

## THE PURPLE MARTIN IN MASSACHUSETTS

By David E. Clapp

The members of the New World genus *Progne* are among the largest of the world's swallows, having wingspans of over twelve inches and weighing nearly two ounces. The Purple Martin (*Progne subis*) is a Neotropical migrant and winterer, and the only breeding martin in North America. The specific wintering grounds of this species are poorly known, but they are thought to include the tropical forest of the western Amazon basin.

The use of the words "swallow" and "martin" are not determined by any anatomical formula. Martins tend to be members of the family Hirundinidae that have squared off or blunt tails. The family is characterized by slender, streamlined bodies with short necks, short, compressed bills, and long, pointed wings with ten primaries. In most species, the sexes are similar and the young resemble adults (the Purple Martin represents an exception to this rule). In North America the term "martin" refers exclusively to members of the genus *Progne*, but elsewhere in the world there are martins that belong to other genera, i.e., *Hirundo*, *Delichon*, *Phedina*, *Pseudochelidon*, and *Riparia*.

The migration of the Purple Martin is an unusually leisurely process. Birds returning to North America fly across the Gulf of Mexico in late January, making them one of the earliest migrants to return to the U.S. From the southern U.S., the martins work their way northward, reaching the Carolinas by mid-February, New Jersey by late March, and New England in the middle or end of April. The males, which often arrive ahead of the females, are likely to be seen in eastern Massachusetts around the end of the second week of April.

The Purple Martin is a locally common breeder in southeastern Massachusetts, and at Plum Island and a few other locations in northeastern Essex County. Colonies in these areas reconstitute themselves in late April or early May. By late August, Purple Martins may be found roosting in conifers or dense deciduous trees within a few miles of their nesting sites. Soon after, they are gone: a nearly complete departure takes place by the end of August, and Purple Martins are uncommon in Massachusetts much later than Labor Day.

### Martins in Massachusetts

In eastern Massachusetts today, the Purple Martin is a rather uncommon bird; most estimates allow for only a few hundred nesting pairs in the state. Like many swallows, this species occasionally suffers high nesting mortality during cold rains of several days' duration. Apparently, Massachusetts swallows of all types were devastated by bad weather in 1903 and 1929 (Bent 1942). In both years, sustained cold rain virtually eliminated feeding opportunities for swallows, and many birds starved to death. Most swallow species recover

quickly fairly quickly from such episodes, but Purple Martins do not seem to be as resilient. One explanation commonly offered (Bent 1942, Terres 1980) for the continued low numbers of Purple Martins today is that House Sparrows (*Passer domesticus*) and European Starlings (*Sturnus vulgaris*) regularly usurp preferred martin nesting sites following periods of population depression. It is also likely that the decline of agriculture in Massachusetts limits the amount of habitat that is suitable for Purple Martins.

Purple Martins in the East appear to be totally reliant on man-made bird houses or strings of gourds for nesting. There have been a few reports over the past fifty years of martins nesting in cavities in dead pine trees in the South or among large boulders in Minnesota (Terres 1980). There are also many reports suggesting that martins were attracted by Native Americans who would hang gourds on trees or specially erected poles in order to attract the birds to their villages (Bent 1942). Today, people enjoy the presence of martins and their burbling song, and we assume they eat lots of mosquitoes. In former times, surprisingly, Purple Martins were valued as dooryard birds more because they would vigorously chase off birds of prey that might take domestic fowl than as a means of reducing the numbers of noxious insects.

The nests of Purple Martins are not elaborate and often consist of nothing more than a small jumble of grass stems. Tradition holds that a male establishes and defends a territory and then the female chooses a nest site, acquiring a mate in the process. Not too romantic, but at least they agree on the accommodations! The four or five eggs are incubated for just over two weeks, and the young birds remain in the nest for just over four weeks before fledging. The incubation period is only a few days longer than that of the Tree Swallow (*Tachycineta bicolor*), but the nest-bound development time is over two weeks longer. After the young martins leave the nest, mostly by mid-July in Massachusetts, the family group disperses during the day but roosts communally, often in a conifer.

### **A colony in Marshfield, Massachusetts**

Most Massachusetts birders have only limited opportunities to observe Purple Martins, seeing them along the road on Plum Island or during a quick visit to a golf course in Marshfield or Halifax. I have been fortunate in that the presence of a small colony at Massachusetts Audubon's Daniel Webster Wildlife Sanctuary (DWWS) in Marshfield has afforded me the opportunity to watch Purple Martins at leisure and with some regularity.

The colony at DWWS was started in April 1996, when twelve large, hollowed gourds were strung like a string of Christmas tree lights on wires between poles. Three poles were erected, with the generous help of Commonwealth Electric, forming the points of an equilateral triangle with sides of about twenty-five feet. Wire was strung between the poles; six gourds were strung on each of two sides of the triangle, while the third wire was left bare to

provide a perch. In the first season, we attracted six birds and had three nesting pairs that each fledged two young. What a great start!

In the first season, there was only one totally dark male bird among the six. Since first-year males have plumage very similar to females, we assumed that the colony initially consisted of one adult male, two yearling males, and three females.

In 1997, there were no birds at the colony until April 23. We were not too concerned, because Clyde Gurney, the manager of the very successful colonies at the Marshfield and Halifax Country Clubs, reported that he had no birds until the fourth week of April, although Bob Matthews and the golf course crew had prepared housing at both locations by April 1. Finally the birds arrived, and the small colony at DWWS ended up with at least fifteen birds. (The Marshfield and Halifax colonies are also off to a great start, with at least thirty occupied nest sites at each golf course in 1997.) The birds that arrived at DWWS in 1997 included five birds in adult male plumage, which seemed like a positive sign.

On several occasions, I have watched the birds at DWWS continuously for a period of about thirty minutes, and the birds exhibited behavior that was somewhat surprising. On July 3, 1997, I noticed that birds would sometimes "deflect" from one gourd to another, if there was already an adult in the opening of the first gourd. Thus, food headed for one brood would occasionally end up in another gourd. I also observed instances in which as many as three adults would enter a single gourd, all carrying food. Such behavior suggests, if not cooperative breeding efforts, at least a lack of rigorous competition among pairs. In addition, the sexual relationships among Purple Martins are a bit unclear. There are reports (Morton 1995) of females mating with more than one male. And in the DWWS colony, birds show a tendency early in the season to leave one gourd and enter another almost immediately, though this behavior seems to cease as nesting nears completion. My observations are quite limited, and it would be interesting to conduct more rigorous studies involving banded or color-marked birds, so that it would be possible to identify individuals. But it appears possible that the DWWS martin colony is to some extent a communal project, with individuals having at least a small stake in the success of the other members of the colony.

So far, there has been little evidence of interspecific territoriality among the martins at DWWS. On May 31, 1997, a Song Sparrow that perched and sang on a pole was chased off before he could finish his first aria. But in general, the martins have not been confronted with territorial challenges. Red-winged Blackbirds (*Agelaius phoeniceus*) frequently sing from the colony's poles in February, March, and early April, prior to the arrival of the martins, but I have never observed this species on the poles when martins were present. I have not yet seen a House Sparrow or European Starling attempt to enter one of the gourds.

It was also interesting to observe the process of getting nesting material into the gourds. The nests that I cleaned out after the 1996 breeding season were very simple, made almost entirely from pieces of grass stems, usually quite straight and stout, between four and six inches long. I watched a bird return to a gourd while holding a six-inch piece of grass stem by the middle in its beak. It landed and tried twenty-three times to enter the two-inch-diameter hole with the six-inch stem held crosswise in its beak. Each time, it tried to go straight in, and each time it bounced off when the stem spanned the hole. Twice it adjusted its body, apparently trying to find a better angle to enter from. Finally, it flew off and made a couple of loops before landing and trying again, six more times. Then it made another flight, another landing, and another series of attempts. I assumed that it would eventually insert one end of the stem into the hole, by accident if not by design, and then take advantage of the serendipity. But this never happened.

What finally happened came as a surprise: the stem finally bent in the middle and the bird entered the hole beak first. Subsequently I observed both softer grasses, and a few more stiff stems, entering gourds in the same manner. They never seemed to learn (as House Wrens [*Troglodytes aedon*] seem to) that by inserting the end they might facilitate the process; regardless of what sort of material they were carrying, the martins persisted in trying to go straight into the gourds.

I don't anticipate any great increase in the Massachusetts Purple Martin population occurring in the near future, but there certainly exists the opportunity for the establishment of new colonies near areas in which martins already breed. There are occasionally colonies on Cape Cod, and birds are often reported in the Connecticut River Valley. But at present, it seems that Plymouth, Bristol, and Essex counties are the only areas in the state in which energy spent establishing martin housing might be rewarded.

P.S.: Purple Martin's don't eat enough mosquitoes to make time spent observing them thoroughly enjoyable.

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### MARTIN HOUSING OPTIONS

At DWWS, gourds were by far the most popular housing option, highly desired by the martins and less likely than boxes to be used by invasive species (though Tree Swallows used a gourd in 1996). I originally bought the gourds from a farmer in Alabama, but unfortunately the farmer's failing health made this supply unreliable. Gourds purchased from a farmer require careful preparation. First, wash them and then abrade them with a wire brush and steel wool to remove dirt and blemishes. Cut a two-inch oval in the fat portion of the gourd; the contents of the gourd must be cut and chopped finely enough to be poured out of the hole. Soak each gourd in a copper sulfate solution to inhibit mold growth, and drill several drain holes in the bottom of each and another hole to hang the gourd from at the top. Prime the gourds and paint them with an exterior glossy enamel. When the paint is dry, the gourds are ready to be strung on wires and hung. The Purple Martin Conservation Society, and some birdwatchers supply and gardening stores and catalogs, sell gourds of the appropriate size. Prepared gourds cost somewhat more than those obtained from farmers, but these sources offer a dependable and trouble-free supply. For further information on gourds, and on efforts to sustain the population of this fascinating swallow, contact the Purple Martin Conservation Society, Edinboro University of Pennsylvania, Edinboro, PA 16444.

--David E. Clapp

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