

Aviary Construction and Management

by Roland Cristo

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When the bird “bug” bites you and you decide to start raising birds, you will need a place to raise your birds other than the kitchen or living room

My suggestion is to start with a “bird room”. The reason for doing this is that one can start out on a small scale and see how much they “really enjoy” the avocation of aviculture. If you start in this way and decide you want an aviary (inside or out) you will always have the bird room for future use. If a bird in the aviary becomes sick or is incompatible you have a place to bring it to, to observe it and possibly treat it with heat and medications. You have a place to store feed, materials, and utensils and to prep and mix feeds for your birds.

The bird room can be as small as a laundry room, back porch, or a garage. In these instances the structures are already built and only need to be altered to accommodate the birds and make caring for them as simple as possible.

Aviary Construction

I will talk mostly about outside walk-in aviaries, for the purposes of breeding birds.

Things to Consider

What species of birds you wish to keep.

Most people in the last 20 years or so start out with a parrot type bird. Consider your lust for birds may lead you

in the direction of the other species, such as finches or softbills.

With this in mind, construct your aviary so it can be altered to accept other species. The alteration primarily concerns the size and gauge of wire used to accommodate the species safely.

Aviary location

Talking to different aviculturists, you will hear them say face your aviary North, South, or East and some say West. The most important thing to consider is to face the aviary away from the prevailing weather (storms, winds) and away from the hot afternoon sun. Even these situations can be remedied. For example, facing South, design the overhang on the roof so that when the sun is high in the Summer, it doesn't shine on the front under-cover section of the aviary. Yet when the sun lowers in the winter, it hits that area and helps heat the undercover section

For aviaries facing West and facing the prevailing weather, one can plant a hedge or other plant barrier out in front of the aviary 10-15 feet away to block the wind and shade the aviary. You could also build 8' to 10' high panels of shade cloth and put them up in front or over the aviary for the same purpose.

Size

The aviary should have flights at least 6' long and 2' wide by 6' high coming off a safety aisle way. The safety aisle

way should be a minimum of 4' wide so that you can get a wheelbarrow or garden cart in and out for cleaning, etc. The safety aisle way is where you will feed the birds from and maintain the flight areas. If a bird gets out of its flight, it is still in the safety aisle way and can be caught and returned to its flight. It can't be stressed enough how important the safety aisle way is for the protection of your charges.

The number of flights and size of the structure will be determined by the area where you want to place the aviary, although I'm still finding more space and adding on.

Building the Aviary

The Beginning

First you need to draw up a sketch of a floor plan of what you think you want. The best way to decide the location of your aviary is to go into your yard and measure out the floor plan from your drawing on to the ground. Put a wooden stake at each corner and lay out the flights and aisle way with builder's lime. By doing this you will get a visual of what it will look like. You can actually walk the aisle way and flights to get a vague idea of the room you will have. Always keep in mind you may want more flights, so make your plan so you can expand it.

Once the location has been determined, we need to make the decision as to whether to have a concrete slab with stem walls for the entire bottom of the aviary or a foundation with the aisle way alone being concrete and the flights being gravel or soil.

The concrete slab with stem walls is the most expensive and hardest to build. It is more difficult to build because it needs to be sloped to drain any rain or water from sprinklers and wash water away from the aisle way.

I prefer the foundation with only the aisle way being concrete (I will elaborate on this). Using this design, foundation walls should extend a minimum depth of 18" into the ground and preferably 24". This should keep vermin from digging under the wall and into the aviary.

These are the steps I recommend:

1. Draw up a final floor plan and section view of the aviary with dimensions (always thinking about expansion possibilities).
2. Make a list of materials needed for construction.
3. Lay out aviary on the ground. (again, verify dimensions)
4. Dig foundation trenches to proper depth and form the above ground portion at least 6" above what will be the final ground level.



Picture showing the water main line with the services coming up at each flight. This area gets covered with gravel to within 2' of the foundations.

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Picture showing the incoming water, a master shut off valve by the foundation and the battery operated timer for the mister system, which is stubbed up on the right side of the picture.

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5. Put any block outs in the foundation that are needed to bring in electrical and water for drinking water and misting the birds. The block outs are usually just pieces of styrofoam put in the foundation at the locations you will bring your water, electricity and drains through. Concrete flows around them.

6. Pour the concrete and let set.

7. After the forms are removed and before anything else is done, remove block outs and install sleeves made of PVC pipe, a size large enough to pass the working piping through. Mortar the voids around these sleeves with a sand/cement grout.

8. Install the conduits that are needed for electricity. Lay out the watering system in each flight for the birds' drinking water and assemble a stub out for the mister system.

9. Between the sleeve and working conduit, stuff stainless steel scrub pads on both sides, to prohibit places for vermin to hide.

10. Stub the electrical out to the aisle way and, if possible; install a drain for the flights to drain

excess water from the outside flight area when it rains hard.

When this is done, you can fill the outside and inside flight areas with whichever material you want. I chose a -



Picture showing underground drain line for outside flights. It is set in and covered with filter fabric. The fabric is used to keep the finer pieces of gravel from getting into the pipe.

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3/8' sand material for the undercover section and a +1/4" to -3/8" for the outside flight area.

Putting it Together

Measure length wise on the foundation and lay out the flight dividers on the concrete, marking where each divider wall is to be secured to the concrete foundations middle foundation and front of the aisle way.

In our case, we chose to use as little wood as possible due to deterioration problems.

This particular aviary is 37.5 feet long, has a 6' wide aisle way, with flights coming off it that are 30" wide and 10' long. (6' outside and 4' undercover)

We built the inside divider framework (undercover section) out of 1" X 1" galvanized steel square tubing welded together. The panels are 4' wide and 7 1/2' tall using 3 verticals and 2 horizontals.



Picture showing steel frame work supporting the ceiling of the flights and above that, the roof.

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Picture showing the steel frame work that supports the structure.

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These are bolted to the concrete aisle way and dividers wall at the outside flight. Sheets of plywood, 4' X 8' X 3/4", are used for the ceiling of the flight undercover area. It is screwed to the top of the steel dividers with self-tapping screws at the proper distances. We installed a 2" X 4" the length of the aviary, at the front and aisle on the top edge of the ceiling ply. The top front of the covered section and

back aisle way are 19.5" X 8' X 3/4" exterior plywood starting at one end of the aviary.

The divider panels are plumbed and the 3/4" ply for the front and aisle way is put flush with the top of 2" X 4" on top of the flight ceiling and screwed to the 2" X 4" and the metal divider panels. When the front and aisle way 19.5" ply are screwed into place they act as shear panels to keep the dividers from moving. The back wall of the aisle way (structure) is essentially



Picture taken in mid-summer showing how the overhang on the roof shades the front undercover section of the aviary so it doesn't heat up as much. In the winter, when the sun is lower in the sky, the sun shines into this area. The aviary is facing south.

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a 10' high wall with 2" X 4" studs at 16" centers. The roof is supported by the 2" X 4" along the front of the divider sections and the back wall.

This aviary is facing south so the roof overhangs the front of the undercover divider section in such a way that in mid-summer it shades the front of the undercover section, helping to keep it cool. Since the sun is lower in the sky in the winter, rays shine on this area helping to heat the undercover sections.

Along the front (lower part of the roof) and the back wall (high point of the roof) we installed 4" X 14" roof vents between the rafters in every third opening. This was done to keep the air circulat-

ing between the flight ceilings and roof, helping to cool the building in the summer time.

Next, the materials used between the flights on the undercover section are FRP(1) panels. These are the panels you see in commercial bathrooms. It is a PVC type material and can be washed with a power washer and never has to be painted. The panels are 4' X 8' and fit perfectly on the 1" X 1" metal framework that the dividers are made of. They were screwed into the metal framework using self-tapping screws and go into substrata of under-

cover sections of aviary.

Outside Flight Area

We used 1/2" X 3" 10 gauge galvanized after weld wire(3) from England. All the dividers were cut to size and attached



The FRP panels installed on the flight dividers.

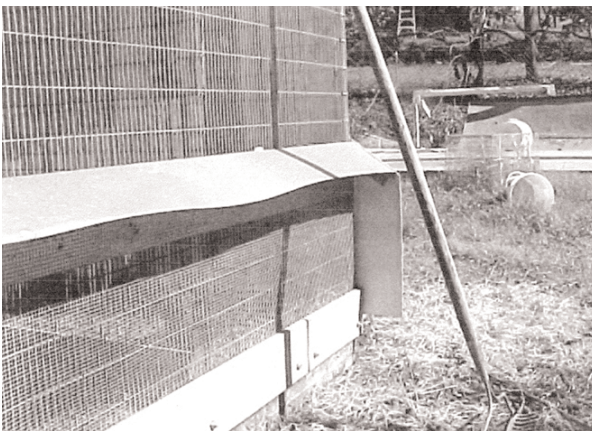
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to the metal uprights at the front of the undercover dividers. Heavy twine and 1" X 4" lumber were used to keep the fronts of these dividers from falling over. Once the dividers were in place, the front wire, in this case a 37.5' long piece was installed.

The roll of wire was set on supports and the end attached to the first wire divider. Then it was rolled out (it is standing vertical) to the next wire divider and attached. This was repeated for each section until the entire front was attached. Only enough clips were used to keep the wire from falling, two at the top, and one at the bottom.

We went back and made sure all the wire dividers were at the proper spacing and completed clipping the front on. We put a clip every 6".

Next the top wire was put on top of the wire dividers. It is attached with clips to the dividers and the front wire, and is secured to the front undercover 19.5" plywood with screws. When this was completed there wasn't any side-to-side movement of these outside flight sections. The best thing about this is there is no up keep of any wood supports, because there aren't any.



Picture showing 1/4" X 1/4" wire with flashing so rats or mice can't climb to the top of the aviary.

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We attached a wide strip of 1/4" X 1/4" wire to the bottom of the front of the wire part of the aviary. An angled piece of sheet metal was attached to the top of the 1/4" X 1/4" wire. Both act as a barrier to mice and rats that may climb the wire. The sheet metal and wire are attached with pop rivets and washers.

Management

Webster's definition of "management" is the act, or manner of managing, or handling, controlling, directing".

When "managing" or providing care, the easier it is to do, the better care the care is given.

Below are some time-saving management techniques we use to maintain our birds.

1. Have at minimum, 2 sets of feed and water dishes, preferably more. When feeding in the morning, fill a dish with fresh food, place it in the cage/flight and remove the dirty dish for washing and disinfecting later in the day when one comes home from work. This is a must for birds like lorries, softbills and any birds getting soaked or sprouted diet.
2. We purchase a lot of our dishes from "Good Will" or "Dollar" stores. We use glass or ceramic dishes and soak them in a Clorox solution sanitizing them before we use them again. The stainless steel metal bowls available, are not pure so the clorox solution corrodes the metal leaving small pin holes.
3. All the water dishes in the walk in flights

have faucets dripping into them.

All our entrance doors to aviaries are spring loaded to close on their own. They have handles, but no normal doorknob assembly. When going from one building to the next it is a simple matter of either pushing or pulling open a door and allowing it to close automatically. We do not have to grab a knob and turn it. This makes it easier when we are carrying anything.

The entrance doors to each building have a dead bolt lock. The dead bolt locks on all the buildings are keyed alike and on both sides. Only one key is needed for all the buildings.

The doors to the walk in flights have feed trays attached at the 5' level. These trays are serviced by



Picture taken from one end of the aisle way.

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opening a sliding piece of plexiglass on the door.

- Most of the small cages have doors that hinge from the top and latch at the bottom. There is another door on the inside of the cage that is hinged at the top. When servicing

the cage, one opens the outer door, pushes the inner door in and up, sets the fresh dish in and removes the soiled one. If one forgets to latch the outer door, there is little chance the birds will get out. This has worked on all birds with the exception of a Caique. She watches and if the outer door isn't latched, she pulls up the inner door, pushes open the outer door and is out in a flash.

An aviculturist friend who raises finches uses a fishing weight at the bottom of the outside door to keep it closed. It works great for finches.

- We keep covered buckets of seed and dry softbill mix in each aviary and feed during the week from this. We don't have to haul a bucket through each aviary unless we are refilling the empty bucket.

Misters

We have a mister system over the outside flights in the walk-in aviary. The plumbing to these misters is black PVC electrical conduit. Black PVC doesn't allow light to permeate the pipe and grow algae inside and clog the misters. We found algae will grow in white pipe.

The system on the main aviary is controlled by an Intermatic electric timer that has 96 settings in a 24-hour period. That lets us turn the water on or off every 15 minutes if we wish. A thermostat between the timer and valve turns the water on. We can set the thermostat to come on at say 70 degrees. When the temperature reaches 70 degrees and the timer is set to go on, the valve is opened. If the temperature is 70

degrees and the timer is off, the water valve will not open. One overrides the other. In the summer time, we are assured the misters will not come on in the middle of the night, with this system.

A "Y" filter with a 100 mesh is attached prior to the electric valve that opens the water. This keeps small particles from clogging up the mister orifices.

The water is piped up to the top of the outside flights with PVC pipe. We use a ½" tee with a screw in base for the mister. The misters(3) simply push into the base and will stay on, even at 50 psi.

Battery operated timer for misters

A battery operated garden timer can be installed instead of electricity, to turn the misters on and off. We use an older Rain Bird model WTD1900. They are powered with two (2) AA batteries and can be set to come on and off four (4) times in a 24 hour period. The battery will usually last about 6 months. The timers are made to screw onto an outside faucet and attach a hose to. By using double screw on adapters on both inlet and outlet, they can be installed to PVC piping a "Y" filter is used prior to the timer.

Vermin

We use wind up traps that automatically reset and can catch several mice at one setting. There are several different types being manufactured. We use three different plastic traps; the Catch-All, Tincat, and the Tomcat (sold at Lowes Building Materials). We put a dab of peanut butter in the box trap to attract the mice. We don't use poison bait within the aviary. We use commercial bait boxes on the outside of the aviary for rats. These need to be checked on a weekly basis and the bait used needs to be changed periodically.

It is recommended that the perimeter of the aviary have at minimum, a gravel walk way. The gravel walkway allows you to walk the perimeter and look for signs of rats or other vermin trying to dig in at the base of the aviary.

One must also check the upper parts of the structure itself, as rats will chew through aviary netting and wood that may be partially decayed or soft. Rats run the perimeter walls looking for weak places, places where wood pieces may butt together and have a slight amount of air movement. They will start chewing in these areas until they gain entrance or are stopped.

When we find what appears to be a rat hole in the ground anywhere around the perimeter of the aviary, we put a garden hose into it that is attached to the exhaust pipe of a small gasoline engine (lawn mower). Two-cycle oil is added to the gasoline, so we can visually see the exhaust fumes. We look for exit holes and cover it with a piece of wire. The exhaust either kills them in their burrow or they come out very slowly and can be hit on the head.

Night Lights

Every bird room and especially aviary should have a "night-light". If the birds get scared off their roost at night by lightening, thunder or vermin, they can see where they are flying and not kill themselves flying into a wall or wire.

Our system is wired to an electronic eye attached to the outside of the aviary. When the light of the day dims to sunset the night-lights come on. We use low watt fluorescent bulbs that put out a higher lumen than the wattage the bulb is rated for.

Hanging Cages

We hang our small cages from the building walls. We use an "L" hook to hang the cages. The cages are positioned away from the wall by using a PVC spacer. Parrot type birds will not be able to chew on the wall material. Also most of what is thrown out of the cage falls to the ground.

Hanging Nests

We also use smaller "L" hooks screwed unto the nest box. They are left

out about 1/4" and we hang our boxes on the outside or outside of the cages this way.

Alternative hanging method

We also use a strip of wood of varied lengths as needed, approximately 1' X 2" with the edge cut at an angle to hang multiple nest boxes. The strip is attached to the flight wall with the edge facing out. A similar shorter piece is attached to the backside of the nest box or basket. We can easily rest the nest box securely on the strip. A relative uses clean half-gallon milk cartons and discards them after they are used. This seems to work well for finches and smaller softbills.

First Aid

A First Aid Kit is a must. One should speak with their vet and ask what they should have on hand for fist aid. Our first

aid kit has:

- | | |
|-----------------|---------------------|
| Nail clippers | Kwik Stop |
| Saline solution | Antibiotic Ointment |
| Scissors | Gauze |
| Syringes | bandages |

Flagging

We attach flags to cages and flight doors for identification. The flags are colored plastic plant stakes and cow ear tags.

For example:

Red plant stake flag signifies the birds are on eggs

Yellow flag means the birds have babies and need special feed or feed more than once per day.

We use colored plastic cow ear tags attached to the flight and to feed buckets to make it easier to feed the birds the type of food they eat.



The completed aviary.

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Special Equipment

We purchased a commercial coffee grinder like you see in a grocery store. It is used to grind pellets to be fed to the smaller birds. You can even make hand-feeding formula by using the fine grind.

We purchased a food processor with a "pulse" button. This allows us to "chop" quantities of fruit quickly. The pulse button gives us more control over the size. This is also used for making egg food.

Quarantine

One should have an area away from all the other birds that the can be used to quarantine new arrivals. Birds should be quarantined for at least 60 days prior to introducing them into the aviary population. Proper sanitary procedures should be taken. For a more defined description of proper sanitary procedures, please

refer to the MAP (Model Aviculture Program) site at <http://www.modelaviculture.org/>.

In conclusion, while the initial preparation is time consuming, the final product will be easier and more efficient.

Addendum

(1) FRP panels can be found at most any building supply.

(2) Galvanized after welded wire is obtainable from West Coast Wire & Steel, LLC, 1027 Palmyrita Ave., Riverside, CA. 92507-7252, (909) 683-7252.

(3) The misters we use are from Point Source Irrigation, 2550 S. East Ave, Suite 120, Fresno, CA 93706, www.pointsourceirrigation.com. Sources for other types of misters are Agrifim, 337 W. Bedford, Fresno, CA 93711, www.agrifimusa.com.



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