

## RANGE EXPANSION OF THE RED-BELLIED WOODPECKER

by Jerome A. Jackson and William E. Davis, Jr.

The Red-bellied Woodpecker (*Melanerpes carolinus*) is a species on the move — or so we've been told for the past century (Jones 1898, Forbush 1927, Jackson and Jackson 1987, Jackson 1997). With habitat and climatic change, species ranges do fluctuate, gaining new ground, losing old. For some birds range expansion comes as a result of introduction, innate migratory or irruptive tendencies, or elimination of competitors or predators. None of these latter factors apply to the Red-bellied Woodpecker. It is a mostly sedentary species that seems strongly philopatric, and it has expanded its range this century in spite of increasingly documented competition with European Starlings (*Sturnus vulgaris*) (e.g., Ingold 1994).

A recent graphic depiction of Breeding Bird Survey (BBS) data (Price et al. 1995) shows the species reaching its northern limit along the Atlantic seaboard in extreme south-central Massachusetts, with disjunct populations along Lake Ontario in western New York and in extreme southwestern Ontario, as well as in northern Michigan and central Minnesota. The populations shown as disjunct may in reality be low-density populations that only appear to be disjunct as a result of the discontinuous nature of BBS routes (but see Meade 1988). To the west the species occurs into eastern Minnesota and central Iowa, southeastern and south-central Nebraska, western Kansas, Oklahoma except for the Panhandle, and eastern Texas. Other regional data, for example Christmas Bird Counts (Root 1988), extend the range of the species slightly beyond the limits suggested by BBS data. However, nowhere is the species more abundant than in the Gulf and South Atlantic states, where it is found south to southern Florida.

Habitats used by Red-bellied Woodpeckers range from bottomland forest to pine flatwoods to urban parks and yards, although older trees and damp conditions that favor wood-decaying fungi are key components. In general, the Red-bellied Woodpecker favors more closed forest than does its close relative, the Red-headed Woodpecker (*Melanerpes erythrocephalus*), and these two species are interspecifically territorial (Jackson 1976, Jackson and Nickol 1979).

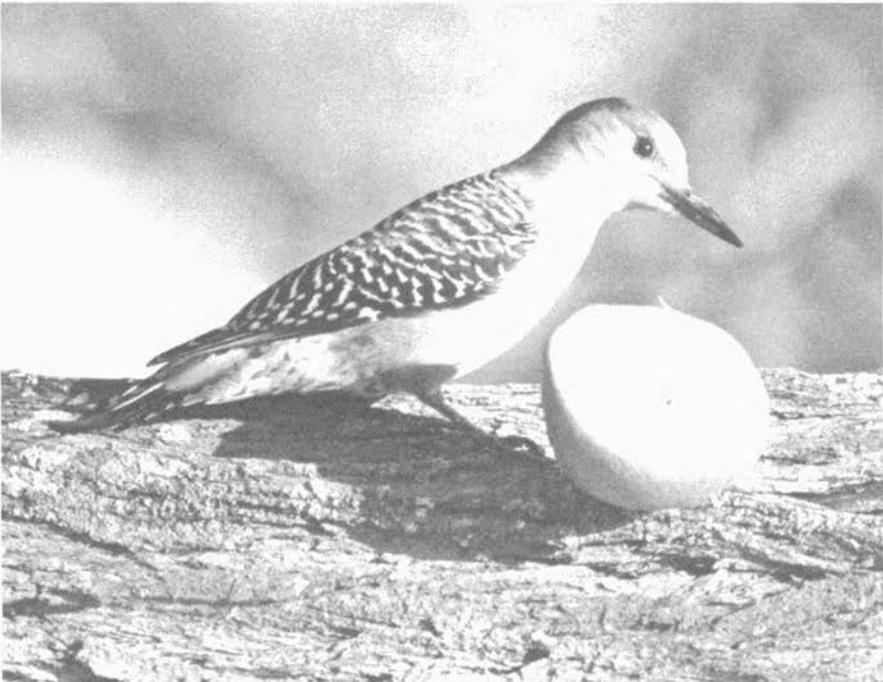
To what extent has the Red-bellied Woodpecker's geographic distribution changed? How, when, where, and why has it done so? In the following account we rely on historical records of this bird, its habitats, its competitors, and its human observers, as well as some recent records, in an effort to answer these questions.

Alexander Wilson (1808) commented on the Red-bellied Woodpecker's range in the early 1800s, noting that it was widespread and resident through much of the eastern U.S., but curiously he refers to it as "abundant in Upper Canada, and in the northern parts of New York." Certainly southern Canada and

northern New York are today at the northern limits of the species' range. Audubon (Audubon and Chevalier 1840-1844) also described the Red-belly's range, noting that it nested north to Nova Scotia, a contention dismissed as erroneous by Palmer (1949). There are no data to support Audubon, but Wilson's comments are plausible. Perhaps there has been a range contraction followed by a reinvasion.

Support for such fluctuations comes from Forbush (1927), who noted that the species seemed to be a permanent resident in southern Ontario, while in New England it was a "mere straggler," and that "evidently this bird . . . has retired westward during the last century." However, a female captured and a male wounded in Newton, Massachusetts, in November 1880 (Plummer 1881) suggest that a small population may have persisted in that area. Forbush also cited Giraud's (1844) report of former breeding on Long Island and in the lower Hudson River valley, from which the species had disappeared. In about 1955, Red-bellies again occupied the region, spreading rapidly up the Hudson from New Jersey (Meade 1988).

At Oberlin, Ohio, Lynds Jones (1898) included the Red-bellied Woodpecker under the heading "Increasing Species," noting that it was "in nearly every piece of woods, and even strays into town occasionally." This was, however, before the European Starling was well established in Ohio.



*Red-bellied Woodpecker*

*Photo by Jerome A. Jackson*

In Pennsylvania, Poole (1964) notes that the species was "apparently a fairly common resident in the extreme southern counties a century ago," then "became a rare and irregular straggler until recently. Within the last two decades . . . there has been a remarkable increase into areas in which it was previously unknown." Early in the century, for example, Burns (1919) referred to the Red-belly as a "rather rare winter visitant" in Chester County. At midcentury Wood (1952) considered it only a casual visitor near State College. As recently as 1956, there were no records of Red-bellies from the Pocono Mountains of northeastern Pennsylvania (Street 1956). It was first found in the area in January 1968, but by 1985 it was well established as a breeding bird along the Blue Mountain and in valleys north of it (Street and Wiltraut 1985).

Howe and Sturtevant (1899) had little to say about Red-bellied Woodpeckers in Rhode Island except that two birds had been collected near Providence. Similarly, Sage et al. (1913) report only three records from Connecticut. Zeranski and Baptist (1990) detail the species' increase in abundance and range in Connecticut, where it was regularly reported in the 1960s and considered common in coastal regions by 1977.

The current range expansion of the Red-bellied Woodpecker into Massachusetts is a fairly recent event. The first documented breeding in the state was in 1977 (Forster and Robinson 1977) when nesting pairs were found in Natick and Adamsdale. Robinson (1977) also summarized the history of the Red-bellied Woodpecker in Massachusetts, mentioning that Red-bellies were reported on the average of once every nine years between 1863 and the mid-1950s, when the number jumped to about four birds per year. Between 1962 and 1976 about 50 birds were reported from the state (Veit and Petersen 1993).

From 1975 on, Christmas Bird Count (CBC) data (published annually by the National Audubon Society in *American Birds* [now *Field Notes*]) highlight the range expansion of the Red-bellied Woodpecker in Massachusetts. There were no reports from the 1975-76 CBCs, but in 1976-77 one Red-bellied Woodpecker was reported from Millis, earning bold-face type in the published report. In 1977-78 four were reported from Millis, but none from elsewhere in the state. The number of Red-bellies appearing in the 1978-79 CBC reports returned to zero. Things changed rapidly, however, and Red-bellies were reported on four counts in 1979-80, three in 1980-81, and four in 1981-82. The 1982-83 CBCs saw a total of ten Red-bellied Woodpeckers reported from seven count areas. Table 1 elucidates the subsequent pattern of range expansion throughout the state. Between 1983-84 and 1996-97 there was more than a twentyfold increase in the numbers reported (no corrections for party hours were made, since party hours remained fairly constant). In addition, Red-bellied Woodpeckers were reported from only four of twenty-six count areas in 1983-84, but from twenty-six of twenty-nine in 1996-97. Populations have become

**Table 1.** Numbers of Red-bellied Woodpeckers reported on Christmas Birds Counts (in *Bird Observer* and *American Birds*) for all 29 Massachusetts counts: Andover; Athol; Buzzards Bay; Cape Ann; Cape Cod; Central Berkshire; Concord; Greater Boston; Greenfield; Marshfield; Martha's Vineyard; Mid-Cape Cod; Millis; Nantucket; New Bedford; Newburyport; Northampton; Northern Berkshire; Plymouth; Quabbin; Quincy; Springfield; Stellwagen; Taunton/Middleboro; Tuckernuck; Uxbridge; Westminster; Worcester; Newport County, RI/Westport, MA.

	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97
And.	-	-	-	-	-	-	-	1	1	2	1	0	2	3	
Athol	0	0	0	0	2	0	0	0	0	0	0	0	0	1	
B.B.	0	0	0	1	0	3	0	0	0	5	3	11	4	4	
C.Ann	0	0	0	1	0	0	1	0	0	3	1	0	7	4	
C.Cod	0	0	0	0	0	1	0	2	0	4	1	0	4	6	7
C.Berk.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
Conc.	1	0	2	1	3	5	5	4	1	4	4	7	15	24	
Gr.Bos.	0	0	0	0	0	0	1	1	4	2	3	1	3	9	10
Green.	0	0	0	0	0	0	0	2	0	0	2	0	6	9	
Marsh.	0	0	0	0	0	2	0	0	0	2	0	3	1	1	5
M.V.	5	8	4	7	17	15	13	7	18	15	22	22	42	30	24
Mid-C.	1	0	0	0	0	1	0	0	0	1	0	3	7	4	1
Millis	0	0	0	0	0	1	0	0	0	-	0	4	0	9	11
Nant.	0	0	0	0	1	1	0	2	0	2	0	0	4	4	
N.B.	0	0	0	0	0	1	0	1	0	1	1	0	3	2	
Nbpt.	0	0	0	0	0	0	1	1	3	1	1	5	6	11	13
N.Hamp.	0	0	0	1	1	3	3	3	1	3	3	7	5	15	20
N.Berk.	1	1	1	2	0	0	1	0	0	1	0	0	0	0	
Ply.	0	0	0	0	0	0	0	0	0	4	0	2	1	4	
Quab.	-	-	-	-	-	1	0	0	1	1	0	0	1	2	2
Quin.	0	0	0	0	0	0	0	0	1	0	0	1	1	2	0
Spring.	0	0	0	0	3	1	2	3	3	5	20	21	19	38	
Stell.	-	-	-	-	0	0	0	0	1	0	0	0	2	0	0
Tau/Mb.	0	0	1	0	0	0	2	0	0	0	1	1	4	9	
Tuck.	0	0	0	0	0	0	0	-	0	0	-	0	0	0	
Uxbr.	0	0	0	0	0	1	0	2	5	1	3	3	6	10	13
Wstm.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
Worc.	0	0	0	0	1	0	0	0	0	1	1	3	0	10	
Nwp	0	1	0	0	2	2	0	0	2	8	4	4	11	7	10
Total	8	10	8	13	30	38	29	29	41	66	71	98	155	220	
#counts (of 29)	4	3	4	6	8	14	9	12	12	20	16	16	23	26	

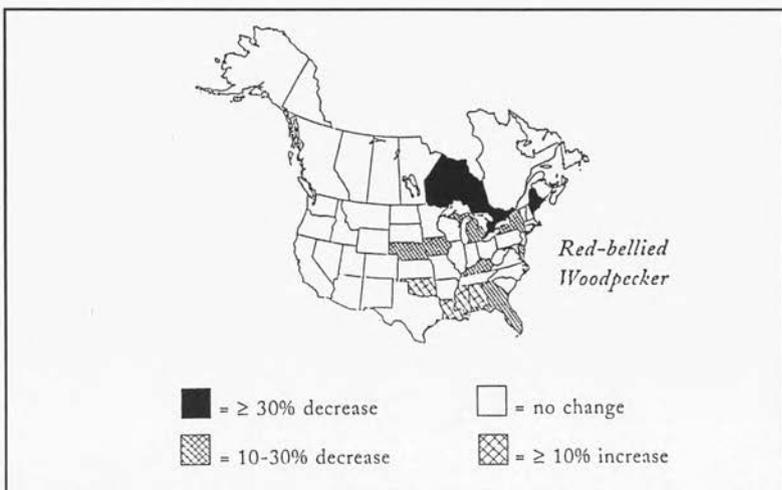
well established on Martha's Vineyard, and in Concord and Springfield, where CBC counts have consistently yielded numbers in double figures in recent years.

The Cornell Laboratory of Ornithology FeederWatch program has also monitored the range expansion of the Red-bellied Woodpecker. Several of their reports (e.g., Tessaglia and Rosenberg 1994, Tessaglia 1997) indicate that Red-bellies visited 38-39 percent of feeders for which results were reported in North America, placing them among the most widespread feeder species, and that a significant increase in numbers at feeders occurred from 1987-88 to 1988-89 (Dunn 1990) in the New England Region (excluding Maine). In the winter of 1993-94, harsh conditions apparently caused major declines in most northern populations of Red-bellied Woodpeckers, but did not affect the New England Region (Rosenberg et al. 1995; Figure 1). In 1995-96 the New England Region was rated in the category of "Regions with largest relative increase [or] major irruptions" for Red-bellies (Tessaglia and Rosenberg 1996). Clearly, the Red-bellied Woodpecker has become a thoroughly established resident of the Commonwealth of Massachusetts.

### Why has the range expansion occurred?

We suggest that the dynamics of Red-bellied Woodpecker range fluctuations involve the following factors:

(1) There would have been a gradual reduction in numbers and fragmentation of populations, particularly in northeastern North America, from colonial times until the early 1900s as a result of growth of human populations



**Figure 1.** Population changes in Red-bellied Woodpeckers during the cold winter of 1993-1994. Printed with permission from BirdScope, 1995, 9(4):5, Cornell Laboratory of Ornithology.

and clearing of forests for human use. Removal of the virgin forests of the Great Lakes states and southern Canada by the forest industry prior to 1880 would likely have decimated any Red-belly populations in the region. There and elsewhere increasing competition with Red-headed Woodpeckers would have been associated with the more open habitats created by forest fragmentation.

(2) There would have been a more dramatic decline associated with cavity competition in more open habitats between Red-bellies and European Starlings as the latter species' population grew following its introduction in the 1890s.

(3) With the shift from use of wood-burning stoves in the 1800s to use of electricity provided by regional power plants in the 1900s, there would have been decreased cutting of dead wood, hence an increase in potential habitat for the birds.

(4) With better roads and rail systems, produce and meat from distant markets became readily available to northeastern communities; as a result, local agriculture declined, allowing regrowth of forests and some reversal of forest fragmentation trends. This process provided more habitat and somewhat reduced cavity competition for Red-bellied Woodpeckers.

(5) In more arid areas of the Midwest, Red-bellies would have naturally been limited to the narrow strands of forest along rivers. As human populations built up in the region, trees planted as windbreaks and in cities and towns created additional habitat, allowing increased numbers and broader distribution of populations. In Kansas, for example, the species was once more or less limited to the eastern half of the state, but has increased in numbers and now seems to be expanding farther west along rivers (Thompson and Ely 1989).

(6) With the spread of Dutch elm disease and the loss of large elms throughout eastern North America, especially during the 1950s-1960s, an abundance of nest sites as well as an increased tree surface and subsurface arthropod food supply favored a rapid growth in Red-bellied Woodpecker populations (Bull 1974, Meade 1988).

(7) Although continued human population growth in northeastern North America has resulted in much habitat destruction, the affluence of the mid-to-late-twentieth century has resulted in development of new habitats. Proliferation of subdivisions with individual family housing and yards of increasing dimensions, with trees maintained only for shade, privacy, and decor, have favored Red-bellied Woodpecker population growth.

(8) Gradual climatic warming during the twentieth century is likely enhancing the potential for further northward expansion of Red-bellies and other southern species.

(9) Added to recent habitat improvements has been a dramatic increase in bird feeding, perhaps providing critical food resources for Red-bellied Woodpeckers during extreme weather in more northern areas. Favored foods include oil sunflower seeds, beef suet, peanut butter/cornmeal mixtures, and

halved oranges impaled on a nail in a tree trunk or post (Jackson 1997). Many authors note the frequent visits of Red-bellied Woodpeckers to feeders, especially in winter, and Meade (1988) suggests a link to the species' range expansion. The numerous reports of Red-bellies frequenting feeders in Massachusetts during winter suggest that supplementary feeding has played an important role in range expansion of the species into this state.

Dispersal of Red-bellied Woodpeckers into new areas seems to take place in winter, as evidenced by an abundance of "first sightings" for new areas in December and January. Such reports are generally of single birds, suggesting solitary dispersal rather than as pairs, a behavior that is typical of woodpeckers. Studies of banded birds in Mississippi (JAJ unpublished data) suggest that dispersal involves mostly young birds, while adults tend to remain near the site of first nesting. While most dispersal is likely to be over short distances, effecting a gradual expansion of the species, some long distance dispersal occasionally occurs, as evidenced by records of the species from Arizona and other distant extralimital areas.

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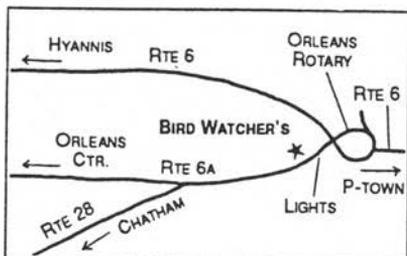
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