

# Making a Good Thing Even Better:

## A Guide to Modifying Trio Purple Martin Houses

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**T**rio Purple Martin house systems have dominated the martin house market for years. These systems have all the features necessary for proper management — they raise and lower vertically, and have front-opening nest compartments that allow for easy access and cleanout. There are also many useful accessories available for these houses, such as porch dividers, owl guards, and House Sparrow traps. Trio houses (TG-12, TG-8, M12-K, and TW-12) are equipped with the 6" cubical compartments (6" wide x 6" high x 6" deep) that have been the standard compartment size in manufactured martin housing since the 1960's. Trio Castles, Mini-Castles, and Hex houses (PMC-24CP, TM-12, DH-12) come with similarly-sized wedge-shaped compartments. Recent research has shown that these 6" compartments should be enlarged to maximize the safety and breeding success of the martins that call it home.

A 15-year study conducted by James R. Hill, III, of the Purple Martin Conservation Association has shown that Purple Martins not only prefer bigger compartments, but they also lay larger clutches in them, fledge more young, and are much safer from predators like owls, raccoons, hawks, and crows. Martins will always build their nest as far back from the entrance hole as possible, because they instinctively know that their eggs and nestlings are then as far as possible from the reach of predators, especially owls. Large owls with a reach of 10 or 12 inches can

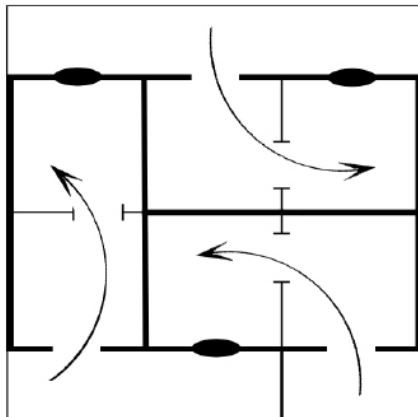


Fig. 1. A diagram showing how to convert Trio rectangular houses from single to double-sized compartments.

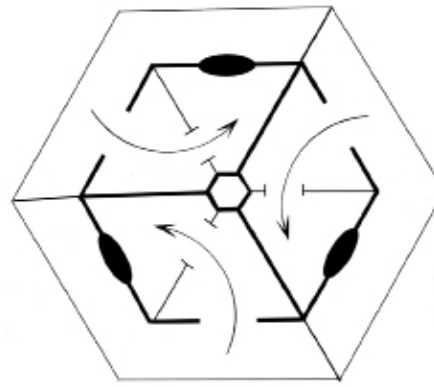


Fig. 2. A diagram showing how to convert Trio hexagonal houses from single to double-sized compartments.

easily extract young and adults from shallow 6-inch cavities, as can hawks, crows, gulls, and raccoons. These predators are very common, even in suburban settings. Finally, nestlings in deep compartments are less exposed to driving rains and winds, further enhancing their chances of surviving to fledge.

By enlarging the compartments in your Trio houses from 6" x 6" to 6"

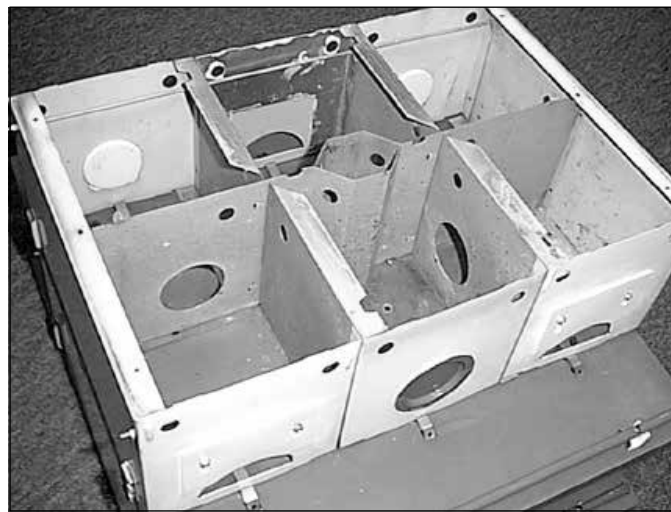


Fig. 3. A modified Trio-Grandpa (TG-12). Connecting holes in this model and the Trio-Wade (TW-12) should be made before assembly, or after disassembly. Otherwise, holes are more difficult to cut or drill. Notice the adjustable, starling-resistant entrance holes (SREH's).

x 12", you are reducing the overall number of compartments by half. Don't let this discourage you! It's a matter of quality over quantity. Not only do martins breed more successfully in deeper compartments, but martin houses with traditional 6" x 6" x 6" cavities rarely achieve more than 50% - 60% occupancy. That's because martins are not as colonial as is commonly believed. Mated pairs often defend an area around their cavity entrance hole and exclude other pairs from moving in next door, resulting in many unused compartments in unmodified houses.

Enlarging a compartment actually means converting two small compartments into

one larger one by cutting or drilling a 3-inch connecting hole in the dividing wall, then capping one of the original entrance holes (see Figs. 1, 2, 3, and 4). It's that simple! Each compartment then consists of a "front-room" through which the martins enter, and a predator-safe "back-room" where martins build their nest. An electric drill with a two-inch holesaw and pilot bit can be used to modify some already-assembled houses (see Fig. 5).



Fig. 4. A modified Trio-Musselman (M-12K). Compartments were doubled in size by cutting 3-inch squares in the rear wall dividers. The PMCA recommends a 1/2-inch hole.



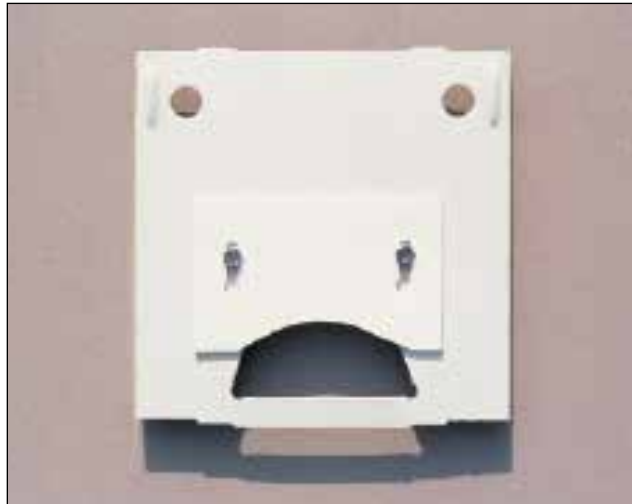
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Fig. 5. A modified Trio-Castle (PMC-24CP). Compartments were enlarged, in position, by drilling a 1/2-inch hole through every other interior wall partition, then plugging every other entrance hole with door stops.

A pair of tin snips can be used to cut openings in walls of houses that are not yet assembled, or in houses that have been disassembled for modification. Bottom of the hole should be between 1-1.5" above the floor to help contain eggs and young. Use a file or coarse sandpaper to remove any sharp edges created by drilling or cutting.

Enlargement holes are easier to make before or during assembly, but can be made after assembly in many cases. If making the holes before assembling, be sure to drill or cut the holes in the proper place. If you are unsure about where to drill the holes, do a trial assembly; don't tighten any bolts or bend any tabs. Then, mark where the holes are to be made with a permanent marker, disassemble, cut or drill the holes, and reassemble.

Deep compartments can be "side-by-side" or "front-to-back," depending on what wall the connecting hole is made in. It's more difficult for a predator to reach around a corner than it is to reach straight back. Place the connecting hole as far towards the back of the dividing wall as possible in "side-by-side" compartments, and offset it slightly in the dividing wall of "front-to-back" compartments. Removing the entire dividing wall is not recommended for two



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Fig. 6. A Trio door that has been modified to have an SREH using a Seekamp adjustable plate

reasons: it weakens the houses structurally, and it makes it easier for a predator to reach the back room.

To determine where to drill connecting holes and which compartments to cap, refer to Figs. 1 and 2. Keep in mind that your goal is to end up with the entrance holes as far apart as possible. This spacing prevents one pair from defending more than one cavity, a behavior known as "porch domination." Avoid positioning entrance holes immediately beside, above, or below other entrance holes (see Porch Divider section for more information).

#### Enlargement Tips for Specific Trio Models:

Trio Castle (PMC-24CP), Trio Mini-Castle (TM-12): Make a 3" hole in every other compartment divider (wall) on each floor. The compartment divider immediately above, below, and on either side of the divider with a hole should not have a hole (see Fig. 2).

Trio Musselman (M12-K): This is the easiest house to modify. Simply make a 3" hole in all 6 rear wall dividers. These dividers easily hinge up for removal if the bottom tie rod is removed (see Fig. 1).

Trio Grandpa (TG-12), Trio-

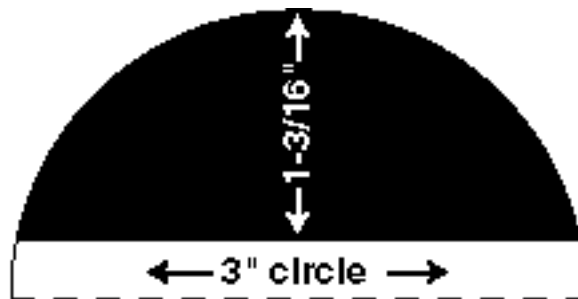


Fig. 7. This diagram shows the dimensions of a starling-resistant entrance hole (SREH). The height dimension is extremely critical. If made a hair too big, starlings will get in; if made a hair too small, martins won't be able to. Also, hole placement is very important; the bottom of the entrance hole should be no more than 1/2" above the porch/floor, and is most effective in excluding starlings when placed flush with the porch and compartment floor.



Fig. 8. A Trio Musselman with modified, double-sized compartments and homemade owl guards. Note the door stops on every other entrance hole.



Fig. 9. A binder clip holding a homemade owl guard on a Trio Castle. Eight to 12 are needed to secure the guard to the porch railings.

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Wade (TW-12): On these two models, the pole comes up through the middle of the house, so you cannot drill through the back walls of any center compartments. Make the hole in the left or right wall (see Fig. 1). Holes are easiest to make prior to assembly, or after disassembly. Trio Grandma (TG-8): The pole also comes up through the middle of this house, but you can make the holes in the side walls or the back walls (see Fig. 1).

**CAUTION:** Enlarging the compartments in Trio housing will make the martin house more attractive to European Starlings, a destructive, nonnative pest species that, if allowed to breed in the house, will kill or chase off investigating martins.

### Starling-resistant Entrance Holes (SREH's)

The PMCA strongly encourages all landlords to strictly control European starlings by trapping or shooting. This nonnative, aggressive, pest species will ruin your chances of attracting martins if allowed to move into your martin house. Starlings are attracted to houses with large compartments, but they can be excluded by installing SREH's (see Figs. 6 and 7). These doors also exclude Screech Owls, which can enter 2" round holes. SREH's are now available directly from the PMCA. We have both doors (for Trio houses) and plates (for adapting non-Trio housing). There is also a new, very promising type of SREH called the



Fig. 10. Trio Castle with homemade owl guard made from 2" x 4" hardware cloth and attached with binder clips

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"Excluder", which is also available in doors or plates. See our current catalog, website- <[www.purplemartin.org](http://www.purplemartin.org)>, or call 814-833-7656 for details.

### Homemade Owl Guards

Even with deep compartments, every active martin house should be equipped with an owl guard, because while an owl might not be able to reach the nestlings, the commotion created when it lands and attempts to extract martins often causes them to flush from the cavities and be captured. An owl guard prevents owls from landing on the porches and creating this noise and confusion. These guards also offer protection from crows, gulls, and hawks.

An effective homemade owl guard can be inexpensively constructed from 12- or 14-gauge hardware cloth with 2" x 4" rectangular holes, available at most hardware, or lawn and garden stores. It can easily be bent to fit snugly around the house and attached with binder clips (see Figs. 8, 9, 10). Instead of wrapping one piece of mesh all the way around the house, you can attach a piece to each half of the house, making removal for nest checks easier. The rectangular mesh should be aligned so that it is 4" tall and 2" wide. Use enough 1 & 1/4" binder clips (an office supply item) to attach the guard to the porch rails securely on all sides (see Figs. 9 and 10).



Fig. 11. Owl guards are available, commercially, for the TG-12 and M12-K.

These binder clips fit nicely over the guard rails and secure the owl





Fig. 12. Porch Dividers for the TG-12, TW-12, TG-8, and M-12K are available commercially.



Fig. 13. A Trio Castle with homemade wooden porch dividers made of 4&1/2" x 6" boards.

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guard tightly, but are easy to remove for nest checks and monitoring. Don't install the guard on a house that hasn't yet attracted martins because investigating birds might consider it an obstacle. In a house that has martins nesting for the first time, wait until eggs are laid, or the young are a few days old before attaching the guards. Do it early on a fair-weather day to give the martins time to adjust. In succeeding years, the owl guard may be kept on throughout the season since martins will have adapted to it. Don't wait for disaster to strike. Add owl guards this season!

### Add Porch Dividers

When nestlings reach about 3 weeks of age, they begin to venture outside the cavities and onto the porches. On houses with compartments that share a common porch, these older nestlings sometimes enter nest compartments of smaller, younger nestlings and cause their death by stealing all the food being brought in by the parents of those young. This behavior is known as "kleptoparasitism." Installing porch dividers will stop porch-wandering nestlings from gaining access to other compartments. Porch dividers can also increase occupancy of the house by preventing aggressive males from defending several compartments on a shared porch, a problem known as "Male Porch Domination."

Porch dividers for TG-12, TW-12, TG-8, and M-12K are commercially available (see Fig. 12). Porch dividers for Trio Castles

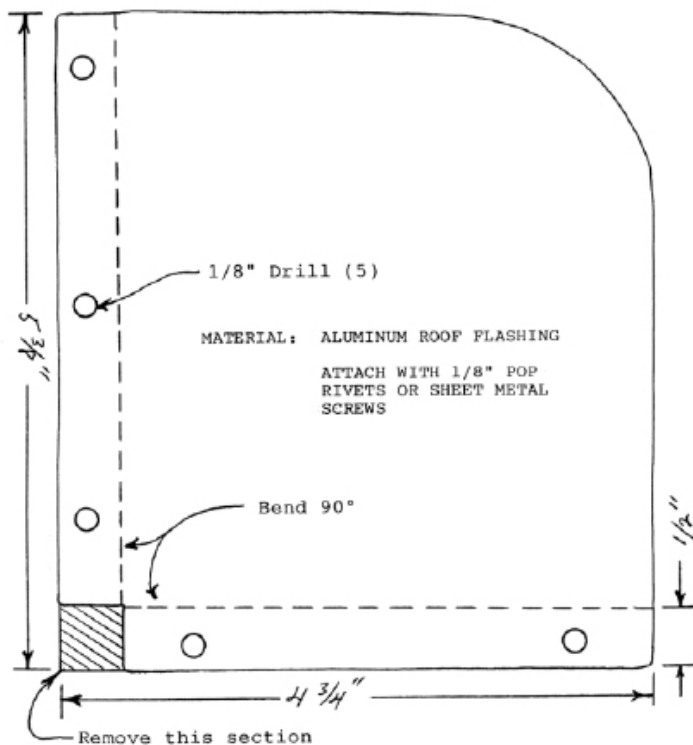


Fig. 14. Template for making homemade metal porch dividers for the Trio 6-sided houses (PMC-24CP and TM-12).

are not, but can be made from standard, one-inch lumber by cutting 4&1/2" x 6" blocks, which fit nicely into the already existing gaps and grooves between the guard rails (see Fig. 13). Dividers can also be made from aluminum and attached with sheet metal screws (see Fig. 14). Be sure to remove all sharp edges and eliminate any gaps that could cut or trap a martin. Porch dividers will not interfere with the addition of owl guards.

On a final note, please make sure your house has a pole guard to prevent snakes and raccoons from climbing the pole at night and making a meal of your martins. Both of these predators are very agile and can climb metal poles quite easily. Guards are available from the PMCA at 814-833-7656.

*This publication is dedicated to Darwin "Dean" Mosman of Elkhart, IA, who was the first to discover that martins prefer and breed more successfully in houses with enlarged compartments.*



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