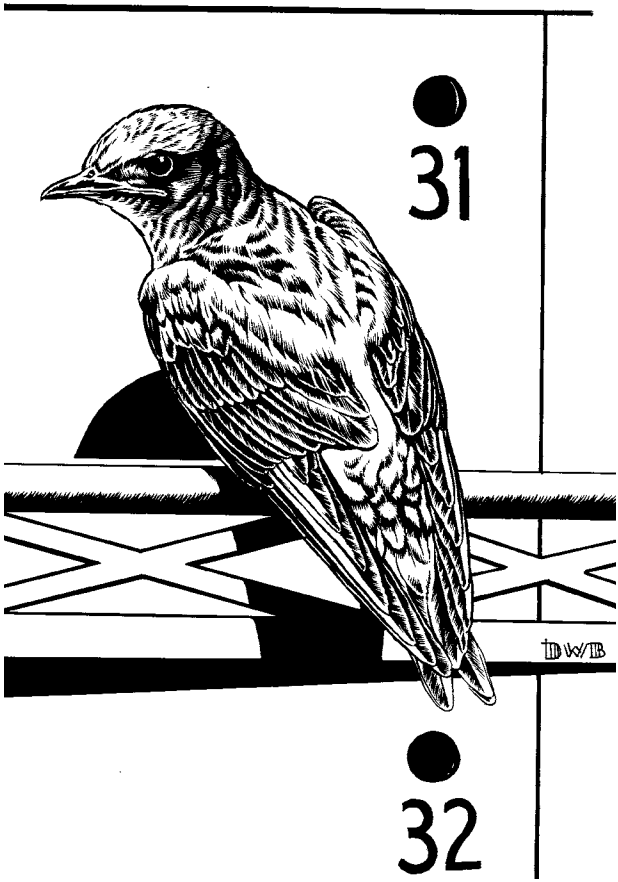
Missouri's Purple Martins



Purple martins are among the most endearing of Missouri's birds. Their cheerful calls, graceful flight and habit of colonizing and returning to a landlord's setup of houses or gourds year after year make *Progne subis* one of the most enchanting of our bird species.

This New World species is only remotely related to barn swallows, which are more globally distributed. Purple martins are a truly American bird; providing their housing is a tradition that we've adopted from Native Americans. And here in the heartland, Missourians have a long tradition as martin landlords.

The male purple martin has a glossy, purple-blue colored body plumage with blackish wings and tail. Male martins do not acquire this adult plumage until they are two years old. One-year-old males—subadults in their second summer—have purple-black patches on their napes, chests and backs, and lighter, dusky under parts. They are often misidentified as females because of the similar plumage.

Purple martins are the largest member of the swallow family in North America, measuring 7.5 inches long and weighing 1.9 ounces.

Martins eat flying insects, which they catch in flight. Their diet is diverse, including dragonflies, damselflies, flies, midges, mayflies, Japanese beetles, June bugs, grasshoppers, cicadas, bees, wasps and flying ants. Being day feeders, martins are not, as is widely purported, consumers of mosquitoes.

Nesting

Older males arrive in early March in southern Missouri, showing up first at established colonies. Subadults birds arrive in late April and well into May. Martins generally pair for a single season. If the weather is mild, an adult pair begins nest building within days of selecting a compartment. The flat nest is constructed of soft, spongy stem plants and grasses. They sometimes add mud at the front entrance to the nest. Martins exhibit a unique bird behavior by adding green leaves to the nest bowl, particularly when egg laying begins.

The female will incubate three to seven white eggs by placing the bare skin of her belly, called a brood patch, in contact with the eggs. Although only the female incubates the young, both sexes provide food, starting with beakfuls of small insects, progressing to large dragonflies as nestlings mature. The young fledge or fly from the nest when they are about 26-32 days old.

Purple martins raise just one brood per season with older adults nesting from May to June and subadults from June to July.

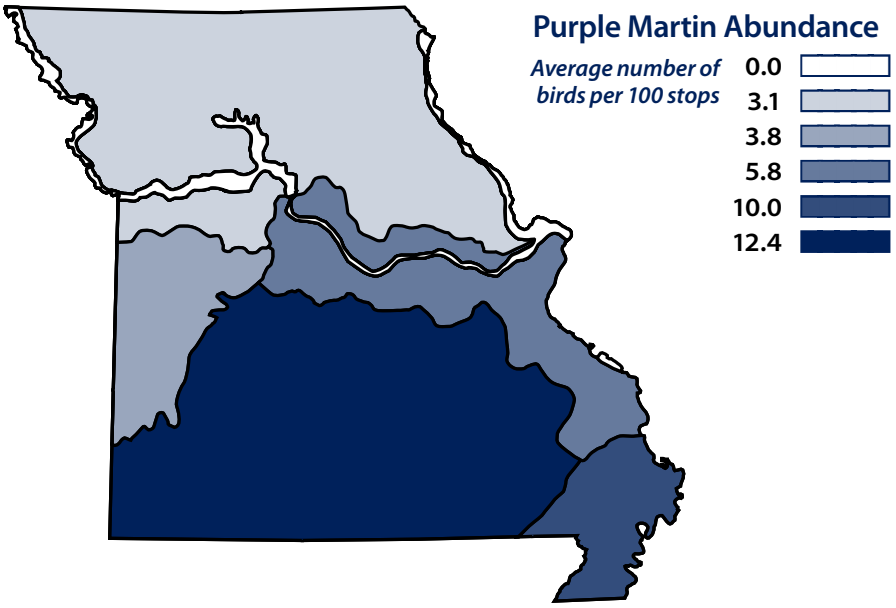
Migration

Purple martins migrate to South America in the winter, departing Missouri by late August. The round-trip journey is a drawn-out affair. Migrants from southern Canada occasionally may be heard crossing Missouri in October. The first arrivals during spring migration arrive in Florida during the month of January.

Older martins will return year after year to established sites. Subadults are more easily attracted to new sites. However, older birds whose nests were disrupted, especially by predators, seek out new sites as well.

Because martins return to breeding sites in early spring, they often are confronted with life-threating weather conditions. Cold rains may eliminate flying insects, the main source of martins' food. Rainy or cold periods of weather longer than three or four days may cause widespread death in purple martin populations in the region. During bad weather some landlords place thawed crickets, meal worms and cooked eggs on elevated platforms or even fling the food into the air using a slingshot or large plastic spoon.

Fall gatherings of martins offer a spectacular wildlife event that is a thrill to watch. In August, martins gather in large roosts that can grow to include hundreds of thousands of birds. This usually occurs near wetlands or along rivers or lakes. As they do with their housing, martins tend to return to the same fall roosts year after year.



According to roadside surveys, about four times as many purple martins can be found in the Ozarks and Bootheel regions of Missouri than in the rest of the state. The highest relative abundances can be found in more populated areas, where people have probably put up more martin houses (data from the Missouri Breeding Bird Atlas).

Although purple martins that live in western states still nest in holes in trees and large cacti, eastern-dwelling purple martins, with only a few rare exceptions, use man-made housing. The population has been increasing in southern states and declining in the north—perhaps related to weather. As a border state, Missouri mirrors this trend, with many colonies in the Ozarks, and *fewer but modest* numbers north.

Attracting Martins

Attracting martins to new housing can be fairly easy in areas with many nearby colonies, but often requires multiple years of trying in locations with a lower martin density. Getting a colony to *flourish* in a new location requires a significant amount of time for the potential landlord and a commitment to becoming an amateur wildlife biologist.

Beyond "location, location," martins frequent housing in proximity to humans, but they require plenty of flying room. A troublesome obstacle to attracting and managing martins is competition from two non-native species: house or English sparrows and European starlings. Male sparrows may occasionally enter martin nests, break eggs and toss out the martin hatchlings. Starlings can be deadly to adult martins, using their long bills to pierce and kill them.

Some experts believe today's martin population is one-tenth its level during the 1850s, before these species were introduced.

Landlords of thriving colonies practice aggressive sparrow and starling control by trapping. Because house sparrows and European starlings are not protected by wildlife regulations, the nests, eggs and birds may be removed from nest boxes. Be sure of the birds' identity before removing them. House sparrows block compartments with bulky nests.

Martins and house sparrows sometimes co-inhabit housing in unmanaged colonies, and martins may breed successfully although with less success than a carefully managed colony. Pressure from house sparrows may cause abandonment. Frequent house sparrow and starling nest removal help keep these species from getting established. The efforts must be on-going because house sparrows make multiple nesting attempts during the breeding season.

Housing Standards

It's generally believed that native Americans initiated what biologists call a "tradition shift" in martins, enticing these swallows to nest in gourds. Research conducted by the Purple Martin Conservation Association found that large gourds still provide superb housing, with pairs in gourds laying more eggs and consistently fledging broods of up to seven young. The widely used 6 x 6-inch compartments, often found in older aluminum housing, are least successful in fledging young, with broods of three to four being the norm.

Many landlords today are renovating older aluminum housing to double compartment size from 6 x 6 inches to 6 x 12 inches, or switching to large natural and plastic gourds. Martins seem to prefer the deeper, larger compartments and usually place their nests toward the back, or in an interior side compartment. Like large natural gourds, larger house compartments—as well as "nest rooms" further from the entrance—usually have larger clutches and nestlings are better protected from weather and from owl predation.

Deeper compartments, however, make martin houses more attractive to starlings. Fortunately, landlords have developed a number of smaller, unique hole sizes to keep starlings from entering a martin nest. Martins are now using these smaller openings across all of their breeding range. The most widely used is a half circle that must be precisely sized, including floor to bottom hole placement, to allow martins to squeeze through but keep most starlings out. See template on the next page.

Floors in aluminum houses can be slippery. To help martins gain enough leverage to push through a smaller starling-resistant opening, add traction, such as stair tread tape, to the house floor on each side of the opening. Do not add traction on the bottom of the hole. Landlords will want to stay informed about new starling-resistant entrance holes as several variations are being tried around the country.

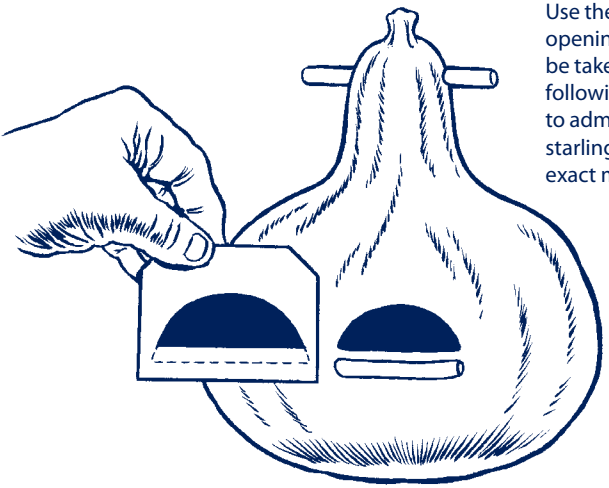
Most commercial manufacturers of popular aluminum martin houses are now offering models with deeper compartments and optional startling-resistant entrance holes. Better designs also eliminate continuous porches, which can result in one dominate male taking over an entire floor, and later nestlings venturing out and getting lost. Houses with units spaced around the perimeter of the house often attain greater occupancy. On traditional houses with side-by-side compartments, porch dividers can be added.

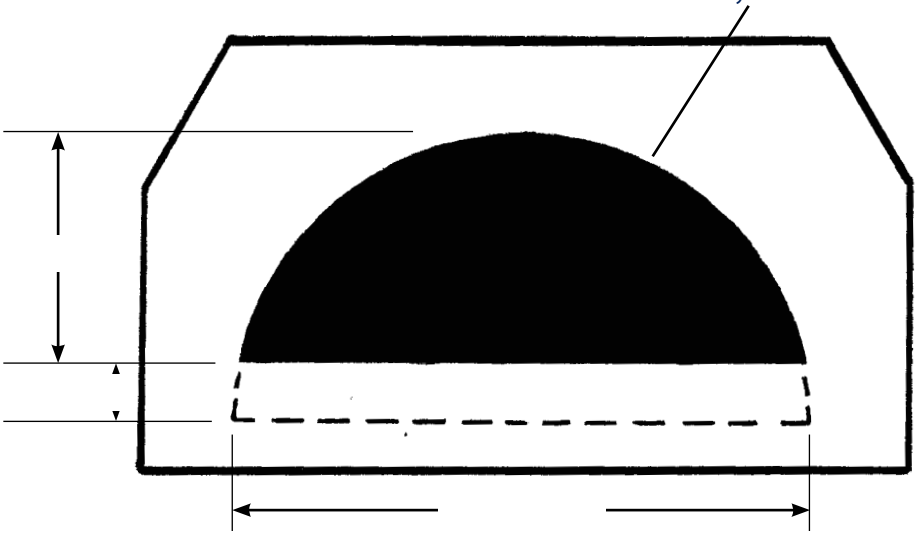
A well-made wooden house provides good insulation against both heat and cold, but must be made to recommended standards. Improper designs can result in a

Starling-resistant opening

Use the instructions below to cut openings in gourds. Great care must be taken to size the hole precisely following the dimensions below to admit martins and restrict most starlings. Pre-made entrances, cut to exact measurements, can be purchased.

Note: Measure carefully. If the height of the hole is smaller than 1 3/16 inch, martins cannot enter. Measured in decimal, this is 1.1875 inch. Any fraction larger begins to reduce the effectiveness of restricting starlings. Sized correctly, martins may require a day or so to learn to enter, then readily do.





deadly heat buildup. Detailed, copyrighted blueprints from a private manufacturer to build a successful "T-14" model—a traditional Amish design—are available from the Purple Martin Conservation Association.

Wooden houses must be made of untreated wood. Pressure-treated wood is recommended for mounting posts, if wooden posts are used. The exterior of the house should be painted white. Interior of compartments should be unpainted. Stock of 3/4-inch thickness is best because it offers better insulation against heat and cold. Due to weight, wooden houses are best mounted with a winch for raising

and lowering. Smaller wooden houses, with six or eight compartments that weigh 25 pounds or less, may be mounted on a telescoping pole. Cypress or cedar are the best choices for longevity. Pine or redwood also can be used. Exterior plywood will not last as long as solid stock.

Many "starter" houses for martins are made of plastic. Plastic houses with 6 x 6 inch compartments can benefit from reconfiguration to 6 x 12, with starling-resistant entrance holes and texture added to the flooring.

Nest Accessibility

Houses with access to individual compartments are easier to monitor regularly and clean at season's end. Some designs now feature removable nest trays. Access also allows for weekly or even daily removal of house sparrow nests.

Flooring

In metal and plastic houses, the flooring is sometimes too slippery to allow nestlings to keep their footing. It's best to add a sub-floor of textured material, such as silicon shelf liner, to these houses because nestlings may develop permanently splayed legs, a fatal abnormality. Wooden floors do not cause this problem. It's also important that sub-floor material drains well and does not retain moisture.

Insulation

A white exterior is preferable to keep housing cooler in Missouri's hot summers. Overheated nestlings will jump out of the house and die. Add a sheet of foam board in attics to help keep compartments cooler.

Placement

Martins are attracted to houses that are between 12-to-20 feet above the ground. However, the higher the housing is placed, the more susceptible it is to storm damage. Most commercial pole systems are 12-to-15 feet high, after installation. Don't overload poles. Get the strongest system you can to avoid poles being bent by wind.

Place orientation marks on the house so the compartments can be returned to the same compass directions after each nest check. If houses do not always face the same direction, martins become disoriented and abandon their nests.

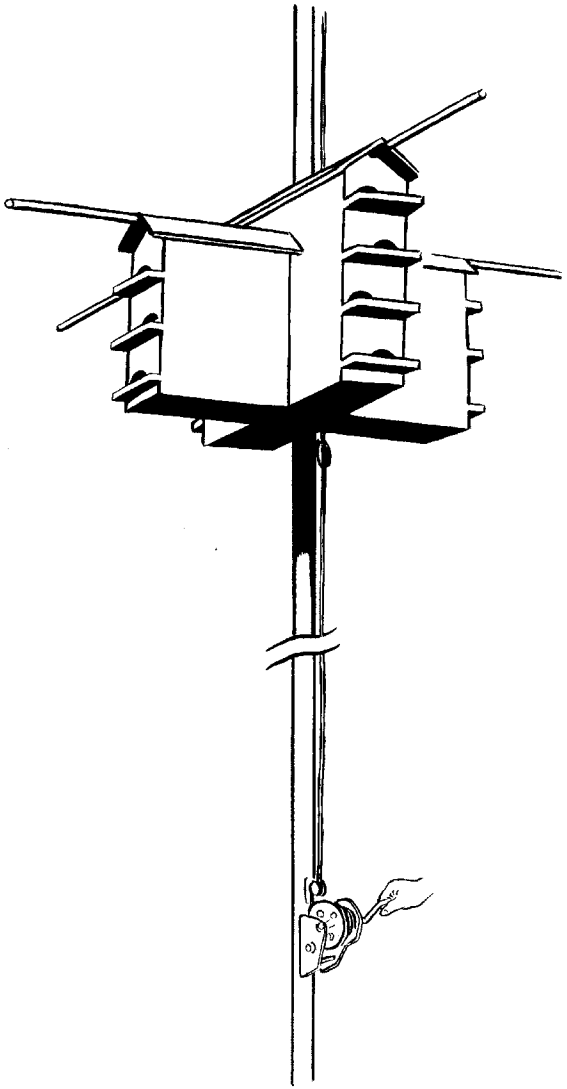
Martins show a strong preference for a wide-open area around their housing, with a minimum of two to three open flyways. The house also should be at least 40 feet from trees, further if possible. Some landlords recommend placing housing at least an equal distance from the height of the closest tree; but the more open the area, the better the chances are of establishing a new site.

Martins seem to seek housing within sight of human activity, perhaps because they feel more secure from predators. Landlords should put martin housing in their most open location where they can observe and enjoy the birds' activities.

Vertical accessibility

To allow for regular removal of house sparrow and starling nests and to monitor nesting martins, landlords should be able to lower the house or gourd system easily and safely. A telescoping pole, pulley or winch system are common solutions. A tilt-down housing system on a hinged pole is not recommended because it cannot be

Martin house
with winch system

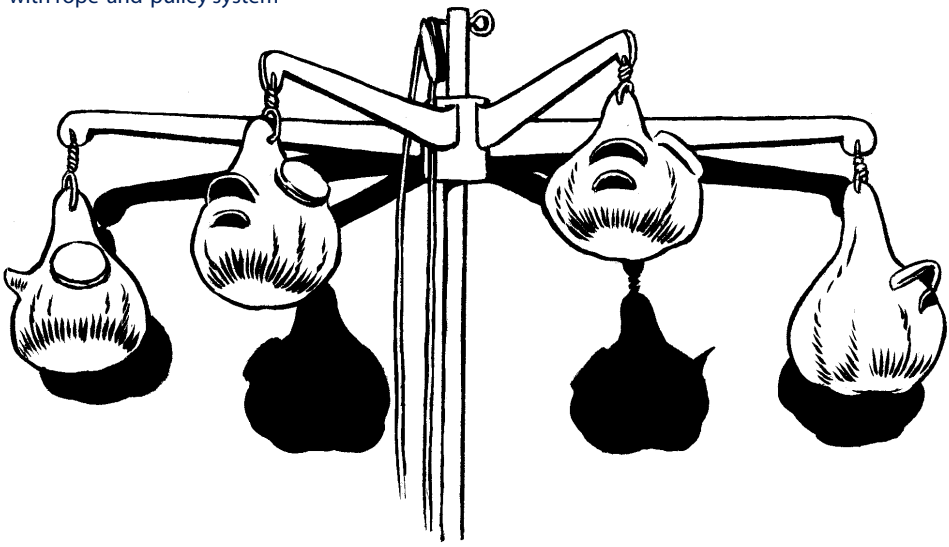


used once the martins begin nesting.

Regular monitoring is an important part of successful martin management. It allows landlords to keep track of how many young are in each nest and if the nest has been visited by predators. Night raids by rat snakes, raccoons or owls usually result in abandonment of the colony site.

Landlords should place orientation marks on the house so the compartments can be returned to the same compass directions after each nest check. A locking mechanism will keep the house from spinning or twisting in the wind. If houses do not always face the same direction, martins become disoriented and abandon their nests.

Gourd houses
with rope-and-pulley system



Gourds

Natural or plastic gourds on a simple weighted pulley gourd rack can be an economical and beneficial way to get started attracting martins. Contact the Purple Martin Conservation Association for blueprints for building an attractive and functional winch-operated system for suspending up to 16 martin gourds.

There are many sources of plastic gourds. Look for large ones, around 10 inches in diameter, with a crescent-shaped, starling-resistant entrance hole. An access lid on the side makes it easy to check nests and to clean the gourd at the end of the season. Some also have a rain canopy over the door. The advantage of plastic gourds is that they are easy to care for and last a long time.

Natural gourds also provide excellent housing for purple martins. The rough interior walls allow the female to "spin" a nest without slipping. The darker interior may make the martins feel more secure.

Unfinished natural gourds can be purchased, however, some landlords prefer to grow their own. There are many ways to treat gourds to make them last longer and be more attractive to birds. The rough exterior can be scoured to a smooth finish with water and a nylon pad. Soak the gourd in a antifungal solution to help keep the gourd from rotting. A coat of white paint will prevent overheating.

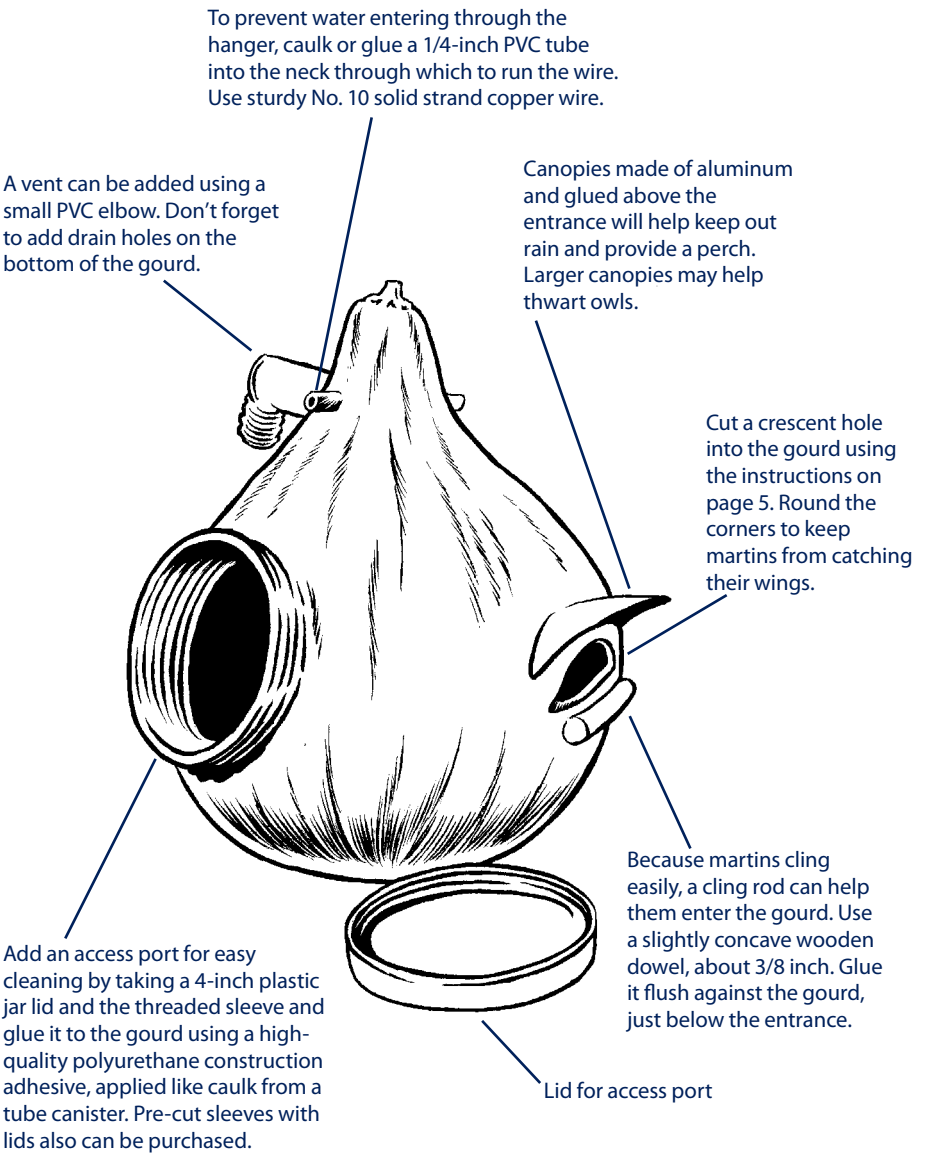
Be sure to add a crescent-shaped, starling-resistant entrance hole. You can also add an access lid, a rain canopy and other innovations.

Check the Purple Martin Conservation Association's and other websites for details on growing and making your own gourd houses.

Natural gourd house

with starling-resistant entrance hole and other innovations

You can buy ready-made plastic gourds, or you can make your own from natural "kettle" gourds. Gourds at least 9 inches in diameter will allow martins to nest away from the entrance so owls can't see and reach them as easily.



Predation

A pole predator guard should be part of any system. Any type and size of pole, wood or metal is easily climbed by raccoons and rat snakes. Wood posts and poles can be climbed by domestic cats and bobcats. An easy-to-make stove-pipe baffle that can be assembled onto a pole without taking the house down will help keep these predators from raiding the martins' nests.

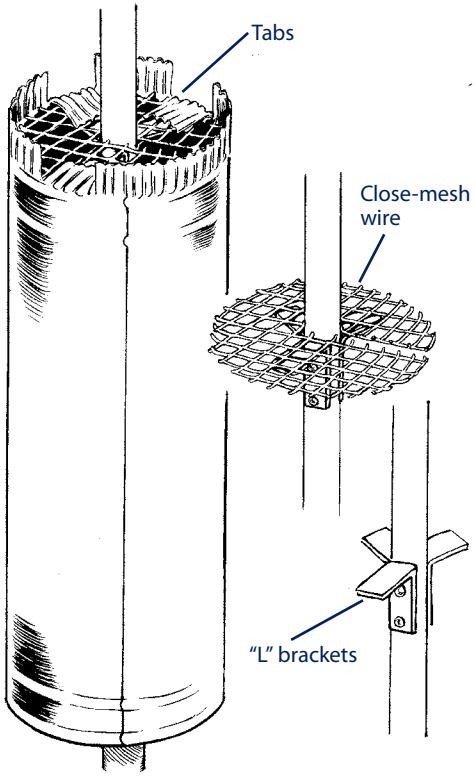
Cooper's hawks, a protected species of raptor that breeds in Missouri, sometimes ambush colonies, taking adults and fledglings. Placing housing in completely open areas allows adults to spot aerial danger in time to escape.

Owls sometimes raid nest boxes at night. Open sites may help here, too, because they prevent owls from sitting on a nearby limb to listen for sounds from the house. Housing that keeps nestlings out of sight and reach are best because owls hunt by sight and sound. Conventional 6 x 6 inch compartments offer little to no protection because owls can easily reach to the back. An external barrier guard, like a bird cage, fastened against porches, offers some protection.

A combination of an owl guard and deeper compartments, sometimes with openings set slightly off center, is best. When reconfiguring older houses, you can create an internal predator baffle by keeping the interior wall and putting an offset hole through it.

Stove-pipe baffle

- A simple stove-pipe baffle is easy to make from a 24-inch long, 7-inch diameter round stove pipe.
- Cut three or four 2-inch tabs into the pipe.
- Attach three or four 2.5-inch "L" brackets to the pole using machine screws or a hose clamp.
- Cut a 7-inch round piece of close-mesh wire with a cut-out to fit around pole to rest on the brackets.
- Finally, slip the interlocking pipe around the assembly, bending taps over the mesh, which should extend to the perimeters of the pipe to keep out snakes.
- The guard, which should be about 4 feet off the ground, will wobble when it is set up correctly.



Management Tips

To be a successful martin landlord, one should not offer housing casually. Leaving colony management "to nature" won't produce nearly as many fledglings. As such, landlords can create optimal conditions that will help these birds have optimal breeding success.

One way to be successful is to talk with fellow martin landlords, who tend to gladly share information. Missouri has many "martin mentors" who have registered their willingness to help with Purple Martin Conservation Association. Below are some suggestions that should help you get started:

- Don't open new housing too soon unless you can watch it closely. Opening compartments early often allows them to be overtaken by non-native species. Adult birds arrive in early March to mid April in Missouri. Subadults, which usually colonize new houses, arrive a month later.
- Bluebirds and tree swallows sometimes try to nest in new housing and will chase away propective martins that are not committed. Put up separate housing for these native species to minimize competition.
- Offering a variety of housing types—such as a house with a few gourds hung below—sometimes helps attract martins to new sites.
- Martins prefer housing that exhibits signs of having been successfully occupied. Add a few handfuls of white pine needles, which don't absorb water, into compartments and plastic gourds to form a flat base. This especially helps subadults, who tend to be poor nest builders, and keeps martins from spending extra time on the ground where they are vulnerable.
- Conduct weekly nest checks. Martins tolerate nest checks, which can be done until baby martins are about 20 days old without risk of causing them to fledge too soon. By recording dates of egg laying, landlords can project hatching and fledging dates and track their success. Forms are available from the Purple Martin Conservation Association.
- After 10 days, most martin nests are crawling with mites, which are harmless to humans but can significantly reduce fledging rates. To control mites and other parasites, completely replace the nesting material with white pine needles. Sulfur and other chemical treatments are ineffective. Pesticides are illegal and the long-term effects unknown.
- Monitor for problems. Despite being colonial, males fight each other over cavities, and during a struggle can get a wing stuck crossways in a hole or under a porch railing. Landlords who keep an eye on their housing can catch these problems in time to correct them.
- Sit back and enjoy. The aerial finesse of martins is amazing. Before serious nest building begins in early spring, martins spend many weeks soaring over and around their nesting sites to the delight of landlords.

Regular monitoring is an important part of successful martin management. It allows landlords to keep track of how many young are in each nest and if the nest has been visited by predators.

For More Information on Purple Martins

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Books

Enjoying Purple Martins More
by Richard Wolinski

Stokes' Purple Martin Book
by Donald and Lillian Stokes

The Purple Martin Book
by Robin Doughty and Rob Fergus

Birds In Missouri
by Brad Jacobs
Available from the Nature Shop by calling toll-free 1-877-521-8632 or by going online at www.mdcnatureshop.com

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