

Northern Parula

Parula americana

Our smallest warbler, the Northern Parula migrates across the Gulf of Mexico to its wintering grounds in eastern Mexico and the West Indies. While the species breeds across much of eastern North America, it is rare in southern New England and in the Midwest south of the Great Lakes (Moldenhauer and Regelski 1996). Far harder than its size implies, the Northern Parula arrives in Vermont in early May and sometimes lingers into October. Its size renders it subordinate to several other warblers with which it shares habitat, but competition is reduced by the bird's specialized behavior of foraging on the tips of branches.

The distribution of the Northern Parula is closely tied to the availability of their preferred nesting substrate; epiphytic plants associated with mature forest, such as Spanish moss in the Southeast and "old man's beard" lichens elsewhere. Parulas only rarely use other substrates for nesting, such as tangles of leaves or rootlets. In the Southeast, the species is commonly found in hardwood bottomlands, but in the Northeast the principal breeding habitat is mature conifers (Moldenhauer and Regelski 1996). Nests are difficult to locate, as they are usually high in a conifer and hollowed out of existing pendent lichens. This is reflected by the low proportion of atlas observations that were of confirmed breeding (19 percent), including three pairs nest-building between 2 June and 18 June. No nests with eggs or young were reported. The remaining confirmations were all fledglings ($N = 9$), observed from 1 July to 23 July. In New York, only 8 percent of Northern Parula records were of confirmed breeders (McGowan 2008) while Ontario confirmed only 3 percent (McLaren 2007).

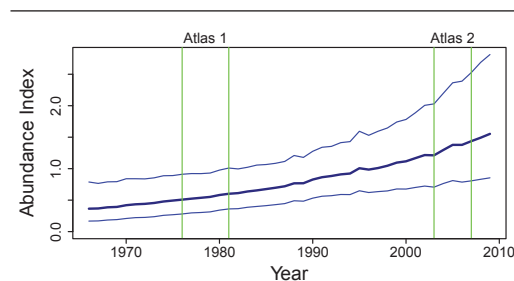
As was the case in the first atlas, the Northern Parula's distribution in Vermont is closely tied to the boreal forest and higher elevations. The Northeastern Highlands, Northern Vermont Piedmont, and Northern Green Mountains hosted 75 percent of the records. There were very few sightings and no confirmations in the western portion of the state, but a substantial increase in reports in the Southern Vermont Piedmont.

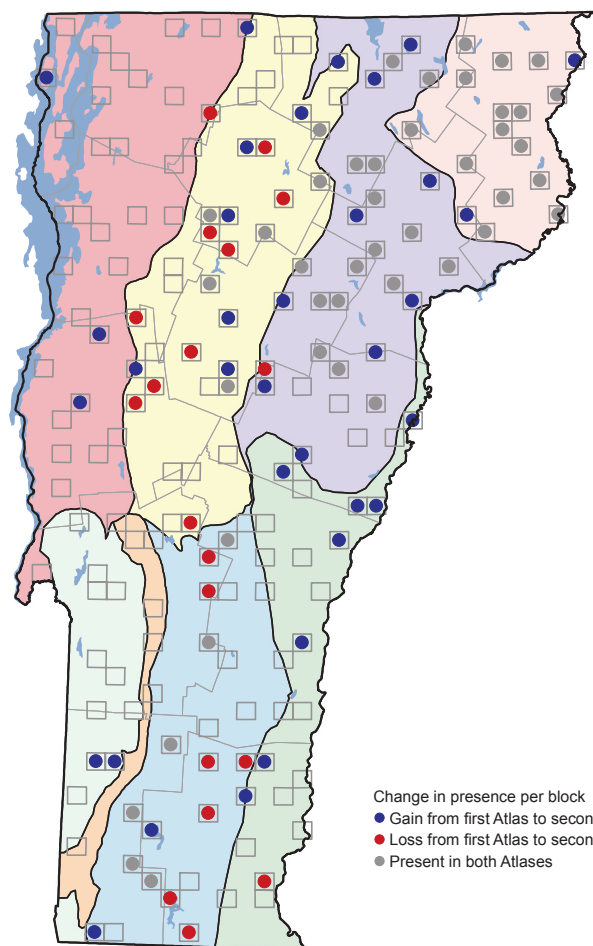


Statewide, Northern Parula showed a 24 percent increase in the number of blocks with records during the second atlas. The proportion of breeding confirmations in the second atlas was nearly twice that of the first atlas, suggesting that the population had increased to a point where encounters with fledglings may have been more likely. Forest maturation may have led to increases in epiphytic lichens, providing more nest sites for Northern Parula.

The increase in Northern Parula populations in Vermont appears to be part of a larger geographic trend. In eastern North America there has been a significant annual 1.7 percent increase, according to Breeding Bird Survey data (Sauer et al. 2011). Atlas results from both Pennsylvania (Wilson et al. 2012) and New York (McGowan 2008) showed that Northern Parula records had increased more than 50 percent since their first atlases. The Ontario atlas found that the probability of observation had doubled across the species' primary range in the central portion of the province, but were cautious about interpreting it as a real increase because effort was greater during the second atlas (McLaren 2007).

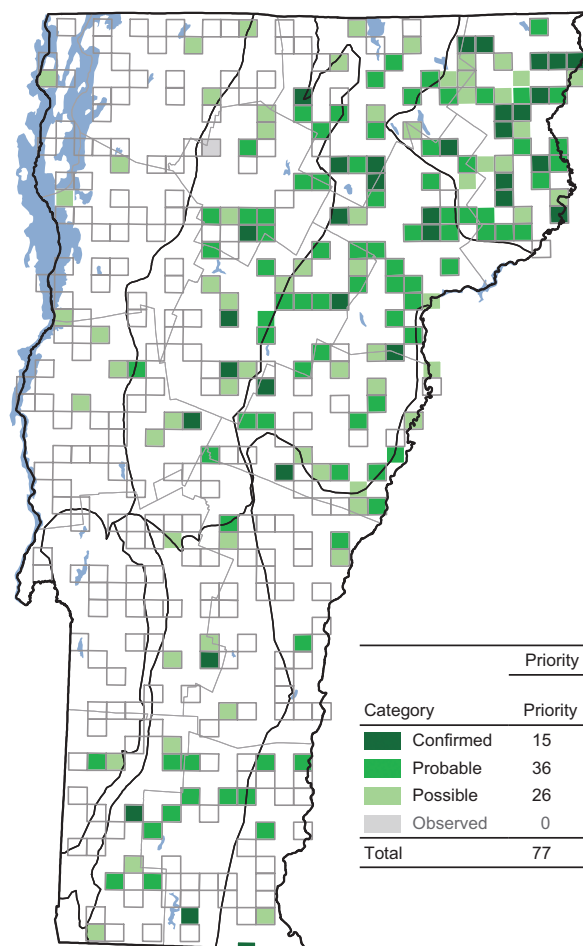
RELATIVE ABUNDANCE OVER TIME





CHANGE IN DISTRIBUTION BETWEEN ATLASES

Biophysical Region	First Atlas	Second Atlas	Change	% Change
Champlain Valley	1	4	+ 3	+ 300
Northeastern Highlands	15	17	+ 2	+ 13
Northern Green Mountains	15	13	- 2	- 13
Northern Vermont Piedmont	17	25	+ 8	+ 47
Southern Green Mountains	13	9	- 4	- 31
Southern Vermont Piedmont	1	7	+ 6	+ 600
Taconic Mountains	0	2	+ 2	+ 200
Vermont Valley	0	0	+ 0	+ 0
Totals	62	77	+ 15	+ 24



Category	Priority Block Count	
	Priority 1	Priority 1 & 2
Confirmed	15	31
Probable	36	78
Possible	26	51
Observed	0	1
Total	77	160

DISTRIBUTION IN CURRENT ATLAS

Biophysical Region	% of region species occupies	% of all records for this species found in region
Champlain Valley	12	6
Northeastern Highlands	97	23
Northern Green Mountains	46	19
Northern Vermont Piedmont	81	33
Southern Green Mountains	33	12
Southern Vermont Piedmont	27	7
Taconic Mountains	9	1
Vermont Valley	0	0

The Northern Parula has two centers of abundance: one in northern Maine, the other in northern Florida (Sauer et al. 2008). The intervening area includes unoccupied zones (including southern New England and New Jersey) where air pollution has decimated epiphytic lichens (Huckaby 1993). The increase in Vermont's breeding population could serve as indirect evidence that the effects of air pollution on lichen populations are abating or, perhaps, that more mature forests harbor more lichens.

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