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# Gulls

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Figure 1. Ring-billed Gull *(Larus delawarensis)*

**Quick Links**



## Human-Wildlife Conflicts

Abundant gull (Figure 1) populations in North America have led to a variety of conflicts with people. Gulls cause damage at aquaculture facilities and other properties, and often collide with aircraft. Their use of structures on and near water results in excessive amounts of bird droppings on boats and docks. Their presence near outdoor dining establishments, swimming beaches, and recreational sites can lead to negative interactions with people. Large amounts of gull fecal material pollutes water and beaches resulting in drinking water contamination and swim bans. A combination of dispersal techniques, exclusion and limited lethal control may reduce damage to an acceptable level.

### *Aquaculture*

Gulls feeding at fish hatcheries, mariculture beds, and baitfish production sites may result in significant losses for aquaculture producers. They may also impact salmonid fry, especially at passage facilities associated with dams in the Pacific Northwest.

Gulls loafing at seafood processing facilities may create a nuisance for employees and contaminate seafood products with fecal material at outdoor staging areas while items are awaiting processing.

Figure 2. Gulls at a Chicago area beach.

### *Structures*

Gulls nesting on rooftops often indirectly damage the roof, as well as the building, due to accumulations of nesting material in rooftop drains that prevent the draining of water from the roof. The resulting backup of rainwater may lead to structural damage to the roof, including leakage, water damage and rot, mold, and excessive water weight on roof support structures.

### *Human Health and Safety*

Gull use of structures on and near water results in excessive amounts of bird droppings on boats and docks in marinas, and the presence of gulls near outdoor dining establishments, swimming beaches, and recreational sites creates negative interactions with people. Research has documented that gulls can be a source of fecal contamination (i.e., *Escherichia coli* and *Salmonella* isolates) in water and beaches, resulting in contamination of drinking water and swim bans (Figure 2). In addition, buildup of droppings, nesting materials, and feathers on rooftops near ventilation intakes can result in unwanted odors and the intake of irritants affecting the respiratory health of workers and creating an unsanitary work environment. Large numbers of gulls flocking around landfills is a distraction and safety risk to heavy equipment operators and truck drivers.

Gulls are frequently involved in collisions with aircraft resulting in dangerous conditions for people both in the aircraft and on the ground (Figure 3). From 1990-2015, gulls were involved in at least 10,586 bird strikes with 2,188 of those strikes involving multiple birds. Fifteen of those strikes resulted in injuries to 22 people. Their large size, looping flight, flocking behavior, and propensity to feed and loaf on grasslands and paved surfaces at coastal airports make them a significant strike threat.

During the nesting season, especially after chicks hatch, gulls may dive and strike people on the head if they come too close to nests. This behavior is problematic near nesting colonies where people may be working on rooftops, performing building maintenance or security.

### *Natural Resources*

Gulls may be detrimental to some shorebird and waterbird species of concern because they prey on eggs and chicks. For example, predation by Laughing, Herring, and Great Black-backed Gulls contributes to declines or lower productivity of some species along the Atlantic Coast. Gulls are a primary predator of nests and chicks of terns, skimmers, and other colonial nesting birds from the Chesapeake Bay to Maine.


Figure 3. Gulls on an airport.

*Nuisance*

Gulls habituate to the presence of people and may become a nuisance for sunbathers or diners at outdoor establishments when food is accessible.

## Damage Identification

Because of their gregarious nature, gulls are easily observed and identified. Nuisance complaints are determined from visual observations, noise and fecal droppings.

## Management Methods

No single management method to prevent gull conflicts works all the time or in all settings. Wildlife management methods should be integrated so that one method enhances the effect of another. For example, frightening devices often are more effective when done in conjunction with habitat modification (e.g., removal of food resources or roosting habitat) to make a site less attractive to gulls. Likewise, exclusion devices, such as overhead wires, work better when combined with covering or removing food resources.

Local gull populations often are large, and birds may fly 15 miles or more from roosting or nesting sites to feed. This mobile strategy often means that feeding sites are visited by only a portion of the gull population each day. Therefore, exclusive use of lethal control is not an effective, long-term method for preventing gull damage at those sites. Limited lethal control combined with frightening devices and habitat modification can reduce human-gull conflicts at feeding sites to socially acceptable levels.

*Habitat Modification*

Modifying human behavior, habitats, and cultural systems is an essential part of effective, long-term gull damage management. Efforts and activities should focus on reducing the availability of food, water, and loafing areas that attract gulls.

Gulls alter their behavior to take advantage of available food sources. Prohibiting the feeding of gulls and other wildlife by customers, guests, and employees will help reduce gull attractants. Feeding of other species, such as feral cats, must be eliminated in areas where gull conflicts occur. Preventing the unintentional feeding of gulls also requires effective waste management, such as promptly removing garbage, keeping dumpsters and trash receptacles closed, covering garbage trucks, regularly cleaning docks and piers, and removing waste/rejected fruits and vegetables at processing sites.

Gulls shift their feeding patterns to take advantage of changes in naturally occurring foods. Hatches or spikes in the populations of terrestrial or marine invertebrates can contribute to large concentrations of feeding gulls. Strategic use of insecticides to prevent outbreaks of grasshoppers and beetles can help to manage these attractants on and near sensitive areas, such as airfields. Managing the grass height at airfields is important for reducing the availability of natural foods and attractiveness of loafing sites. Grass height should be maintained at 6 to 10 inches throughout the year.

Freshwater attracts gulls, especially rain events in marine environments. To reduce gull abundance, grasslands and paved surfaces should be properly graded to prevent standing water after storms. Wetland and stormwater mitigation projects, such as those at airfields, should be conducted offsite whenever possible, and water retention and movement should utilize underground designs and configurations that minimize bird use.

*Exclusion*

Exclusion involves physically blocking bird access to a site and is an important part of gull damage management. The use of various exclusion tools and techniques is dictated by the location and gull species involved. Like habitat management, physical exclusion can provide a long-term, nonlethal solution for deterring bird use. Because the cost

of materials, construction and maintenance can be expensive, exclusionary methods are most practical for small areas and a limited number of species. Laughing Gulls will walk and fly under exclusionary netting and overhead wires. Also, Herring and Ring-billed Gulls have been seen walking under netting and overhead wires to gain access to food. Unfortunately, exclusion that adequately stops bird access also can restrict the movement of people, equipment and other wildlife. Some physical exclusion devices may be an impediment to the intended use of a site, and some landowners, managers and users may consider the aesthetic impacts of physical exclusion devices to be unacceptable.

Wires, netting, and monofilaments are available for excluding birds from protected areas. Coils, spikes, elevated wires or electrified strips can be used to exclude gulls from perching or loafing on narrow surfaces, such as ledges, signs, and guard rails. The effectiveness of these approaches can be enhanced through original design features, such as sloping ledges, that reduce the attractiveness of these surfaces.

Pier pilings, lamp posts, and outdoor furniture are attractive loafing spots for gulls, especially when food may be found nearby. These point surfaces, or areas that may be attractive to a few individual gulls can be protected through a variety of devices. Pointed caps can be installed on pier pilings and posts to prevent perching. Spider-like wire spindles are effective and can be enhanced with motors that create a rotating or sweeping effect.

Perching deterrents are available in a wide variety of designs. Porcupine wire (e.g., Nixalite™, Catclaw™) and coil wire are mechanical repellents that can be used to exclude gulls and other birds from ledges, railings and other roosting or loafing surfaces. The sharp points on porcupine wire may inflict temporary discomfort on the birds as they try to land, which deters them from roosting or loafing. Electric shock bird control systems, although expensive, can be effective in deterring gulls and other birds from roosting on ledges, window sills and other similar structures.

Work areas at agricultural and fisheries processing facilities must be secured to prevent gulls from contaminating food with fecal droppings or other items. To effectively exclude gulls, these areas should be fully enclosed with entry points protected by strips (or "curtains") of heavy plastic sheeting. Loading and temporary storage areas outside should be protected with overhead wire grid systems to prevent gull access. The same exclusion approaches can be effective at trash transfer stations. Overnight capping or tarping of the active face of landfills can prevent feeding by gulls outside of landfill operation hours, especially during times of year when daylight persists after normal work hours and in well-lit systems where gulls may be active at night.

Netting and wire or monofilament wire grids are often recommended to exclude gulls from resources with large surface areas, such as spillways, industrial rooftops, reservoirs, aquaculture facilities, retention/detention ponds, and landfills. Netting may be suspended over these facilities using a tent-like or wire-based support structure, but this approach may be cost-prohibitive for large areas.

Most gull species can be excluded from ponds, fields or other areas using an overhead wire grid with hanging streamers or other objects (Figure 4) to increase the grid's visibility to birds. The objective is to discourage birds from feeding and loafing, while preventing bird injury or death. Overhead wire grids require little maintenance other than ensuring proper wire tension and replacing broken wires. The grid spacing varies with the type of bird species being

Figure 4. Parallel overhead wires can be installed to prevent gull use of an area.

excluded. For example, overhead wires spaced about 10 feet apart successfully repel Herring and Ring-billed Gulls, but not Laughing Gulls. Laughing Gulls are not repelled by overhead wires, but will often walk and fly under them. Wire grids can make a pond unusable for boating, swimming, fishing, and other recreational activities. Additionally, maintenance under the wires may be burdensome.

Gulls can be excluded from small water bodies using large numbers of floating plastic balls. This system may not be practical in fisheries systems where access to water by sunlight and employees is required. A containment system is required for airport settings where the balls may present a FOD (Foreign Object Damage) hazard if they are blown out of the pond area.

Unnecessary signs, posts, pilings, and other structures that provide suitable gull loafing sites should be removed. Angled window ledges, bulkheads, and tunnel entrances, pointed posts or poles, and angled or beveled sign tops can reduce the attractiveness of loafing sites and reduce the need for exclusion devices.

Exclusion devices should not be installed over water if injury or accidental take of eagles and threatened and endangered species is anticipated.

### *Frightening Devices*

The use of frightening devices to disperse gulls is an essential part of gull damage management (Figure 5). To be successful, frightening devices must be used at unpredictable frequencies, lengths of time, and locations. When possible, pursuing dispersed birds and reinforcing harassment with limited lethal control can help to improve the effectiveness of frightening devices.

Pyrotechnics are one of the most commonly used tools for dispersing gulls. These wildlife control explosives include a variety of different products, such as shell crackers, 15-mm pyrotechnics (e.g., screamers and bangers), and long range pyrotechnics (e.g., CAPA rounds). Pyrotechnics can be very effective, especially when combined with limited lethal re-enforcement. Users should be trained in the safe use and handling of these tools to prevent injury and fires.

Figure 5. A solar-powered bird strobe sits atop a pole to deter bird use in an area.

Permits from the Bureau of Alcohol, Tobacco, and Firearms are required for the use of some classes of pyrotechnics by individuals and non-governmental entities.

Live animals including falcons and dogs have been used to disperse gulls and other birds. This specialized approach requires an experienced handler, multiple work animals, and the ability to control the animals so they do not become a hazard in sensitive environments.

Remote-controlled vehicles, including boats, land vehicles, and unmanned aircraft systems, can be effective for dispersing gulls and other birds. They allow for more controlled dispersals than live animals, and can reach gulls located in, and over large grasslands and lakes. These devices require experienced operators, and care should be taken to coordinate radio frequencies with the appropriate officials on or nearby sensitive areas, such as airports and military installations.

Propane exploders are noise-making devices that can be activated by timer or remote control. Birds quickly habituate to propane exploders if their use is predictable. The devices must be moved frequently and only triggered when necessary.

Electronic devices that use bird alarm or distress calls are commercially available for gull dispersal. Bird calls can be broadcasted from stationary units or vehicles, and combined with sirens and alarms. Gull dispersal using distress calls is often a two-stage process whereby gulls

may first come closer to investigate and then disperse as a result of the call and combination of other sounds and tools. Directed sound or acoustic hailing devices, such as Long Range Acoustical Devices (LRAD) offer another non-lethal tool for gull dispersal, though evaluations of their effectiveness are ongoing. As with other devices, gulls will habituate to the sounds unless reinforcement occurs.

Gull effigies have been used effectively to reinforce dispersal efforts, especially at gull loafing sites. Effigies may consist of taxidermy specimens, freshly killed gulls, or artificially reproduced likenesses. Effigies are displayed either in a prone position or hanging with the head down to represent a dead or dying gull. This technique should be used in conjunction with other techniques to re-enforce and extend the duration of dispersal activities. A migratory bird depredation or salvage permit is required for possession of gull carcasses.

Although the use of a laser to alter bird behavior was first introduced nearly 30 years ago, new developments have made it possible to use affordable hand-held lasers to frighten and disperse birds from their roosts or loafing areas. Results have shown that several bird species, including gulls, have avoided laser beams during field trials. Best results are achieved under low-light conditions (i.e., sunset through dawn) and by targeting structures or trees close to roosting birds, thereby reflecting the beam. Use caution not to point laser beams directly at human or bird eyes. Caution must be exercised when using lasers around airports and aircraft.

### *Repellents*

Bird repellents can help reduce bird foraging on treated plants, the use of temporary pools of standing water, or perching on building ledges and similar locations.

Methyl anthranilate (MA), an artificial grape flavoring food additive, is a commercially-available repellent for waterfowl and gulls registered by the U.S. Environmental Protection Agency (EPA) and marketed under various trade names. It may be applied to turf or other plants to reduce foraging by birds, such as Canada geese. It is also used to prevent waterfowl and gulls from using temporary pools of water. Results on the effectiveness of MA appear to be mixed based on various research trials.

MA may also be applied using a fog-producing machine such that the MA-laden fog drifts over the area to be protected. The fog is an irritant to the birds, but is harmless to people. Fogging uses a smaller volume of the MA product in contrast to the turf application, thereby reducing the cost of each application. Several treatments 1 to 4 days apart may be required for the removal of nuisance birds to acceptable levels. As with the turf application, it is likely that additional applications may be required to address problems with migrating or non-resident birds. In some states, the use of fogging is restricted to landfills, non-fish bearing bodies of water, and temporary pools of standing water on paved areas or construction sites at or near airports.

A number of tacky or sticky tactile repellent products that reportedly deter birds from roosting on structural surfaces are commercially available. However, limited research has been done on the effectiveness of these products. The repellency of tactile products is generally short-lived because dust accumulates on the surface. Tactile repellents can melt in hot weather often dripping down the sides of buildings or cause other aesthetic problems that require expensive clean-up. Small non-target birds may also be injured or killed after becoming stuck in these substances.

### *Fertility Control*

Conflicts associated with nesting gulls and localized gull populations can be managed by reducing population growth through fertility control. Removing eggs and/or nests can be an effective method of encouraging some species of breeding gulls to relocate to an alternative nesting location. To be effective, all nest material and eggs should be removed at least every 2 weeks to prevent chicks from hatching. Nest removal is labor intensive, and re-nesting can occur when management is done early in the nesting season. As is the case for other migratory birds, permits are required to remove gull nests that contain eggs.

Figure 6. Oiling Ringed-billed Gull eggs.

Egg oiling also prevents hatching (Figure 6). The oil inhibits the exchange of gases and causes asphyxiation of developing embryos. Egg oiling is 96 to 100 percent effective in reducing hatchability. The EPA has ruled that use of food grade corn oil for this purpose is exempt from registration requirements under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). To be most effective, the oil should be applied anytime between the fifth day after the laying of the last egg in a nest and at least five days before anticipated hatching. Addling (shaking) and puncturing eggs also prevents egg hatching.

With oiling, addling, and puncturing, adult birds often remain on the nest, incubating treated eggs. If the treatment occurs later in the nesting season, birds that continue to incubate treated eggs may have lower energy reserves and likely will not re-nest.

Egg oiling, in conjunction with dispersal efforts, helps reduce the growth rate of local gull populations and associated conflicts. It is often easier to disperse adults from a site if they do not have young. For example, from 2007-2017, egg oiling of nests at ring-billed gull colonies within Chicago, Illinois, resulted in fewer hatch-year gulls using beaches and was likely a factor in reducing the number of swim advisories and swim bans issued at beaches due to elevated *Escherichia coli* levels.

*Toxicants*

DRC-1339 is a slow acting avicide that is registered with the EPA for reducing damage from several species of birds, including gulls. For more than 40 years, DRC-1339 has been used to manage local populations of starlings, blackbirds, gulls, and pigeons at feedlots, dairies, airports, and in urban areas. DRC-1339 is registered for use only by trained U.S. Department of Agriculture employees to manage gull populations depredating native colonial nesting bird species or damaging property or crops.

*Trapping*

Rocket nets and cannon nets can effectively capture small groups of gulls over bait (Figure 7). Rocket nets can cause gulls to avoid an area for several weeks or longer, if they eluded initial capture attempts. Individual gulls can be captured with net guns, if they can be approached within the net gun's range. Remotely-activated net launchers or bow nets can be used to capture individuals that are baited to a site or sitting on a nest. Nesting gulls also can be captured using various trap designs or hand nets at night with the aid of spotlights or night vision devices.

Figure 7. Cannon net trap with gulls.

*Shooting*

Shooting is conducted with shotguns or air rifles. Shooting is most commonly used to reinforce harassment, to remove a single offending bird, or to remove a limited number of birds that cannot be dispersed or taken using other methods. However, shooting programs implemented at airports have effectively removed large numbers of birds. Non-toxic shot generally is required due to shooting over water or wetlands. Local, state, and federal regulations in regards to the use of firearms and take of gulls must be reviewed and followed.

*Other Methods—Dispersing Colonies*

Dispersing and relocating gull nesting colonies is difficult and success varies by species. Numerous dispersal methods have been used with the most effective ones being nest and egg destruction, egg oiling, and overhead wire grids. Mylar flags, distress calls, effigies, shooting, tethering raptors to areas within the nesting colony and other methods were less effective or logistically difficult.

Wire grids or parallel lines placed over nesting colonies on rooftops have been used to disperse Ring-billed and Herring Gulls. Gulls can be dispersed in 1 to 3 years. Most Herring Gull nesting colonies on rooftops show a reduction in the numbers only after multiple years of dispersal efforts (e.g., up to 6 years in northern Ohio). In one case, a mixed Ring-billed and Herring Gull nesting colony in Toronto, Canada was dispersed in 2 years. Laughing Gulls, however, were unaffected by overhead wire grids.

A Black-headed Gull nesting colony on an island off the coast of Suffolk, England, was reduced and then stabilized to 15 to 35 percent of the original population size after 5 years of harassment using shooting, distress calls, trapping and nest and egg treatment. Egg oiling is usually more effective when combined with removal of breeding adults.

*Handling*

Translocation

Capture and translocation of gulls usually is not an effective or practical method for moving gull colonies.

Euthanasia

Euthanasia of gulls may be done by cervical dislocation or by administering isoflurane or carbon dioxide gas to birds placed in a sealed container. Care should be taken to minimize stress and handling prior to euthanasia. Confined areas must be large enough to avoid stress to the birds as much as possible.

Disposal

Take of migratory birds is regulated by the Migratory Bird Treaty Act, and instructions for disposition of carcasses are usually provided under U.S. Fish and Wildlife Service permit conditions.

## Economics

The economic impacts of gull damage are widespread, but seldom quantified. Gulls may cause direct losses through collisions with aircraft, foraging on aquaculture products and other crops, fouling drinking and swimming water. Costs may also be associated with disinfecting feces, nesting and loafing activities, and subsequent damage abatement.

Fecal droppings present hazards for slipping and fouling of safety rails used as perches. Cleaning is needed to prevent damage to structures and to remove this residue which may pose health risks. Cleaning can represent a significant repetitive expense. The corrosive nature of the feces may also decrease the lifespan of construction and roofing materials, increasing replacement frequency, and therefore increasing building construction and maintenance costs. Shellfish and produce processing facilities must sometimes prevent gull fecal contamination

of food processing activities by moving those activities indoors.

Several studies have suggested a link between Ring-billed Gull fecal droppings and elevated fecal coliform bacteria levels in water at beaches resulting in the issuance of swim advisories. Beach management agencies often implement integrated damage management strategies to improve sand and water quality, and to avert associated economic losses that have been estimated as high as $15 million per year for the City of Chicago.

Gulls are also one of the most common groups of birds involved in collisions with civil aircraft, accounting for 12 percent of all known wildlife species struck by aircraft and causing a minimum of $58 million in reported economic losses to the aviation industry from 1990-2015.

Finally, management actions employed to prevent or reduce measurable damages impose costs that otherwise would not be incurred. Examples of these management costs include preventative maintenance, partial or total exclusion, such as wire grids, erecting pole barns and plastic curtains, active control and administrative costs.

## Species Overview

### *Identification*

The term "gull" refers to bird species that belong to the family Laridae. Gulls nest colonially, sometimes with other colonial nesting species interspersed within the breeding colony. Gulls often are associated with oceans, seas and large freshwater water bodies.

Twenty-four different species of gulls can be found across North America. The eight gull species most often associated with human-wildlife conflicts in the United States include the following:

- Herring Gull (*Larus argentatus*)
- Laughing Gull (*Leucophaeus atricilla*)

Figure 8. Laughing Gull (*Leucophaeus atricilla*)

- Ring-billed Gull (*Larus delawarensis*)
- Great Black-backed Gull (*Larus marinus*)
- California Gull (*Larus californicus*)
- Franklin's Gull (*Leucophaeus pipixcan*)
- Bonaparte's Gull (*Chroicocephalus philadelphia*)
- Glaucous-winged Gull (*Larus glaucescens*)

### *Physical Description*

Male and female gulls of the same species are similar in appearance. Gulls are distinguished by their webbed feet, and adults generally have white body plumage with the amount of black and brown plumage on the wings and back varying among species and age classes. Juvenile birds have varying amounts of black or brown mottled body plumage interspersed with varying amounts of white feathers. Gulls range in size from the diminutive Bonaparte's Gull (11 inches long, 38 inch wingspan, and about half a pound) to the largest species, the Great Black-backed Gull (24 inches long, 65 inch wingspan and up to 4 pounds).

### *Range*

Gulls are found throughout North America usually near water bodies, such as oceans, estuaries and freshwater lakes.

Figure 9. California Gull (*Larus californicus*).

Figure 10. Glaucous-winged Gull (*Larus glaucescens*) nesting on rooftop.

The Herring Gull is a year-round resident on the Great Lakes and east coast of North America from Newfoundland to North Carolina. Winter distribution is associated with coastal areas and large water bodies along the Atlantic, Pacific and Gulf coasts, the Caribbean islands and Mississippi River Valley.

The Laughing Gull (Figure 8) breeding range stretches from Maine to Texas along the coast. Laughing Gulls generally winter along the southern Atlantic coast from North Carolina to the Gulf Coast and eastern and western Central American coasts.

The Ring-billed Gull's (Figure 1) breeding range is primarily Lake Champlain in Vermont and the St. Lawrence River drainage of New York, Quebec and Ontario, the Great Lakes region and westward into the northern Rockies and western Canadian provinces. Its wintering range is the Atlantic and Pacific coasts, lower Mississippi River Valley and southern Great Plains.

The Great Black-backed Gull, common in the northeastern United States, breeds locally along the Atlantic Coast from Cape Hatteras, North Carolina, north to Labrador and Baffin Island, and locally around the Great Lakes. In winter, this species may be found throughout its breeding range and south to South Carolina. In addition, it winters in increasing numbers along the Gulf of Mexico.

The California Gull (Figure 9) is found throughout the interior western region of North America from California in the south to Northwest Territories in the north.

The Franklin's Gull's breeding range is primarily within portions of Saskatchewan, Manitoba and parts of North Dakota. There are other small breeding colonies scattered in the northern Rockies. The primary winter range is along the Pacific coast of Chile and Peru.

Bonaparte's Gull winters in large flocks in coastal areas along the Atlantic, Gulf and Pacific Coasts and eastern Great Lakes, but breeds around ponds, bogs, bays, and fiords in the taiga and boreal forests of Alaska and Yukon, Northwest Territories, British Columbia, Alberta, Saskatchewan and Manitoba.

The Glaucous-winged Gull (Figure 10) is an abundant resident along the northwestern coast of North America where it breeds along coastal islands and cliffs from the Bering Sea and Aleutian Islands, Alaska, south to Oregon. It casually nests in freshwater in British Columbia, Washington and Oregon.

### *Voice and Sounds*

Gulls have a wide variety of calls that vary based on the age of the bird and situation in which a call is made. Calls are given for courtship, breeding, alarm, feeding and in some cases for no apparent associated behavior.

*Reproduction*

Most gulls are gregarious nesters on sand and gravel-covered shorelines, islands and flat rooftops. They require only a small territory, and colonies often contain thousands of nesting pairs. Bonaparte's and Great Black-backed Gulls are the exception. They are solitary breeders or breed in small colonies away from human settlements. Sexually mature gulls generally return and nest in the region where they learned to fly. Gull nests vary by species. In general, they are built of grasses and other vegetation which may include sticks. Nests are found on the ground or on rooftops. Gulls produce 3 to 5 eggs per nest. Most species of gulls reach breeding age in 2 to 3 years, but some do not breed until they are 4 to 5 years old.

Like other migratory birds, gulls generally breed in the northern parts of their range and winter in the southern portions of North America. However, species such as Ring-billed Gulls do move hundreds of miles eastward and westward within just a few days during the summer.

Most gull species nest in large colonies that include hundreds or thousands of nests. Most large colony nesting sites are on islands, but some western gull species will nest in large colonies adjacent to remote freshwater lakes. Depending on gull species, nest sites tend to be sparsely vegetated or have no vegetation.

*Mortality*

Gulls are generally long-lived birds that may survive for 10 to 30 years. Annual survival rates range from 70 to 94 percent with juvenile birds having lower survival than adults.

*Population Status*

Between 1966 and 2012, some gull populations (e.g. Herring and Franklin's Gull) in the United States appeared to decline, while others (e.g., Ring-billed and California Gull) remained stable. General species status is of low conservation concern for Herring, Ring-billed, Laughing and Great Black-backed Gulls. Many gull species are considered overabundant or common.

Typically, high gull densities are recorded in localized areas, such as urban rooftop nesting colonies and landfills.

*Habitat*

Gulls may be found in any water body in North America. In addition, gulls loaf and forage in open spaces, such as plowed or grassy fields and parking lots.

*Behavior*

Gulls often spend nights in open water or secluded areas (e.g., islands, rooftops) that are not prone to predation. They fly inland to feed and loaf during the day. Gulls are active all day with daily activity peaking at dawn and dusk. Gulls will fly at night, especially around roosting areas on large water bodies.

Gulls are migratory birds with some species migrating long distances between nesting and wintering areas. Although most gulls migrate on a north–south gradient between nesting and wintering areas, Ring-billed Gulls migrate to the Great Lakes region for nesting and eastward to the mid-Atlantic coast for the winter. Gull nesting and feeding activities generally are associated with wetland habitats. These habitats are important stopping points during migration.

*Food Habits*

Gulls are adaptable, opportunistic, omnivorous feeders that readily switch food types based on availability and accessibility. Gulls forage on land and on the water, feeding on aquatic animals, terrestrial invertebrates, small vertebrates, carrion, plant remains, refuse (Figure 11), and human food. Gulls forage on eggs and young of other nesting waterbirds. For instance, Herring and Great Black-backed Gulls eat shorebird chicks and waterfowl ducklings. Bonaparte and other western gull species eat young salmon, contributing to smaller runs of smolts. Herring Gulls have developed a feeding strategy of dropping bivalves onto hard surfaces to break the shell and access the soft tissues inside. Adult Ring-billed Gulls nesting in the Great Lakes have been known to travel an average of 15 miles to exploit human-related food sources. Smaller

species, such as Ring-billed, Laughing, and Franklin's Gulls, forage in the air on flying insects.

Figure 11. Ring-billed Gulls feeding at a landfill in Virginia.

## Legal Status

Gulls are classified as a migratory bird species and are protected by federal and, in most cases, state laws. In the United States, gulls may be taken only with a permit issued by the U.S. Fish and Wildlife Service. Occasionally, an additional permit is required from the state wildlife management agency. Permits are issued only after dispersal and other non-lethal damage management methods have been employed and proven ineffective at resolving the conflicts. No federal permit is needed, however, to frighten or mechanically exclude gulls.

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Figure 2. Photo by Richard Engeman, USDA-Wildlife Services
Figure 3. Photo by Jenny Washburn, USDA-Wildlife Services
Figure 4. Photo by Greg Martinelli, USDA-Wildlife Services
Figure 5. Photo by John Hartmann, USDA-Wildlife Services
Figure 6. Photo by Scott Beckerman, USDA-Wildlife Services
Figure 7. Photo by USDA
Figure 8. Photo by Jenny Washburn, USDA-Wildlife Services
Figure 9. Photo by Martin Lowney, USDA-Wildlife Services
Figure 10. Photo by Kevin Keirn
Figure 11. Photo by Dust'n Lundsford, USDA-Wildlife Services

## Glossary

**Colonial Nesting:** A large group of nesting birds that may be made up of one or two species all nesting within close proximity of one another.

**Mariculture:** Mariculture is a specialized branch of aquaculture involving the cultivation of marine organisms for food and other products in the open ocean, an enclosed section of the ocean, or in tanks, ponds or raceways which are filled with seawater.

**Omnivore:** An animal that eats both plants and animals.

**Roost:** Location where birds rest of sleep either during the day or at night.

## Disclaimer

Wildlife can threaten the health and safety of you and others in the area. Use of damage prevention and control methods also may pose risks to humans, pets, livestock, other non-target animals, and the environment. Be aware of the risks and take steps to reduce or eliminate those risks.

Some methods mentioned in this document may not be legal, permitted, or appropriate in your area. Read and follow all pesticide label recommendations and local requirements. Check with personnel from your state wildlife agency and local officials to determine if methods are acceptable and allowed.

Mention of any products, trademarks, or brand names does not constitute endorsement, nor does omission constitute criticism.

## Key Words

Aquaculture, Bird strike, Exclusion, Frightening device, Fertility control, Gull, Laridae, Toxicant

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# Appendix

Damage Management Methods for Gulls

| Type of Control | Available Management Options |
|---|---|
| Exclusion | • Overhead wires<br>• Netting<br>• Anti-perching devices |
| Fertility Control | • Oiling of eggs<br>• Removing nests and eggs<br>• Addling or puncturing eggs |
| Frightening Devices | • Propane cannons, pyrotechnics, and other noise making devices<br>• Species-specific distress calls<br>• Effigies<br>• Remote-controlled vehicles and dogs |
| Habitat Modification | • Covering food sources including landfill face<br>• Closing refuse containers<br>• Removing sources of food from open areas |
| Repellents | Methyl anthranilate-based products marketed under various trade names |
| Shooting | Shotguns or air rifles; Allowed with proper Federal and State permits |
| Toxicants | DRC-1339; Registered for use only by trained USDA employees |
| Trapping | Cannon/rocket nets and nest traps; Allowed with proper Federal and State permits |