

# The NB-Compact Trap

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Well here it is nearing the end of August 1998. For us down here in the Southern part of the U.S. it's been hot and really dry. August also means that the local Martins have fledged their young and have left for the season, a very lonely time of the year for the Purple Martin landlord. But hey! That only means it's time to start up all of those projects you can only do best when they are gone, right? You know...repaint the gourds, add another house, clean out old nests, rearrange perches and so forth. O.K. so it doesn't completely fill the void but it's something to do! For me, late Summer meant finally taking some time to revive an old idea for a Starling trap I designed back in the seventies. We had our first Purple Martin colony in the city and the Starlings were a problem...a BIG problem! Since moving to the country I've noticed far fewer Starlings but alas, civilization is catching up to us with us out here. Subdivisions are popping up everywhere and as the "country" slowly undergoes a metamorphoses the Starlings are closing in on our Martin colony. Maybe growth had nothing to do with it, it may have just taken that long for them to find me! Irregardless, it was time to do something about the growing Starling population.

It was around 1978 when I came up with the idea for a repeating nestbox trap for Starlings and Sparrows. While I was in the carport sawing and banging away on this contraption my backyard neighbor Mr. White dropped in to say hello and to see what I was doing. He was a wonderful man, a Martin landlord well versed in trapping and it was then I learned about the history of nestbox traps. Seems his father had made such a trap to control these pests many many years before. Mr. White himself had also built a very clever design which used no levers or counterbalances. In fact it had no moving parts whatsoever except a trap door at the rear. His incorporated a series of carefully mounted mirrors inside the box to fool the victim into leaving through what appeared to be the only exit hole available.... right into a holding pen! I wish I had paid more attention to this trapping genius back then. A clear lesson to all of us young whipper snappers, a lesson I will never forget because the plans for this masterpiece departed with him.

Whether your trap uses FOOD or a potential NEST SITE as the lure, most repeating designs use a simple "lever" as



the mechanism. Basically speaking, the Sparrow or Starling is lured into the trap where he then steps onto one end of a carefully balanced lever. The weight of the bird drops him down to a lower level where, in a panic, the victim darts out through any escape route he can find. This "escape route" is a one way door into a holding pen. Once the weight of the bird is off the counterbalanced lever, it returns to its normal position awaiting its next victim. The capacity for such

a design is limited only by the size of the holding pen. There are dozens of very good repeating traps designed using this same general principal. The NB-Compact works using this same age old design.

For me, Starlings have always been difficult to trap. Unlike Sparrows they are hard to lure in with food. If you are lucky enough to catch one as a decoy in your holding pen you can have some success attracting others but as a general rule these guys are very leery and tough to coax. The one weakness they have is the inability to leave another bird's nestbox alone. They love to investigate every possible nest site they can, usurping nests, breaking eggs and killing young birds. This infatuation with destruction can lead to their undoing with a care-

fully placed nestbox trap.

To the Starling or Sparrow the NB-Compact looks exactly like a garden variety birdhouse atop a 9' pole. It's a small lightweight "box style" house with a single 2 1/4" entrance hole and a small porch...VERY enticing for our two little pest species. Once the bird jumps into the house the entire nesting cavity, which is at one end of a lever, drops about 3" exposing a single escape route through the rear of the house. The rear exit leads them down through a 4" diameter pipe to the holding pen which is easily reachable from the ground. The original design called for a holding pen attached to the house itself, so did Mr. Whites 1950's design, but dragging out the step ladder to remove each catch can get a little old. The idea for the 4" pipe was borrowed from the designers of the "S&S Controller". A brilliant idea that brings the trapped birds down to a more suitable level...no ladder needed.

Before calling on cousin Al to build this thing, the guy with the engineering degree, please take heart. It's easier than you may think. The "moving nesting cavity" is simply

a coffee can with both ends removed. DO NOT DISPOSE OF THE DARK BROWN GRANULES WITHIN THE CAN... WHEN BREWED THEY MAKE AN INTERESTING HOT DRINK. The 4" pipe is a simple section of clothes dryer vent you can get at any home improvement store. Even if you have poor mechanical skills you can probably complete this project... if your skills are "average" it may even work. Seriously, I recreated mine in 2 afternoons after work, a total of 5 hours or so and I was going by memory. You've got PLANS to go by! Let's get started!

### BUILDING THE "NB-COMPACT" TRAP:

The first order of business is to locate the coffee can you intend to use because the length of the can determines the front to back (depth) dimension of the trap. I used a large "Folgers" can. The label reads "2 lb. 2 1/2 ounce or 34 1/2 ounce". The can measures 6 1/8" in diameter and is 6 5/8" long, probably a common size nationwide. Remove both ends from the can and spray the inside of it flat black, the darker the cavity the more Starlings like it.

Now it's on to the main structure which is nothing more than a box made from plywood. I made mine from 1/4" which is on the verge of being too thin, it was what I had at the time. I would recommend 3/8" or even regular 3/4" lumber. Since everyone may be using wood of different thicknesses I won't bother giving the outside dimensions of the box, it's the INSIDE size that really matters anyway. The inside dimensions should be 15 1/2" wide, 9 1/4" tall and 7" deep. The critical one is the depth (7"). That's only 3/8" more than the length of the can and for the trap to work properly and not bind up this dimension must be adhered to. Now glue and nail this whole thing together. DO NOT PUT A ROOF ON IT YET. The roof must be cut a little larger to provide some overhang on all 4 sides, something along the order of 12x20 would be fine. Attach the roof with screws so that you can remove it easily. You need easy access to the inner workings of the trap so that you can "tune" the mechanism and being able to remove the roof is the most logical way to do this. Make the roof from wood, sheet metal or whatever you like.

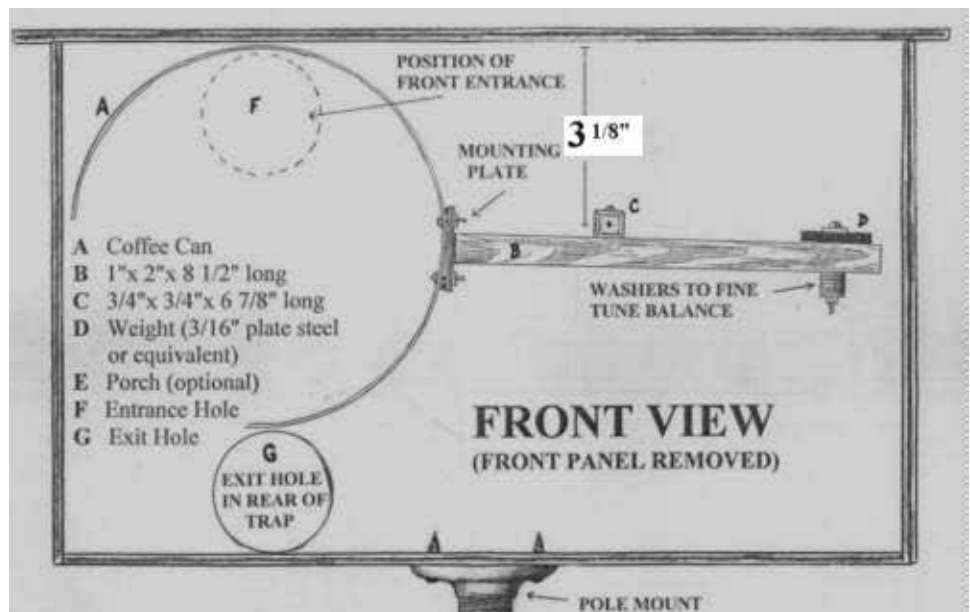
At this point you could cut the entrance and exit holes but I would wait until you complete the counterbalance and the inner workings. If you are like me you might like to deviate from the plan a little and do some "customizing" here. I am not a mechanical engineer so you may have a greater knowledge of balance points and so forth, this may effect the placement of these holes in the final analysis. Lets move on to the "guts" of the trap first. The following design has worked very well for me.

The two drawings show the set-up in such detail that I doubt there will be a problem for you, it's very basic construction. Still there may be

some question about the counterbalance weights and the point where the 1"x 2" ("B" on the plan) attaches to the coffee can so I'll touch on those points.

Cut a small 2"x 2" plate from a piece of 1/4" plywood then glue and screw it to one end of "B" (see drawing). This gives you a larger surface and makes attaching the can easier. Drill through the 2"x 2" plate, and the can, at four points and secure the plate to the can with bolts. Use some wood shims at the top and bottom of the plate because the curvature of the can will leave gaps. At the other end of "B" is where the counterbalance weight will go ("D" on drawing ). I used a short piece of 3/16" thick "flat bar" steel. I trimmed it till it was just a bit too light and used washers to make up the difference in weight. On the original model I mounted a small bottle and filled it with lead shot, adding or taking away the lead BB's made tuning the balance a breeze, you might give that a try or come up with your own counterbalance. At this point it's time to put the whole thing together. Start by drilling two small holes for the pivot points as shown on the plans...one in the front panel and one in the back. Use two small finishing nails for the pivots. They'll go through the holes and into the ends of "C". By the way, the whole thing works a lot smoother if you bevel the ends of "C". Check to be sure the mechanism can go through it's full motion up and down without binding. If the coffee can rubs on either side you may have to reposition the pivot holes to adjust the path of the can.

Now would be a good time to cut the entrance and exit holes. Both are 2 1/4" holes and can be cut with a hole saw or a sabre saw. By now you have a good idea of how this whole thing functions so positioning the holes should be easy. Facing the front of the trap, locate a point 3 3/4" from the left inside wall and 1 5/8" down from the underside of the roof. This point will be the center of your entrance hole. Now turn the trap around so you're looking at the back and remember that everything that WAS on the left is now on the right. The center of the exit hole will be 4" from the inside of the right wall and 1 1/4" up from the floor. This puts the exit hole right at floor level. BEFORE



YOU CUT...you might DRAW the holes, mount the mechanism, then be sure the holes will be in the right locations as you move the can down and back up. On the photo you'll notice a piece of wood located below the porch. That wood covers up one of MY mistakes...I cut both holes on the same panel!!! That's what I get for discussing my son's curve ball with him while using power tools. Be sure you get it right.

Well you're almost done. All you need to do now is paint the exterior, balance the mechanism and get this thing up in the air. This one was painted with white exterior enamel and the interior was given a squirt of flat black inside on both walls near the can. As with any birdhouse a light color contrasts the dark entrance hole and makes it more noticeable to the birds.

Tuning the balance can be done by adding or taking off a few washers (see assembly "D" on the drawing ). My neighbor said to "go shoot a Starling and use him to test the balance!" (No animals were harmed in the making of this motion picture). The best method is to reach in your pocket or go out to the dashboard of your car and get 4 quarters. Throw a couple of them in the coffee can and it should lower about an inch or so. A third quarter should drop the can to within an inch of the floor and when you pitch in the forth one the can should drop down to the floor of the trap. This setting has successfully worked on Starlings and the much lighter House Sparrow yet it's heavy enough to hold the can motionless even as heavy winds blow. IMPORTANT NOTE: The N-B Nestbox trap has a very short lever mechanism in an effort to keep the trap as compact as possible. Proper construction is crucial to the balance. Balancing it so the can drops with the weight of 4 to 5 quarters is important for capturing House Sparrows. Starlings have been caught using a much heavier balance (6 to 7 quarters). If you cannot achieve this lighter balance you might revisit the pivot points. Be sure the ends of "C" are tapered as shown on the plans and that the sides of the trap do not rub these two points. Be sure ALL of the coun-

terbalance weight ("D") is concentrated at the END of the lever. This means using plate steel or lead. You might try making the "coffee can" out of thin sheet aluminum. It will take much less weight to counterbalance it and will give the trap a faster action which is important if your main target is sparrows. Please remember, this is basically a STARLING TRAP which CAN catch sparrows very well if it's built and balanced right....

All that's left now is to mount the trap and attach the "transport pipe" which gets the captured bird from the trap down to the holding cage. We'll cover that next.

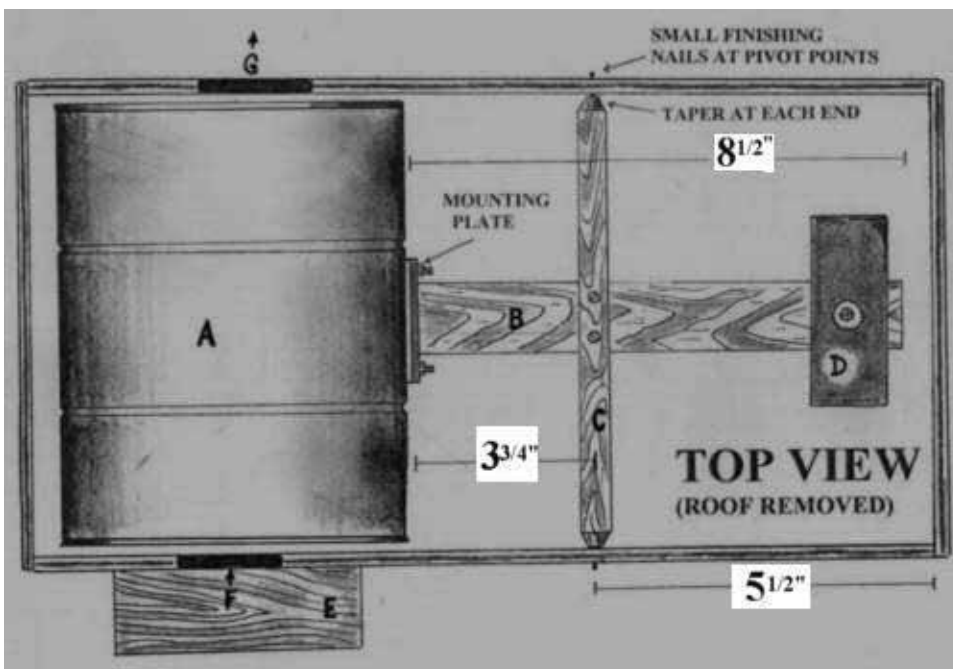
### MOUNTING AND USING THE "NB-COMPACT" TRAP:

The NB-Compact was designed to be a pole mounted trap although you could probably use your imagination a little and mount it under an eave or wherever you think it would be effective. Mine sits atop a pole 9' above the ground mounted much like a Martin house. Whatever mounting system you employ just be sure that the screws or bolts you use to secure it are not so long as to interfere with the workings inside the trap. Same goes for the screws that hold on the porch (optional) or the pipe that transports the trapped bird to the cage below. Speaking of that pipe.... The photo shows my method of doing it but this is another place where you can use some imagination. In fact, a pipe like this is not required.

You could mount the holding pen to the back of the trap but as I mentioned earlier you would have to climb up to the trap to remove the bird. You would also have to fashion some sort of trap door on the exit hole so the "entrapped" could not get back into the box and escape through the entrance hole. Starlings in particular can figure out a trap door in short order, I would strongly suggest using the pipe. My model actually worked better when using the "pipe method". When the holding cage was mounted on the rear of the trap the captured birds made too much noise. The ones you were trying to catch paid way too

much attention to the cage and not enough to the front of the trap. Now that the cage is 4 to 5 feet down the pole I rarely see a Starling go down to investigate. They seem drawn by the noise but they go first to the roof or porch. I often see them "listening" at the entrance hole before going in. Perhaps the sound of the decoy birds transfers up the pipe and gives the illusion that the sounds are coming from within the box itself. I'll get a \$750,000 government grant to study this and report back to you.

When I designed mine I had envisioned a 90 degree elbow made of clear plastic or Plexiglas mounted over the exit hole. It would angle downward where it would couple to regular PVC all the way down to the pen. I wanted the elbow to be clear because a bright escape route is what





the Starling or Sparrow would be looking for, clear would allow the light to come through. As it turned out I settled for a 48" section of 4" diameter clothes dryer vent pipe and a 90 degree aluminum elbow, clear pipe and fittings were nowhere to be found except for the ones made for Hamsters and the size was too small. I found a 90 degree aluminum elbow made by "Builders Best", the part number is 10008. Found it at our local "Home Depot" store. Most any store that deals with plumbing, ducting or major appliances should have what you need. The one I found was easily converted so that one end had a flat flange which made mounting it to the back of the trap easy. Again, be sure the screws you use do not go too far into the interior and block the mechanism (This message brought to you again by the Department of Redundancy Department). In fact when attaching anything to the trap you might use small headed bolts and go from the inside outward with it. A 48" straight section of metal, smooth wall dryer vent pipe connected perfectly to the other end of the elbow and was the ideal length to carry the bird down to the holding pen below. Slick "smoothwall" pipe prevents the bird from climbing back up the pipe and for this reason no trap door is needed when using this method. The only trouble with an elbow of this type is that it's opaque, no light can get through. The problem can be solved by drilling about 50 holes 1/8" in diameter in the corner of the elbow as shown in the photo. Your 4" diameter pipe (or PVC ) will attach to the other end of this elbow and run parallel to your mounting pole down to the holding cage. Build a wire mesh holding cage and attach it to the mounting pole at a level that's in easy reach for you. Cut a 4" diameter hole in the top of the cage for your pipe to hang through. You're done!

During the time of year when the Martins are gone you could mount this thing anywhere you want. However when they're here I would suggest putting it in a spot where Martins rarely tread like near a tree and possibly at a lower height, anything to discourage the Martins from entering it. I put mine up while the last few young Martins were learning to fly and even though the trap was surrounded by tree branches and only 9' up, one of the young ones couldn't resist it and he got caught. I would imagine that some of the more



curious Martins will end up in this thing next year so that makes checking this (or any trap ) on a daily basis very important. This brings me to a question that I could use some input on. Recent studies have shown that a certain sized "elliptical" or "horizontal oval" Martin house entrance hole may repel Starlings because they cannot fit through it. The flatter and thinner Martin can. Has anyone mounted such a hole on the HOLDING CAGE OF A TRAP as an escape just in case a Martin should become captured? And more importantly... will it keep Starlings IN the cage. I get this feeling a Starling might still fit through it when his life depends on it! Of course the smaller Sparrow would surely get away. Would love some input on this subject. In the mean time I'm going to work on a device which will disable the trap when no one is there to keep an eye on it. Probably a cable activated do-hicky that will lock the can in the up position.

I really didn't know just how many Starlings were in the area till this thing was installed. In only 3 weeks it's captured over 60 Starlings and that surprises me. On three occasions I came home to find 7 in the holding pen. Just like any repeating bird trap IT ALWAYS WORKS BETTER IF ONE BIRD IS LEFT IN THE PEN AS A DECOY. It may mean feeding and watering him to keep him going but the rewards are worth it.

Not everyone uses traps in the management of their Purple Martin colony, perhaps it's the expense or the complexity that keeps them from it. I sincerely hope that NB-Compact was presented in such a way that it may change a few minds. It's a very simple trap to build, it's effective, and CHEAP! a little bit of plywood, a coffee can, scrap lumber and hardware...that's it, the only thing I had to buy was the 4" vent pipe and the elbow. Everything else was found in the corner of the work shed or in the junk drawer (your scrap pile may vary). If you've got a Starling problem this just may be the ticket. Combine this with a good Sparrow Control Program and you should have a "pest free" colony next Spring! Good luck!