

The  
**Purple Martin**  
and its Management in Texas



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2012  
FOURTH EDITION

## **About the Author**

# JAMES D. RAY

Jim Ray has a passion for Purple Martins.

A native Texan, this 23-year veteran of the wildlife management and research community in Texas and the Central Flyway has worked to publicize and expand martins as a nesting species in west Texas. His work with Purple Martins includes promotion of their management through presentations and publications. Additionally, since 1997 he has banded more than 10,000 of these popular migratory songbirds.

Jim is credited with more than a dozen publications on Purple Martins, and two of the three previous editions of this bulletin won publication of the year honors from his professional organization, The Texas Chapter of The Wildlife Society. Other of his publications on martins have appeared in the *Purple Martin Update* (quarterly publication of the Purple Martin Conservation Association), the *Texas Breeding Bird Atlas* webpage (<http://txtbba.tamu.edu/accounts/puma/pumaacc.html>), and *Texas Wildlife* (Texas Wildlife Association). He has also contributed numerous articles to newspapers and newsletters.

- Louise Chambers, *Purple Martin Conservation Association*

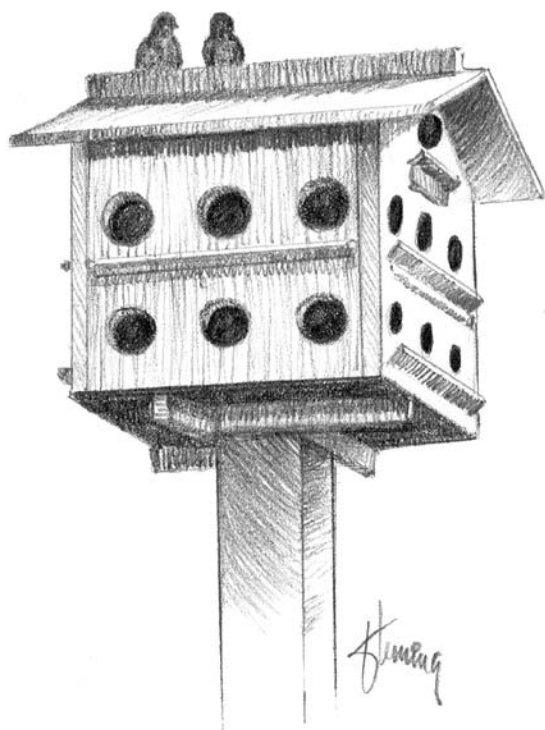
# The **Purple Martin** and its Management in Texas

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This booklet is dedicated to the thousands of past, present and future martin landlords in Texas.

The assistance of those who contributed their time and talent to this and prior editions is gratefully acknowledged. Critical reviews on various drafts and editions were provided by Noreen Damude, Carl Frentress, Mark Klym, Gene T. Miller, Calvin Richardson, Cliff Shackelford, Matt Wagner (TPWD), James R. Hill, III (Purple Martin Conservation Association), and David Hurt (WildBirds Unlimited). Mr. Hill and Louise Chambers of the Purple Martin Conservation Association are greatly acknowledged for supplying the photographs, as well as their other contributions utilized in this booklet.



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## Foreword

The Purple Martin (*Progne subis*) has been managed intentionally by humans longer than any other North American songbird. For hundreds, perhaps thousands of years, Native American tribes in what is now the southeastern United States hung clusters of hollowed-out gourds to attract this large swallow to their villages (Figure 1). Native Americans may have appreciated the Purple Martins' beauty, song, or penchant for consuming annoying or depredating flying insects. James R. Hill, III, founder of the Purple Martin Conservation Association, offers the following speculation regarding benefits of Purple Martins that Native Americans may have enjoyed:

Perhaps, Purple Martins were like alarm clocks, awakening the village inhabitants with their singing early and regularly each morning. Maybe they served as biological calendars, since every phase of their annual life cycle (from arrival in spring, pairing, nest-building, egg-laying, hatching, fledging and departure) is done on a regular and predictable schedule. They might have been like watchdogs, since they are notorious for giving alarm calls when predators or strangers approach the colony site.

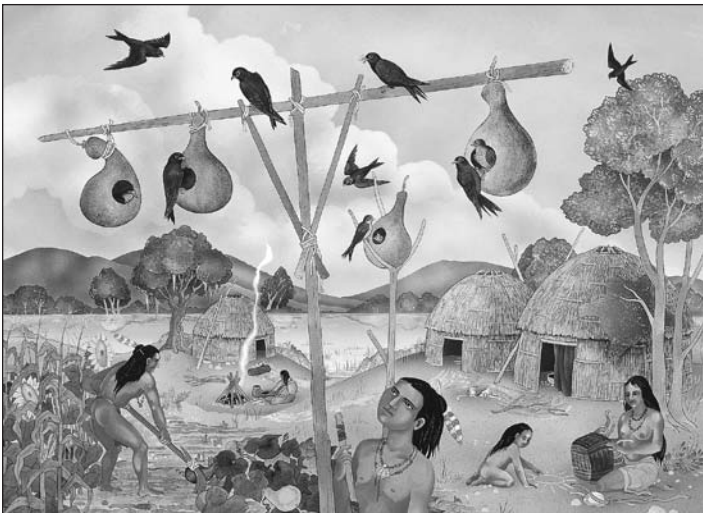


FIGURE 1. Purple Martins lived in close association with North Americans even before the first European settlers arrived.

[Courtesy of Gerard Frisheteau and the Purple Martin Conservation Association.]

Whatever the reason, certain tribes provided housing for Purple Martins, and the early settlers were quick to follow. Today, an estimated 1 million North Americans provide housing for Purple Martins.

Natural nesting sites of Purple Martins include cavities in trees and tree snags, saguaro and organ pipe cacti, niches in cliff faces, and even on the ground between large boulders. Historically, most nesting probably occurred in woodpecker holes in tree snags (tree hollows), and, as evidenced by today's western Purple Martins, many may have nested in the hollows of live trees. Tree snag habitat, especially east of the Rocky Mountains, is limited due to susceptibility to weather and fire, suitability for fire wood, and to losses to urban sprawl, "clean farming" and logging.

Competition for available cavities occurs among our native cavity-nesting species; however, competition for cavities has been intensified by the introduction of the non-native House Sparrow and European Starling. For these reasons, human-provided housing and management has become vital to Purple Martins, especially east of the Rocky Mountains, where they have undergone a complete "tradition shift" and are now the only bird species entirely dependent on humans for supplying them with nesting cavities. Consequently, the purpose of this booklet is to acquaint landowners, homeowners, bird enthusiasts and the general public with Purple Martins and their management needs.





## Background

The Purple Martin is one of eight species of swallows that regularly occur in the United States. All of these — the Bank, Barn, Cave, Cliff, Northern Rough-winged, Tree and Violet-green swallows, and the Purple Martin — nest in Texas. All members of the swallow family are aerial insectivores, although the Tree Swallow is capable of surviving on berries and seeds if flying insects become temporarily unavailable. All species of swallows are gregarious to some degree. All are “cavity” nesters, displaying various techniques of securing nest sites. Some swallows nest in existing cavities (the Tree Swallow, Violet-green Swallow and Purple Martin), some dig their own cavity in steep embankments (the Bank Swallow and Northern Rough-winged Swallow), some construct cavities with mud (the Cliff Swallow), and some complete a “cavity” by constructing a mud bowl under ledges in caves or on man-made structures (the Barn Swallow and Cave Swallow).

Purple Martins are widely distributed in North America (Figure 2). In Texas, they occur primarily east of a line that runs just west of Monahans, Lubbock,

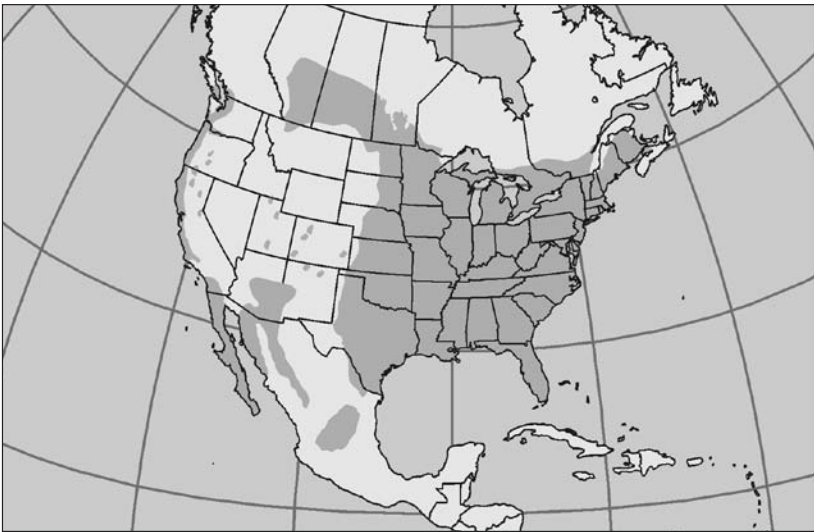


FIGURE 2. Purple Martins breed throughout much of North America. [Map courtesy of the Purple Martin Conservation Association.]

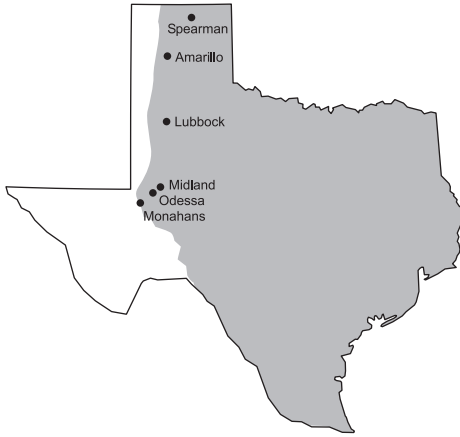


FIGURE 3. Purple Martins breed in all but the Trans-Pecos and western third of the Panhandle and South Plains.

Amarillo and Spearman (Figure 3). West of that line, nesting Purple Martins are rare, if present at all. Properly managed housing west of that line could allow for the westerly expansion of their range in Texas. Their rarity there is likely a function of cavity limitations rather than water limitations. For example, Purple Martins can be found nesting in the Sonoran desert of Arizona, where surface water is scarce, but cavities in saguaro and organ pipe cacti are abundant. They also occupy areas in the nearly treeless High Plains where they would otherwise be absent, if not for housing supplied by humans. In the Panhandle, in recent years, they have displayed good potential for production and expansion, when provided proper, well-placed and managed housing.

The Purple Martin is North America's largest swallow. They weigh approximately 1.75 ounces (50 grams) and have a wing span of approximately 15 inches. Purple Martins have broader wings and tails and a more soaring flight than do other swallows. Males do not acquire their adult plumage until their second winter. Adult males are a glossy blue-black above and below, and females are duller, with a sooty-gray forehead, gray neck and grayish underparts (Figure 4). Purple Martin males in their second calendar year of life can be sexed and aged by subtle plumage differences, but it is difficult; they resemble females except for dark spotting on their chin, throat, breast, flanks or undertail coverts. Young-of-the-year Purple Martins also resemble females and are referred to as juveniles or hatch-year birds. Subadults returning to North America for their first nesting season are known as second-year (SY) martins, and the adults are referred to as after-second-year (ASY) martins.

Purple Martins are aerial insectivores that do most of their feeding at 100–200 feet above the ground. Their diet is almost 100 percent flying insects, and they opportunistically feed on flying ants, beetles, butterflies, cicadas, damselflies, dragonflies, (drone) bees, flies, grasshoppers, hoverflies, katydids, mayflies, midges, mosquitoes, moths, stinkbugs and wasps. Many martin “landlords” mistakenly believe that Purple Martins devour large quantities of mosquitoes. Actually, no scientific study has ever shown mosquitoes to comprise more than 3 percent of the Purple Martin’s diet. Most mosquito species are simply not available for Purple Martin consumption due to their nocturnal and low-flying habits.

Though Purple Martins may be most numerous around water, a nearby water source is not a prerequisite for having them. However, Purple Martins will travel several miles to a water source to drink and bathe on the wing. Water bodies are also used as feeding areas, because they generally have higher densities and a greater diversity of flying insects than do most upland habitats.



FIGURE 4. The all-dark adult male Purple Martin can easily be differentiated from the adult female (light breast).

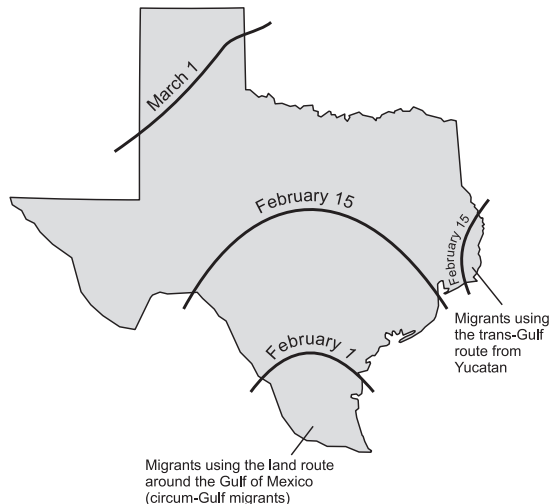
## Life History

The Purple Martin is one of the earliest neotropical migratory birds to return to the United States each year. After spending approximately five months in South America, Purple Martins make their appearance in Texas during the first half of February (Figure 5). Sometimes individuals arrive as early as January. During colder springs, Purple Martins may not appear in northern parts of the Panhandle until late March. The migration of Purple Martins is prolonged, with migrants continuing to arrive at colony sites for 12 to 16 weeks.

Males generally arrive before the females of their same age. The oldest Purple Martins (five- to seven-year-olds) generally are the first to arrive. These are followed by the three- to four-year-olds, and then the two-year-olds. Normally, SY Purple Martins do not begin arriving until about five weeks after the earliest ASY martins appear. It is these SY Purple Martins that generally establish new colony sites.

Martin landlords often refer to the earliest arrivals in spring as “scouts.” To thousands of landlords, the arrival of the first Purple Martin scout of the season is the sure sign of approaching spring. Contrary to popular belief, the scouts do not return to South America to guide their colony back to the site.

FIGURE 5. The isochronal (date) lines shown on this map mark the average first-arrival dates of adult martins at long-established breeding sites. Adult martins typically begin arriving within one to two weeks on either side of these dates. “Landlords” with younger (or smaller) colonies typically experience slightly later return dates. Second-year martins, the only age group that will typically colonize new breeding sites, don’t begin arriving until about five weeks after the earliest adults do. These subadult martins continue arriving for an additional 12 to 16 weeks.



This misconception is spurred by the common observation of a Purple Martin or two arriving, only to quickly disappear for a few days or longer. This phenomenon can be explained by one or more of the following. During prolonged cold and/or wet weather, early-arriving Purple Martins often become inactive in their houses and/or form communal roosts, whereby many martins pack into a single cavity to conserve heat and energy. Also, these “early birds” may be brief visitors on their way to more northerly nesting sites. They are simply using martin houses for overnight stops or to rest for a day or two during migration.

Purple Martin colonies in excess of 350 pairs have been reported. Purple Martins are considered colonial in that two or more pairs will nest in close proximity to each other. A Purple Martin colony is simply a random aggregation of individual birds attracted to a common breeding site. Once Purple Martin broods fledge, individuals that make up the colony disperse from the colony site independently from other colony members. Except by accident, they do not migrate as a colony, nor do they assemble as a colony until the following spring when they return independently to the site at which they bred the previous year. Colonial nesting has advantages to Purple Martins in both nest defense and creating “safety in numbers.” However, the driving force behind colonial nesting in Purple Martins may be the increased opportunity for males to pass on genetic material to offspring other than those produced in the single brood of his own mate. Males frequently force-copulate with other females in the colony, thus fathering more offspring than just those produced in their own nest. Purple Martins are a single-brooded species but on rare occasions, in Texas, are known to raise two broods.

Generally, most Purple Martins breed as subadults. However, most colony sites will have a small percentage of non-breeding bachelor (SY) males. On average, about 70 percent of the breeding males at the colony site will be ASY, and 30 percent will be SY males. Upon arrival, males spend a great deal of time exploring cavities at the colony site. Following selection of one or more nest cavities, the males await the arrival of females. Males advertise their selected cavity by performing the “claiming-reclaiming” display. This display involves flying from the cavity, gliding around, re-entering the cavity, turning and singing in the entrance. Although this activity stimulates the interest of arriving females, the female actually selects a cavity, thus inheriting the male whose cavity she chooses. Pairs become established after a few hours to a few days. Nesting is quite staggered at most colony sites because

of age-related differences in return schedules. Some pairs will be fledging young while others are still incubating eggs.

Nest construction is a contagious activity. Once a few pairs begin, many others quickly become active in nest building. The nest is constructed by both sexes. Coarse materials such as twigs, straw, pine needles and coarse grasses are the preferred nest materials. Often, a mud dike, sloping towards the rear of the cavity, is constructed near the entrance. Prior to egg laying, the nest cup is lined with green leaves, plucked from the tops of nearby trees and shrubs. Green leaves are added throughout the egg laying and incubation periods. It is hypothesized that green leaves contain a natural insecticide to help reduce parasite numbers, or aid in maintaining sufficient moisture for the eggs.

Three to seven eggs (average four to six) are laid and incubated by the female for 16 days (Figure 6). On average, but varying with temperature, incubation sessions by the female consist of her being on and off the nest at 15-minute intervals. In the female's absence, the male sits on the eggs, though he lacks the "brood patch" required for true incubation. A brood patch is the featherless area of skin on the belly of incubating birds that allows for heat transfer from the brooding parent to the developing embryo within the egg.

The young are fed small insects at first, which are increased in size as the young birds grow. This continues until the young birds fledge after about 28 days. After fledging, the brood is kept together for one to two weeks, returning to the nest cavity for awhile for the night and/or during daytime thunderstorms. Shortly after fledging, martins begin pre-migratory flocking and soon return to South America. By the end of September, most Purple Martins have left Texas for the wintering grounds. Ninety percent of the Purple Martin population is believed to winter in and around the state of São Paulo, Brazil. Others can be found east of the Andes from Venezuela north to northern Bolivia.

Banding has shown that most Purple Martins live one to two years. The record longevity for Purple Martins in the wild is 13 years. The annual mortality rate is 50 percent for adult Purple Martins and 60–70 percent for juveniles. Adult (ASY) martins are extremely faithful to colonies, returning year after year. Only about 5 to 10 percent of SY Purple Martins return to their natal colony. The remainder disperse to other established colonies, or to colonize unestablished sites.

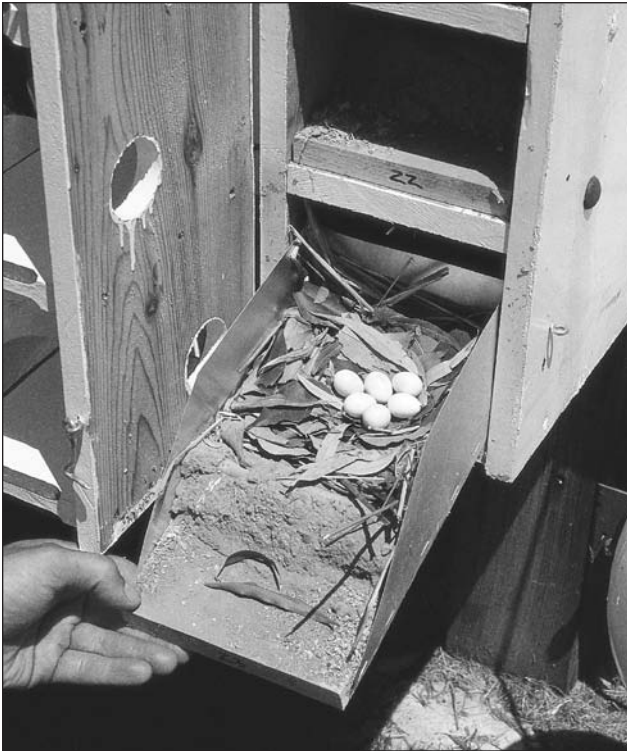


FIGURE 6.  
Purple Martin nests are normally comprised of four to six eggs on a “pad” of coarse nest materials. Green leaves typify a completed martin nest.



# Housing

Purple Martins can be attracted to our yards with a variety of housing types. Most housing consists of plastic or hollowed-out natural gourds (“birdhouse” or “bottle”) or conventional houses made of aluminum or wood. A combination of gourds and conventional housing (Figure 7) may more than double your chances of attracting martins. Advantages and disadvantages of wooden and aluminum houses and of natural and plastic gourds are discussed in Figure 8.

Cavities should be no smaller than 6 inches wide x 6 inches high x 6 inches deep, but larger cavities (e.g., 7 inches wide x 6 inches high x 12 inches deep) are preferred by Purple Martins and reduce the chances of predation by hawks, owls and other predatory birds. Gourds should be at least 7 inches in diameter, but those of 8 to 13 inches are preferred.

To facilitate management (e.g., cleaning, control of nest-site competitors, and record keeping) each cavity **must be** accessible individually. Wooden houses can be constructed with this in mind, and most reputable manufacturers of aluminum houses now incorporate this into their design. Plastic gourds equipped with screw-off access doors are now available commercially, and natural gourds can easily be equipped with access doors using jar tops.

Circular entrance holes to martin housing should be between 1-7/8 inches and 2-3/8 inches, but 2-1/8 inches is best. All Purple Martin housing (gourds included) should be painted white. Purple Martins seem to prefer white housing, possibly because dark entrance holes and the birds themselves (Purple Martins) show up better against a white background and are thus seen more easily by house-seeking martins. More importantly, white is an excellent reflector of heat, which can be deadly to young Purple Martins in nest cavities. White, polyurethane, high-gloss enamel paint is recommended.

Other essential housing specifications are included in the Problem Management chapter of this booklet.





FIGURE 7. Offering two or more types of housing may enhance your chances of attracting that first pair of Purple Martins.

FIGURE 8.  
Advantages and disadvantages of gourds, and wooden and aluminum conventional housing.

## GOURDS (8 inches or larger)

### Natural:

#### PROS

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- Cooler in hot weather and warmer in cold weather than aluminum houses; equal to wooden houses
- Inexpensive—can be home grown
- Larger cavities than standard conventional housing
- Light weight for vertical raising and lowering
- Natural-aesthetically pleasing
- Predators have difficulty clinging to and accessing
- Swing and sway, which martins like, and competitors and predators dislike
- Wider spacing of cavities and lack of common porches connecting entrance holes results in higher occupancy rates than in conventional houses
- Lack of continuous porches prevents older nestlings from entering neighboring compartments to steal food from younger nestlings

#### CONS

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- Harder to access and clean (unless you install screw-off access doors, using jar tops)
- Not commonly available
- Require more care for longevity

## GOURDS (8 inches or larger)

### Plastic:

#### PROS

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- Can be purchased commercially with screw-off access doors and molded-in rain canopies
- Larger cavities than standard conventional housing
- Light weight for vertical raising and lowering
- Natural-aesthetically pleasing
- Predators have difficulty clinging to and accessing
- Swing and sway, which martins like, and competitors and predators dislike
- Wider spacing of cavities and lack of common porches connecting entrance holes results in higher occupancy rates than in conventional houses
- Some can be equipped with sparrow/starling traps
- Lack of continuous porches prevents older nestlings from entering neighboring compartments to steal food from younger nestlings
- Some come with starling-resistant entrances

#### CONS

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- Harder to access and clean (unless equipped with screw-off access doors, using jar tops)

## CONVENTIONAL HOUSES

### Wooden:

#### PROS

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- Can be “tailor-constructed” (cavity size, appearance, entrance shape, etc.)
- Remain slightly cooler in hot weather and warmer in cool weather than aluminum houses

#### CONS

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- Most designs have cavities that are hard to access and clean
- Standard commercial cavity size of 6" x 6" x 6" is the minimum size purple martins will accept
- Too heavy for easy raising and lowering (except with winch systems)
- Encourages older nestlings to enter neighboring compartments to steal food from younger nestlings, unless equipped with some form of porch divider or non-continuous porch

## CONVENTIONAL HOUSES

### Aluminum:

#### PROS

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- Light weight for vertical raising and lowering
- Most can be modified to have larger cavities
- Most have easy-opening compartments for cleaning
- Available commercially
- Some have House Sparrow traps as accessories
- Some have owl guards available as accessories
- Some have porch dividers available as accessories
- Some come with starling-resistant entrances, or have them as accessories

#### CONS

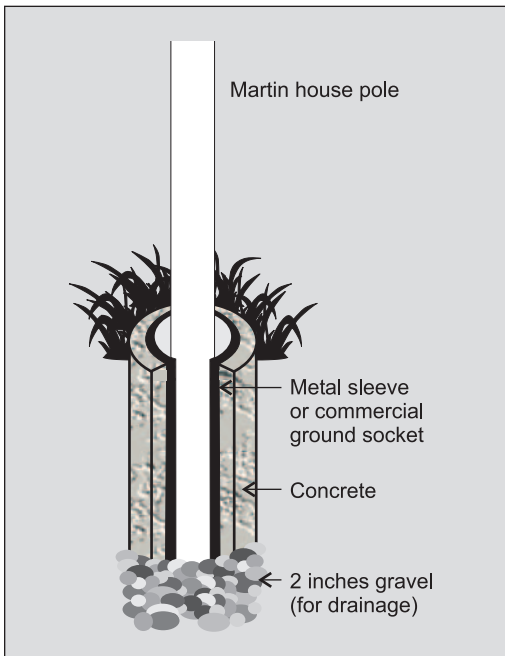
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- Standard commercial cavity size of 6" x 6" x 6" is the minimum size purple martins will accept
- Encourages older nestlings to enter neighboring compartments to steal food from younger nestlings, unless equipped with some form of porch divider or non-continuous porch

NOTE: Although nest cavities with dimension of greater than 6" x 6" x 6" are preferred by martins, they are also more attractive to European Starlings. Consequently, be sure to employ entrances touted as startling-resistant.

## Placement of Martin Houses

For ease of management (including record keeping), martin housing should be erected on poles designed for easy raising and lowering. Landlords need to vertically lower their housing at least weekly (if not daily) to evict unwelcome House Sparrows and European Starlings, without disturbing or dumping contents of Purple Martin nests. Raising and lowering of martin housing, even daily, will not cause Purple Martins to abandon their nest or their colony site. Vertical-raising martin pole systems (telescoping, pulley or winch) are available commercially. Conventional martin houses made of wood tend to be heavier than aluminum martin houses or gourd setups, and may pose a problem for easy raising and lowering. However, on a proper pole system, housing made of wood provides excellent homes for Purple Martins.



Poles for martin houses should be mounted in concrete or within a ground socket embedded in concrete (Figure 9). Poles and houses must be mounted in ways that will not allow the housing to turn in the wind. Purple Martins may abandon nests if the orientation (direction) of their cavity changes. Also, Purple Martins often abandon gourds if the gourds are hung in such a manner that they strike one another or other objects in high winds.

FIGURE 9. Martin house poles can be easily removed for relocation, if installed in a ground socket. An 18- to 24-inch section of pipe can be used, but commercial ground sockets are available. These have a clamp at the upper end which prevents a pole from rotating inside of the ground socket.

Martin housing should not be erected or opened (unplugged) until one to two weeks prior to the average return dates shown in Figure 5. Erecting housing earlier than that will only result in unnecessary battles with House Sparrows and European Starlings. SY Purple Martins, the only age group that will typically colonize new breeding sites, don't typically begin arriving until about five weeks after the earliest ASY martins. Consequently, martin housing at unestablished sites need not be made available until four weeks after the average return dates shown in Figure 5. An exception to this rule is that ASY martins can occasionally be lured away from active colony sites less than one mile away if you offer superior housing and/or management, or if they failed to fledge young at another site during the previous nesting season. Prospective landlords that opt to open their housing earlier than the recommended time **must** dedicate themselves to frequent and consistent management against House Sparrows and starlings. Martin housing should be taken down or closed up at active colony sites soon after Purple Martins have ended their daily visits following fledging of the young. Martin housing should be left up until late September at unestablished sites; fledgling Purple Martins might investigate housing and “remember” housing the following spring when they return as SY martins. During this time, landlords should remain diligent in managing against House Sparrows and starlings.

Martin housing should be erected in open areas at any height between 10 and 20 feet. Highest occupancy rates occur when housing is located at least 40 feet from trees or buildings that are taller than the martin housing. The farther the housing is placed from trees, the better. However, research has shown that martin housing placed **more** than 100 feet from human housing (or other areas of high human activity) has a lower chance of being occupied. This further illustrates the dependence of Purple Martins on humans east of the Rocky Mountains.

A second house should be added to the site when the first becomes one-half full. Pairs generally claim and defend multiple cavities, so rarely is 100 percent occupancy achieved unless cavities do not share a common porch or unless some form of porch dividers are installed.

## **Additional Tips for Attracting Purple Martins**

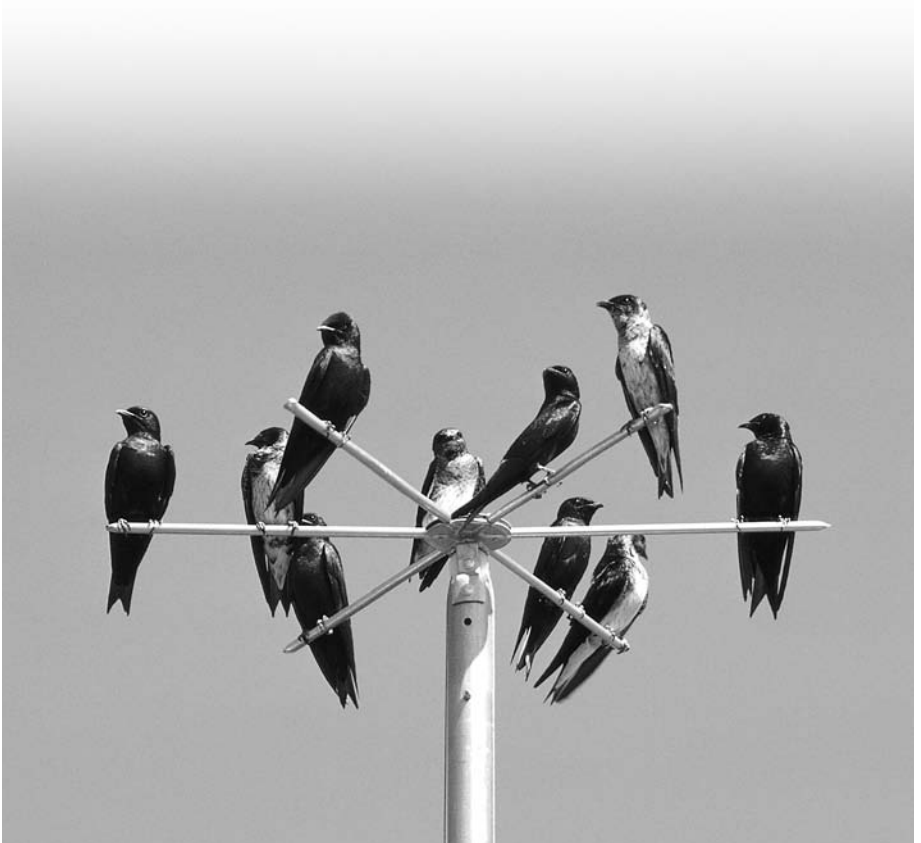
The minimum number of cavities a landlord should provide for Purple Martins is four, but the more cavities, the better. Multiple cavities are a super stimulus for nest-site-seeking Purple Martins. Many landlords erect one multi-compartment house on a single pole, while others elect to provide cavities among a number of different housing types and on separate poles. It is better to cluster multiple houses (within about 10 feet of each other), as opposed to spreading them all over the property. Housing on separate poles within your yard has the added advantage of providing Purple Martins with choices of nesting habitat relative to specific locations and space within your yard. They may avoid a house for several years but colonize that house immediately following relocation of the house by a mere few feet.

Purple Martins readily utilize perches on, and near, martin houses. Some martin enthusiasts attach supplemental perches (dowel rods, etc.) to their housing, or erect “TV antennas” next to or among their martin houses. Nearby TV antennas, utility wires, etc., are always used by Purple Martins for singing, resting, preening, etc. Whether or not the presence of perches will actually attract Purple Martins to use an unestablished site is subject to debate, but martins appear to appreciate them.

Purple Martins will use certain materials that are made available to them by the landowner. Crushed eggshells or oyster shells are consumed by martins for calcium and as grit for digestion. Research shows that supplemented calcium — especially from crushed oyster shell — increases the number of eggs laid and the number of young hatched, per clutch.

Nesting materials (including mud) can also be offered. These materials can be placed on the ground or on an elevated platform. Persons trying to attract Purple Martins to an unestablished site might find a supply of these materials to be a tool for attracting Purple Martins to their yards from other colony sites. Eventually, some of these visiting Purple Martins might colonize their housing.

It is also a good idea to place wheat straw or pine needles in cavities prior to the spring arrival of martins. Cavities with nesting material may be selected over empty cavities and may provide added insulative protection for early-arriving martins. In addition, this may decrease time spent gathering nesting materials, which keeps birds off the ground and saves energy, thus increasing productivity and survival.



## Problem Management

Anyone who has attempted to attract and maintain a Purple Martin colony is well acquainted with House Sparrows and European Starlings. These two non-native species from Europe are notorious for aggressively defending cavities, or entire houses, against Purple Martins, clogging potential martin nesting cavities with their bulky nests



FIGURE 10. House Sparrows commonly construct their bulky nests in Purple Martin houses.

(Figure 10), and even physically removing and injuring martin adults, eggs and young. Occasionally, battles between adult martins and House Sparrows or starlings result in the death of the martins. They are even known to construct their nests on top of living (and soon to starve) young Purple Martins.

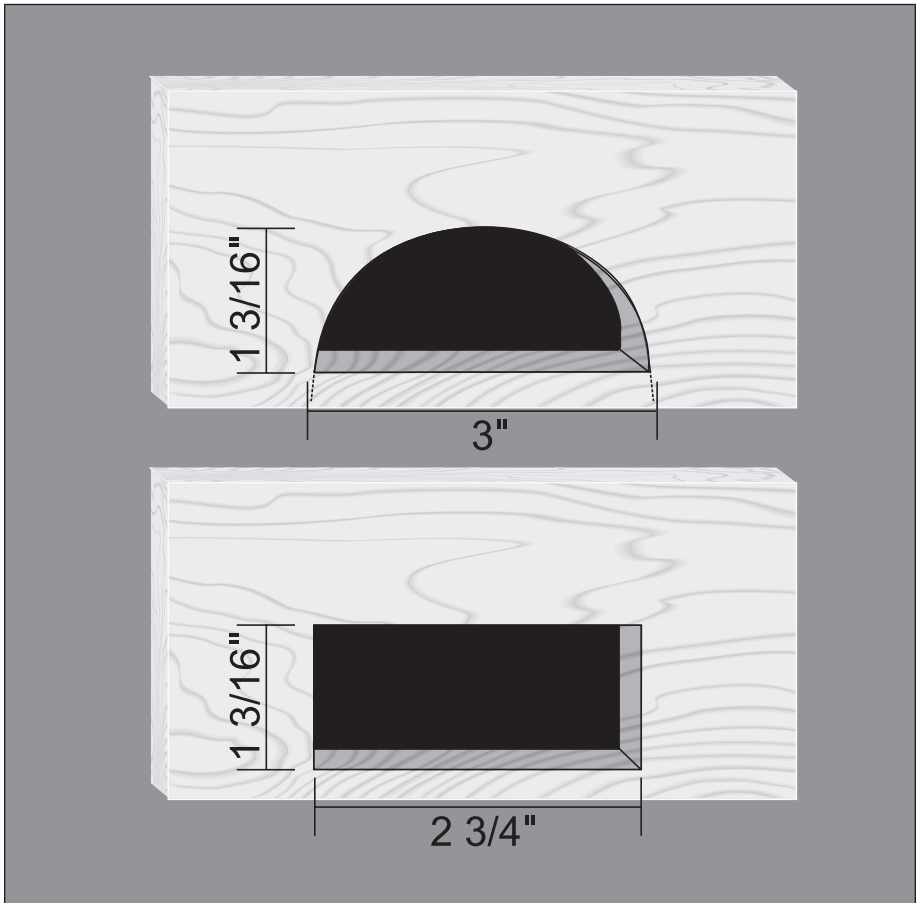
These two species must be discouraged from nesting in martin houses, especially at unestablished sites. Until Purple Martins are established and have developed tenacity for a site, they are easily repelled by House Sparrows and starlings.

Control methods for House Sparrows and European Starlings include nest removal and, better yet, trapping. Trap them as they arrive; continuous trapping will help prevent problems from developing. A revolutionary new breakthrough in Purple Martin management is the starling-resistant entrance hole (Figure 11).

Other species of birds may attempt to take over martin houses. Even native species, such as Eastern Bluebirds, chickadees, House Finches, flycatchers, screech owls, titmice, wrens, etc., should be discouraged from nesting in martin houses. Remember that all native birds are protected by law. Except for those of House Sparrows and starlings, never remove eggs or completed nests from your martin housing. When native cavity nesters show an interest



FIGURE 11. The starling-resistant entrance hole, when constructed properly, has been shown to eliminate starlings from trying to nest in martin houses.



This diagram shows how to cut a starling-resistant entrance hole for your martin housing. The height dimension is extremely critical. If made even slightly too big, starlings will get in; if made even slightly too small, martins won't be able to get in. Cut the hole with a jigsaw. Cut it slightly small, then file or sand it to proper height. Also, placement is important. The bottom of the entrance hole may be placed flush with the porch floor, or  $\frac{1}{4}$ " to  $\frac{1}{2}$ " above the porch. It should not be any higher. If cutting the crescent-shaped entrance hole seems too difficult, try the rectangular slot shown. It has also been successful at excluding starlings, while still permitting Purple Martins to enter. Place the slot flush with the porch, or  $\frac{1}{4}$ " to  $\frac{1}{2}$ " above it.

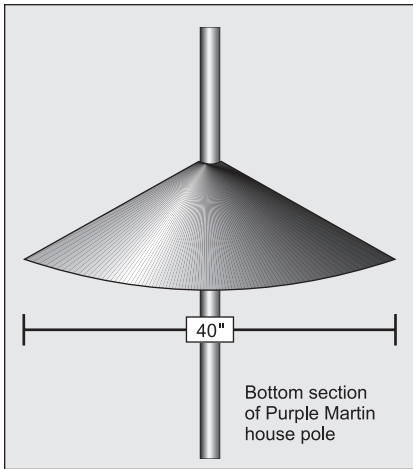


FIGURE 12. Landlords can stop climbing predators from accessing martin housing by mounting a 40-inch metal cone (or commercial pole guard) on the pole at least 4-1/2 feet above the ground. Predator guards should be mounted on the bottom section of the pole in a way that will not impede the vertical raising and lowering of martin houses.

in your martin house, try offering them smaller, single-compartment houses elsewhere on your property. Once the alternative housing is in place, temporarily close up the compartment that the other birds are interested in, until they accept the new housing.

Purple Martin nests are often raided by predators, especially Great Horned Owls, Screech Owls, rat snakes, squirrels, raccoons and fire ants. All martin poles should be equipped with a funnel-shaped predator guard (Figure 12), or baffles made from stove pipe. A properly designed, constructed and installed predator guard should keep most mammalian and reptilian predators out of martin houses. Metal poles and/or greased poles will not prohibit mammalian or reptilian predators from reaching martin houses! Owl and crow guards (Figure 13) are available commercially and generally will prohibit cavity access by aerial predators. A narrow ring of petroleum jelly or insect trap coating (available at most garden centers) will keep fire ants from ascending a martin pole.

Prolonged cold and/or wet spells often decimate colonies of Purple Martins. Losses stem primarily from the absence of flying insects under those conditions. Problems arise when daytime high temperatures fail to exceed 48 degrees for more than three days, or during prolonged cold or wet spells with only intermittent weather conducive for the flying of their insect prey. Purple Martins can last three to four days without food but deteriorate very

rapidly after the third day. Some landlords have succeeded in “training” their martins to eat mealworms, dead crickets, or scrambled eggs from elevated platforms, or on and within their housing, or any of these flipped into the air. For martins to accept this supplemental food, they must be hungry, and the best time to initiate feeding is on the second or third day. The fourth day may be a day too late to initiate feeding. Often, martins catch on by the landlord flipping crickets high into the air with a plastic spoon. Once one figures it out the whole colony usually joins the frenzy. The birds need to be fed enough at each session to overcome the energy expended to secure the food. If landlords feed the martins next to their human house, they may notice that the martins begin to perch on the human housing. This creates an opportunity to flip small pieces of scrambled eggs, or dead crickets, on to the rooftop, which will likely be consumed by hungry martins.

Martin landlords need not be afraid to lower their housing frequently to “troubleshoot” threats to their martins. By performing at least weekly nest checks, landlords may find evidence of predation, etc., that they can counteract before seasonal or even long-term damage occurs.

Landlords should work toward building a colony of at least 15 to 20 pairs to ensure the long-term success of the site. Smaller colonies than this have a higher susceptibility to total colony loss by predation, weather, etc.

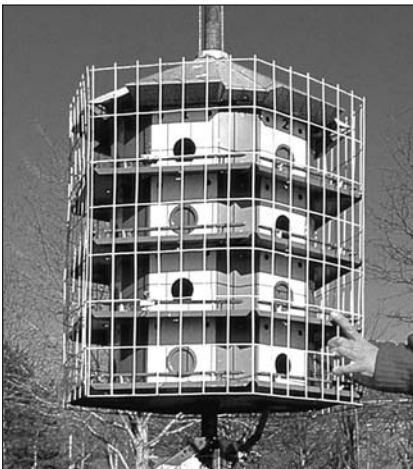


FIGURE 13. Martin housing can be equipped with owl/crow guards if aerial predators begin raiding martin nests.

# The Importance of Pre-Migratory Roosts

At the end of each nesting season, Purple Martins gather each night in large communal roosts. Some of these roosts can contain over a half of a million martins. Roosts are often associated with larger water bodies — for example, in reed beds, on the undersides of bridges, or on dry islands with low, thick brush. Other chosen roost sites are clumps of trees in urban and suburban settings.

Roosts are usually in situations that provide sanctuary from predators and a micro-environment that is warm and protected from winds. Banding data indicate that martins using a particular roost may come from a wide geographic area. Individual martins may use a roost for several weeks before migrating, but the roost itself may last several months. Once established, martin roosts may be reused for many consecutive years.

So what makes martin roosts subject to the need for conservation? Well, first of all, pre-migratory roosts are extremely important in the annual life cycle of Purple Martins. It is a time when they are refueling after a long summer of defending nest cavities, attracting mates, and feeding young. Soon, martins will migrate south and new data demonstrates that the flight is a rather quick affair with very few stops. Some will fly right over the Gulf of Mexico, while others island hop, or take a land route through Mexico.

Oftentimes when roosts are among human residences or public places, the first human impression is that the roosts are a nuisance. There are plenty of examples of trees being cut down for the sole purpose of forcing a roost to move on. Quiet possible, though, this may force martins to roost in a less secure site, or even combine with another to force even bigger perceived nuisance problems. Martin roosts may be at risk from various forms of development, for example clearing related to, or proximity to, wind energy development.

The PMCA's Project Martin Roost project strives to document and conserve roost sites, which are extremely important to the ecology of the Purple Martin. Education is a major part of such conservation, in that Purple Martins will benefit from a better educated public and the sustained recognition and protection of martin roosts.

# Purple Martins: One of Life's Sweet Rewards

Prospective Purple Martin landlords should realize that even in areas where martins are abundant, occupancy of newly-placed housing may take several years and is by no means guaranteed. Purple Martins are gregarious birds, preferring to nest where others of their kind are already nesting. This increases their chances of acquiring a mate and may give them a sense of security that “all is well” where other Purple Martins are flourishing. Vacant compartments or cavities at established colonies and a scarcity of SY birds can result in decreased chances for martins to colonize newly-placed housing. The best chances for occupancy of new sites are in years when there is a surplus of SY martins and a lack of nesting sites at established colonies.

Prospective landlords should optimize their chances of attracting and hosting their first breeding pair by following closely the recommendations covered in this booklet. Type, placement, and diligent management of housing are equally important and work together in increasing the likelihood that Purple Martins will find the site and housing suitable for breeding purposes. Once that first breeding pair successfully fledges young, new martin enthusiasts can breath a sigh of relief and know that through diligent management they are likely to host Purple Martins for years to come. Truly, Purple Martins are one of life's sweet rewards!



## Frequently Asked Questions

### **How can I attract a colony of Purple Martins to my backyard?**

First, make sure you live within the range of Purple Martins and that your yard offers the right sort of habitat for martins. They need open areas around their housing and are not found in heavily-wooded areas. And you should be willing to actively manage the housing you put up; this means lowering the house regularly to evict or trap House Sparrows and starlings, and to keep track of how the martins are doing. If your yard is appropriate and you are willing to manage the housing, the next step is to set up a martin house and/or gourds.

### **What's best to use for martins? A wooden house, metal house, or gourds?**

There is not one “best” system for martins; you might talk to other local landlords to find out what they are using and if they have any feedback to offer you. Wooden house systems require more maintenance than metal and need to be mounted so they raise and lower with a winch. They should also be constructed in a manner that every nest cavity is accessible. Metal houses require less maintenance and are usually lightweight enough to mount on a telescoping pole or a rope and pulley system. Natural gourds, like wooden houses, require regular painting and should be equipped with an access door and rain canopy. Newer plastic gourds have some features that make cleaning and nest checks easier. Prices can range from \$100 for a house and pole up to several hundred dollars. Choose a system that fits your budget and your preferred maintenance schedule.

### **I have a good martin house up in my yard, correctly placed in the open, but have not been able to attract any martins. Is there anything I can do to encourage them to come and stay?**

You can play a recording of the “dawn song” that male martins perform to attract other martins to their chosen colony site. Available from several sources as either a cassette tape or compact disc, the dawn song recording is meant to be played beginning at about 4 a.m. each morning during the time window when SY martins are arriving in your area. It will help more martins find your housing and encourage them to explore your site. And be vigilant about keeping all birds (except martins) out of your martin housing. Remove House Sparrow nest material daily; if starlings are a problem, try starling-resistant entrance holes. If desirable native birds like

bluebirds, flycatchers or wrens show an interest in your martin house, plug up the side of the house that they are showing interest in and put up suitable housing nearby for the bluebirds, etc. If that doesn't work, temporarily close the entire house. Only re-open your martin housing after the new housing has been accepted by the other birds.

**Around here, people tell me I should open the martin house early, when it's time for the scouts. But when I do, starlings and House Sparrows move in. What should I do?**

Although ASY martins will occasionally colonize new housing if they experienced reproductive failure at their old site the previous year, this is very rare. Consequently, only open the housing early if you are extremely dedicated to manage the housing against House Sparrows and starlings. Most new sites are not going to be colonized at the earlier times of year when "scouts" are being sighted. Scouts are older birds that are racing back to their established breeding sites; they want to be the first ones back so they can claim the best compartment and have a better chance of attracting a mate. New sites that have never attracted breeding martins should have all compartments plugged shut until it is time for the younger martins to return. This is usually about five weeks after the first "scouts" have returned. By keeping your housing closed for the weeks before one-year-old martins are due, you will keep House Sparrows and starlings from claiming compartments and then chasing off the arriving martins. You can also control non-native House Sparrows and European Starlings by tearing out their nests, trapping and shooting.

**I've read that landlords are supposed to monitor their martin housing, lower it, count eggs and babies, etc. Won't this disturb the martins and cause them to abandon their young?**

To the contrary, landlords who "interfere" with their martins by actively managing their sites through nest checks are going to have greater success than the landlords who avoid disturbing the birds. The active landlord will notice problems such as wet or parasite-infested nests and can take steps to remedy these and other problems before they cause nestlings to die. The active landlord will also notice signs of predation that would probably be completely overlooked by a passive landlord, allowing them to add pole guards or owl guards (although the best solution is to have guards on all poles and houses the minute that martins move in).

**A baby martin has fallen from the house. What should I do?**

The active landlord who has been checking nests regularly and keeping written records has the advantage here. By doing a head count, he/she can return the nestling to the correct nest. The fact that the nestling has been touched will not cause its parents to abandon it. Landlords who have not kept accurate records can try to match the nestling with a nest containing young of a similar size and age; the parents will accept foster young that are healthy. Try to avoid overloading one nest with more young than the parents can handle, though, or you could cause all the young to starve. If your housing does not allow you to lower it during the nesting season, you can make a shelter for the young and attach it to the pole below the active house, or take it to a licensed rehabilitator who will feed the nestling until it reaches independence.

**How can I stop snakes and raccoons? Owls and hawks?**

The best solution for predation is prevention; equip every birdhouse in your yard with a pole guard to stop climbing predators like raccoons, snakes and cats. Pole guards can be purchased or made from stovepipe, PVC pipe or sheet metal. For aerial predators like hawks, crows and owls, you can remodel your martin house to have larger nest compartments that place young out of the reach of predators, and you can make an external guard by wrapping your martin house in hardware cloth (2" x 4" mesh) fastened to the house with clamps or bungee cords. Too many landlords lose their martins to predators because they mistakenly believe there are no predators in their suburban or residential areas. Once you've lost your birds to predators, it can take years to attract martins again.

**The starlings and the House Sparrows always seem to share the house with the martins okay. Shouldn't I leave well enough alone?**

If you check your nests regularly, you will find that appearances can be deceiving. Even although it appears from the outside that the martins, sparrows, and starlings are getting along, it is rarely so. When the martins go out to feed, House Sparrows are quick to sneak into the nests to peck eggs and young. Studies have shown that allowing House Sparrows and/or starlings to share your martin housing results in lower reproductive success for the martins. Deal with House Sparrows and starlings by removing their nest material promptly and by trapping or shooting when necessary.



## Information and Technical Assistance

Additional copies of this booklet are available for \$2 to cover postage and handling from: Wildlife Diversity Program, Texas Parks and Wildlife Dept., 4200 Smith School Road, Austin, TX 78744.

In addition, information on Purple Martins is available from:



### **Purple Martin Conservation Association (PMCA)**

[www.purplemartin.org](http://www.purplemartin.org)

e-mail: [generalinfo@purplemartin.org](mailto:generalinfo@purplemartin.org)

301 Peninsula Dr., Suite 6, Erie, PA 16505

The PMCA, as well as local distributors, are clearing houses of information between the scientific community and Purple Martin enthusiasts. An annual membership entitles members to free advice, opportunities to participate in cooperative research projects, a Purple Martin products catalogue and four issues of the *Purple Martin Update*. This colorful quarterly magazine publishes research findings, scientific news, shared experiences from martin enthusiasts, and beautiful photography.

A full line of martin houses and accessories are available through the PMCA. These products include sparrow traps, owl guards, martin houses and gourds, books on Purple Martins, etc.

## What You Should Do if You Find or Observe Banded Birds

If you recover a banded martin, you can report the number to the Bird Banding Lab by calling (800) 327-BAND. You will receive a certificate of appreciation indicating where, when, and by whom the bird was banded. You can also report the band number via their website at [www.pwrc.usgs.gov/bbl/](http://www.pwrc.usgs.gov/bbl/). The Banding Lab will want basic information on how, when and where the band was recovered. Also, report observed color bands, including codes if read through a spotting scope.

## Summary

Purple Martins have been enjoyed and managed by humans for hundreds of years. Today, Purple Martins in eastern North America totally depend on humans to supply them with nesting cavities. With proper housing and management (location, size of cavities, discouragement of nest-site competitors and predators), Purple Martins will prosper and continue to announce the arrival of spring to both rural and urban Texans alike.

## Sources of Information

**The information contained in this booklet was largely taken from the following sources:**

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