



Animal and Plant Health Inspection Service  
U.S. DEPARTMENT OF AGRICULTURE

# How to Modify a European Starling Trap



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April 2020

**Wildlife Services**  
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*These modifications have substantially increased the efficiency of the standard V-top trap, resulting in much higher catch rates of European starlings. The modifications enable WS to manage starling damage more effectively, reduce costs to cooperators, and further its mission of protecting human health and safety and damage to agriculture.*

*To reduce stress on the birds, the traps are furnished with water, food, and perches. State regulations, including trap-check time, should be followed. It may be appropriate to check the traps more often than once a day, reducing stress and increasing capture rates. Euthanize captured starlings following guidelines of the American Veterinary Medical Association.*

## **Section 1-Top**

### **Materials**

- 1 – 5/8" (or 3/4)"x4'x8' Plywood or Oriented Strand Board
- 1 – 4" SCH 40 PVC pipe 3 1/2" in length
- 1 – Roll 1/2" x 1/2" hardware cloth (36" wide 25' long)
- 1 – box 9/16" Truss Washer Lath Screws (100 count) (Figure 1-1)

### **Tools**

- Screw Gun (with appropriate bits)
- Jig saw
- Circular saw
- Reciprocating saw or hand saw
- Wire cutters
- Needle nose pliers

# Instructions

- 1. Begin with a 5/8"x4'x8' sheet of plywood (Oriented Strand Board). Cut the length to 6' (Figure 1-1).

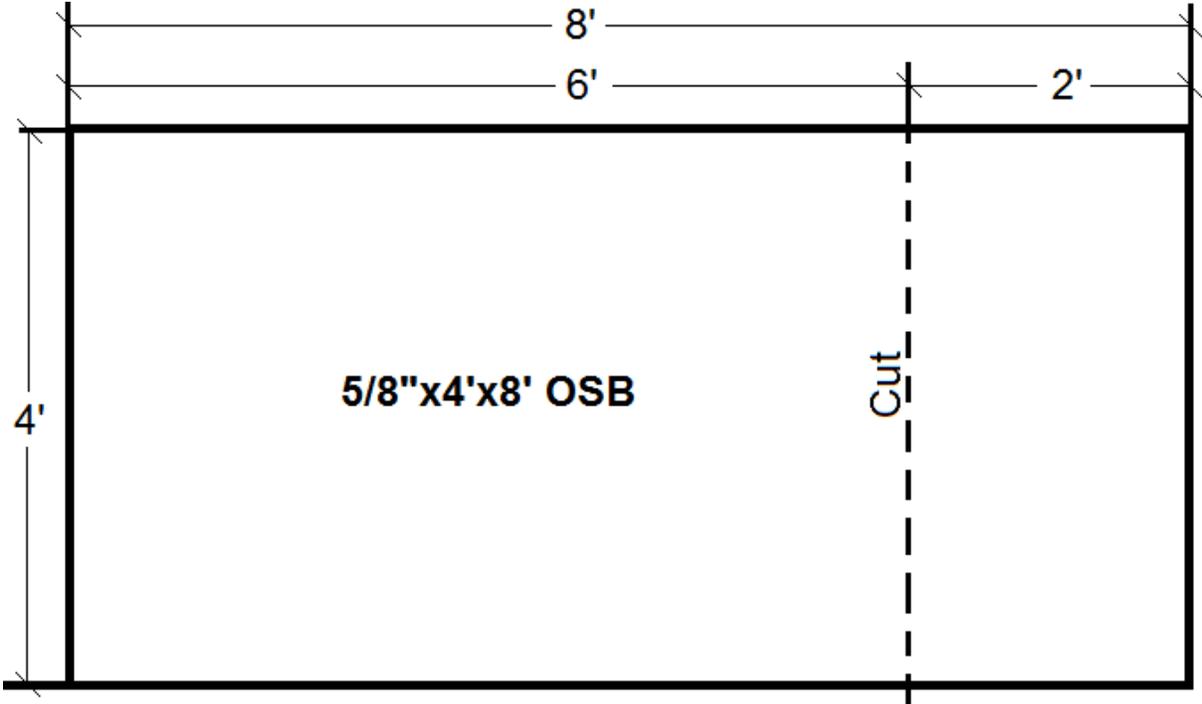


Figure 1-1

- 2. Cut the 4" diameter PVC pipe to 3 1/2" in length (Figure 1-2).

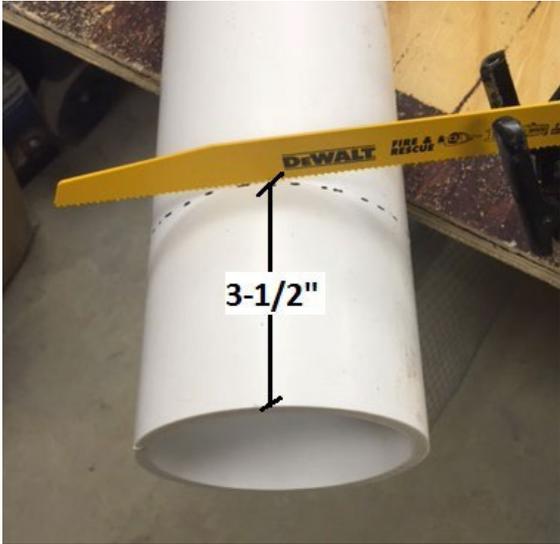


Figure 1-2

3. Cut a 4" diameter hole 8" from right side and centered on the OSB sheet. Utilizing the piece of 4" PVC, trace around the pipe and cut inside the line so that the pipe fits snug (Figure 1-3). Secure it in place with screws so that it is flush with the surface of the board (Figure 1-4).

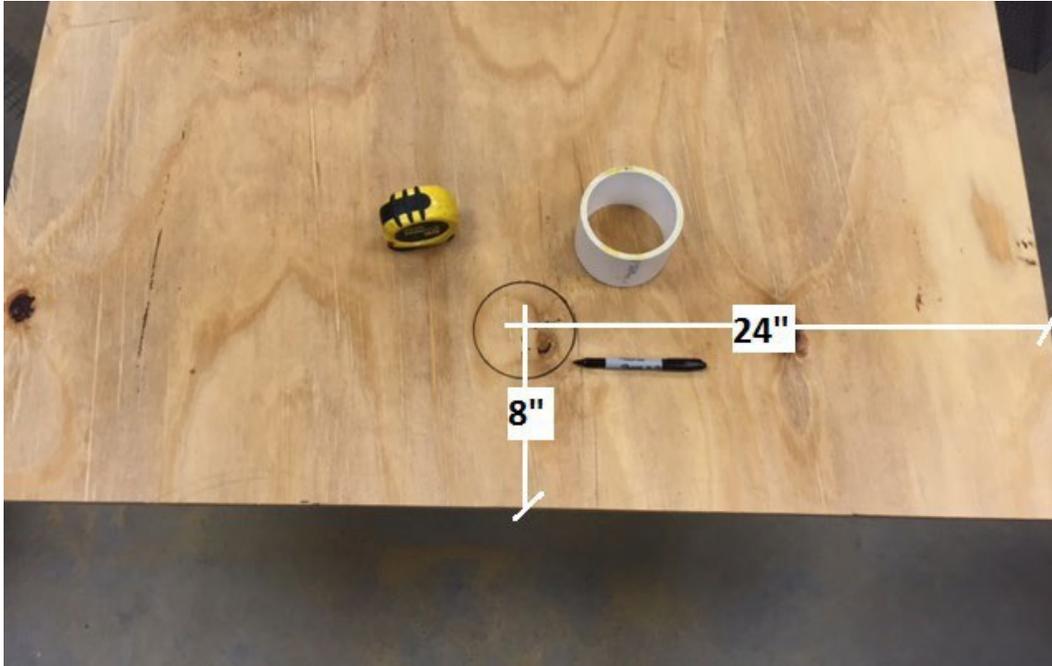


Figure 1-3



Figure 1-4

4. Using  $\frac{1}{2}$ "x $\frac{1}{2}$ " hardware cloth, construct a rectangular cage 4' long, 2' wide, and 16" in height (Figure 1-5). Hardware cloth is easily folded by hand or over any straight edge (Figure 1-6 and 1-7).

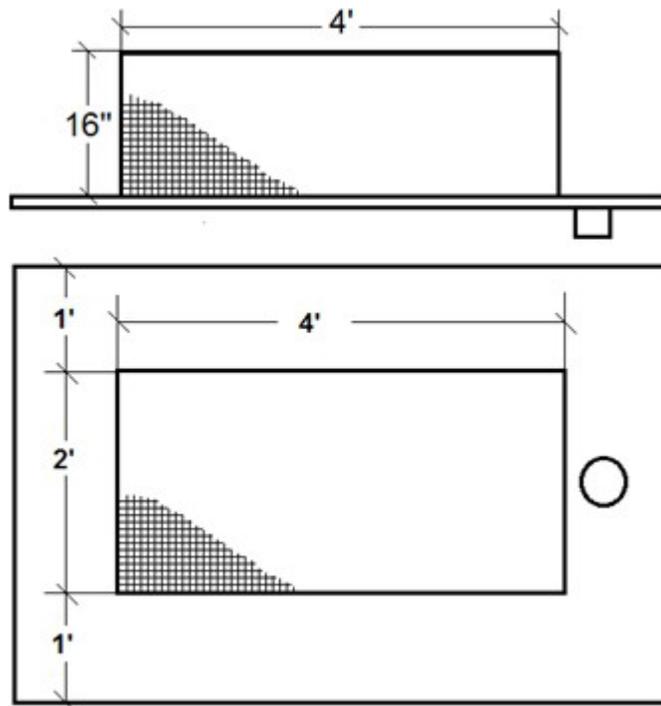


Figure 1-5

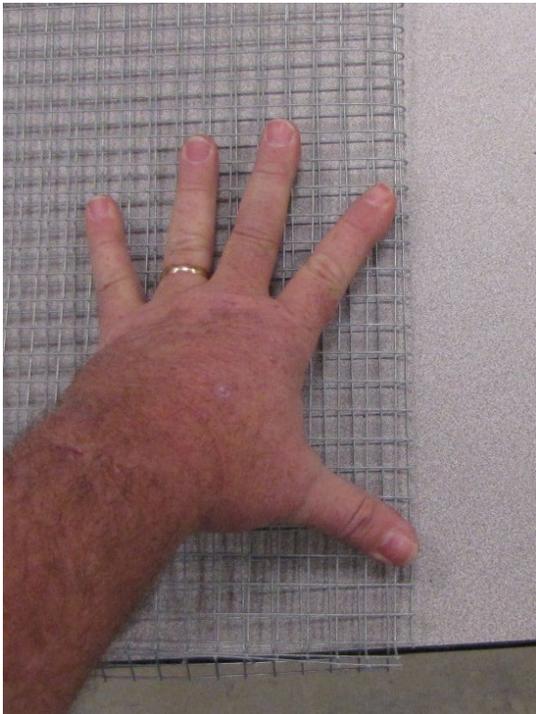


Figure 1-6



Figure 1-7

When constructing the cage leave an additional 1" of wire around the bottom. Bend the 1" of wire outward 90 degrees by hand (Figure 1-7) to create a lip that will be used to secure the cage down to the plywood (Figure 1-8). When cutting leave the tag ends of wire as these will be used to secure each side, preventing the need for wire cage clips (Figure 1-9 and 1-10).

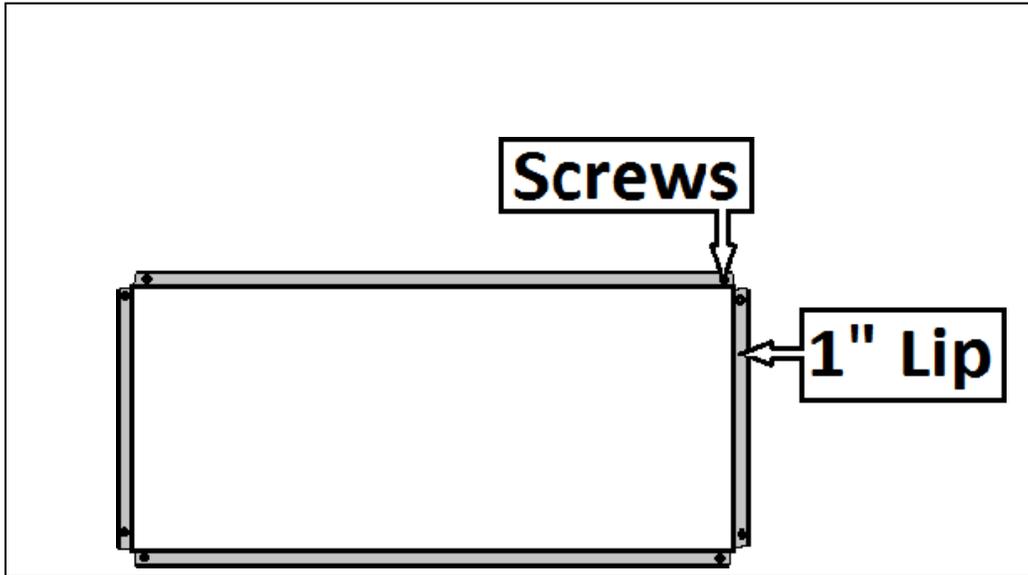


Figure 1-8

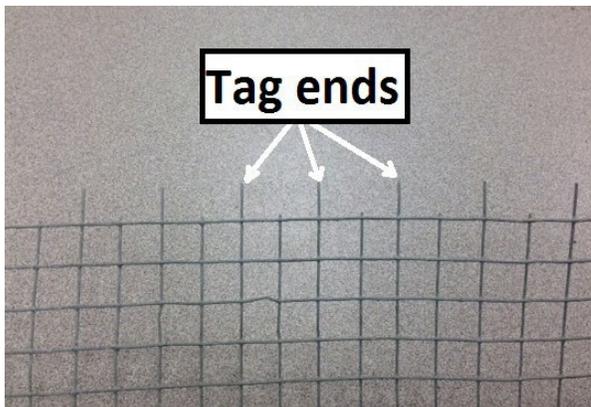


Figure 1-9



Figure 1-10

5. Once complete, attach the cage, centered on the plywood using ½” screws. Place screws at corners only (Figure 1-11). Sides will be attached with screws after funnels are attached.



Figure 1-11

6. Construct six (6) funnels using the  $\frac{1}{2}$ " by  $\frac{1}{2}$ " hardware cloth. Each funnel to be cut to 6" in length. One end will be  $2\frac{3}{4}$ " x  $2\frac{3}{4}$ " and the other end will be, 4" x 4" (Figure 1-12).

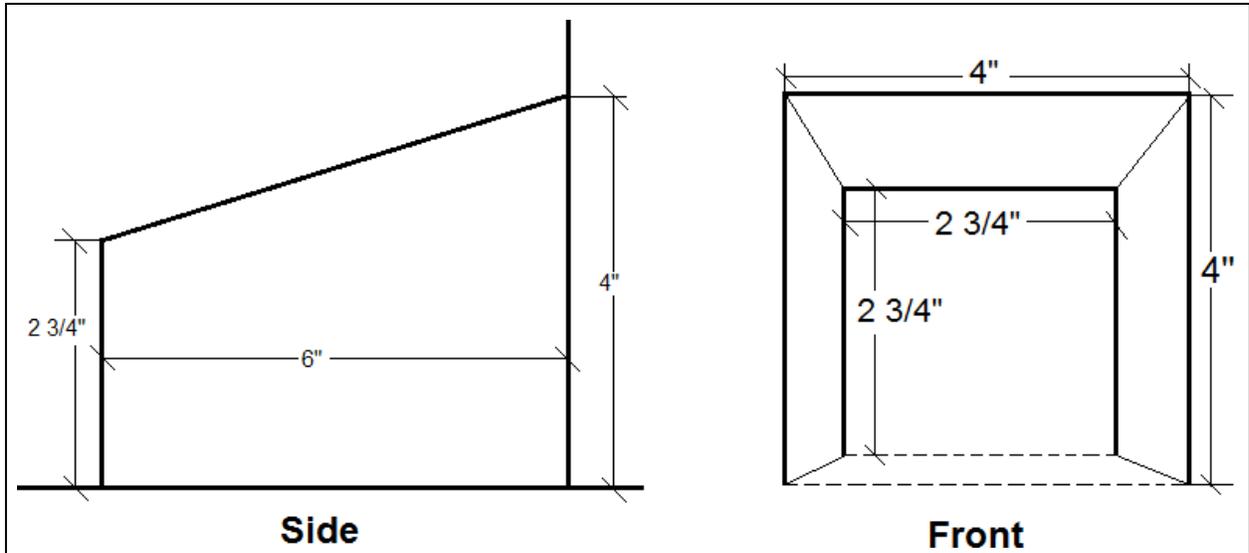


Figure 1-12

- a. Start with a section of hardware cloth 12" long and 6" wide (Figure 1-13).

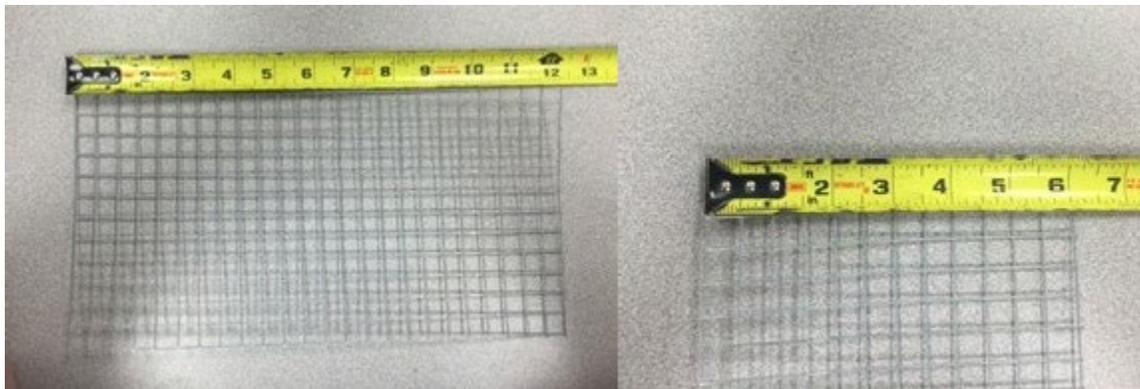


Figure 1-13

An easy method for doing this is to utilize the template provided in Appendix 1. Center the wire on the template and using a straight edge, bend the two sides up 90 degrees (Figure 1-14, 1-15, and 1-16).

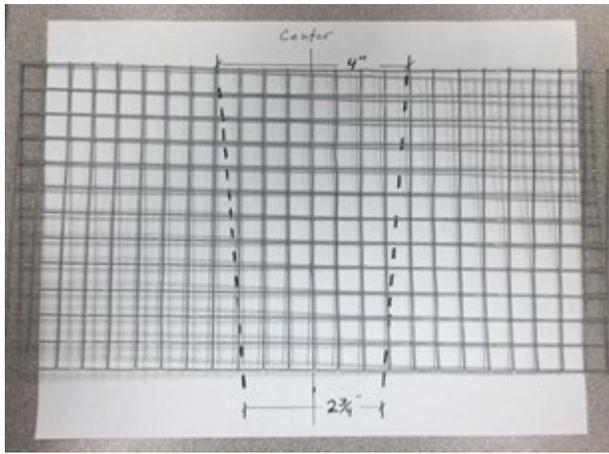


Figure 1-14

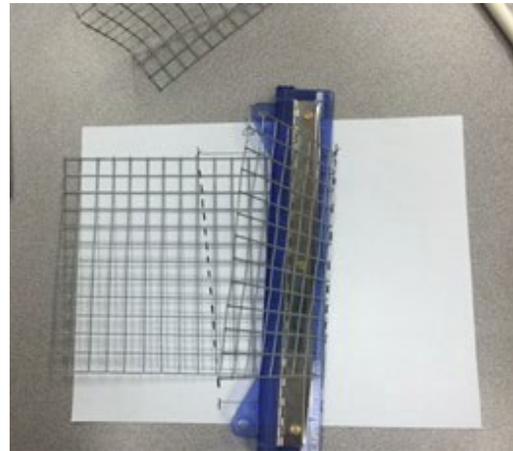


Figure 1-15

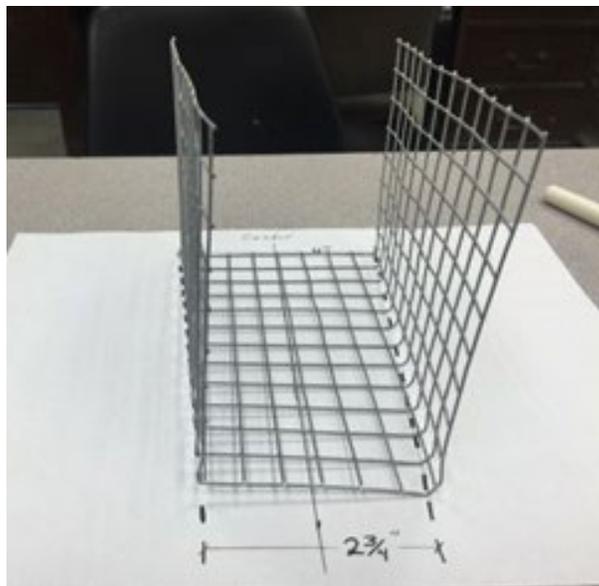


Figure 1-16

- b. Repeat the process for the sides bending them outward 90 degrees (Figure 1-17, 1-18, and 1-19).

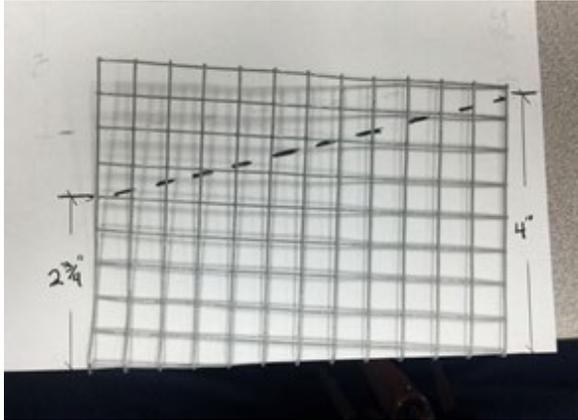


Figure 1-17



Figure 1-18



Figure 1-19

7. Funnels will be attached at 16" and 38" on one side then 9" and 32" on the other (Figure 1-20).

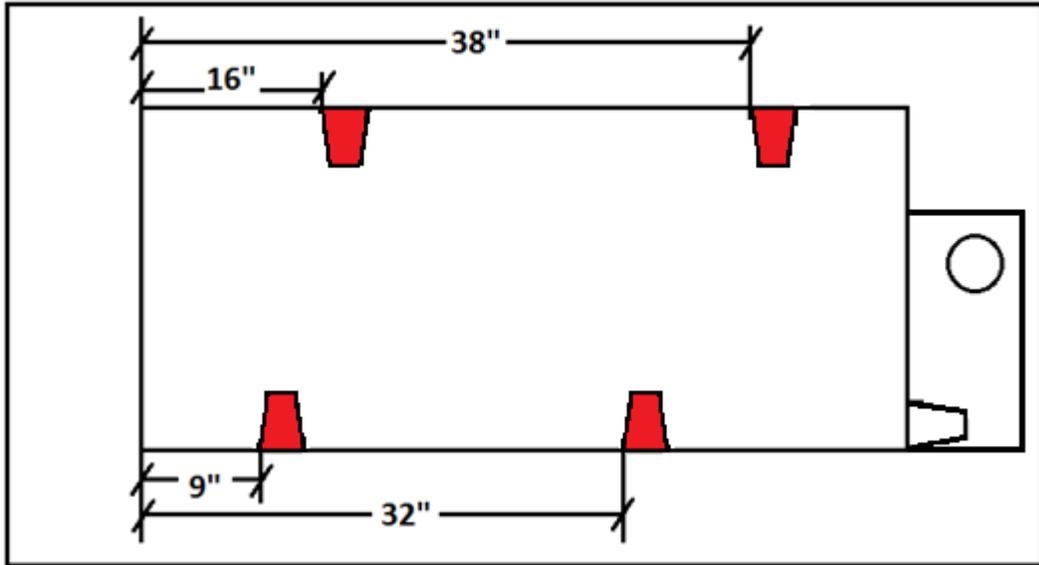


Figure 1-20

8. Cut holes 4" X 4" while leaving tag ends (Figure 1-21). These will be used to attach funnel (Figure 1-22).



Figure 1-21



Figure 1-22

9. Bottom edges of funnels will protrude (Figure 1-23). Trim them off, use tag ends as needed to attach funnel then remove unneeded tag ends (Figure 1-24).



Figure 1-23



Figure 1-24

10. Once attached and trimmed neatly, secure funnel in place with screws (Figure 1-25). Do not secure funnel inside cage. This allows for funnel to be re-shaped by hand when damaged by ice or mammals.



Figure 1-25

11. Now construct the smaller cage (red circle) 10"x12"x16" using the ½" by ½" hardware cloth (Figure 1-26).

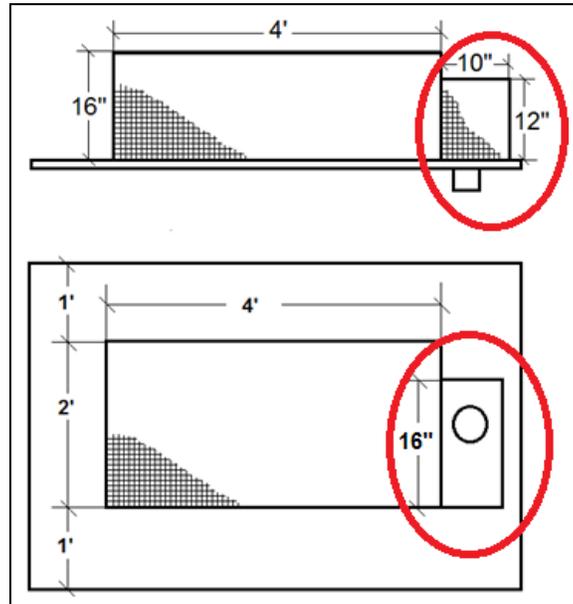


Figure 1-26.

- a. Cut a piece of hardware cloth 36" X 23" (Figure 1-27).

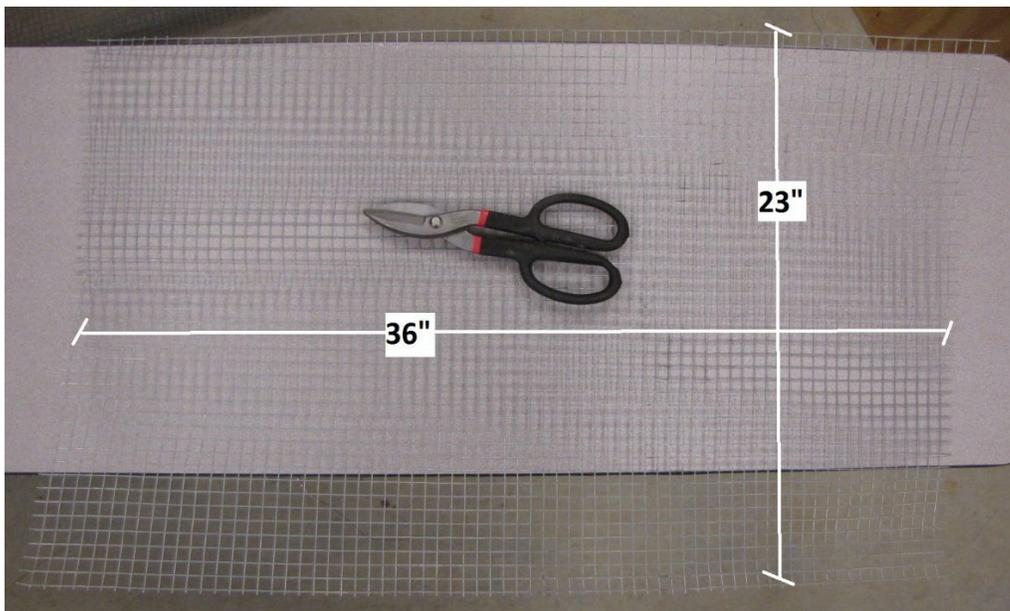


Figure 1-27

b. Then cut as shown below (Figure 1-28).

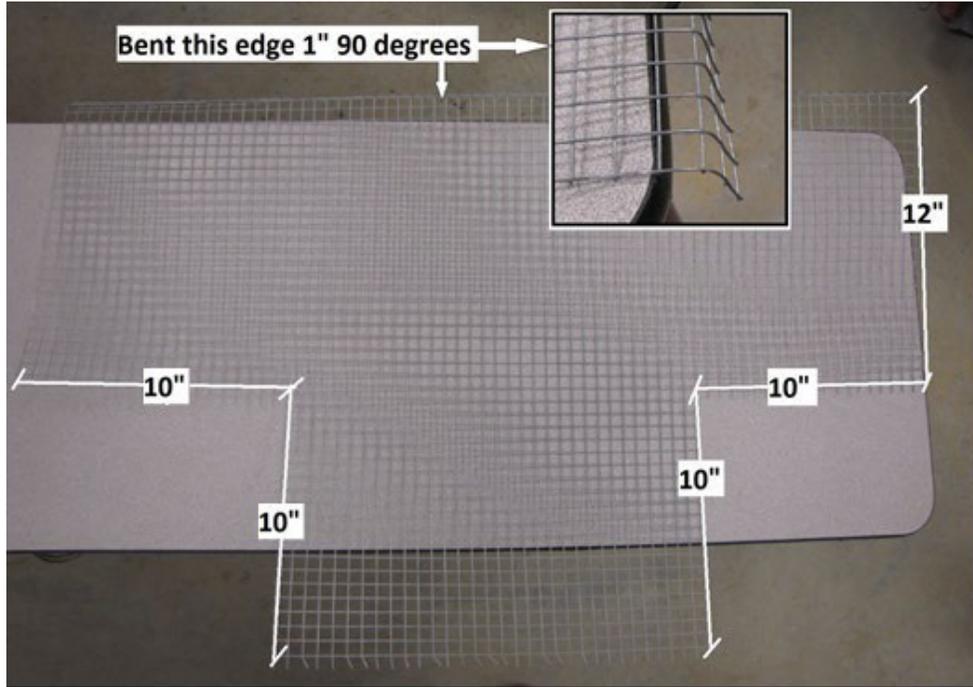


Figure 1-28

c. Fold wire then un-fold to create 90 degree corners (Figure 1-29).

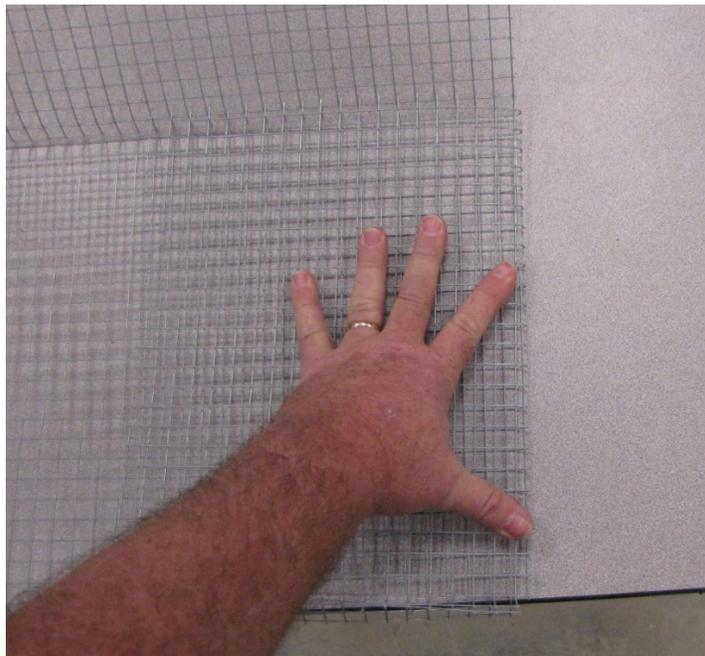


Figure 1-29

d. Connect the corners using tag ends (Figure 1-30).

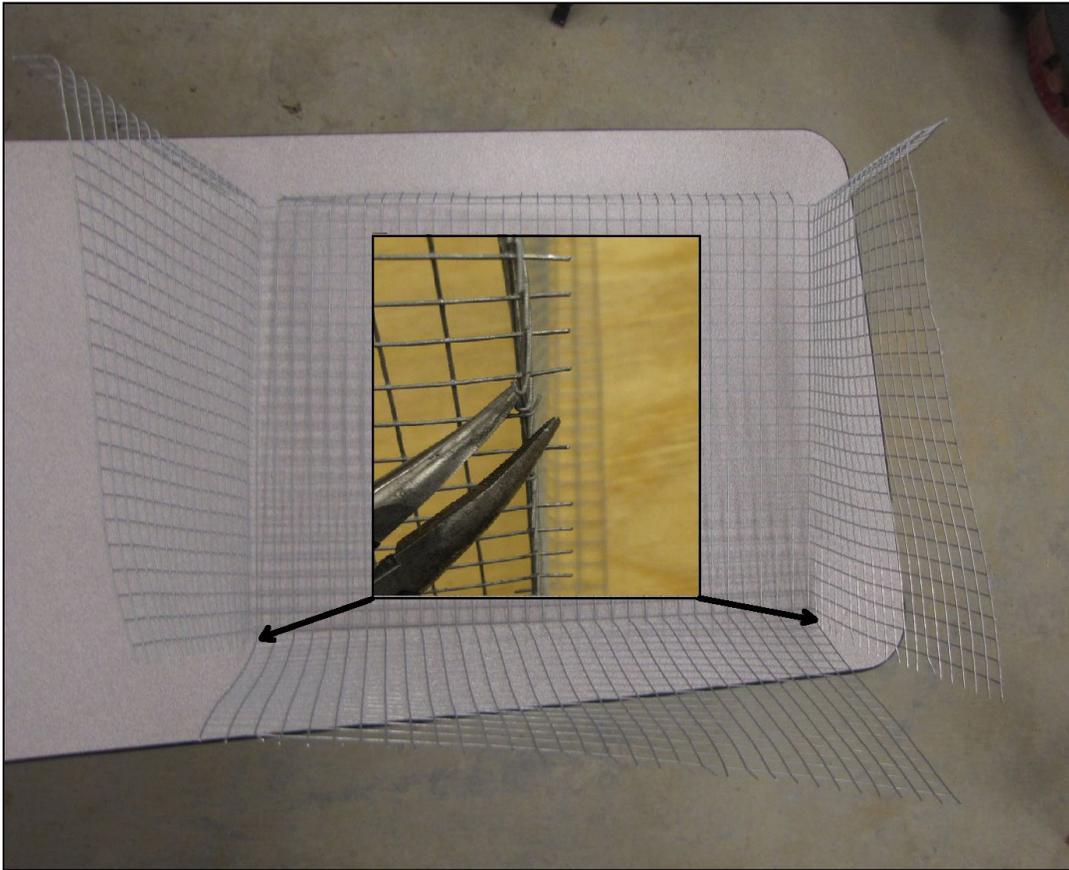


Figure 1-30

12. Attach smaller cage that was just made to larger cage made in the first steps using tag ends (Figure 1-31). Curved/bent needle nose pliers are easier to use when bending tag ends.



Figure 1-31

13. Secure the bottom of the complete cage with ½” screws to the plywood (Figure 1-32).

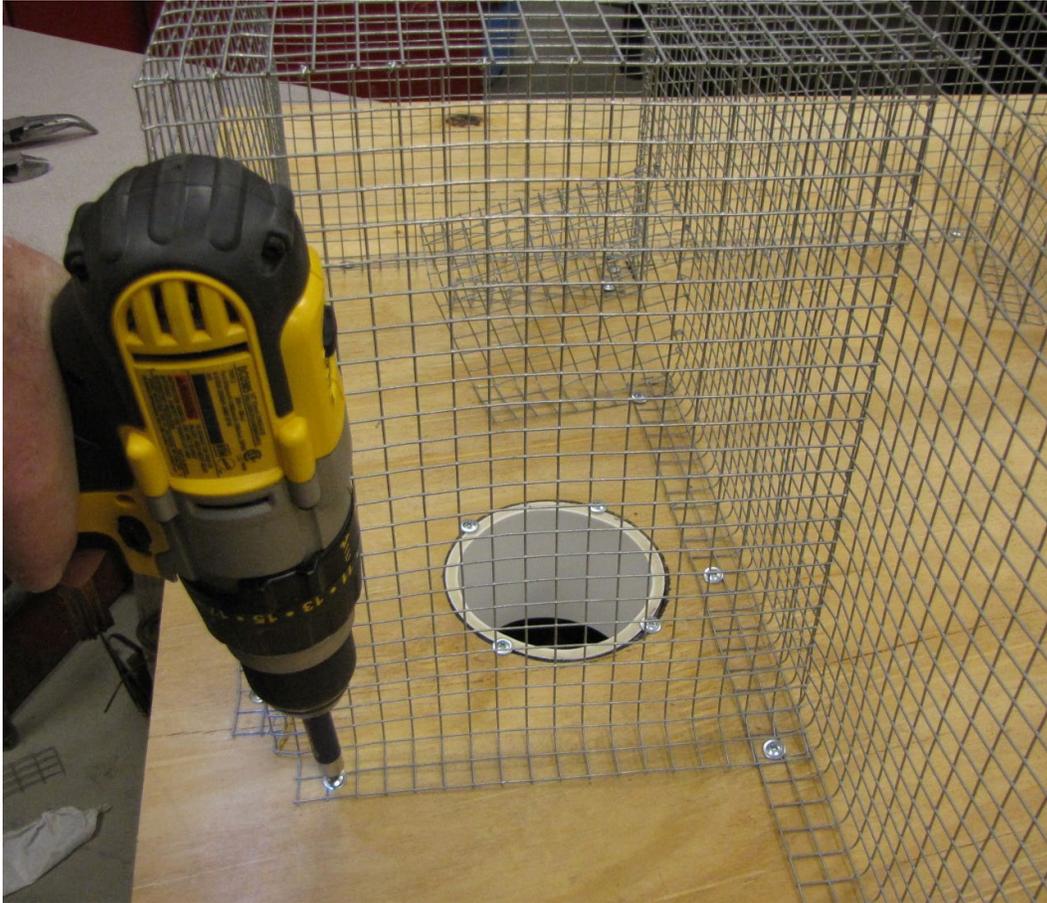


Figure 1-32

14. Build a 8" x 12" access door and install it on the large cage, and a 6" x 8" access door for the smaller cage. This access will allow for maintenance, removal of non-target species, and allow the trap to be un-set when not in use. These doors need to be installed on both large and small sections.

*These doors can be constructed in several ways. Below is one method for constructing an access door.*

## Access Door

1. Utilizing 1" X 1/2" 16 gauge wire, cut 2 pieces at 2" X 8" and 2 pieces at 2" X 14" with tag ends left on both ends of the 14" pieces (Figure 1-33).

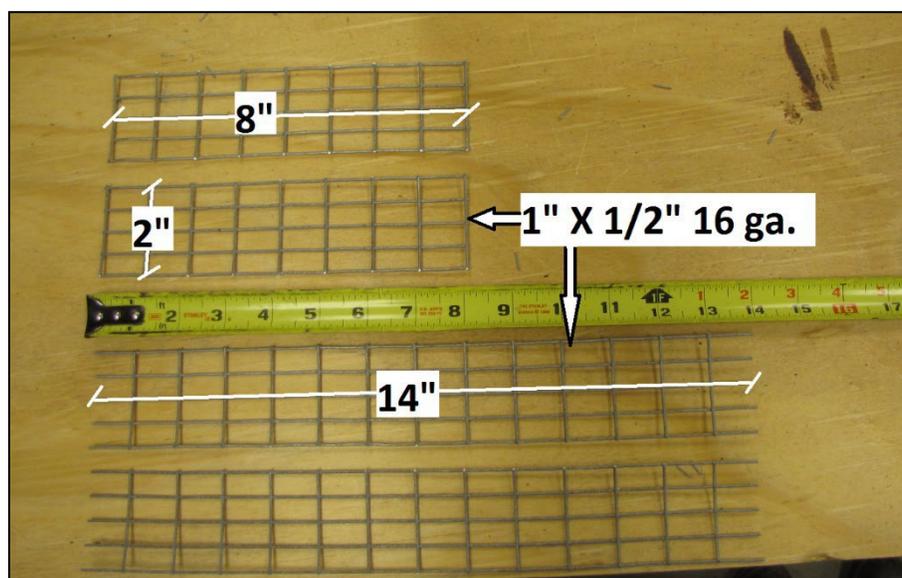


Figure 1-33

2. Bend them in half along a straight edge (Figure 1-34), then utilizing the tag ends, join them at the corners to create an 8" X 12" frame (Figure 1-35) and trim any unused tag ends (Figure 1-36).



Figure 1-34

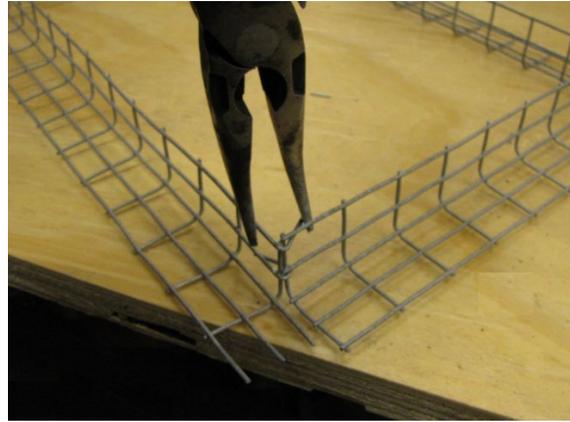


Figure 1-35



Figure 1-36

3. Cut another piece of the 1" X ½" wire 10" X 14". Bend over 1" on all four sides to create an 8" X 12" door. On the bottom leave 2 tag ends to use in attaching to frame (Figure 1-37).

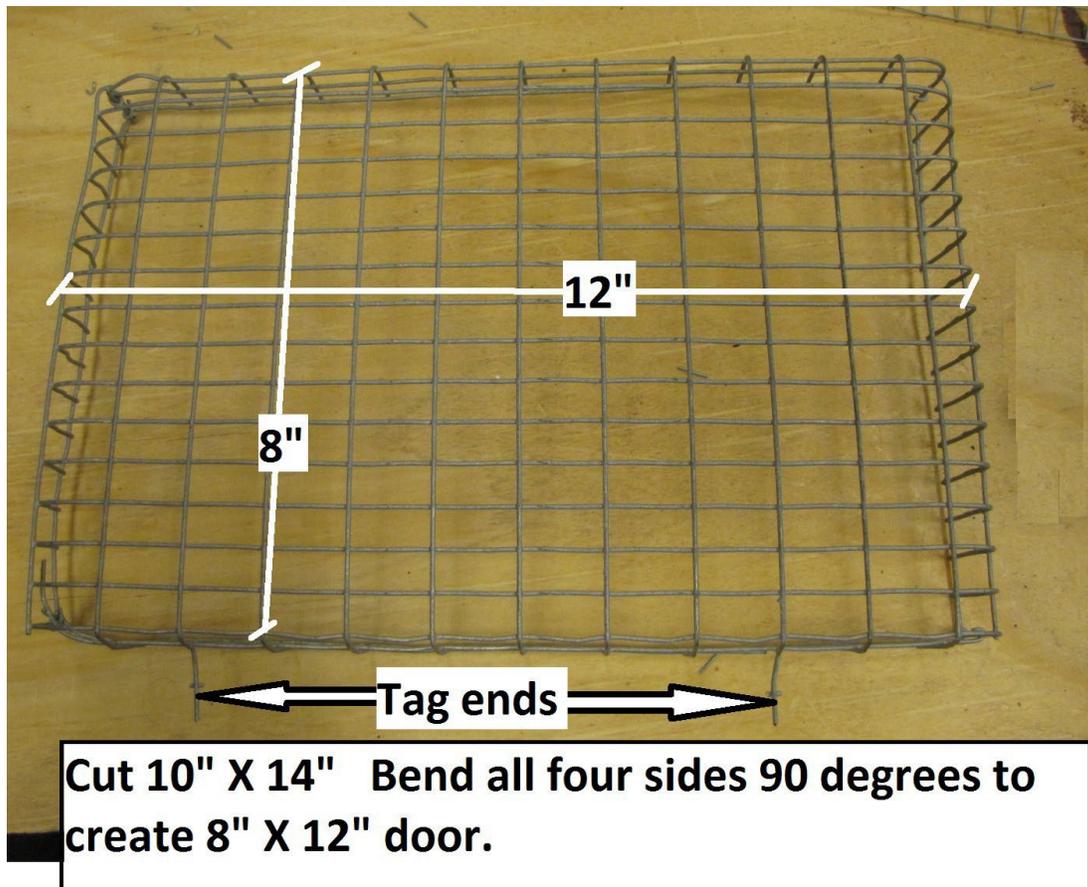


Figure 1-37

4. Attach frame to side of trap, centered, 2" down from top. Cut  $\frac{1}{2}$ " X  $\frac{1}{2}$ " wire to create tag ends and use them to attach frame (Figure 1-38 insert). Use tag ends from door to attach it to the frame and act as hinges. Some adjustments may be needed to get the door to fit properly in the frame (Figure 1-38).

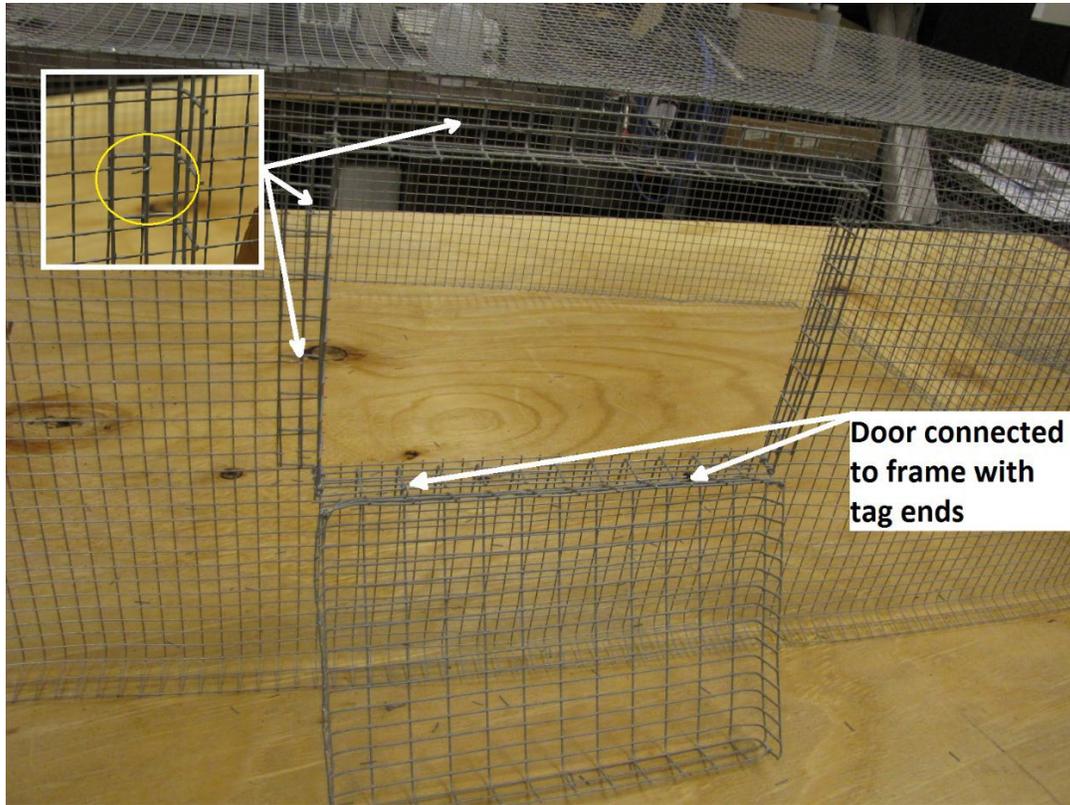


Figure 1-38

5. Cut a 22" long pieces of 9 gauge annealed wire (Figure 1-39). Bend 45 degrees at 13" then bend a small hook in the short end (Figure 1-40).



Figure 1-39



Figure 1-40

6. Slide the long end through the top of the door and frame to hold the door closed. Twist the small hook to the side then while applying light pressure to the wire insert it through the holes in the trap (Figure 1-41). This will secure the door in place (Figure 1-42).

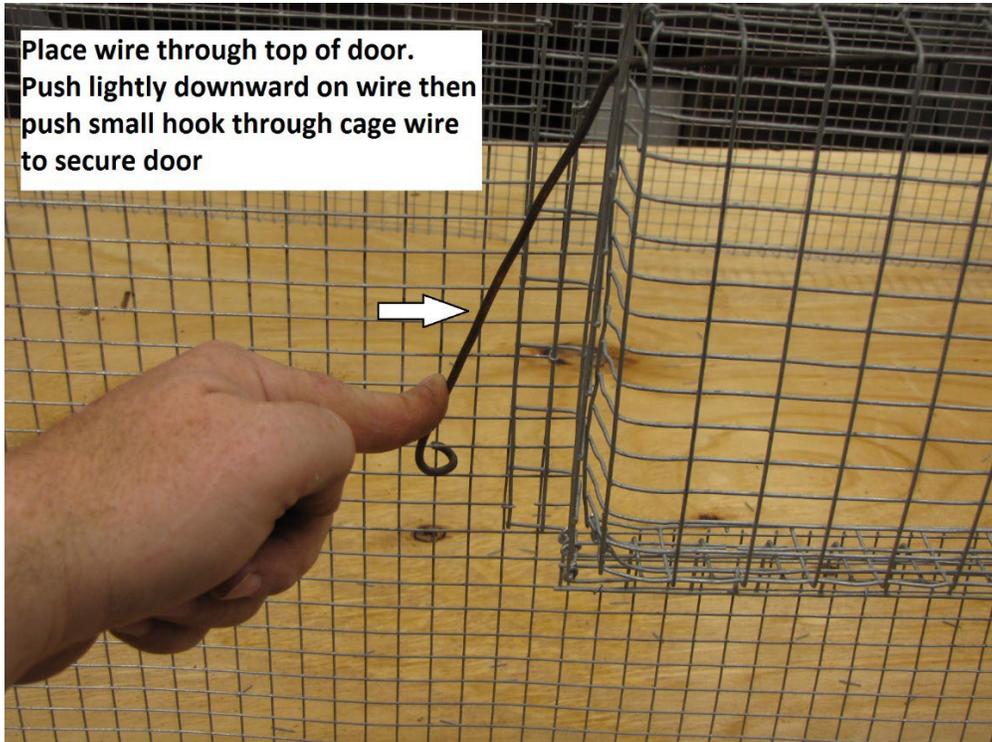
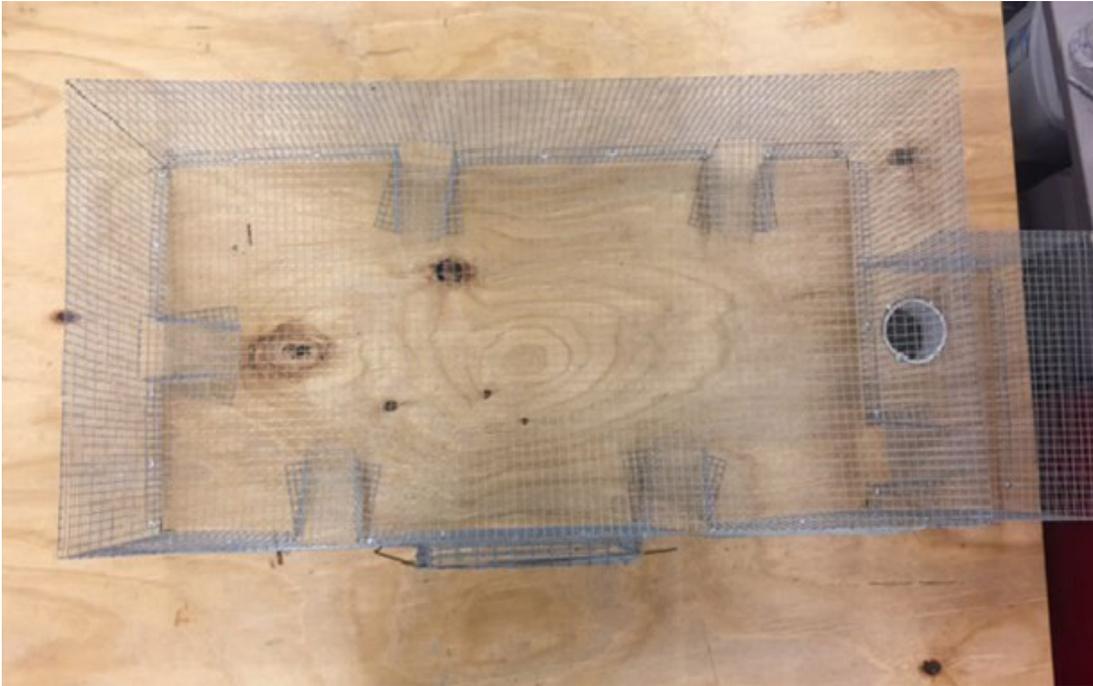


Figure 1-41



Figure 1-42

7. Complete the other door in the same manner that is 7" X 9" and attach to the small cage end covering the exit funnel and PVC (not shown). It can be installed on any of the sides or top.



## Section 2- Bottom Cage

The top section was designed to be placed on a standard Troyer V-Top trap. If a bottom cage is needed to mount the top trap (Section 1), it can be constructed in many ways with materials you have readily available or easily acquired. Section 2 shows instructions for constructing the base from wood (Figure 2-1).



Figure 2-1

## **Materials**

- 6 – 2" x 4"x 8'
- 4 – 2" x 4"x 10'
- 2 – 2" x 4"x 12'
- 1 – 1" x 6" x 6'
- 1 – Door latch (Eye & hook or slide bar type)
- 3 – 4" x 4" hinges (With screws)
- 12 – 5" x 3/8" bolts with nuts and double washers
- 16 – Truss tie plate
- 1 – Roll: 1/2" x 1/2" x 50' hardware cloth
- 1 – 3lb box 4" deck screws
- 1 – 1lb box 1 1/4" decking screws
- 1 – box 9/16" Truss Washer Lath Screws (100 count)
- 1 – 1lb box 2" decking screws

## **Tools**

- Screw Gun / Drill (with appropriate bits)
- Circular saw
- Framing square
- 1 1/2" Spade bit or hole saw
- 1/2" Drill Bit

# 1. Construct two (2) end sections (Figure 2-2).

1. Cut one (1) 2x4x10 in half using these two (2) 5' pieces for the sides. Using one (1) 2x4x8, cut two (2) 37" pieces and keep the left over piece of this 2x4x8 (approximately 22") for use as a corner brace. Place the 37" pieces inside top and bottom of the 60" 2x4's which will create the overall width of 44" (Figure 2-3).



Figure 2-2

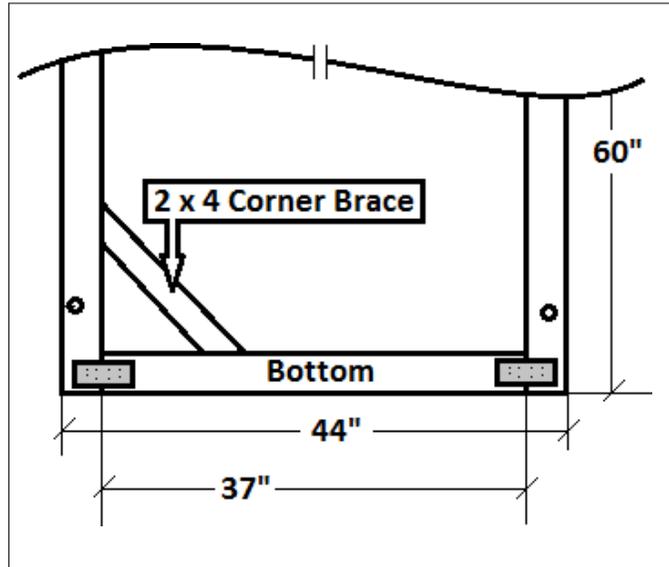


Figure 2-3

2. Connect using a mending plate with 1 1/4" drywall screws and corner brace with 3" drywall screws (Figure 2-4).

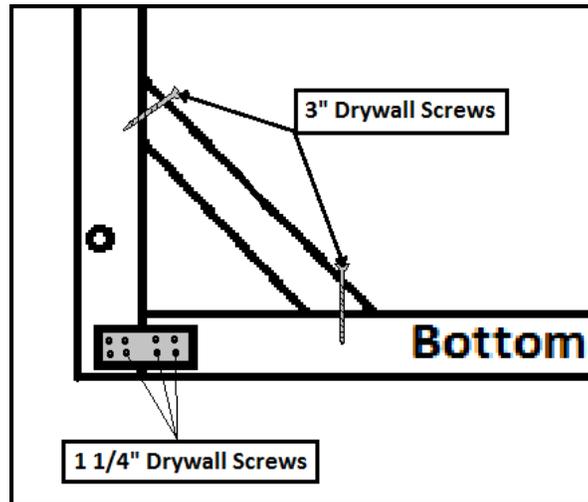


Figure 2-4

3. Measuring down from the top, drill 3 - 1/2" holes on each side at 7", 30", and 51" (Figure 2-5). These holes will be used for access to nuts when bolting sides together.

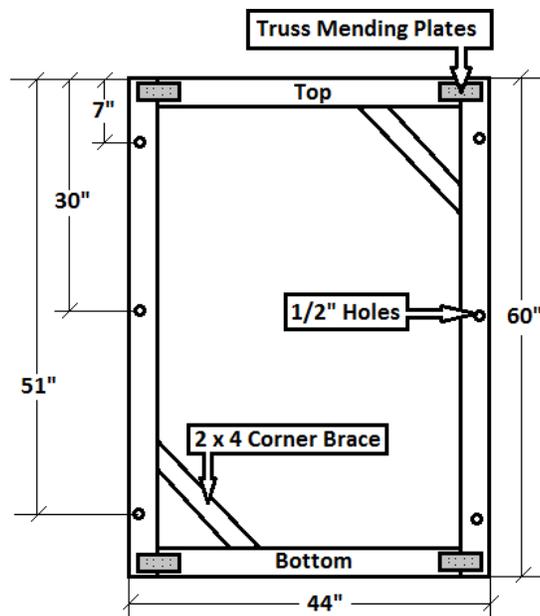


Figure 2-5

## 2. Build two (2) sides.

1. Although they are different dimensions (Figure 2-6), the sides are constructed in the exact same manner as the end sections. Drill holes on sides in the same locations, centered, with 1 1/2" spade or hole saw bit with 1/2" hole from side extending through (Figure 2-7).

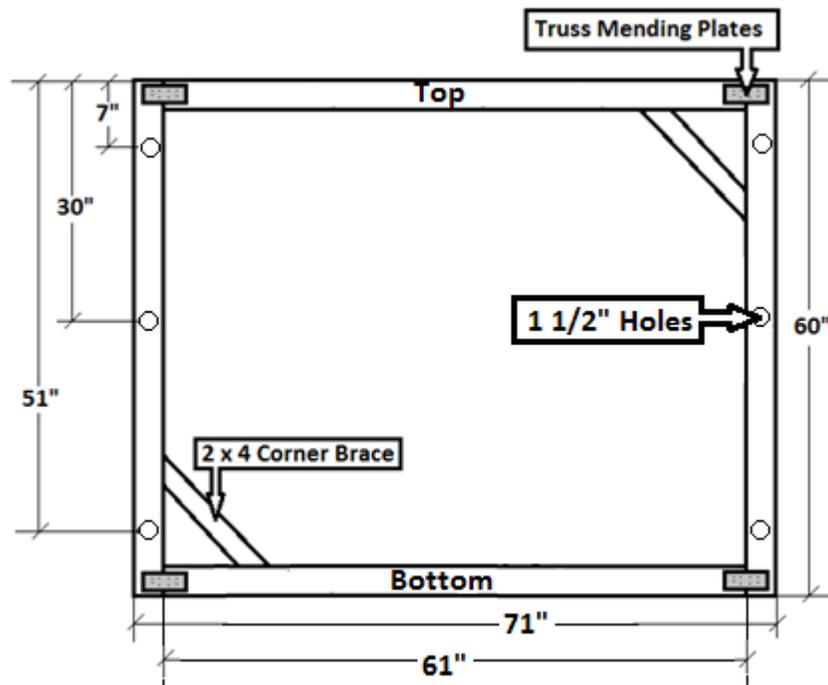


Figure 2-6

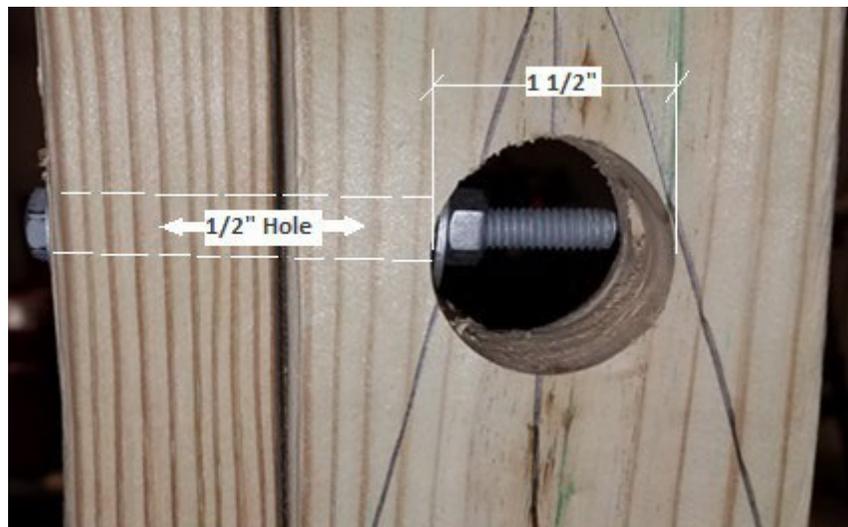


Figure 2-7

### 3. Access Door Construction

1. Cut (2) 2x4's to 53" and attach them 30" apart, centered on one side (Figure 2-8). Construct the door from 2X4"s, 29" wide by 52" tall (Figure 2-9).

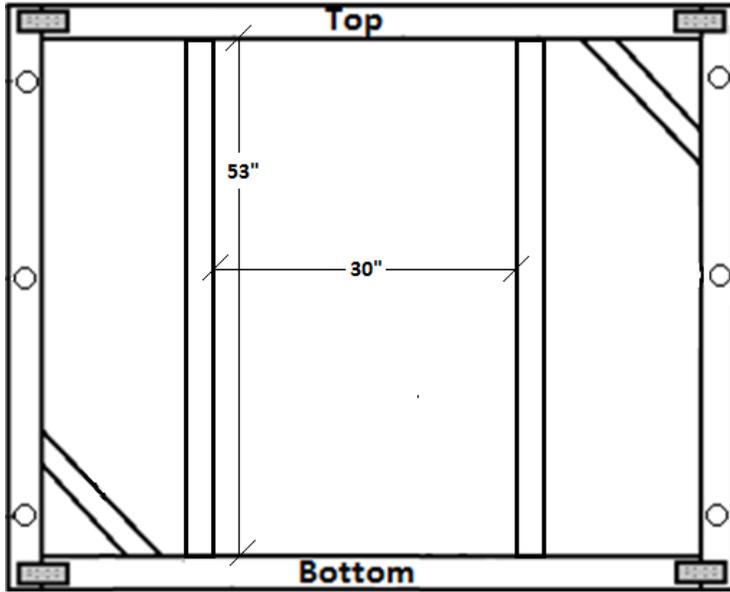


Figure 2-8

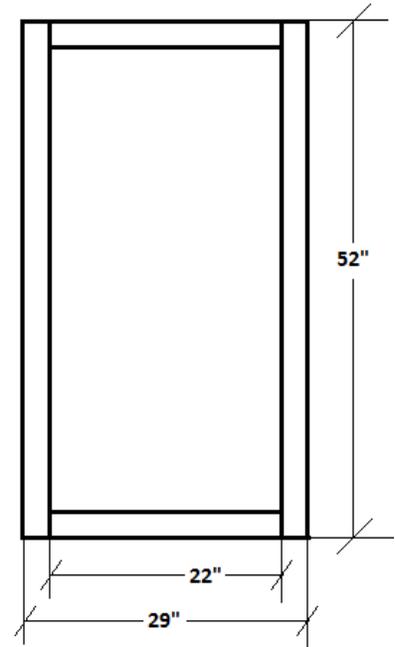


Figure 2-9

- Place the door inside the frame and attach using 3 hinges at 8", 30", and 47" as measured from the top (Figure 2-10). Add corner braces to the door for additional support (Figure 2-11).

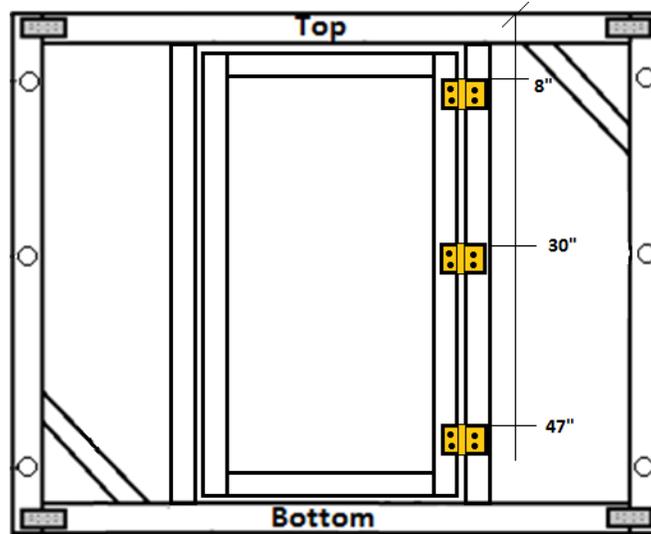


Figure 2-10

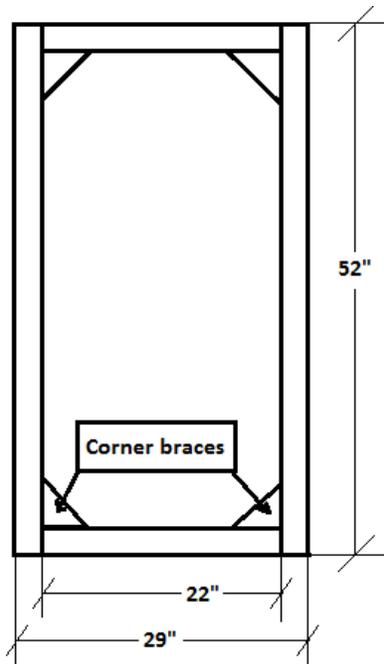


Figure 2-11

3. Once all four (4) sides are completed, remove hinges then cover them with  $\frac{1}{2}$ " x  $\frac{1}{2}$ " hardware cloth using  $\frac{9}{16}$ " truss washer lath screws. After hardware cloth has been attached, replace hinges using previously made holes to insure proper alignment and add door latch (Figure 2-12).

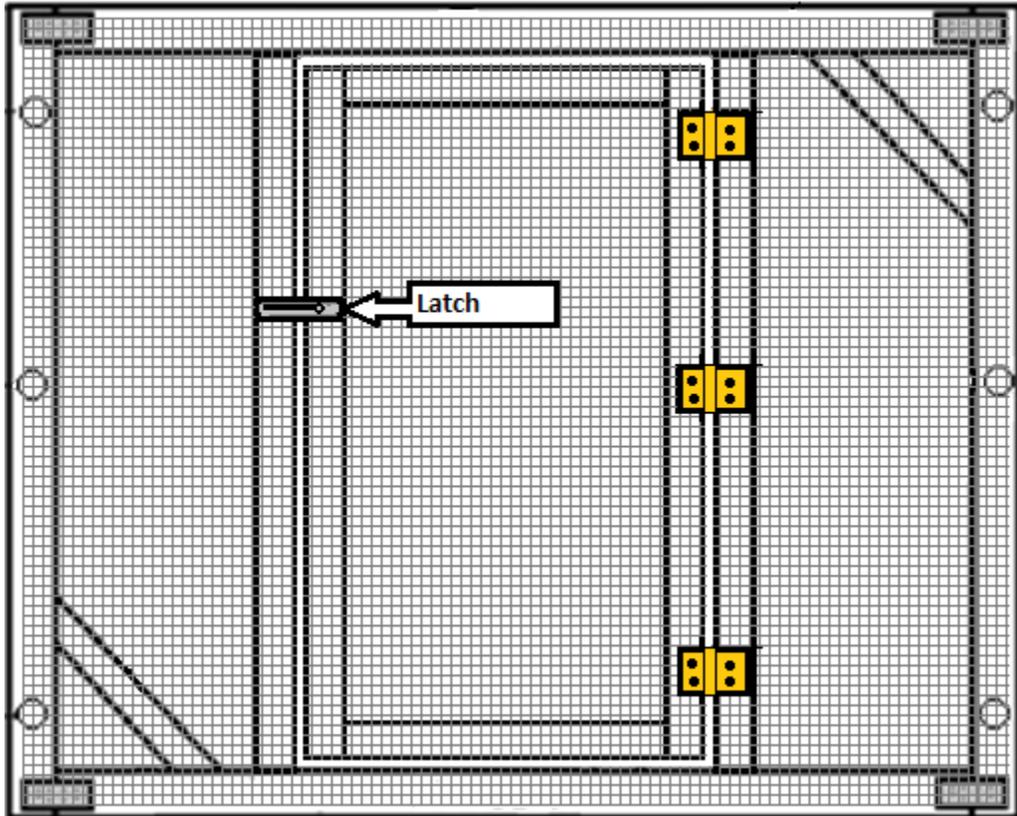


Figure 2-12

4. Mount trap onto cage with 2" decking screws and trap is complete (Figure 2-13).

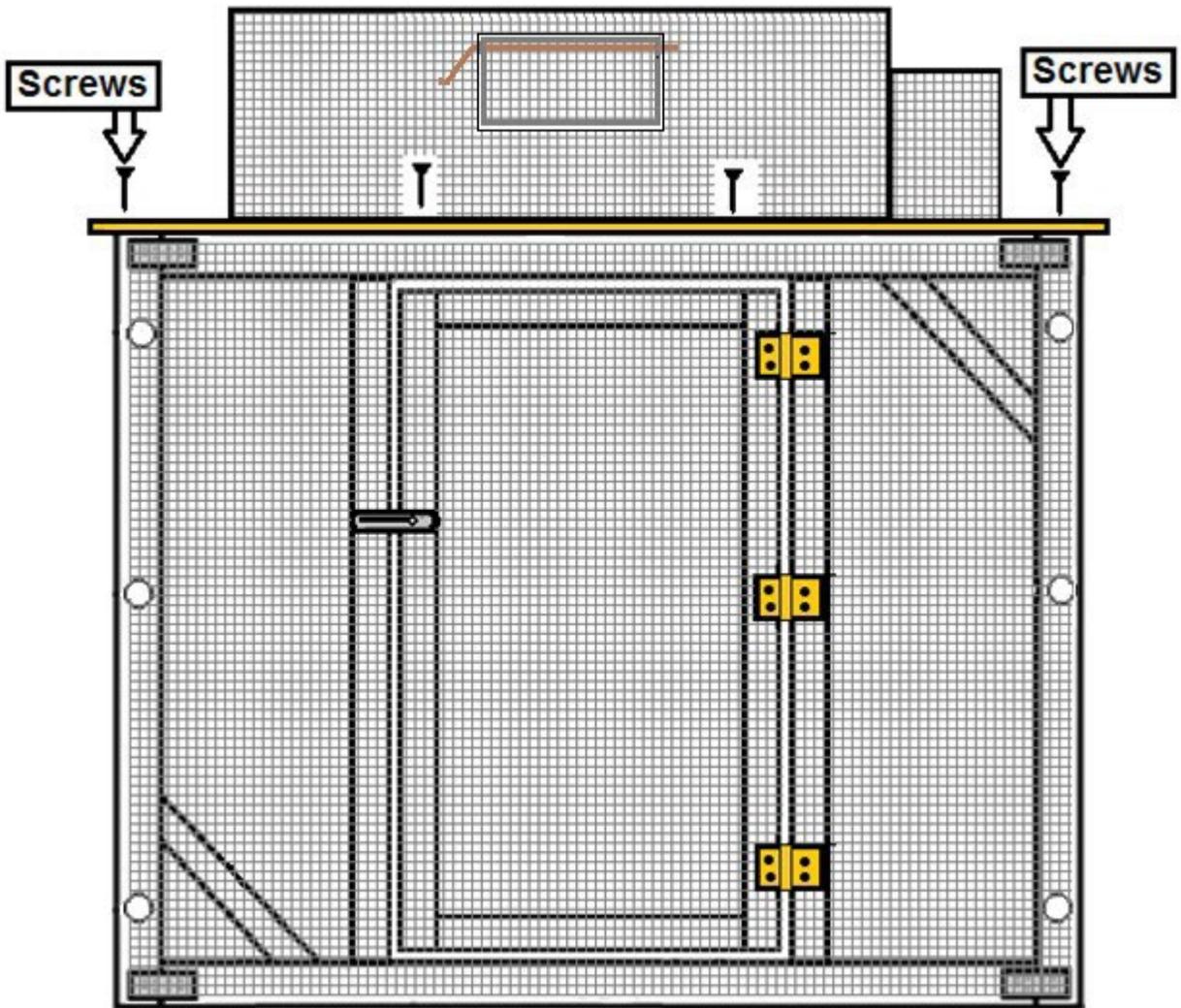


Figure 2-13

## **Section 3 - Construction Options**

Traps attached to trailers allow for quick adjustments to trap locations and storage when not in use. In the example illustrated below, the finished trap was fastened to a small trailer.



Figure 3-1



Figure 3-2

Lower cages can also be constructed from scratch or by utilizing items readily available to reduce cost and labor. Below, a caged pallet (used for storage/transport of liquids) was easily modified into a trap. As long as birds have ample room to fly around inside and are visible to attract passing birds it will work. Key to capturing the birds is the top trap section itself.



Figure 3-3



Figure 3-4

In this example, the trap top was scaled down in length and only three (3) entrance funnels were installed (but still caught birds efficiently). This can be transported in the bed of a truck or attached to trailer. In this example, the small trap end with PVC pipe was replaced with a modified version using sheet metal to experiment with more efficient ways for birds to move into lower section.



Figure 3-5



Figure 3-6

## Tips/Suggestions

Cheap cat food is one effective bait (Figure 3-7). Utilizing types that are consistently small which can be easily eaten increases effectiveness. Experiment with various bait that may be more effective for your area.



Figure 3-7

Bait trap lightly at first and then increase as needed when catch rate increases (Figure 3-8). Excess bait can turn rancid as well as attract unwanted nuisance mammals.

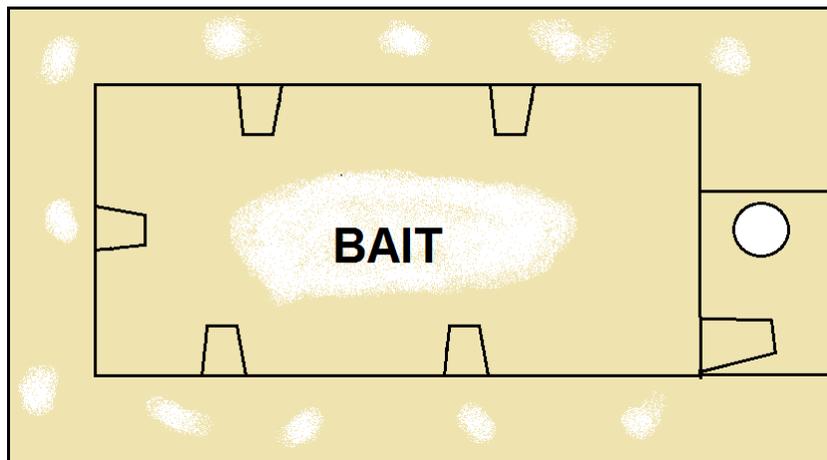


Figure 3-8

Either bare (unpainted) plywood or Oriented Strand Board (OSB) will work. OSB may swell but is lighter and holds up better to weather, usually lasting up to 24 months. Plywood bases may delaminate, lasting 12-18 months before warping, which may allow birds to escape.

Caution should be used when painting trap tops. Changes in color or finish type can have a major impact on traps' effectiveness. In this example (Figure 3-9), at 20 yards apart, the trap with wood painted brown (left) caught 5 birds a day while the unpainted trap (right) caught 275 a day in the spring. Dark paint allows the sun to heat the trap up, resulting in no catches in the summer. Waterproof sealant and/or artificial turf has been tried with varied results.

It is highly recommend leaving trap tops bare and unfinished.

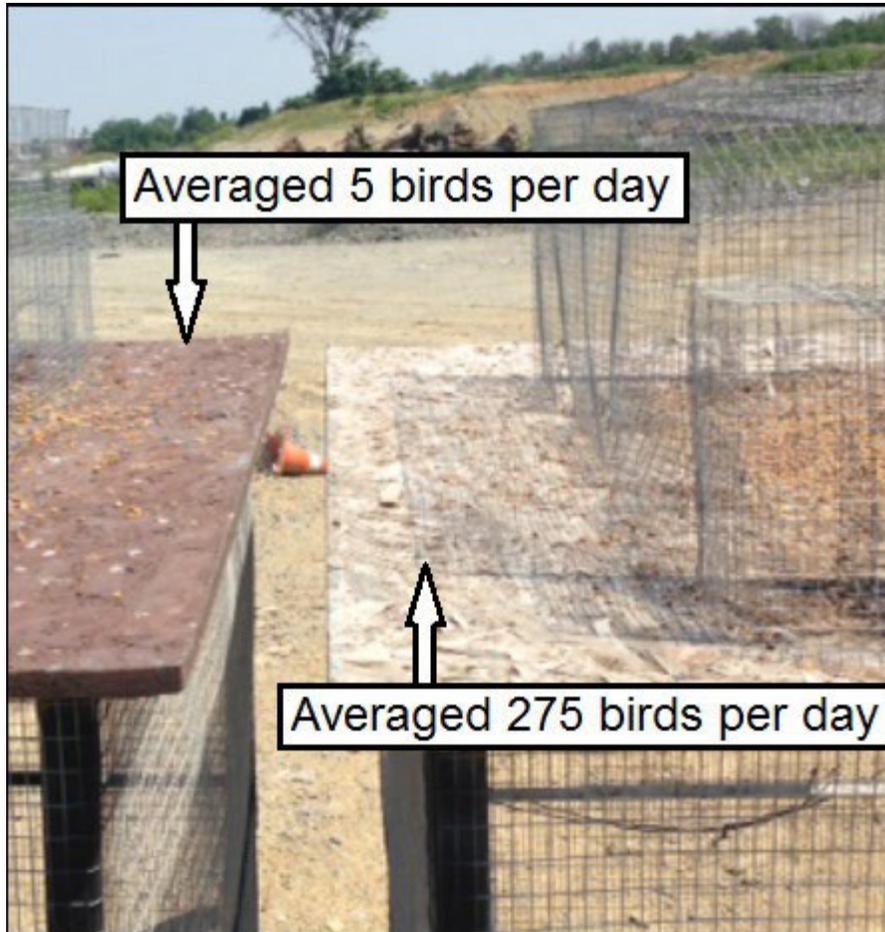


Figure 3-9

**Appendix 1- Template for funnel**

