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Pierre Gadd Jr

*Sonoma County Agricultural Commissioner's Office*

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# USE OF THE MODIFIED AUSTRALIAN CROW TRAP FOR THE CONTROL OF DEPREDATING BIRDS IN SONOMA COUNTY

**PIERRE GADD, JR.**, Agricultural Biologist, Sonoma County Agricultural Commissioner's Office, 2604 Ventura Avenue, Santa Rosa, California 95403.

**ABSTRACT:** The Modified Australian Crow (MAC) trap to control depredating birds can be a very humane, target species specific and effective bird control tool. Pertinent topics will include legal status, timing, and care of trapped birds. The following are also discussed: species identification, trap construction, and placement and humane euthanasia methods.

**KEY WORDS:** vertebrate pest control, bird control, live trapping

Proc. 17th Vertebr. Pest Conf. (R.M. Timm & A.C. Crabb, Eds.) Published at Univ. of Calif., Davis. 1996.

## INTRODUCTION—SITUATION

Since the 1960s, Modified Australian Crow (MAC) traps have been used for the control of many depredating bird species on wine grapes in Sonoma County, California. These species include house sparrows (*Passer domesticus*), crowned sparrows (*Zonotrichia* spp.), house finches (*Carpodacus mexicanus*), starling (*Sturnus vulgaris*) and cedar waxwing (*Bombycilla cedrorum*).

The MAC trap has recently become the primary means of control for these problem bird species since a number of bird repellants and toxicants have lost their registrations for use. The loss of registrations for effective materials began in 1984 with the loss of the bird repellent Mesurol 75 WP. This was followed in 1989 with the loss of strychnine house finch treated grain bait and recently with the loss of AVITROL mixed grain bait in December of 1994. The MAC trap has thus become the primary means of control for our problem bird species (Figures 1 and 2).

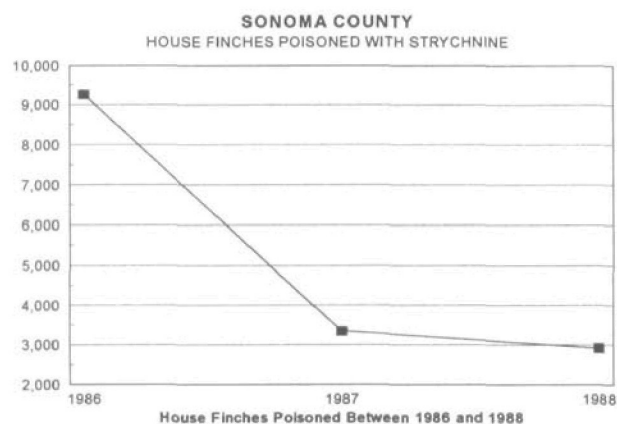


Figure 1. The number of house finches poisoned with strychnine in Sonoma County, CA from 1986 through 1988.

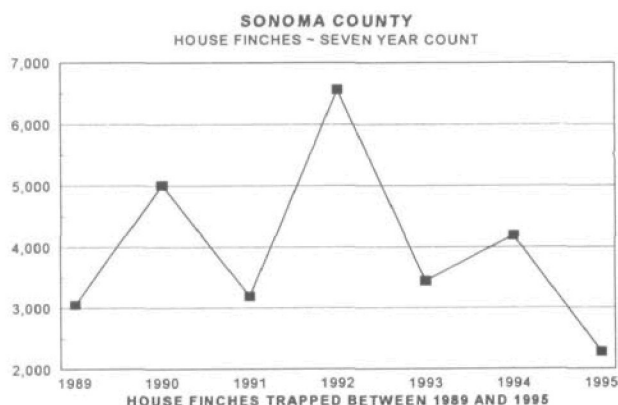


Figure 2. The number of house finches trapped in Sonoma County, CA from 1989 through 1995.

With the spread of wine grape acreage into the hills and small coastal valleys, house finches have become the most destructive bird species in Sonoma County. "Bird control in California is almost as old as the agriculture of the State itself. Yet the principal offending species for more than half a century, notably the house finch and horned lark, are today as abundant as ever" (Koehler 1962). Approximately 1100 acres (3.3%) of the 33,000 bearing acres of wine grapes are adversely affected.

In the problem bird affected areas within Sonoma County, an average of 0.5 tons per acre, or 11% of the total production, are damaged. The total dollar loss is approximately \$550,000 annually.

In addition to trapping, another means of crop protection is bird netting. This provides almost 100% crop protection. The cost of netting is about \$350/acre/year.

## LEGAL CONSTRAINTS

House finches, crowned sparrows and cedar waxwings are classified as migratory non-game birds according to the Code of Federal Regulations, Title 50.

House finches and crowned sparrows may be taken under the general supervision of the Commissioner of Agriculture. Cedar waxwings and ravens require a depredation permit from the U.S. Fish and Wildlife Service. Starlings and house sparrows may be taken by anyone without a permit when causing damage. Other applicable sections of the Fish and Game Code of California are 2000, 3005, 3511, 3513, 3800, 3801 and 3801.5.

#### NON-TARGET SPECIES HANDLING

During the use of the MAC trap, bird species identification and handling of non-target birds is very important. This trap is usually species specific for the house finch when equipped with the proper entrance opening and bait seeds. However, a few species will enter the trap when house finch numbers are low. The non-target species that most often enter these traps are: Oregon junco (*Junco oreganus*), white crowned sparrow (*Zonotrichia leucophrys*), golden crowned sparrow (*Zonotrichia atricapilla*) and the brown towhee (*Pipilo fuscus*). The predatory loggerhead shrike (*Lanius ludovicianus*) and American kestrel (*Falco sparverius*) have been known to enter through the 1-1/2 inch entry slot (Figure 3). All non-target species must be released immediately. If the same non-target birds continue to enter the trap it should be moved to a new location in the field. Predatory raptors can sometimes be repelled from the MAC traps by the use of a 7-foot pole with a small platform (4" x 6") on the top of the trap. This platform can be covered with a tactile repellent (Polybutelene). The raptors, usually sharp-shinned hawks (*Accipiter striatus*), Cooper's hawks (*Accipiter cooperii*) or American kestrels (*Falco sparverius*) will alight on the highest point on or near the trap. The tangle foot which is applied 1/4-inch thick on the platform will frighten the raptor by the feeling of entrapment when the bird's feet touch the tactile repellent. The affected bird will often move away from the trap never to return. Because of the possible hazard to small bird species, the platform must be removed from the trap as soon as the offending raptors have been frightened from the trap.

All non-target bird species that die in the trap must be reported on the bird take monthly summary (Figure 4).

#### MATERIALS AND METHODS

MAC trap design has been effective in catching starlings, blackbirds, house finches, house sparrows and white and golden crowned sparrows. This can be easily accomplished by changing the entrance opening for the starling and blackbird from 1-1/2 inches to 1-3/4 inches. With other modifications, this same trap can also be used to capture crows, magpies and ravens.

The basic design of this trap should not be altered. Minor modifications can be made so the trap will fit in the back of a pickup, etc. These traps can be built in panels to facilitate transportation and storage. See trap design and assembly instructions (Figure 3).

As illustrated by its use with house finches, the MAC trap placement and timing are very important for the control of depredating birds. By midsummer, juvenile house finches are gathering in loosely formed flocks. Trapping in Sonoma County should start during the last

week of June to the middle of July. In the case of wine grapes, the first softened fruit around 12° brix (sugar content) is a good indicator of when to place the trap.

House finch flocks tend to use tree rows and power lines to congregate. The trees provide shade and protection from raptors. House finches move in and out of the crop from these positions. The MAC trap should be placed in these areas of activity. A vineyard or orchard of 50 acres or more may have two or more flocks within its borders. In such situations, two or more traps may be necessary to quickly stop depredation. If a few birds are not caught within four to six days, the trap should be moved to a new location.

After the trap is constructed, adequate food, water and shade must be made available 24 hours per day. For humane reasons, as well as efficacy, the trap must be cared for as one would maintain a home aviary. The recommended bait mixture for house finches is, 1/3 rape and 2/3 canary grass seeds. A 6-foot by 1-1/2 inch V shaped trough should be suspended approximately 24 inches below the 1-1/2 inch entrance slot. The rape and canary seed should be placed in the trough to a depth of 1/2 to 3/4 inch. The trough should be cleaned out often to remove the seed hulls. Trapped birds have been found starving with 1 inch of grain hulls in the trough.

Clean, cool water is essential to the proper care and maintenance of a MAC trap. The water is best contained in a 1 gallon automatic poultry waterer. The waterer should be elevated off the floor of the cage and covered with a slant board about 14 inches square made of a rigid material. This board is best attached with wire to the cage wall about 6 inches above the waterer. The narrow trough around the waterer should be cleaned often and the water tank filled as necessary. The waterer should be placed in the shaded area.

Adequate shade is very important to the proper operation of the MAC trap. Shade material can be built into the trap during construction or added during trap setup. The shade material should be placed on the south and west exposures to provide the proper shadows within the trap during the hot daytime hours. Sun blocking materials can include shade cloth, tarps, plywood, etc.

Finally, humane disposal of target bird species must be practiced. The 1993 Report of the American Veterinary Medical Association (AVMA) Panel on Euthanasia provides two acceptable euthanasia (good death) methods.

1. Carbon dioxide is recommended in small laboratory animals as birds, cats and small dogs. The trapped house finches must be either caught with a small net and placed into a portable cage or driven into a small cage approximately 12" x 12" x 30" that can be affixed to the outside corner of the trap. A wire door should be built into the MAC trap for this purpose. A sliding door on the small cage can be used to safeguard against escape.

*Place a heavy gauge plastic bag, with dimensions of 38" x 60", over the small cage. The end of this plastic bag should be secured (plastic tie) around the hose from the compressed gas cylinder. Compressed CO<sub>2</sub> gas is preferable to dry ice. The inflow to an euthanasing chamber can be precisely regulated with*

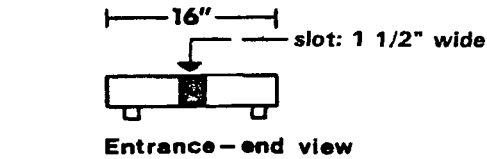
## TRAP DESIGNS

### MODIFIED AUSTRALIAN CROW TRAP

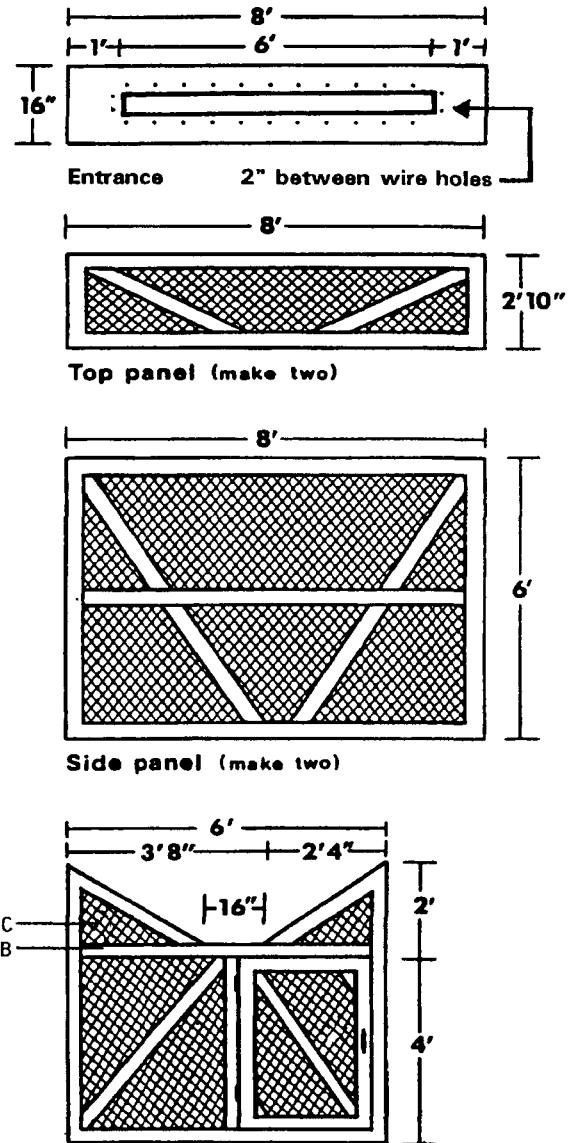
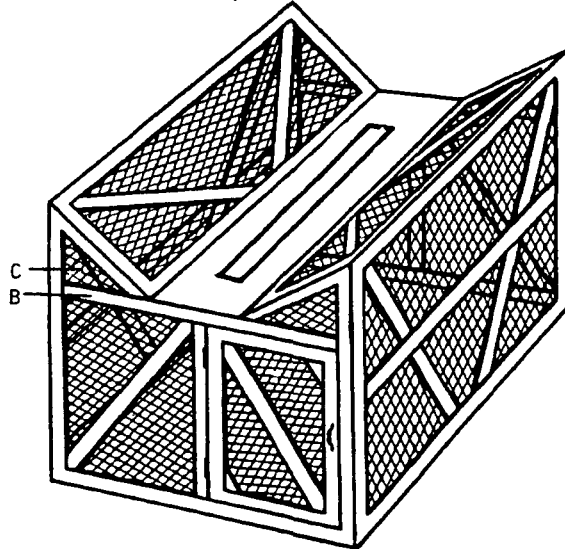
Modified Australian crow traps have been effective in catching starlings, blackbirds, house finches, house sparrows and white crowned sparrows. By changing the entrance, the same trap can be used to capture crows, magpies and ravens. The basic design of the trap should not be changed, however, minor modifications can be made such as making the trap so it will fit on a truck, trailer, etc.

### MATERIALS NEEDED FOR TRAP:

- 15 - 1 x 4s, 8' long
- 25 - 1 x 4s, 6' long
- 4 - 1 x 1s, 8' long
- 1 - ½" x 16" exterior plywood 8' long
- 2 - hinges
- 2 - pounds staples
- 80' length x 3' wide aviary wire ½" mesh
- 1 - roll heavy gauge baling wire.



**Assembled Trap**



### IMPORTANT ASSEMBLY INSTRUCTIONS:

Place end panels between side panels; otherwise, top panels will not fit properly.

- A. Rough cut redwood is good material. If pine or fir is used, be sure to use wood preservative.
- B. Reinforce this area with a 2" x 4" x 16" piece of wood. This gives a greater surface area for the entrance board to rest on.
- C. In this area, place a small door for removal of trapped birds.
- D. 8" pieces of heavy gauge baling wire are hung around 1 ½" entrance slot. See entrance diagram.

Figure 3. Modified Australian crow trap design.

**COUNTY OF SONOMA - AGRICULTURAL COMMISSIONER - VERTEBRATE PEST MANAGEMENT**

Permittee \_\_\_\_\_ Authorization # \_\_\_\_\_ Expiration Date \_\_\_\_\_

LOCATION		SECTION	TOWNSHIP	RANGE	FIELD REPORT #	COMMODITY
ACRES AFFECTED	DAMAGE %	POTENTIAL CROP LOSS		BIRD SPECIES	# OF TRAPS	
PCO NAME , ADDRESS AND LICENSE #:						

**FIELD INSPECTION COMMENTS**

DATE:	BIOLOGIST:

**CONDITIONS**

1. None of the above migratory birds killed, or the parts thereof, or the plumage of such birds, shall be sold or removed from the area where killed; but that all such dead migratory birds shall be buried or otherwise destroyed within this area. The estimated number of such birds killed pursuant to the exercise of this authorization shall be submitted to the Agricultural Commissioner on a monthly basis, with the final monthly report submitted on or before January 5 of each year. These reports shall be in a form approved by the Commissioner.
2. No non-target birds shall be killed. Non-target birds shall be released alive.
3. Traps shall be partially covered to provide shade for trapped birds and adequate feed and water shall be made available 24 hours per day.
4. By the 7th day of each month, report the number of target birds trapped and killed and the number of non-target birds trapped and found dead by calling (707) 527-3852. Give your name, authorization number and bird count.
5. Affix the authorization tag, provided by the Agricultural Commissioner, to each trap used.
6. Deviation from these procedures may result in poor control and could result in the cancellation of your authorization.

I understand that this authorization does not relieve me from liability for any damage to persons or property caused by the use of these control methods. I waive any claim of liability or damages against the Sonoma County Department of Agriculture based on the issuance of this authorization. I further understand that this authorization may be revoked when used in violation of applicable laws, regulations and specific conditions of this authorization. I authorize inspection at all reasonable times by the Agricultural Commissioner of all areas under control or to be controlled.

PRINT NAME \_\_\_\_\_ SIGNATURE \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_ By authority of the Code of Federal Regulations 50, 21.44, the Agricultural Commissioner of Sonoma County authorizes the permittee to control specified non-game migratory birds under the general supervision of the Commissioner in order to safeguard and prevent serious injury to specified agricultural or horticultural crops in Sonoma County under the conditions specified in this authorization.

\_\_\_\_\_ Application Denied.

BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

Figure 4. Bird trapping statement of conditions and catch reporting form used in Sonoma County, CA.

*compressed CO<sub>2</sub>. The optimal flow rate appears to be a rate that will displace approximately 20% of the chamber volume per minute.*

**Advantages** of the use of CO<sub>2</sub> (as found in 1993 report of AVMA Panel on Euthanasia):

- The rapid depressant and anesthetic effects of CO<sub>2</sub> are well established.
- Carbon dioxide may be purchased in cylinders.
- Carbon dioxide is inexpensive, not flammable and non explosive and presents minimum hazard to personnel.

**Disadvantages** of the use of CO<sub>2</sub>:

- May be aesthetically displeasing to personnel.
- The time required for euthanasia may be substantially prolonged in immature animals.

2. Cervical dislocation is the second method which is a conditionally acceptable form of euthanasia. On the house finch, this method can be accomplished by placing the thumb and the index finger on either side of the neck at the base of the skull. Using the other hand quickly pull the base of the tail or hind limbs causing separation of the cervical vertebrae from the skull.

**Advantages** of cervical dislocation:

- Cervical dislocation is a technique that may induce immediate unconsciousness.
- Does not chemically contaminate tissues.
- It is rapidly accomplished.

**Disadvantage** of the use of cervical dislocation:

- May be aesthetically displeasing to personnel.

There are six specific trapping conditions required by the Sonoma County Agricultural Commissioner's Office (Figure 4).

## CONCLUSION

The use of the MAC trap can be an effective tool for the control of depredating house finches and crowned sparrows. Cedar waxwings have been trapped, however, there is a lack of the necessary replications to evaluate the efficacy. Palmer (1982) has reported that 10,000 waxwings were captured at a food processing plant. Adult house sparrows are difficult to trap in sufficient numbers to cause adequate population control. Starlings, especially juvenile starlings, can be trapped in great numbers. However, late summer and early fall starling congregation can overcome any positive effect of earlier trapping.

Winter and early spring house finch trapping, except to mitigate fruit tree disbudding, should be not done. Code of Federal Regulations Title 50—Wildlife and Fisheries, Section 21.44 states that: "such migratory birds shall be killed only when necessary to protect agricultural or horticultural crops from depredation."

## ACKNOWLEDGMENTS

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