

Least Bittern

Ixobrychus exilis

The diminutive Least Bittern is both Vermont's least frequently seen member of the heron family and, at only a foot tall, the smallest. Its reclusive nature and habit of frequenting deepwater marshes makes it extraordinarily difficult to view. Vermont is near the northern edge of this bittern's breeding range, which extends from Maine across the southern portions of Ontario, New Brunswick, and Quebec, to the Great Plains and southward to Costa Rica (Gibbs et al. 1992).

Least Bitterns prefer tall emergent wetland vegetation (such as cattails), and commonly place their nest on the previous year's dead stems, near the open-water side of the marsh (Weller 1961, Lor and Malecki 2006). Larger marshes are preferred (Brown and Dinsmore 1986), but wetlands as small as 0.4 hectares (1 acre) are used (Gibbs et al. 1992). In higher-quality habitat, this bittern may be semicolonial (Woodliffe 2007). The male does most of the nest building, starting in late May, although both parents add to the nest during incubation. Four to six eggs constitutes a normal clutch and incubation takes about 18 days. Estimates of nesting success from western New York are as high as 80 percent (Lor and Malecki 2006). The only confirmation in the second Vermont atlas was of fledglings observed south of Colchester Point (Lake Champlain, Chittenden County) on 20 July 2003.

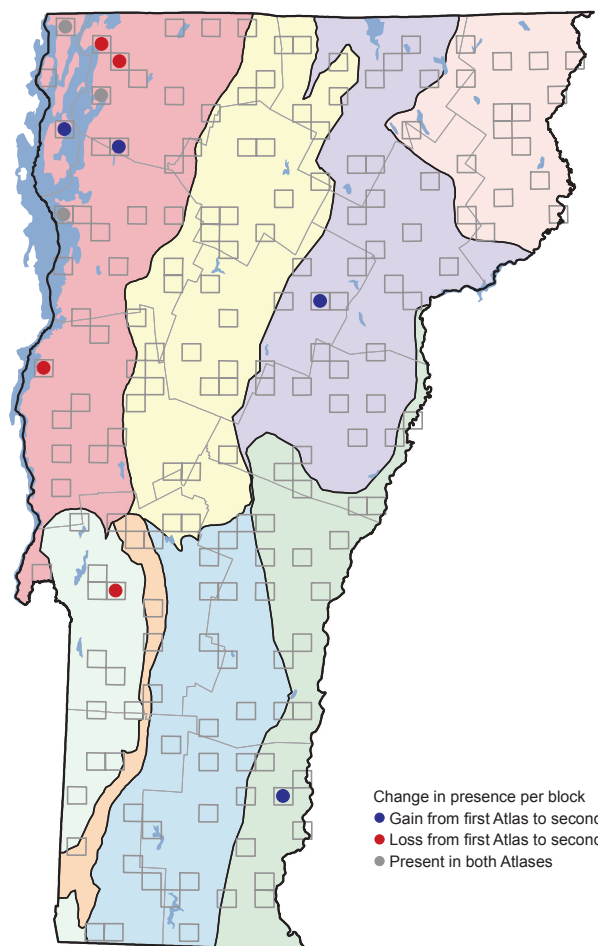
The Least Bittern is presumed to occur in more of the larger marshes in the Champlain Valley than the atlas map depicts, and the species is occasionally found elsewhere in the state. The second atlas revealed 10 records on the east side of the Green Mountains, as was suspected by Kibbe (1985), but Least Bitterns still have not been recorded in seemingly suitable habitat at Lake Memphremagog. Missisquoi National Wildlife Refuge, at the same latitude but on the western side of the state, holds the record for most individuals (10) reported from one location in one day (eBird 2010). Least Bittern was not detected in several blocks where it was recorded during the first atlas, but was found in several new blocks in the Champlain and Connecticut valleys. Broadcasts of recorded calls (Conway 2007) were used in both atlases.



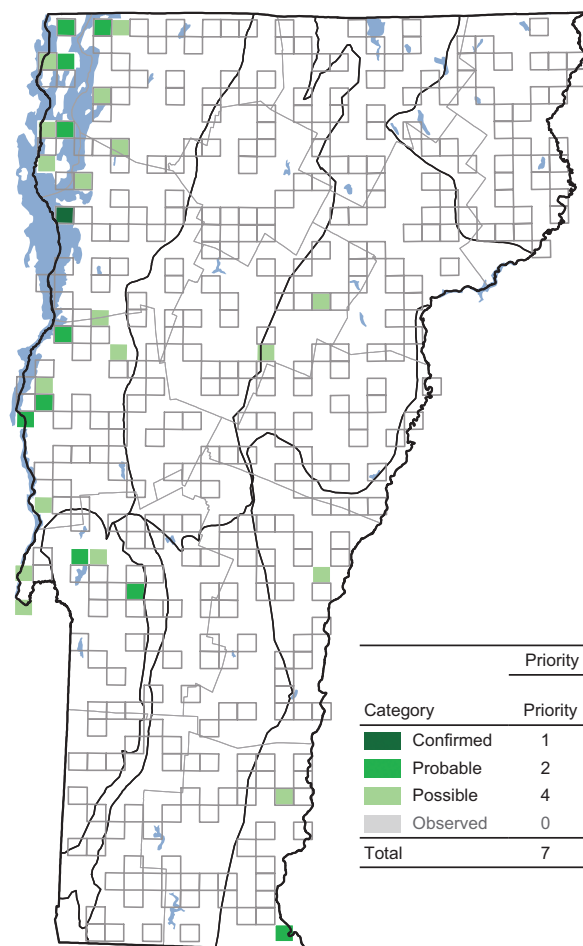
In New York, Least Bitterns were widely scattered across the state, but the number of occupied blocks fell by 9 percent (Kennedy 2008). In Pennsylvania, where a waterbird monitoring protocol was used during the second atlas, a decrease of 10 percent occurred (Wilson et al. 2012). In Ontario there was a decline in detection probability near the Great Lakes, and a marked shift in occupied blocks. The Great Lakes Marsh Monitoring Program determined that the species was declining by more than 8 percent per year from 1995 to 2003 (Crewe et al. 2005), and Least Bittern is listed as an at-risk species in Canada.

The Least Bittern is a Species of Special Concern in Vermont because of its limited numbers and specialized habitat, along with regional concerns about populations. Wetlands occupied by Least Bitterns are subject to federal protection and are unlikely to be destroyed. There have been no obvious changes in the availability or quality of habitat in Vermont since the first atlas, and effects of invasive species such as *Phragmites* and purple loosestrife are uncertain. Negative impacts of these plants on avian populations or their prey have been difficult to demonstrate (Hager and McCoy 1998, Kane 2001, Lavoie 2010). Trends in Least Bittern populations may also be affected during migration or winter.

Protecting wetlands from invasive plants may be more effective than biological control (Lavoie 2010), al-



Change in presence per block
 ● Gain from first Atlas to second
 ● Loss from first Atlas to second
 ● Present in both Atlases



Category	Priority Block Count	
	Priority 1	Priority 1 & 2
Confirmed	1	1
Probable	2	5
Possible	4	6
Observed	0	0
Total	7	12

CHANGE IN DISTRIBUTION BETWEEN ATLASES

Biophysical Region	First Atlas	Second Atlas	Change	% Change
Champlain Valley	6	5	-1	-17
Northeastern Highlands	0	0	+0	+0
Northern Green Mountains	0	0	+0	+0
Northern Vermont Piedmont	0	1	+1	+100
Southern Green Mountains	0	0	+0	+0
Southern Vermont Piedmont	0	1	+1	+100
Taconic Mountains	1	0	-1	-100
Vermont Valley	0	0	+0	+0
Totals	7	7	+0	+0

DISTRIBUTION IN CURRENT ATLAS

Biophysical Region	% of region species occupies	% of all records for this species found in region
Champlain Valley	13	83
Northeastern Highlands	0	0
Northern Green Mountains	0	0
Northern Vermont Piedmont	1	8
Southern Green Mountains	0	0
Southern Vermont Piedmont	2	8
Taconic Mountains	0	0
Vermont Valley	0	0

though beetle releases have been effective (S. Melvin pers. comm.). Unless a thorough survey using standardized protocols is implemented, trends in distribution and abundance of this secretive species will remain uncertain. Atlas data provide useful but likely incomplete information about its distribution in Vermont. Using these data and maps of potential habitat, a focused survey using an effective protocol (early mornings from mid-May to mid-June; Gibbs et al. 1992, Nadeau et al. 2008) could better elucidate the status of Least Bittern in Vermont.

DOUGLAS P. KIBBE