

BIOLOGY, LEGAL STATUS, CONTROL MATERIALS AND DIRECTIONS FOR USE

American Crow

Corvus brachyrhynchos

Family: Corvidae



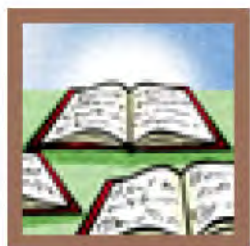
Introduction: The American crow is one of the most troublesome birds to agriculture in California. In particular, they cause considerable damage to nut crops including almonds and pistachios (Salmon 2004). Control is traditionally done using pyrotechnics, bird distress calls, shooting, or effigy hanging. It is recommended that an integrated pest management approach using a combination of methods be taken to solve crow issues. Recently, crows have attracted much public attention because of their association with the West Nile Virus disease (McLean 2004).



Identification: The American crow is a large black bird that is fairly easy to identify. It has a distinctive and loud *caw caw caw* sound which people easily recognize. Crows also have the ability to imitate some animal and human sounds. They are very adaptable and can be found in almost every habitat where trees or other roosting sites are nearby. The crow's diet is varied and includes almost everything from garbage scraps, waste grain, fruit, carrion, and small animals including the nestlings and eggs of smaller birds. During their breeding season they can be seen in pairs. In winter they often gather in large flocks, sometimes in excess of over 100,000 birds. When spring approaches, these large flocks tend to dissipate, forming much smaller breeding bands. Noted for mobbing hawks and owls, a flock of crows in pursuit of a raptor can be heard at distances of up to one mile. Further information is available at:

[Cornell Lab of Ornithology](#)

[The Royal Society for the Protection of Birds](#)



Legal Status: American crows are classified as migratory non-game birds in the U.S. Code of Federal Regulations. As such, they are protected from indiscriminate

control.

California Fish and Game regulations allow American crows to be taken only by landowners or tenants, or by persons authorized in writing by such landowners or tenants, when crows are committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance. Persons authorized by landowners or tenants to take American crows must keep the written authorization in their possession at all times when taking, transporting or possessing the crows. American crows may be taken only on the lands where depredations are occurring or where they constitute a health hazard or nuisance. American crows may be taken by firearm, bow and arrow, falconry, or by toxicants registered by the California Department of Pesticide Regulation for the specific purpose of taking depredating crows. Toxicants can be used for taking crows only under the supervision of employees or officers of the Department of Food and Agriculture or federal or county pest control officers or employees acting in their official capacities and possessing a qualified applicator certificate issued by the California Department of Pesticide Regulation. Such toxicants must be applied according to label directions.

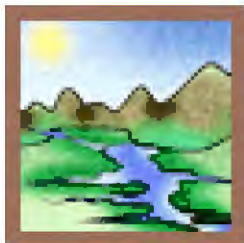


Damage: Walnuts, almonds, pistachios, other nuts; grain, grapes, apricots, pears, prunes, and other fruits; green corn, cantaloupes, beans, tomatoes, peas, young poultry and eggs. They have also been known to strip bark from young citrus trees. Crows are a major nuisance in urban areas where they pull out and feed on trash, harass joggers and picnickers, and create unsightly and potentially unhealthy messes from their droppings.



Range: Even though crows are classified as migratory birds, many are permanent residents in California. Their numbers may increase in local areas due to movements from other areas including from out of state.

[American Crow](#)

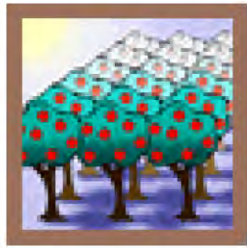


Habitat: Forests, farmlands, river-bottoms, shores, parklands, urban areas. Crows sometimes select urban roosting sites after the breeding season and through the winter period.



Biology: Crows are intelligent and wary birds and have adapted well to man's activities. Their diet is estimated to average 30 percent animal matter, mostly insects but also including carrion, mice, and other small vertebrates; the remaining 70 percent consists of plant material such as corn, small grains, wild seeds, wild and cultivated fruits and nuts, and acorns. Human trash is also a significant source of diet in urban areas where crows are present. Nest building begins in late February to

early May. The stick nests are solitary and are almost always built in trees. Three to eight eggs are laid; incubation lasts 18 days. Age at first flight is four to five weeks. Often there is a period of several days when the baby birds are hopping on the ground but are unable to fly. As soon as the young are able to fly freely, they begin to roam about the neighborhood feeding in small family bands. As the summer progresses, families of crows join together into flocks of varying sizes. The band establishes a central roost from which it disperses over rather consistent routes each day to feeding areas up to 20 miles away. The roost location may change as the season progresses. Crows' hearing is less sensitive than humans and they cannot hear ultrasound less than $> 20,000\text{Hz}$ (Beason 2004).



Damage Prevention and Control Methods

Exclusion: Exclusion is an effective method of reducing or eliminating bird damage in the garden or ornamental setting. However, in large agricultural settings it can become cost prohibitive. Purchase lightweight $\frac{3}{4}$ inch plastic mesh netting. This can be suspended over berry vines or small tress to protect the fruit from bird damage. Frames can be constructed from plastic pipe or wood to support the netting above seedbeds so as not to interfere with plant growth. Arches made from concrete or pliable wood can also be used to support netting. To improve efficacy, make sure netting reaches ground and is tied tightly or stretched taut. Loose netting can entangle birds or allow them to push and gain access to the protected material. Metal wire mesh or aviary row caps (picture) can also be effective in protecting seedlings. Inverted plastic strawberry baskets can also serve this purpose but they must be secured to the ground.

Netting can also resolve problems associated with birds that loaf, roost, or nest on buildings. An entire roof can be netted by stretching the netting taut 1 foot or so above the roof. Netting ($\frac{3}{4}$ inch mesh) can also be used to exclude under eaves, rafters, or inner courtyards.

Other methods to exclude include bird projections, spike like devices that are permanently secured along ledges to prevent birds from landing or nesting. Electric shocking devices are more expensive but may work in limited situations. Only UL approved electrical devices should be use. Homemade shocking devices can be extremely dangerous and should not be used. Crows are smart and can often figure out how to deal with all types of protectors.

Habitat Modification: Little can be done to modify habitat to discourage crows. In some situations thinning large shade trees may discourage nighttime roosting. It may also make the site less desirable for nesting.

Frightening Devices: Propane cannons or exploders, alarm and distress calls, shell crackers, bird bombs[®], and bird whistlers[®] are used in dispersing crows from crops. These devices should be used as soon as the birds appear; delays will make frightening more difficult. No one technique is usually effective. A combination of two or more different sounds is often needed to move the birds out of the crop. Alone, acoustic devices may be ineffective. Use Integrated Pest Management (IPM) and combine methods (Beason 2004).

Cannons should be mounted on stands or telescoping tripod towers above the crop. The units should rotate so the sound is projected over a wide area in varying directions. Field observations before placement

will help determine where the units should be located, the number of units to use, and how often they should be moved. Remember avian hearing is less sensitive than human and birds cannot hear ultrasound > 20,000Hz (Beason 2004).

Biosonics: Biosonics are recorded distress or alarm calls used to disperse crows. The call is a tape-recorded vocalization of a crow struggling like what might occur when trying to escape from the grasp of a predator. This can be an effective method to disperse crows from summer or winter roosts. While the crows are settling into the roost trees at darkness, use a portable tape player to broadcast the alarm call under the roost tree at full volume for 30 seconds. Normally the tape is played four or five times within a five minute period. This sequence should be repeated for three successive nights. Roosts must be monitored as crows may return three to five days after the initial use of sound. Houk, Gorenzel and Salmon (2004) showed that electronic distress call repellers were successful in hazing crows in California almond orchards. Using broadcast distress calls combined with other IPM methods e.g. pyrotechnics, shooting and gas cannons resulted in damage reduction from 5 lb/ac to 1 lb/ac.

Reflective Tape: Silver color reflective tape has proven effective in dispersing crows from tree roosts. Strips of tape 5 to 20 inches long are tied at three foot intervals at the end of tree branches. The narrow appearance of the tape and the crackling noise made in the wind apparently frightens the crows. Stringing compact discs (CDs) over the area to be protected is an alternative (see illustration). Generally, these methods will not be effective unless used in combination with others. Birds quickly habituate to these devices.

Fumigants: None known and not recommended as an effective control method.

Repellents: In some situations repellents are marketed to control birds e.g. repelling geese from turf. However, most bird repellents are not registered for use on agricultural commodities such as fruit or vegetables. Repellents based on objectionable tastes, odors, or learned aversions rarely provide consistent ongoing protection. Nontoxic sticky or tacky repellents are used to discourage birds from roosting or loafing on buildings. Birds do not like the feel of these materials. However, these are not recommended for crow roosts.

Shooting: Shooting can reduce the number of birds, but is very labor intensive. Effective reduction of populations may be prevented due to the wary nature of crows. Crow calls have been used to lure crows to within shooting distance. Probably the most value from shooting comes from frightening, especially when combined with other frightening methods.

Toxic Bait: Toxic bait is available commercially (e.g. Avitrol Double Strength Whole Corn[®] for use in limited circumstances (Swindle 2002)). No baits are considered effective to control crows. Bait acceptance has proven extremely difficult under most California conditions.

Trapping: Trapping to control bird damage is common in both agriculture and non-crop situations. It is effective for some species but not American crows. Additionally, no data are available on the cost benefit of trapping as a control technique (Gorenzel and Salmon 2000).

Other Methods: No avian contraception materials are registered for crows. It is a nonlethal tool that can be utilized in conjunction with other management techniques to help control depredating bird populations. It is a time consuming process and each management situation is different. However, contraception may be useful in an integrated management plan to maintain a population at a given level since it is reduced

(Yodor and Miller 2006).

REFERENCES AND ADDITIONAL READING

Beason, Robert C., 2004. What Can Birds Hear? Proc. 21st Vertebrate Pest Conf. (R.M. Timm and W.P. Gorenzel, Eds.) Published at Univ. of Calif., Davis. Pp. 92-96.

Butchko, Peter H., M.A. Small, 1992. Developing a Strategy of Predator Control for the Protection of the California Least Tern: a Case History. Proc. 15th Vertebrate Pest Conf. (J.E. Borrecco & R.E. Marsh, Eds.) Published at Univ. of Calif., Davis. Pp. 29-31.

Conover, Michael R., 1994. How Birds Interpret Distress Calls: Implications for Applied Uses of Distress Call Playbacks. Proc. 16th Vertebrate Pest Conf. (W.S. Halverson & A.C. Crabb, Eds.) Published at Univ. of Calif., Davis. Pp. 233-234.

Crabb, A. Charles, J.J. Marois, T.P. Salmon, 1994. Evaluation of Field Sampling Techniques for Estimation of Bird Damage in Pistachio. Proc. 16th Vertebrate Pest Conf. (W.S. Halverson & A.C. Crabb, Eds.) Published at Univ. of Calif., Davis. Pp. 335-344.

Gorenzel, W. Paul, T.P. Salmon, 1992. Urban Crow Roosts in California. Proc. 15th Vertebrate Pest Conf. (J.E. Borrecco & R.E. Marsh, Eds.) Published at Univ. of Calif., Davis. Pp. 97-102.

Gorenzel, W.Paul, T.P. Salmon, A.C. Crabb, 2000. A National Review of the Status of Trapping for Bird Control. Proc. 19th Vertebrate Pest Conf. (T.P. Salmon & A.C. Crabb, Eds.) Published at Univ. of Calif., Davis. Pp. 5-21.

Gorenzel, W. Paul, T.P. Salmon, A.B. Pearson, S.R. Ryan, 2002. Sound Levels of Broadcast Calls and Responses by American Crows. Proc. 20th Vertebrate Pest Conf. (R.M. Timm and R. H. Schmidt, Eds.) Published at Univ. of Calif., Davis. Pp. 103-109.

Houk, Andrew, M.J. Delwich, W.P. Gorenzel, T.P. Salmon, 2004. Electronic Repeller and Field Protocol for Control of Crows in Almond California. Proc. 21st Vertebrate Pest Conf. (R.M. Timm and W.P. Gorenzel, Eds.) Published at Univ. of Calif., Davis. Pp. 130-135.

Hueth, Brent, D. Cohen, D. Zilberman, 1998. Non-Predator Vertebrate Pest Damage in California Agriculture: An Assessment of Economic Impacts in Selected Crops. Proc. 18th Vertebrate Pest Conf. (R.O. Baker & A.C. Crabb, Eds.) Published at Univ. of Calif., Davis. Pp. 371-377.

Knittle, C. Edward, 1992. Nontarget Hazards Associated With Egg Baits Used to Control Corvid Depredations on Endangered California Least Tern Eggs at Camp Pendleton, California-1990. Proc. 15th Vertebrate Pest Conf. (J.E. Borrecco & R.E. Marsh, Eds.) Published at Univ. of Calif., Davis. Pp. 53.

Larkin, Ronald P., 2006. Locating Bird Roosts with Doppler Radar. Proc. 22nd Vertebrate Pest Conf. (R.M. Timm and J. M. O'Brien, Eds.) Published at Univ. of Calif., Davis. Pp. 244-249.

McLean, Robert G., 2004. West Nile Virus: Impact on Crow Populations in the United States. Proc. 21st Vertebrate Pest Conf. (R.M. Timm and W.P. Gorenzel, Eds.) Published at Univ. of Calif., Davis. Pp. 180-184.

McLean, Robert G., 2006. West Nile Virus in North American Wildlife. Proc. 22nd Vertebrate Pest Conf. (R.M. Timm and J. M. O'Brien, Eds.) Published at Univ. of Calif., Davis. Pp. 311-317.

Pearson, A. Britt, W.P. Gorenzel, T.P. Salmon, 2000. Lesser-Known Vertebrate Pests of Almonds in California. Proc. 19th Vertebrate Pest Conf. (T.P. Salmon & A.C.

Seamans, Thomas W., D.A. Helon, 2006. Evaluation of the ChromaFlair Crow Buster as a Starling Repellent at Nest Sites. Proc. 22nd Vertebrate Pest Conf. (R.M. Timm and J. M. O'Brien, Eds.) Published at Univ. of Calif., Davis. Pp. 228-230.

Swindle, Kelly F., 2002. Current Uses of Avitrol for Bird Management. Proc. 20th Vertebrate Pest Conf. (R.M. Timm and R. H. Schmidt, Eds.) Published at Univ. of Calif., Davis. Pp. 114-116.

Tobin, Mark E., 2002. Developing Methods to Manage Conflicts between Humans and Birds- Three Decades of Change at the USDA National Wildlife Research Center.

Yoder, Christi A., L.A. Miller, 2006. Avian Contraception Tools: One size Does Not Fit All. Proc. 22nd Vertebrate Pest Conf. (R.M. Timm and J. M. O'Brien, Eds.) Published at Univ. of Calif., Davis. Pp. 110-115.