

Pine Warbler

Setophaga pinus

The fittingly named Pine Warbler and its simple, musical trill are characteristic of pine woodlands of eastern North America. This requirement for pine trees during the breeding season distinguishes it from other wood-warblers (Rodewald et al. 1999). The Pine Warbler is a common breeder in the Northeast's coastal pine barrens and in pine forests of the Great Lakes and Southeast (Petersen and Meservey 2003a, McGowan 2008). It winters in the southern United States from North Carolina to eastern Texas. Vermont is near the northern limits of its breeding range, which extends from southeastern Manitoba across Canada to New Brunswick and southward to the Gulf Coast. Resident races also occur in the Bahamas and Hispaniola (Rodewald et al. 1999). Considered rare in Vermont in the early 1900s (Perkins and Howe 1901), the Pine Warbler is presently uncommon and patchily distributed in the state (Murin and Pfeiffer 2002).

Breeding occurs in a wide variety of pine forest types across the range, and in Vermont this includes red and white pines, as well as pine-hardwood forests. Optimal habitat is provided by pure, dense, mature pine stands that lack a tall deciduous understory (Schroeder 1985, Ellison 1985). Although often considered a forest interior species, the warbler is also known to use forest edges and small forest patches (Rodewald et al. 1999, Crins 2007). Wintering within the southern United States, the Pine Warbler is one of the first warblers to return north in spring to breed (Rodewald et al. 1999). In Vermont, the species arrives in early to mid-April and was recorded nest building during the atlas from 13 May through 6 June. Because of its penchant for nesting high in pine trees, reliable egg and nestling dates are difficult to obtain; one nest with young was documented on 22 July. Fledglings were seen from 8 June until 18 July.

Pine Warblers were most often found in the Champlain Valley and Southern Vermont Piedmont during both the first and second atlases, with scattered records occurring throughout the state. Block counts increased in all biophysical regions, except the Northeastern Highlands, since the first atlas. The greatest increases were re-

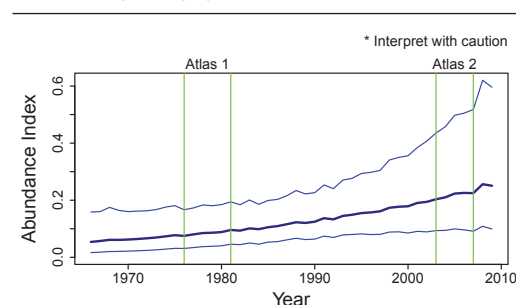


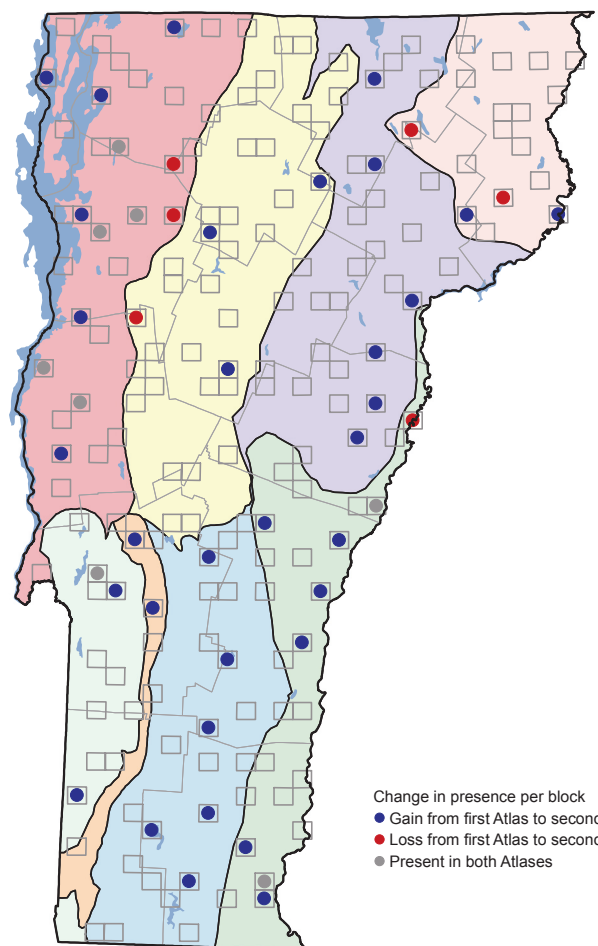
corded in the Northern Vermont Piedmont and Southern Green Mountains.

The gains in the proportion of atlas blocks occupied by Pine Warbler may reflect the maturation of planted and naturally occurring pines since the mid-twentieth century, following the abandonment of farmland. In New England, white pine is a frequent and persistent pioneer tree of abandoned fields (Wendel and Smith 1990). This explanation is supported by Forest Inventory and Analysis data (USDA 2009b), which indicate that from 1983 to 2007 the number of large pine trees in Vermont increased by more than 30 percent and the volume (cubic feet) of these trees more than doubled.

Pine Warbler population increases elsewhere in the Northeast may have further boosted Vermont's population by causing an influx of this species. Substantial gains in block occupancy have been found in other second-generation atlases, ranging from 7 percent in Maryland (Ellison 2010) to 220 percent in New York (McGowan and Corwin 2008). Breeding Bird Survey results from 1982 to 2007 indicate significant population increases of 7.1 percent per year in the Maine, New Hampshire, and Vermont area (Sauer et al. 2008), 7.2 percent per year in

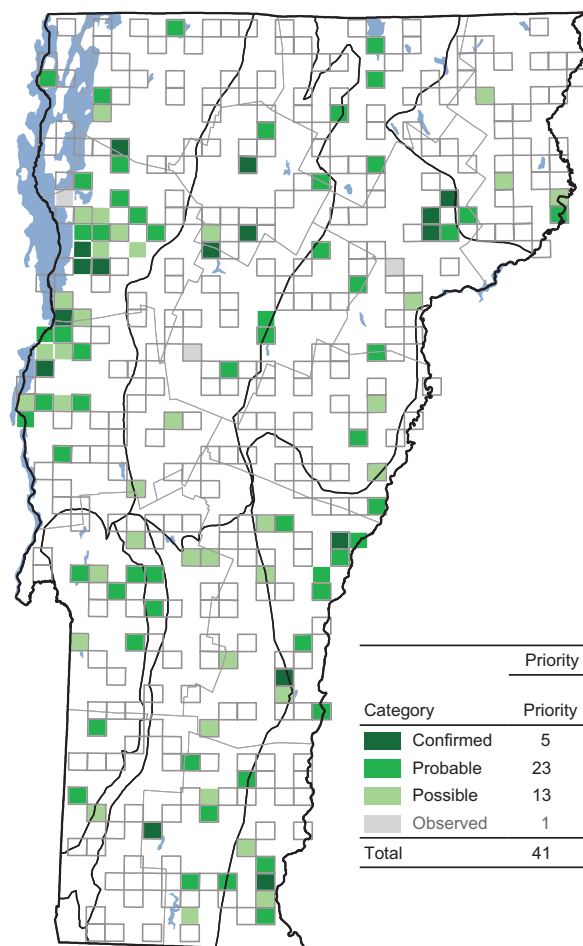
RELATIVE ABUNDANCE OVER TIME





CHANGE IN DISTRIBUTION BETWEEN ATLASES

Biophysical Region	First Atlas	Second Atlas	Change	% Change
Champlain Valley	7	11	+ 4	+ 57
Northeastern Highlands	2	2	+ 0	+ 0
Northern Green Mountains	1	3	+ 2	+ 200
Northern Vermont Piedmont	0	6	+ 6	+ 600
Southern Green Mountains	0	6	+ 6	+ 600
Southern Vermont Piedmont	3	8	+ 5	+ 167
Taconic Mountains	1	3	+ 2	+ 200
Vermont Valley	0	2	+ 2	+ 200
Totals	14	41	+ 27	+ 193



DISTRIBUTION IN CURRENT ATLAS

Biophysical Region	% of region species occupies	% of all records for this species found in region
Champlain Valley	32	26
Northeastern Highlands	13	5
Northern Green Mountains	15	11
Northern Vermont Piedmont	23	16
Southern Green Mountains	21	13
Southern Vermont Piedmont	35	15
Taconic Mountains	38	9
Vermont Valley	50	4

New York, and 5.1 percent per year in Quebec (Sauer et al. 2011).

The Pine Warbler's future in Vermont is linked to the fate of the state's pine forest habitat. Continued abandonment of farms could benefit Vermont's Pine Warbler population. However, numbers of smaller pine trees decreased in Vermont from 1983 to 2007 (USDA 2009c), even as mature trees increased, suggesting that Pine Warbler expansion may slow or even reverse in coming decades. Range-wide stewardship of eastern pine forest habitats, including active management to maintain an

open understory (via burning or manual removal), could help ensure that the Pine Warbler remains a distinctive feature of Vermont's pine forests for future generations.

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