

Credit Jim Williams

Least Bittern

Minnesota Conservation Summary

Audubon Minnesota
Spring 2014



The *Blueprint for Minnesota Bird Conservation* is a project of Audubon Minnesota written by Lee A. Pfannmuller (leepfann@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).

Least Bittern

Priority for Minnesota's Bird Conservation Plan:

- Prairie Parkland: Highest Level Priority
- Boreal Hardwood Transition: Highest Level Priority
- Prairie Hardwood Transition: Highest Level Priority
- Aspen Parklands: Highest Level Priority

Other Status Classifications:

- Minnesota Species of Greatest Conservation Need
- Minnesota Audubon Action List
- USFWS Bird of Management Concern USFWS Region 3 (1995)
- USFWS Bird of Conservation Concern in BCR11, 22 and USFWS Region 3 (2008)
- United States Waterbird Conservation Plan: High Concern; apparent population decline (PT = 4)
- Northern Prairie and Parkland Waterbird Region: Moderate Concern
- Upper Mississippi River and Great Lakes Waterbird Region: High Priority in BCR12, 22 and 23; Focal Species for Region-wide monitoring because it is a Conservation Priority species in the UMVGL Region
- Listed as Threatened in Canada

Population Information:

- North American population estimate: 42,700 pairs (UMVGL Waterbird Conservation Plan)
- The combined Minnesota population estimate for BCR12 and 23 (i.e. the UMVGL region) is 110 individuals (UMRGL JV Waterbird Plan); no estimate available for BCR11 in Minnesota.

Minnesota BBS Data:

- Red Level of Credibility
- 1966-2009: Decreasing trend (not statistically significant) of -3.2; 1999-2009: Decreasing trend of -3.2
- Minnesota does not have one of the highest centers of the species abundance; it supports about 6.16% of the species North American breeding range

Minnesota Residency: Breeds throughout except NE & portions of SE

Habitat Requirements: Marsh

Least Bitterns use seasonal wetlands and wet meadows; shallow semi-permanent marshes; marshes with dense, tall growths of aquatic or semiaquatic vegetation interspersed with clumps of woody vegetation and open water. (from Birds of North America)

Commonly uses shallow marshes >30cm in depth and >10 ha in size; marshes typically contain dense, tall emergent vegetation interspersed with clumps of woody foliage. Habitat structure within wetlands key; hemi-marsh with mosaic of vegetation interspersed with open water constitutes high quality habitat. Nests located near open water or channels and on margin of vegetation, commonly constructed on cattails (Typha), sedge (Carex), bulrush (Scirpus), and arrowhead (Sagittaria) above water 8-96 cm deep. Density is low overall; on small wetlands (<5-7 ha) in northeast Illinois, typically only one pair found. On large marsh in Wisconsin, 0.4 calling males/ha, in New York, Hudson River tidal marshes, 0.5 calling birds/ha. Occasionally occurs in high densities (<15 nests/ha) in suitable habitat. Birds forage in tall, dense stands of emergent plants along deep, open waters rich in small fishes, amphibians, crustaceans, and insects (UMVGL WCP).

Migration: Neotropical

Climate Change Vulnerability: Medium (2)

Threats (from UMVGL WCP):

- Wetland loss (especially sedge meadow and wet prairie) and degradation (invasive plant species, especially Phragmites sp., and fish stocking)
- Loss of hemi-marsh habitat and water edge
- Water level change, regulation, human-induced alterations (e.g., rising water levels in urban marshes flooding out grassy shorelines) and climate change

OVERALL MINNESOTA GOAL: Establish an effective marsh bird monitoring program

BEST MANAGEMENT PRACTICES

(from: http://ny.audubon.org/PDFs/HRVC_LEASTBITTERN.pdf)

- Preservation, protection and improvement of wetland habitats, particularly large (more than 25 acres), shallow wetlands with dense growth of robust, emergent vegetation
- Prevention of chemical contamination, siltation, eutrophication and other forms of water pollution
- Control of invasive species (e.g. purple loosestrife) and predators at breeding sites
- Make minor alternations to existing management schemes at state and federal-owned wetlands to enhance nesting habitat for these birds

Other general recommendations:

- Maintain or increase populations in known breeding areas.
- Survey for additional breeding locations.
- In Illinois (Bowyer et al. 2000), moist-soil management has been an effective method for providing critical breeding season habitat for this bittern (BNA)

(from: <http://web4.msue.msu.edu/mnfi/explorer/species.cfm?id=10877>)

- The protection, management, and improvement of large shallow wetlands with robust growth of emergent vegetation is perhaps the most urgent conservation need of this species. Several authors have indicated that marshes with a 50:50 ratio of open water to emergent vegetation, often termed hemi-marshes, attract the highest densities and diversities of wetland birds. Managing wetlands for the hemi-marsh stage would improve conditions for Least Bittern and other wetland birds. Wetlands should also be protected from chemical contamination, siltation, eutrophication, and other forms of pollution. Best management practices, such as filter strips, no-till farming, and conservation tillage, are valuable tools in protecting wetlands from pollution. Initiatives that encourage wetland restoration and protection on private and public lands have been effective at conserving habitat for this and other wetland-dependent birds. Federal programs funded by the Farm Bill, such as the Wetlands Reserve Program and Conservation Reserve Program, and the North American Wetlands Conservation Act are good examples of efforts that have had positive benefits for an array of wetland species. Changes in water quality could adversely affect the Least Bittern's prey base and increase the potential impacts from a nematode parasite (*Eustrongilides* spp.), which can devastate wading bird populations.

MONITORING NEEDS

The Least Bittern is a high priority for monitoring and a focal species (conservation priority) in the UMVGL region. It should be included in a regularly conducted monitoring effort for marsh birds with species-specific sample sizes to detect population changes effectively. Monitoring is also important to help improve understanding of its distribution (UMVGL WCP). Developing effective monitoring techniques is also a high priority for this species of Moderate Concern in the Northern Prairie & Parkland region of the Waterbird Conservation Plan.

Action: Support initiation of a marsh bird monitoring program following the protocol being implemented in other Great Lakes states.

(from: <http://web4.msue.msu.edu/mnfi/explorer/species.cfm?id=10877>)

Surveys are most successful when conducted during the early breeding season prior to incubation. As with many secretive marsh bird species, broadcasting conspecific calls can increase the effectiveness of surveys dramatically. Several surveys may be necessary to determine if Least Bitterns are present because they do not call as frequently or as loudly as other birds. The breeding status, however, is best confirmed by searching emergent vegetation for nests and young between mid-June and late July. Least Bitterns can be heard during the early morning and evening hours, however, responsiveness to call-response surveys may be higher in the morning and they are usually silent during midday and afternoon.

CONSERVATION ACTIONS

- Identify and target high priority landscapes and habitats for conservation action (NPP WCP).
Action: Identify Important Bird Areas that are a priority for this species in southwestern Minnesota
- **Upper Mississippi Valley/Great Lakes Joint Venture Region:** Adopt habitat objectives for the Yellow Rail and King Rail established by the UMGLJV Waterbird Habitat Conservation Strategy (Soulliere et al. 2007) to maintain and/or benefit this species (UMVGL WCP).

Wet Meadow with Open Water Habitat Goals for the Yellow Rail
(and Least Bittern) in Minnesota

BCR	Maintenance & Protection	Restoration & Enhancement
11	No goal established by PPJV (see next targeted conservation action)	No goal established by PPJV (see next targeted conservation action)
12	5,230 acres	5,320 acres
23	240 acres	240 acres

Shallow, semi-permanent marsh, hemi-marsh Habitat Goals for the King Rail
(and Least Bittern) in Minnesota

BCR	Maintenance & Protection	Restoration & Enhancement
11	No goal established by PPJV (see next targeted conservation action)	No goal established by PPJV (see next targeted conservation action)
12	54 acres	54 acres
23*	519 acres	519 acres

*Includes both BCR22 and BCR23 in Minnesota

Action: Work with UMVGL JV conservation partners on Minnesota IBAs that support significant populations of Least Bitterns in the UMVGL region to achieve established habitat goals.

Action: Ensure that some of the wetlands protected and restored meet the following criteria:

1. The wetlands are large, shallow wetlands (larger than 10ha) with dense growths of robust emergents.
 2. Individual wetlands are embedded within a larger complex of wetlands to provide habitat at various stages of succession.
- **Prairie Pothole Joint Venture Region:** Adopt the Minnesota Prairie Landscape Conservation Plan (2010) habitat and restoration goals that target wet meadow wetlands that benefit Least Bitterns.

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
Protection Total			75,916 acres	1,720,253 acres
Restoration	Core Areas		82,161 acres	
	Corridor Areas (complexes & general corridors)		20,731 acres	26,428 acres
	Matrix Landscape			250,880 acres
Restoration Total			102,892	277,308

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 Audubon Minnesota and conservation partners within Important Bird Areas located within the Prairie Pothole Landscape.

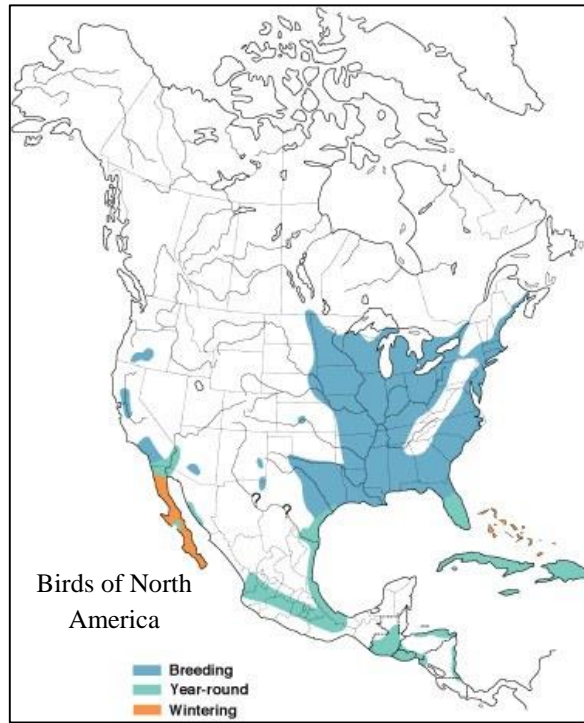
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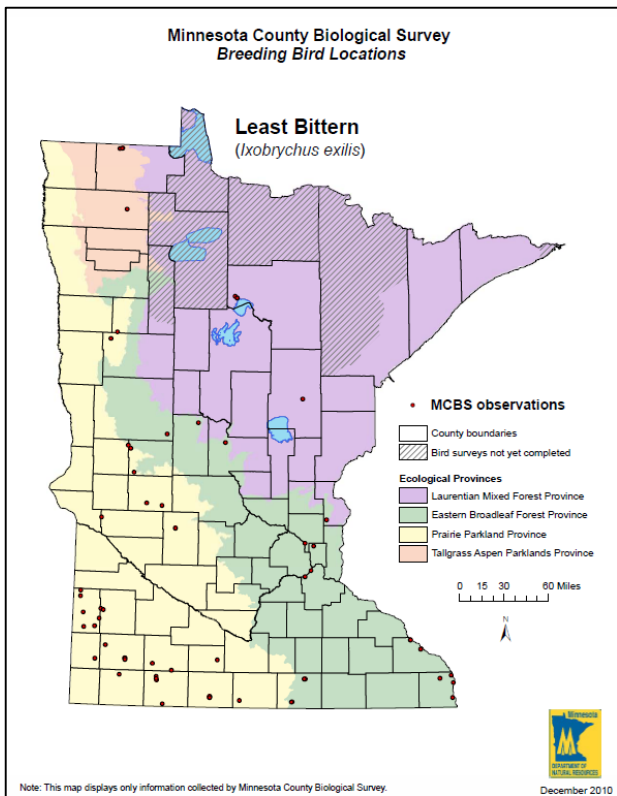
RESEARCH NEEDS

- Acquire more specific information on marsh size and distribution requirements. In some areas, complexes of wetlands may be necessary, particularly if small wetlands are prevalent.
- Studies on breeding biology
- Identification of management techniques that enhance manipulated wetlands or restore degraded habitats.

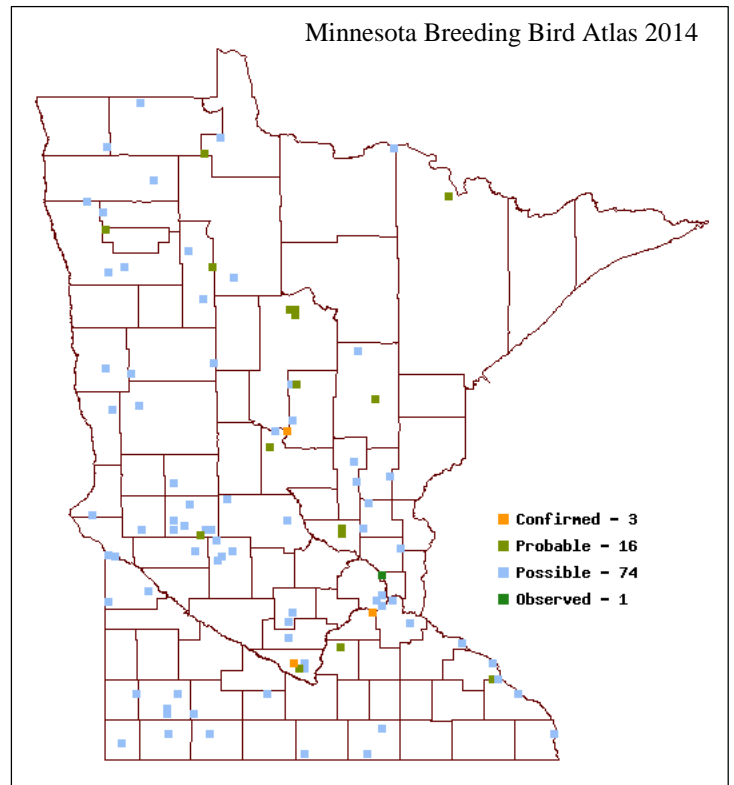
Least Bittern Distribution Maps



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/>