

Bay-breasted Warbler

Setophaga castanea



The Bay-breasted Warbler remains one of Vermont's rarest breeding warblers. There are only three breeding records for the state, all in Essex County: a male carrying food for young on Sable Mountain during the first atlas, and nests with young in 1987 at Moose Bog Wildlife Management Area and in 1995 at Brighton State Park in Island Pond. The Bay-breasted Warbler is more at home in Canada, breeding in boreal forest from Newfoundland to the Northwest Territories. Most states can claim it only as a transient, en route between the northern breeding grounds and its winter habitat in Panama and northern South America.

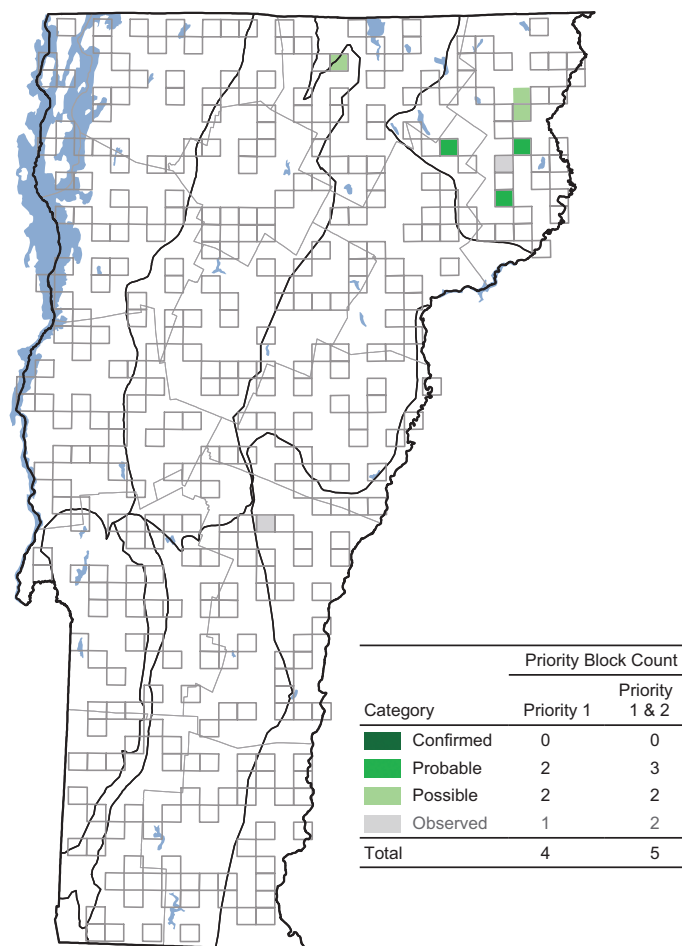
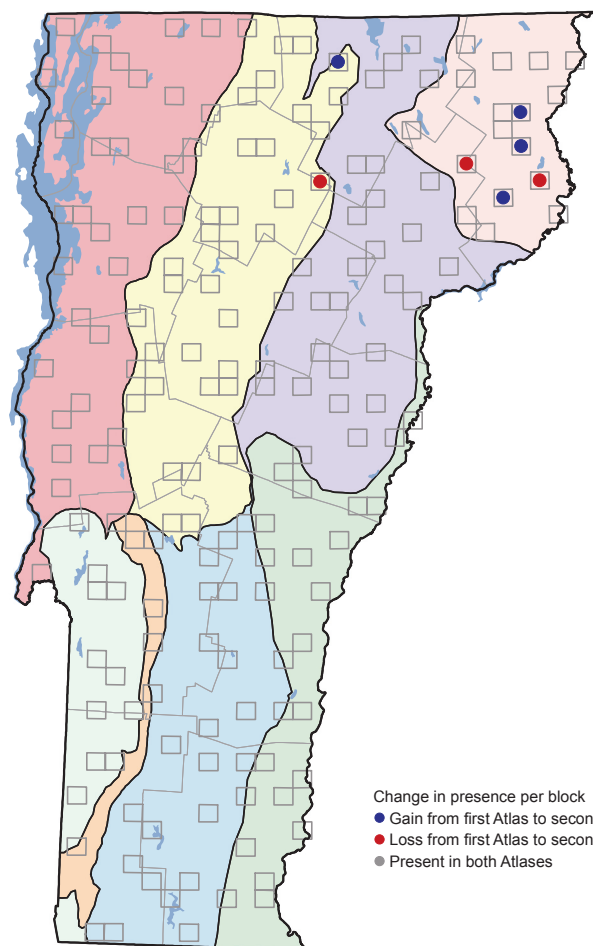
The Bay-breasted Warbler conceals its nest on branches, usually in the lower third of a conifer tree. The female lays 4 to 7 eggs and produces larger clutches in response to prey availability—specifically, spruce-budworm outbreaks (MacArthur 1958). The female is attended by the male during the incubation period of 12 to 13 days. When an intruder closely approaches the nest, the female feigns injury (Mendall 1937), a distraction more commonly used by ground-nesting species. Both parents feed the young in the nest for 10 to 12 days, and for a week or more after fledging (Williams 1996a). Because they sing high in conifer stands, Bay-breasted Warblers can be difficult to hear or see and, despite targeted searches for the species, some pairs were probably overlooked. Nests also are difficult to find; in Ontario, for example, Bay-breasted Warblers were confirmed in only 5 percent of the 258 blocks in which they were found (Zimmerling and Nicoll 2007).

All of Vermont's potential breeding records for the species have come from the northeastern part of the state, where spruce and fir are relatively common. Summer records from southern Vermont are assumed to have been late migrants or unmated birds (Oatman 1985). The species is noted for its fondness for caterpillars, particularly the spruce budworm. Periodic outbreaks of these insects may determine, in part, the species' level of breeding activity in the state.

In the second atlas, the species was reported in just 5

priority blocks and 1 non-priority block, and no atlaser was able to confirm breeding. Local or regional population increases and declines have been attributed to the fluctuation of spruce budworms (Bolgiano 2004). Breeding Bird Survey data indicate that since the last major spruce budworm outbreak in the East, the Bay-breasted Warbler population has been stable range-wide, but has shown significant declines of 1.8 percent per year in the Atlantic Northern Forest (Sauer et al. 2011) and a significant decline of 4.3 percent per year in northern spruce-hardwoods habitat (1986–2007; Sauer et al. 2008). New York's atlas documented a considerable drop in occupied blocks (from 32 to 12; Peterson 2008). The Ontario atlas, however, found populations had increased in the core of the species' range, particularly in areas with second-growth spruce-fir forest, even in the absence of caterpillar outbreaks (Zimmerling and Nicoll 2007).

Harvesting of spruce-fir forests and spraying to control budworm outbreaks have been identified as possible causes for the species' apparent decline, though increases in the core of the range despite these practices indicate that impacts may not be as great as once thought (Zimmerling and Nicoll 2007). Vermont has placed the Bay-breasted Warbler on the medium-priority list of Species of Greatest Conservation Need, but its limited and irregular breeding activity has precluded its inclusion on the list of Species of Special Concern (R. Renfrew pers. comm.). Because suitable habitat is available in Vermont, and the species selects breeding areas based on prey outbreaks, habitat protection may provide only limited benefit to this northern warbler. Major spruce budworm outbreaks may only occur at forty-year intervals (Boulanger and Arseneault 2004). Although the impacts of harvesting are not clear, substantial decreases (more than 50 per-



CHANGE IN DISTRIBUTION BETWEEN ATLASES

Biophysical Region	First Atlas	Second Atlas	Change	% Change
Champlain Valley	0	0	+ 0	+ 0
Northeastern Highlands	2	3	+ 1	+ 50
Northern Green Mountains	1	1	+ 0	+ 0
Northern Vermont Piedmont	0	0	+ 0	+ 0
Southern Green Mountains	0	0	+ 0	+ 0
Southern Vermont Piedmont	0	0	+ 0	+ 0
Taconic Mountains	0	0	+ 0	+ 0
Vermont Valley	0	0	+ 0	+ 0
Totals	3	4	+ 1	+ 33

DISTRIBUTION IN CURRENT ATLAS

Biophysical Region	% of region species occupies	% of all records for this species found in region
Champlain Valley	0	0
Northeastern Highlands	10	80
Northern Green Mountains	1	20
Northern Vermont Piedmont	0	0
Southern Green Mountains	0	0
Southern Vermont Piedmont	0	0
Taconic Mountains	0	0
Vermont Valley	0	0

cent since 1983) in the acreage of mature stands in northern New England (R. De Geus, VDFPR, pers. comm.) may make it even less likely that this species will increase its breeding activity in Vermont.

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