

The key to attracting purple martins to golf courses is location, location, location of the nesting apartment houses. The perfect site would be on the shore of a pond, lake, stream, river or bay with no tall trees within 40 feet and a home or building within 40-50 yards.

Being next to water guarantees the purple martins open spaces for soaring and hunting, availability of water for drinking and cooling eggs or chicks in very hot weather. Young purple martins defecate in membrane-lined fecal sac which the adults carry away from the nest and drop in the water, as opposed to land, so that predators cannot follow a trail back to the nest.

Before eastern Native Americans started hanging hollow gourds for purple martins to nest in, martins nested in abandoned woodpecker cavities. For the last 1,000 years or so, first native Americans,

then colonists and then subsequent generations of Americans to the present have put up homes for purple martins.

East of Arizona and New Mexico's suaro cactus deserts, purple martins have completely abandoned tree cavities as nest sites and now nest exclusively in human-supplied housing. Martins have learned that by living close to humans, should there be a predator attack (raccoon, snake, hawk or owl) frantic purple martin activity often brings human assistance to drive the predator away. Knowing this, purple martins are more likely to colonize an apartment close to human dwellings rather than one farther away.

Purple martins are preyed upon by coopers' and sharp-shinned hawks. If the martins see a hawk coming and can get into the air, their terrific flying skills prevent them from being caught.

However, if nearby trees obscure martin vision of an approaching hawk, they can be caught sitting on their apartments before getting airborne. Thus, instinctively, martins usually choose apartment sites 40 feet or more away from tall trees.

Please note however that it is not necessary to choose the absolutely perfect location for an apartment house (near water, away from trees, close to a dwelling) to attract purple martins in Florida. There are so many purple martins seeking nesting opportunities in Florida, they will frequently choose less than ideal sites. They will nest away from water if there is a dwelling and no tall trees close by. Occasionally they will nest closer than 40 feet to tall trees. The closer to the ideal site, the greater will be the probability of attracting martins.

In south Florida, a purple martin apartment in an ideal location has at least a 90 percent

# Purple Martins and Golf Courses Go Together

By George McBath

*Purple martins are relatively easy to attract to a golf course. Photo by George McBath*



probability of attracting them in the first year. Of the 50 or so apartments I have erected in the last eight years, almost all had nesting birds the first year. How fast can it happen? Once at a Corkscrew Swamp Sanctuary festival, I set up an apartment as a demonstration at my display booth in the parking lot at 8 a.m. By 11 a.m. there were four purple martins inspecting the housing, even with cars and people milling about close by. On another occasion I put up a martin apartment for a friend at Windstar Country Club. When I finished, we retired to his lanai to celebrate with some wine. After half an hour I heard purple martins vocalizing in the distance. In the next 30 minutes we had 10 martins going in and out of the gourds. Boy, we really celebrated then.

Some purple martin enthusiasts use a trick or two to increase the probability of success. I have not found them necessary, but I offer them if you are so inclined:

1. At dawn near the apartment, play a tape recording of the purple martin dawn song.
2. Martins instinctively know that

# Ospreys on the Golf Course

*Editors Note: We start our second year of running the "Wildside" feature by Craig Weyandt, which serves as part of his environmental education and outreach to his club members by writing monthly articles for his club's newsletter. He gets lots of positive feedback and interest from his members. We encourage you to share these stories and your own observations and photos with your club members as a means of educating the golfers and public about the environmental benefits of golf courses.*

*By Craig Weyandt*

Returning to work after the hurricanes in September 2004 we found the golf course a mess. Trees were down, debris everywhere, the bunker sand was gone and water damage was visible throughout the course. While the staff and I were busy doing the clean up I would stop every so often to check around for wildlife. At first there was not much to see. I think the smaller the animal was, the faster the return. I don't know if that was true; it was just my observation.

One bird that we did notice in its return was the osprey; not only because of its size but there were many more ospreys after the storm then before the storm. Sometimes I could count as many as 20 at one time from the No. 6 tee.

I believe that there were more ospreys after the storm because their nests were blown down and they were looking for new nesting sites or because there just happened to be an abundant amount of food in the area. Either way, it was nice to see so many around the golf course. I hope the following information helps you enjoy this bird as much as I do.

## Flight and Hunting

Ospreys are fish hawks that have brown and white markings on their bellies. They can soar on wind currents, but most of their flight is with wings flapping actively. Ospreys hunt by flying over the water looking for fish. They hover before diving



*An Osprey perches on a hurricane battered mangrove near the 6th tee at The Moorings Club. Photo by Craig Weyandt.*

towards the water, then plunge in feet-first. Mullet are a good prey fish in Florida because they school, swim in shallow water, and are rich in fat.

Ospreys usually hunt alone during early morning and late afternoon. Ospreys that are not parents need to catch one to three fish a day. A breeding male, who must fish for two or three babies and a mate, has to catch six to eight fish a day.

Ospreys have special adaptations that make them better fish-hunters. For one thing, the bottoms of their feet have many short spines that help them to hang onto a slimy fish. Many birds have three toes and a thumb, but the osprey can turn his third toe around, so he can have an extra-strong grip with two fingers and two thumbs. Ospreys have extremely sharp talons and a strong hooked beak for tearing fish into bite-sized pieces. They also have very oily feathers that help keep them dry when they splash into the water.

## Nesting and raising young birds

Ospreys like to make their nests in dead trees because there are no leaves to get in the way of their wings. It is also harder for predators to climb a dead tree without the osprey seeing it. Many ospreys

build nests on power poles when there aren't enough dead trees around.

Ospreys are able to mate at 3 years old. When a male is ready to court a female, he performs the "sky dance" by flying around with a newly-caught fish or nesting material. Ospreys mate for life, and mated pairs come back to the same nest year after year.

If the pair has no nest, they both collect materials, like sticks and grass. Sometimes they also pick up plastic bags and fishing wire (which can kill the young). Year after year, the ospreys make these nests bigger and stronger so they won't get knocked down by high winds. An osprey nest can weigh up to 1,000 pounds, but it is not very deep inside and probably could not hold a person. Florida ospreys stay in Florida year round and lay their eggs between December and February. North of Florida, ospreys migrate south each year.

The eggs are about the same size as a chicken egg. They are cream-colored with spots. Both parents sit on the eggs. The mother does most of the sitting, and the father feeds her. Ospreys usually lay three eggs. When there isn't much food, the larger babies will peck at the smallest baby so they can get first chance at the food. There is a good chance this runt will die of starvation.

Young ospreys will practice flapping their wings 10-15 days before fledging (flying). They jump up and down on the nest until a wind gust carries them over the edge on their first flight. Osprey parents will fly past the nest with a fish and drop it into the water to help the babies catch their first fish. The babies can usually catch their own fish two or three days after fledging, but the parents will still bring food for a few weeks.

These fish hawks are a threatened species and protected by law in Florida.

## References

Poole, Allen. Ospreys: A Natural and Unnatural History. Cambridge: Cambridge University Press. 1989.

Terres, John K., The Audubon Society Encyclopedia of N. American Birds. New York: Alfred A. Knopf, Inc., 1987.

Information provided by the E. Dale Joyner Nature Preserve at Pelotes Island near Jacksonville, 904-665-8856, <http://pelotes.jea.com>.



*The ideal location of purple martin apartment houses is near water, close to a house or building and more than 40 feet from tall trees. Photo by George McBath.*

death by an owl's talon or crow's beak comes through the entrance hole. They want to nest as far back from the hole as possible. Typical apartment units are 6"x6"x6", which is effective but small. By removing the back panel of back to back units the depth can be increased. Given the opportunity, martins always choose the deeper units.

3. Since female martins have a need for calcium during egg formation, some martin landlords mount a small tray of dried, crushed chicken egg shells on the colony support pole. Because Florida has lots of limestone deposits near the surface, I think there is plenty of calcium in the food web that martins feed from. Calcium supplements have never been necessary to attract purple martins in my experience.

### Yearly Cycle of the Purple Martins

For Florida residents, a year in the lives of purple martins might be as follows. Almost all martins winter in southeastern Brazil where they fly

the coffee, sugar and citrus plantations feeding on insects. They migrate north to Florida by one of two routes. They leave the coast of northeast South America and island hop via the Lesser Antilles, Greater Antilles and the Bahamas to Florida; or they migrate north through Central America and congregate up on the northern tip of the Yucatan Peninsula and wait for a southwestern wind called the "Yucatan Express" to help push them in a 12-14 hour period across the Gulf of Mexico to Florida's shores.

South Florida purple martin enthusiasts eagerly anticipate, communicate via the internet, the first martin sighting, which often occurs in the first or second week in January. However, the majority of martins arrive sometime in late February and throughout March. Late stragglers, mostly first-year birds, may arrive through the month of April.

Most martins start nesting in late March and early April. It takes them 7-10 days to build a nest, mostly of pine needles and mud. Young birds lay two to four eggs, while older adults lay four to

six. Eggs are incubated for 14-16 days. Hatchlings leave the nest on average after 28 days.

A chick's first flight is a grand and important moment. Frequently five or six adults will fly with the chick urging it on to the nearest tree or telephone wire. If the fledgling falls short of the target and falls to the ground, it is abandoned. Outside of collecting nesting materials, purple martins rarely land on the ground.

Once successfully fledged, the martins may return to their apartments for a few nights, but for the most part, nights are spent roosting in trees. Adults feed the young another 7-14 days after fledging, but from then on the young must catch their own insect food.

In south Florida, purple martins are seen accumulating in evening roosts on the coast as early as July. One evening a magic stimulus will set them off across the Gulf heading for Central or South America. Martins seen in Florida in October or November are most likely northern nesting birds passing through on their fall migration. In south

Florida, February through July are the prime purple martin months.

**Martins and Mosquitos**

Much has been claimed about purple martin diets. One manufacturer of the aluminum apartments (in a display of questionable business ethics) claims purple martins can eat 2,000 mosquitoes a day. However, since martins are a diurnal creature and mosquitoes are crepuscular to nocturnal, martins do not eat that many mosquitoes.

Purple martins are the largest of seven U.S. nesting swallows and tend to feed on larger insects like bees, wasps, moths, locust, damsel and dragonflies. A conservative estimate of 3 to 6 percent of a martin diet might be mosquitoes. In areas of the more diurnal salt marsh mosquitoes, the percentage may be higher.

Dragonflies are one of the martin's favorite preys. Occasionally a dead, dried skeletal baby martin with a huge dragonfly stuffed in its throat will be found in an old nest, attesting to their excessive enthusiasm for these insects.

**Landlord Duties**

As a golf course superintendent or pur-

ple martin landlord, what responsibilities do you have? Duties can range from almost nothing to very extensive; it's your choice. They can be delegated to staff members, an interested resident or club member or a hired outside consultant like me. I don't recommend doing nothing but putting up the martin house. However, I do know of a couple of courses where the landlord effort is nil, but the martin colonies seem abuzz with activity during the nesting season.

It used to be an absolute rule that every fall apartments should be cleaned of old nests, and fresh nesting material and insect control be provided. When the Purple Martin Conservation Association did some research, they found that returning martins chose nest compartments that were not cleaned of old nest material over those that were cleaned out. Come to think of it, who emptied out the old nests before the advent of human-supplied housing? Nevertheless landlords who supply fresh nesting material and parasite control also seem to provide other needed activities.

Occasionally English sparrows and European starlings may monopolize martin housing. If so, housing must be lowered and be rid of the invaders' nests. Aside from displacing martins from

nesting, these sparrows and starlings often destroy martin eggs and kill martin young. Additionally, sparrows and starling young produced at these apartments will then go on to displace bluebirds, great crested flycatchers and woodpeckers from natural tree cavities. Better yet, eastern sparrows and European starlings are not protected by law and can be eliminated judiciously by pellet gun or traps available from the PMCA.

Some landlords may lower the housing every 5-7 days to check for egg theft, parasite problems, and predation. However, when the oldest young of the colony are 24 days old, apartment inspection should be discontinued in order to prevent premature fledging which can be tragic as mentioned earlier.

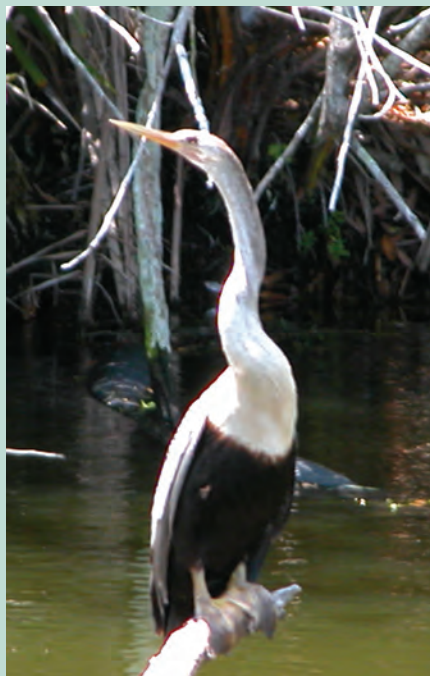
Lice and botfly are usually controlled by sprinkling or blowing diatomaceous earth into the nest material at winter cleaning. This natural product controls the parasites physically not chemically by the numerous silica spicules which scratch and penetrate the soft body of the lice and botfly larvae. If fire ant parasitism occurs, it is usually deadly, so if fire ant nests are nearby they should be controlled.

Some times rat snakes or black racers will climb the support poles and attack the

Pasadena Wildlife



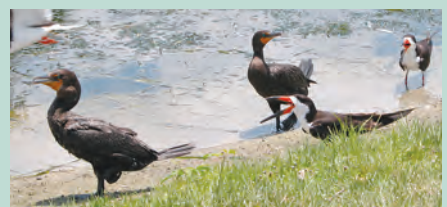
*This great white heron is one of many shorebirds at Pasadena.*



*Anhinga roosting among the mangroves.*



*A large flock of skimmers resting on a fairway.*



*A pair of cormorants wanders into skimmer territory and they hear about it.*

Space limitations forced us to omit some photos of the abundant wildlife at Pasadena Yacht & Country Club, cover story of the Fall 2004 issue of the Florida Green. This avian collection is a bright addition to the Stewardship section.

young. Additionally they may cause the adults to abandon the colony. I have only had snake predation twice in eight years among all the colonies that I monitor. In both cases I found the snakes early. They were sleeping off their meal of martin young. Normally, I promote snakes on golf courses and I go out of my way not to kill them, but when they are actively eating their way through a colony I will dispatch them. An alternative is to remove and relocate them far away from the colony in an appropriate habitat.

Crows and owls are major predators of purple martin colonies. Literature suggests that almost all martin colonies have some crow and owl predation. Unless you regularly check your apartments you probably will never know this is occurring. It is very important to use crow and owl guards on apartment houses that have front porches. These porches make it easy for these predators to pluck martin young from their compartments. For the 12 aluminum apartments I use, a gridwork is available that permits martins to pass through but not the larger birds. Prior to gridwork installation, increasing crow populations on Naples Bay almost wiped out the bay's purple martin colonies. Gourds, especially the oversized plastic ones that are now available, make it very difficult for these predators. No guards are needed on the gourds.

### Children and Purple Martins

Not only do golf courses and purple martins go together, so do children and purple martins. Getting children and martins together on a golf course is a win-win situation.

A while back, Olde Florida Golf Club sponsored one of my purple martin apartments for the Laurel Oak Elementary School. For a couple of springs, the students helped me get the apartment ready for returning birds. During the outings I would present a short program on martins in the field. In early May I would lower the apartment for the students to see the eggs and young. We would then return to the classroom for a brief slide show. Both the teachers and students were extremely positive about these activities.

When teaching bird watching to fifth graders, I found purple martins to be good subjects for beginning birders to observe and practice binocular skills. Student powers of observation are heightened while determining the difference between males and female martins and between first-year and older breeding adults. Because martins are "in your face" birds they provide an outstanding opportunity to discuss many aspects of bird behavior and biology while at the colony location.

Once a golf course has three or four



*Martin houses with porches might need protective grillwork to protect young martins from crow and owl predation. Author and biologist George McBath is shown here with the type of aluminum apartment house he uses on golf courses.*



*School children can learn a lot about purple martins and environmental stewardship on golf course by helping to install and monitor colonies on golf courses. Photo by George McBath.*

colonies going, it should be possible, for a period of six or so weeks, to have four or five students weekly lower the apartments and take egg and young data. In the classroom, students can present their data and follow and compare each colony for the study period. Mathematical skills can be practiced by determining means, modes and averages for each colony and the entire golf course. Also there would be an opportunity for students to relate field observations of martin behavior (and golf course stewardship) to the rest of the class.

### Rewards and Satisfaction

One of the best rewards a superintendent can receive after putting up a purple martin apartment comes when the residents and golfers

see what wonderful entertainment martins can provide and ask to put up their own apartments. In the Naples area this has occurred at Pelican Bay, Marco Island, Bonita Bay West and Pelican Marsh country clubs. Both Stonebridge and Windstar now have more than seven colonies on each of their courses. Resident interest provides an opportunity for superintendents to ask residents for help in caring for and monitoring the course colonies.

Other courses in the Naples area having success with purple martin apartments that I have supplied include Colliers Reserve, Old Colliers, Bonita Bay East, Tiburon, West Bay, Wildcat Run, Quail West, Twin Eagles, Naples Golf & Beach Club, Eagle Creek, Country Club of Naples and The Colony.

Additional sources for information are local experts, Web sites and the Purple Martin Conservation Association located at the Edinboro University of Pennsylvania, Edinboro, PA 16444. Phone: 814-734-4420. Web site: pmca@edinboro.edu or www.purplemartin.org. This organization is dedicated to the conservation of purple martins through scientific research, state-of-the-art wildlife management techniques and public education.

The PMCA publishes an outstanding quarterly magazine, The Purple Martin Update. This quarterly contains articles on martin biology, answers landlord questions about problems and shares landlord experiences. The magazine is known for its outstanding color photographs and representations.