

# A Century of Breeding Bird Data—Changes Over Time at the Arnold Arboretum

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The area that is now home to the Arnold Arboretum attracted resident and migrating birds long before it was officially established in 1872. Birds beget birders, who in turn keep records of the species that visit and nest in a given location. By 1895, when the first known report of breeding populations was compiled, the Arboretum encompassed all but fifteen of its current 265 acres. While the landscape has not changed much over the intervening century, the living collections—now comprising over 4,500 woody plant taxa—have changed dramatically. Habitats within the Arboretum’s boundaries include marshland, deciduous woods, coniferous areas, streams, and three manmade ponds surrounded by lawns, providing hospitable sites for many diverse species of birds to raise their young. Lists drawn up by regular birders show that while the number of nesting species at the Arboretum has remained quite stable since 1895, many changes have occurred in the lists’ components. In this article I review those changes and speculate on their causes, as well as on prospects for the future.

## The Listers

In 1895, *Garden and Forest* published a short article in which Charles E. Faxon documented his bird sightings in the Arboretum over a period of several years.<sup>1</sup> According to the article, fifty species of birds were then nesting in the Arboretum. Sixteen years later, Faxon added another five species to the list.<sup>2</sup>

For the better part of his career at the Arnold Arboretum (1882–1918), Faxon was in charge of the library and herbarium, but it is as a botanical illustrator that he has been remembered. His publication list approaches two thousand drawings. In a review of Charles S. Sargent’s *Silva of North America*, where many of these



Yellow warbler sitting on nest in a mockorange on Bussey Hill Road.

drawings were published, naturalist John Muir declared him “the foremost botanical artist in America.”<sup>3</sup>

Like that of many other scientists of his era, Faxon’s interest in natural science was broad; he was an enthusiastic birder as well as a botanist. Recognizing the importance of the Arboretum as a birding site, he set about to “put on record a statement of the present bird population of the place” so that future observers “[could] see how many of the present feathered tenants will remain.”<sup>4</sup> Faxon is memorialized at the Arboretum by the name of one of the three manmade ponds near the Bradley Collection of Rosaceous Plants.

Miriam E. Dickey, for many years head of the education department of the Boston Children’s Museum, led bird walks in the Arboretum

nearly every Saturday for 35 years, from 1939 through 1976. In 1976 she reported in an article for *Bird Observer of New England*<sup>5</sup> that she and her group of regular birders had seen nearly 150 species of birds at the Arboretum, of which 45 “[had] been seen on a nest with eggs or young.” Many of the observers were children from the summer day camp that Dickey ran for nearly thirty summers. Her efforts to educate children about natural science also included teaching in the Boston Public Schools and in a Massachusetts Audubon Society program for inner-city children. She remained active in both birding and teaching until her retirement in 1997 at the age of ninety and in 1998 was inducted into the Massachusetts Hall of Fame for Science Educators.

In 1971 *Arnoldia* published a report about birds nesting at the Arboretum written by Richard E. Weaver. Weaver, who played a key role in shaping the Arboretum’s grounds during his thirteen-year tenure as horticultural taxonomist and assistant curator,<sup>6</sup> included in his article not only his own observations but a list drawn from Faxon’s and Dickey’s observations as well. His list totals 44 species.<sup>7</sup>

And finally, the last report in this overview was compiled by the writer. I have been birding at the Arnold Arboretum almost weekly for nearly five years. With the contributions of several other experienced birders, I have documented forty-six confirmed breeders and another five probable breeders during that period.<sup>8</sup> The combined list from these four reports is presented in the table that appears on page 14.

### The Losses

As the list shows, the number of breeding species at the Arboretum has decreased somewhat over the century. Twenty-seven species that were recorded by previous observers are most likely no longer nesting on the property. Two game birds, bobwhite and ruffed grouse, may have been extirpated early on by hunting or by habitat

loss; another, ring-necked pheasant, was last seen in 2000. The spotted sandpiper, black- and yellow-billed cuckoos, least flycatcher, barn swallow, and eastern bluebird have not nested there since the middle of the twentieth century, probably owing to the loss of suitable habitat and nesting sites and to a reduction in the overall population of some of these species. Seven warbler species, as well as yellow-throated vireo and veery, have stopped nesting in the Arboretum. Some of these species have experienced significant population decreases throughout Massachusetts, while others may no longer be able to find hospitable nesting sites in the increasingly urban habitat. Ground nesting species, such as bobolink and field sparrow, have lost habitat since the Arboretum staff began cutting the grass shorter at the beginning of the twentieth century; increasing numbers of dogs and walkers in the meadows may also have discouraged nesting. That bobolinks have recently begun breeding again on Peters Hill, discussed below, indicates that these trends can be reversed.

### The Gains

On the positive side, seven species that did not appear on previous lists have been documented as confirmed or probable breeders at



*Yellow warbler nestlings surrounded by mockorange.*

**List of Breeding Birds by Reporter**

Species	Faxon	Dickey	Weaver	Mayer	Species	Faxon	Dickey	Weaver	Mayer
Green Heron				X	Cedar Waxwing	X	X		
Mallard		X	X	X	European Starling		X	X	X
American Black Duck		X	X		Yellow-throated Vireo	X			
Wood Duck		X			Warbling Vireo	X	X	X	X
Cooper's Hawk				X	Red-eyed Vireo	X	X	X	X
Red-tailed Hawk			X*	X	Blue-winged Warbler				X
American Kestrel			X*		Golden-winged Warbler	X			
Ring-necked Pheasant	X	X	X		Brewster's Warbler	X			
Ruffed Grouse	X				Yellow Warbler	X	X	X	X
Northern Bobwhite	X				Chestnut-sided Warbler	X			
Spotted Sandpiper	X				Black-throated Green Warbler	X	X		X*
Rock Pigeon		X	X	X	Pine Warbler				X*
Mourning Dove		X	X	X	Prairie Warbler	X	X		
Yellow-billed Cuckoo	X				Black-and-white Warbler	X			
Black-billed Cuckoo	X				American Redstart	X			
Eastern Screech-Owl	X	X		X	Ovenbird	X	X	X	X*
Great Horned Owl			X*	X	Common Yellowthroat	X	X	X	X
Chimney Swift	X	X	X	X*	Yellow-breasted Chat	X			
Ruby-throated Hummingbird	X				Scarlet Tanager	X	X	X	
Downy Woodpecker	X	X	X	X	Northern Cardinal		X	X	X
Northern Flicker	X	X	X	X	Rose-breasted Grosbeak	X	X	X*	X*
Eastern Wood-Pewee	X			X*	Indigo Bunting	X	X	X	X
Least Flycatcher	X				Rufous-sided Towhee	X	X	X	X
Eastern Phoebe	X	X	X	X	Chipping Sparrow	X	X	X	X
Great Crested Flycatcher		X	X*	X	Field Sparrow	X			
Eastern Kingbird	X	X	X	X	Vesper Sparrow	X			
Barn Swallow	X				Song Sparrow	X	X	X	X
Blue Jay	X	X	X	X	Bobolink	X			X
American Crow	X	X	X	X	Red-winged Blackbird	X	X	X	X
Black-capped Chickadee	X	X	X	X	Common Grackle		X	X	X
Tufted Titmouse				X	Brown-headed Cowbird	X	X	X	X
White-breasted Nuthatch		X	X	X	Orchard Oriole				X
Carolina Wren	X			X	Baltimore Oriole	X	X	X	X
House Wren		X	X*	X	Purple Finch	X		X	
Eastern Bluebird	X				House Finch				X
Veery	X				American Goldfinch	X	X	X	X
Wood Thrush	X	X	X	X	House Sparrow		X	X	X
American Robin	X	X	X	X					
Gray Catbird	X	X	X	X		55	45	44	51
Northern Mockingbird		X	X	X					
Brown Thrasher	X	X	X	X	* = probable breeder				

the Arboretum in recent years. Nesting green herons have been seen several times near the ponds, most recently in 2003. A pair of Cooper's hawks was seen together in the Hemlock Hill area throughout the summer of 2004, and later with a juvenile. Some birders speculate that the woolly adelgid infestation may have indirectly encouraged the hawks to breed at the Arboretum by decreasing the density of the hemlock stand; the species' overall population increase in Massachusetts may also account for this new record. Tufted titmouse, another recent addition to the list, has become a common nester in the state as it extends its range northward.

In 2003 a pair of blue-winged warblers nested in a shrub in the Bradley Garden, but we don't know whether their young fledged and they have not been found nesting again. Pine warbler has shown a trend toward nesting in both coastal and interior areas of Massachusetts; in the Arboretum they are probable nesters in the conifer collection as well as in the pines on Peters Hill. An orchard oriole nest was discovered in June 2004 in a *stewartia* next to the wet meadow near the main entrance. The same pair of birds, or another pair, returned in 2005 to nest in a *katsura* less than 15 feet away. Orchard orioles had been sighted in late May several years earlier, suggesting that nesting may have occurred even before 2004. Finally, house finches have replaced purple finches as nesters in the Bradley Collection, as they have throughout much of the eastern United States.

Other species now missing although present on previous lists may simply have been overlooked in the surveys of the last five years. In this category are cedar waxwing and scarlet tanager, both of them likely species for breeding in the Arboretum. Red-bellied woodpecker, known to nest in nearby Franklin Park, and willow flycatcher, which is heard increasingly late into the spring, especially in the new Stony Brook Marsh section of the Arboretum, are both good candidates for turning up in surveys within the next decade.

### An Exciting Case History: Bobolinks

In late May of 2005, a flock of forty or more migrant bobolinks was seen on the grassy slopes of Peters Hill, considerably more than usual

for that area. Hoping to encourage the birds to nest, the Arboretum staff stopped mowing in that area and posted signs urging dog walkers to avoid the tall grass and keep their dogs leashed. The effort was rewarded: by mid June at least one pair of bobolinks had nested near the top of the hill. The pair was later observed bringing food to hatchlings and there was evidence that young birds had crawled out of the nest, but no confirmed sightings of fledglings were reported, perhaps because the intense heat wave in late June led to the hatchlings' demise. Nonetheless there is hope that continued protection and delayed mowing will attract more nesters next year and that bobolink breeding will be firmly reestablished in the Arboretum after more than a century.

### Endnotes

- <sup>1</sup> C. E. Faxon, "Birds of the Arnold Arboretum," *Garden and Forest* (July 1895) 8(387): 292-93.
- <sup>2</sup> — — — "Birds in the Arboretum," *A Guide to the Arnold Arboretum*, 1911: 31-33.
- <sup>3</sup> John Muir, "Sargent's Silva," *Atlantic Monthly*, July 1903.
- <sup>4</sup> Faxon, "Birds of the Arnold Arboretum."
- <sup>5</sup> Miriam E. Dickey, "The Arnold Arboretum as a Birding Area," *Bird Observer of Eastern Massachusetts* (Jan-Feb 1976) 4(1): 4-7.
- <sup>6</sup> R. E. Weaver, "Birds in the Arnold Arboretum," *Arnoldia* (Nov 1971) 31(6): 349-365.
- <sup>7</sup> Papers of Richard E. Weaver, Jr., 1970-1983, Archives of the Arnold Arboretum, Jamaica Plain.
- <sup>8</sup> Using the definition of "probable" applied in the *Massachusetts Breeding Bird Atlas*, which includes (1) singing male present or mating calls heard on more than one date in same place; (2) a bird or pair of birds apparently holding territory or visiting probable nest site; (3) courtship and display or aggressive behavior or anxiety calls from adults, suggesting probable presence of nest or young nearby; (4) nest building by some wren and woodpecker males, birds known to build multiple nests in a flurry of eager optimism, which is sometimes entirely unwarranted.

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