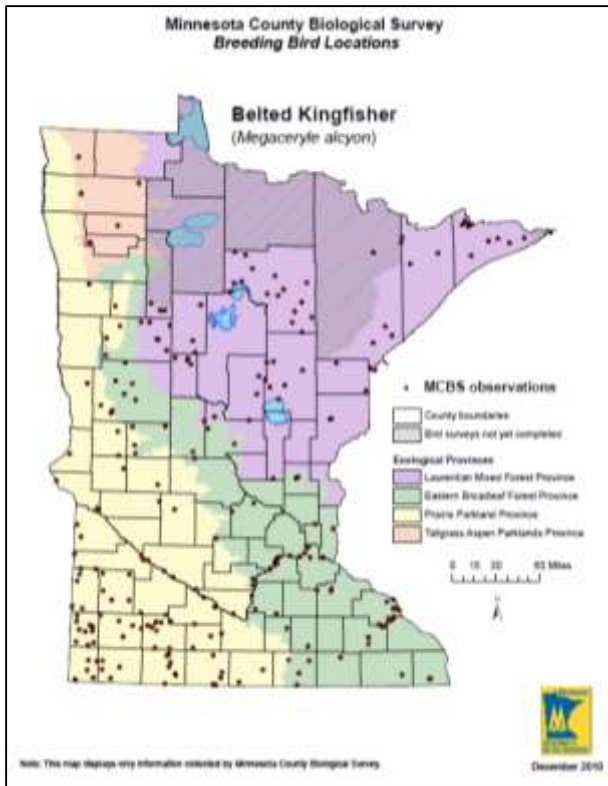
From WBCI Species Profile

- Factors that contribute to the species’ decline need to be identified and mitigated.
- Artificial nest burrow construction warrants study
- More research is needed into reproductive success at commercial sand and gravel operations.
- Improved survey methods are needed

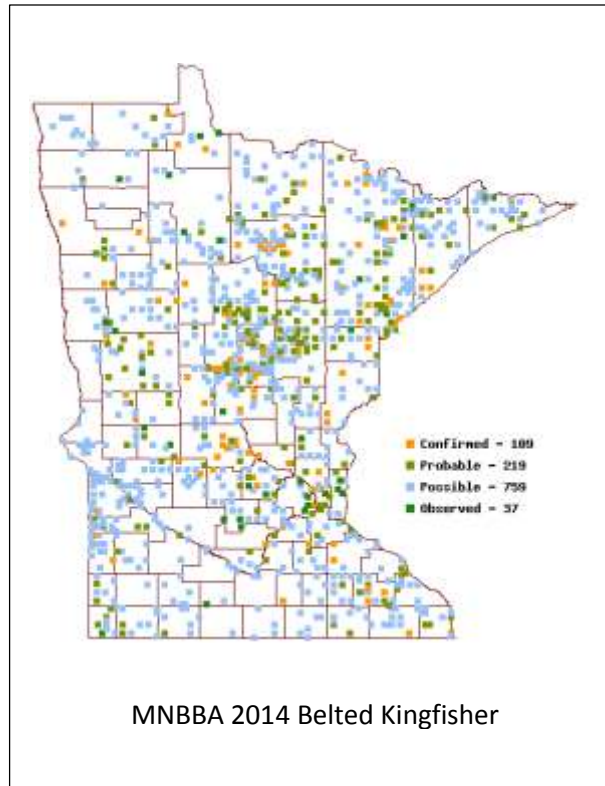
Belted Kingfisher Distribution Maps



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/>