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Managing Wildlife Damage:
American Crow (*Corvus brachyrhynchos*)

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INTRODUCTION

The American Crow *(Corvus brachyrhynchos)* is the largest crow species found in North America (Figure 1). Crows are thought to be some of the most intelligent birds, which has allowed them to adapt to many different environments and persist throughout time. An example of this intelligence is that crows have been documented making and using tools to forage for food and water. The American Crow has a distinct 'caw' call that makes them easy to identify via sound. Their major impacts on the environment are agriculture damage and disease transmission. Crows are very social animals which increases the impacts of their damage.

Figure 1: *American Crow*

TAXONOMY

Class Aves – Birds
Order Passeriformes – Passerines
Family Corvidae – Jays, Crows, Ravens, and Magpies
American Crow – *Corvus brachyrhynchos*

There are 25 genera in the family Corvidae with 130 species. Members of the family are collectively known as Corvids. Family members include crows, ravens, jays, magpies and other groups. There are 46 species in the genus *Corvus*. Ten species are found in north and central America. The American Crow has five recognized subspecies. Its scientific name is Greek for 'short bill' where 'brachy' means 'short' and 'rhynchos' means 'billed'.

STATUS

Crows are protected under the Migratory Bird Treaty Act (85 FR 21282;16 April 2020[1]). Crows may be controlled without a federal permit if they are committing or about to commit depredations on ornamental or shade trees, agricultural crops, livestock, or wildlife. Crows may also be controlled without federal permits when they are concentrated in numbers that constitute a health risk or other nuisance[2]. States also have the authority to regulate harvest of crows[2] and there is a hunting season for crows in Georgia. Consult the GA Wildlife Resource Division website (www.georgiawildlife.com) for current regulations. With state permits, crows can be taken outside of the stated season when damage is occurring. Currently, there are no direct threats to crow populations. They are highly adaptable and have a generalist diet and habitat requirements which allows them to persist in many habitat types.

NATURAL HISTORY

Identification. The American Crow (Figure 1) is a large bodied bird with a body length ranging from 16-21 inches in adults. They can reach weights of up to 22 ounces and have a wingspan of 34-39 inches. They are all black, including the head and legs. In full sunlight, the glossy feathers may appear dark purple. The legs are long while the neck is thick. The bill is heavy and straight. When flying, the wings are broad and round, with the tips of the feathers spread out. The tail is short and can be rounded or squared off. The most distinct way to identify the crow is the distinctive 'caw' sound that it produces. It is most commonly confused with Fish Crow (*C. ossifragus*), which are only slightly smaller and have a longer, more narrow tail and slimmer wings. Fish Crows are found throughout the southeast coast. In Georgia, Fish Crows are found throughout the Coastal Plain and Piedmont as far inland as Augusta. American Crows may be confused with ravens (*C. corax*). Ravens are about 50% larger with wedge-shaped tails, a thick neck and shaggy throat feathers. In flight, ravens exhibit longer, more narrow wings and thinner "finger" at the wingtips then American Crows. In Georgia, ravens are mainly found in the very northeast corner of the state.

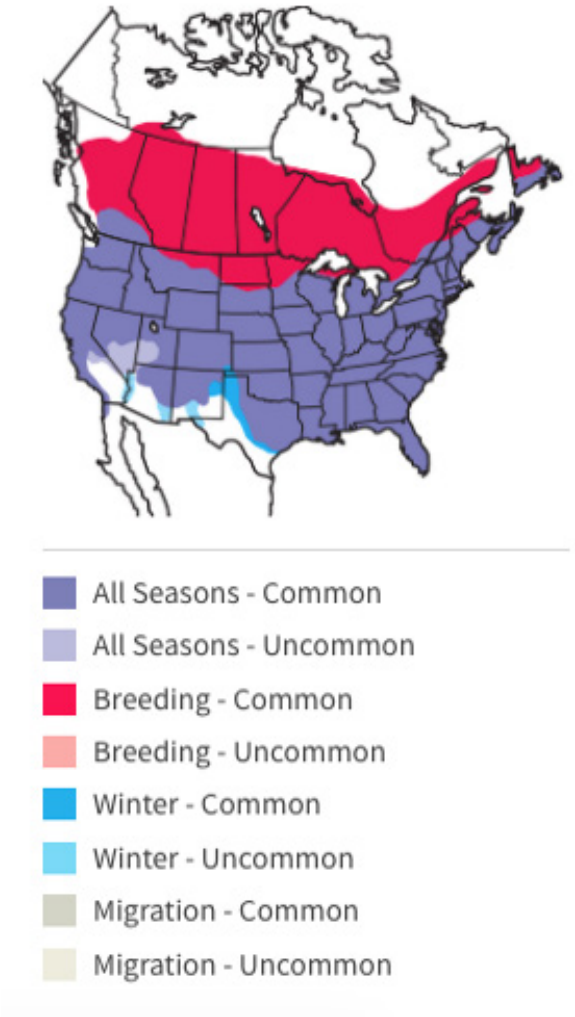

Figure 2: *Distribution of the American Crow*

Habitat. American Crows are habitat generalists and found throughout much of North America (Figure 2). Specifically, crows are most commonly found in fields, open woodlands, and forests. They do particularly well in areas that people inhabit, such as residential areas, cities, landfills, and agricultural fields. Crows avoid areas that are excessively hot and dry.

Reproduction. Crows will nest primarily in trees, specifically evergreens, but will also make nests in other trees where necessary. They rarely nest on buildings or the ground. The nest is made by both members of the breeding pair. Occasionally, offspring from the previous year will help with nest construction as well. The nest ranges in size but is generally 6-19 inches in diameter and made up of small and medium sized sticks. The inside of the nest is lined with softer, more insulating materials such as pine needles, bark, grasses, and animal hair. Females lay 3-9 eggs per clutch and have 1-2 broods per year depending on resources and nest success. Eggs are incubated for 16-18 days and hatchlings remain in the nest another 20-40 days. Hatchlings are naked at birth except for small tufts of feathers. Crows are sexually mature in the second spring after birth. It is not known exactly when crows mate, but it is thought to be some time in February or March.

Diet. Canada The American Crow is an opportunistic, omnivorous feeder. Their diet consists primarily of items such as insects, worms, small snakes, frogs, shellfish, small turtles, crayfish, mussels, garbage, seeds, berries, grains, nuts, and fruit. They are also a major nest predator. Some of the more common nests that crows predate are sparrows, robins, jays, terns, and loons. Crows have been documented using tools to acquire food, as well as dropping hard-shelled foods such as mollusks from large heights to break the shell. They also commonly eat roadkill or other dead animals. Their beaks are not sharp or strong enough to break through skin, though, so they must rely on other animals to create access to the carrion. Crows are also known to cache food items in various places for times when food may be limited. Like many birds, they are attracted to shiny objects. They commonly pick up items from the ground such as candy wrappers, cans, and even keys.

Behavior. Crows are most active in the daytime. They are rarely seen alone as they are highly social animals. A group of crows (Figure 3), called a 'murder', usually consists of the breeding pair and any offspring from the previous two years. Often times, multiple groups will congregate together for roosting and flight. This grouping together is most common around landfills, dumpsters, agricultural fields, and winter roosting areas. Some reports say there have been hundreds of thousands of crows all grouped together, especially around roost sites. Some cities have reported problems with large crow roosts in winter months. Problems may include noise and accumulation of feces (odor) at communal roosts. Large roosts near airports pose a safety risk to aircraft. Crows interact with group members to find food and solve problems. They also use their groups to harass predators, a behavior known as 'mobbing'.

Figure 3: *Murder of American Crows*

Crows are partially migratory, meaning certain populations will migrate while others stay in their local area and become resident populations. Migration is most common during the winter, when food sources are limited. After winter, some individual crows migrate north through the United States and into Canada for breeding while many remain in the lower 48 states.

Disease. The most common disease impacting the American Crow is West Nile Virus. Crows are highly susceptible to the disease, often dying from it. Although crows cannot directly transmit West Nile Virus to humans, they can serve as a host for mosquitoes who then vector it to humans. Other diseases affecting crows include avian cholera, transmissible gastroenteritis (where there are swine nearby), and histoplasmosis, although these diseases are much less common. Overall, it is believed that crows do not pose a high disease risk to humans.

Damage. Crows inflict damage to agriculture, natural resources, property, and human safety through previously mentioned diseases. Damage issues are highest when birds are in large flocks. Crows are known to predate aquaculture operations, especially catfish and trout. The most damage that crows cause is in agriculture and crows are one of the leading bird species in Georgia that cause severe damage. For livestock, the greatest damage due to crows is through consumption of feed and possible transmission of disease. Fruit and nut crops are impacted, especially apple and corn crops. When crows are causing damage to agriculture or aquaculture, a permit may be required to lethally control them in Georgia. Most damage to property is due to an accumulation of feces and feathers. These issues are greatest during spring, fall, and times of migration, when concentrations are highest. Crows also compete with other, possibly more desirable, birds for food resources and nesting locations. Though not common, large flocks of crows can cause issues with aircraft. There is potential for strikes with windshields as well as engines.

ECONOMICS

Crows have a reputation as an agricultural pest. However, there is only limited data in published literature to support this reputation. For instance, crows are known to be a major pest on almond and walnut crops, however little information is available on costs associated with the damage. A study in California estimated crows and other birds were responsible for over $1.8 million dollars in losses to pistachio crops. While they are suspected of inflicting damage on the Georgia pecan crop, no published estimates of damage are available.

In contrast, in a multi-state study crows were not listed among the top three pests on blueberry or wine grape crops. They were among the top three bird species to inflict damage on sweet and tart cherries in Michigan (ranked third for both cherries) and honey crisp apples in Washington (ranked first). A study in New Jersey estimated that crows were responsible for only 0.2% of the damage attributed to ten different wildlife species. A study in Pennsylvania examined the impact of bird predation to trout, catfish, and minnow facilities across PA, NJ, and NY. The study concluded that previous damage estimates in the literature for mallards, grackles and crows may have been "highly inflated". More information is needed on the role of crows as an agricultural pest in Georgia and other areas.

CONTROL

Management techniques to minimize or eliminate damage caused by American Crows, or any animal, are best when a combination of actions is used. Using only one technique will allow the animals to become accustomed and therefore not deterred. When managing damage, it is important to be thorough and committed.

Habitat Modification and Harassment. Birds require a combination of food, water, cover, and space to survive. If one or more of these items is removed, the birds will usually move to a new area. The best way to modify the habitat for crows is to remove the trees they are roosting in. This will force them to roost in a new area, hopefully far away. If whole tree removal is not an option, thinning out branches could help. If possible, remove food sources. Remove all excess grain or animal food that may be left out overnight or while animals are not actively eating. This may not be feasible in agricultural settings.

A wide variety of harassment methods are available. Some of the most common and effective methods are pyrotechnics. Pyrotechnics (Figure 4) can include things like shotguns and pistols where allowed. Where these are not allowed, similar devices such as bangers, screamers, and shell crackers make loud noises without the lethality of guns. Propane cannons and gas explosions are effective but expensive. Distress calls and alarms have some efficacy but individuals often quickly acclimate to these noises. When using pyrotechnics, it is important to vary what is used because birds can habituate to sound very easily. The traditional 'scarecrow' may work temporarily but unless it is constantly moved and appearances changed, crows will become accustomed to it.

Figure 4: *Pyrotechnics used to harass birds.*

A study in Pennsylvania examined methods to disperse large, urban crow roosts. The study found that effigies (dead birds or taxidermy models) were effective in moving large (> 10,000 birds) roosts away from urban to more rural (and acceptable to humans) areas. Effigies can be combined with other harassment techniques like pyrotechnics, lasers, and distress calls to increase the effect. Because effigies used in this study were artificial birds (mounts or plastic models) no US Fish and Wildlife Service permits were required. However, effigies constructed from live birds are also effective and would require permits. The study authors concluded that the use of effigies was an effective roost dispersal technique but should not be solely relied upon. Effigies were more effective when combined with pyrotechnics or distress calls.

Exclusion. In general, exclusion is best suited for small scale problems such as individual crop trees or a small field. Exclusion may include netting draped over a tree (Figure 5), as well as stretching wire or cord across an area in a tight grid pattern. For small scale farming operations, it may be possible to wrap produce in protective cloth or burlap to keep crows from eating individual plants. Bird spikes may be used if crows are perching on buildings. Different ages and types of birds respond differently to each exclusion technique, so it is important to try several.

Repellants. Chemical repellants have minimal efficacy for repelling crows. Repellants need to be placed in high concentrations and require constant reapplication as the environment breaks them down. Methyl anthranilate and anthraquinone are chemicals that can be sprayed or fogged. They work best while the crows are on roost or inside a building but can also be sprayed on the ground. These repellants irritate the eyes and sense of taste in crows, making it unpleasant for them to remain in the area. Tactile repellants that contain polybutene irritate the crow's feet making it uncomfortable to stand.

Figure 5: *Netting placed over crops to reduce bird damage.*

Lethal Control. In Lethal control remains the most effective means of controlling crows. American Crows are protected under the Migratory Bird Treaty Act of 1918. A permit is required to lethally remove any nuisance crows in the state of Georgia outside of hunting season (when only a hunting license is required). The most common methods are shooting them from the roost with a .22 caliber handgun or a shotgun. Other methods include trapping and using carbon dioxide to euthanize. Shooting is mainly used to harass but can be effective as removal as well. When implementing lethal control, it is important to follow all state and federal guidelines. In Georgia, crow season ranges from the beginning of November to the end of February and there is no bag limit.

FURTHER READING

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FIGURE CREDITS

Figure 1: Photo courtesy of The Cornell Lab https://www.allaboutbirds.org/news/
Figure 2: https://www.audubon.org/search_results?search=crow
Figure 3: https://www.vpr.org/post/something-crow-about-flocks-gather-thousands#stream/0
Figure 4: https://www.craftys.co.nz/product/pyrotechnics-bird-scarer-kit-record-weinberg-pistol-banger-screamer-blanks/
Figure 5: https://fineartamerica.com/featured/bird-netting-over-crops-alex-bartelscience-photo-library.html

FOOTNOTES

[1] https://www.federalregister.gov/documents/2020/04/16/2020-06779/general-provisions-revised-list-of-migratory-birds
[2] http://wildlifecontroltraining.com/wildlife-species/crows/