



## GULL DAMAGE MANAGEMENT

Gulls are medium to large sized birds that are typically white or gray in color, often bearing black markings on their wings and/or heads.

Other physical characteristics include webbed feet and long, stout beaks.

Most are members of the genus *Larus*, in the family Laridae, and are closely related to terns, also in the Laridae family, but of the genus *Sterna*. Many members of the genus are carnivorous birds, eating both live and dead prey items.

Some are also cannibalistic, eating the eggs and young of others of their species.

Being highly resourceful and opportunistic in their search for food, they often obtain it through kleptoparasitism (stealing food from other species). Many humans can testify to this trait, as gulls will even harass people in their persistent attempts to steal, or beg tidbits. They will also take advantage of other resources provided by humans, including trash from landfills and residential areas, and stored forage or fruit/grain crops in agricultural settings.

However unscrupulous they may be in their efforts to obtain food, most gulls are considered to be attentive parents. They are predominantly a colonial, ground-nesting species, with both sexes participating in nest building, territory defense, incubation and care of the young. All are monogamous, and if successful in their reproductive attempts, many will remain together for life. Clutch size is typically 2-3, with incubation lasting on average 24-26 days. Although they are born precocial (capable of moving about after hatching), the young will stay near the nest for approximately 5 weeks before joining their parents in flight. Gulls, being long-lived, are slow to mature, not coming into reproductive maturity until their 2<sup>nd</sup>-4<sup>th</sup> year. They demonstrate strong fidelity to nesting sites, with both parents and young returning to the same area for many years.

All gulls are migratory birds, and are, therefore, protected under the Migratory Bird Treaty Act. There are 52 species worldwide, with 19 having been observed in Minnesota. Their designation within the state has been identified as being either regular (observed in at least 8 of previous 10 yrs.), casual (observed in 3-8 of previous 10 yrs.), or accidental (observed in less than 4 of previous 10 yrs.). Most are migrants through the state, but these may linger on larger lakes and marshes until freeze-up. Only 3 species breed within Minnesota: ring-billed gull, Franklin's gull\*, and herring gull. Gull species, and their designation in Minnesota, are as follows:

Bonaparte's gull (*Larus philadelphia*) – regular  
Franklin's gull (*Larus pipixcan*) – regular\*  
glaucous gull (*Larus hyperboreus*) – regular  
great black-backed gull (*Larus marinus*) – regular  
herring gull (*Larus argentatus*) – regular  
Iceland gull (*Larus glaucoides*) – regular  
lesser black-backed gull (*Larus fuscus*) – regular  
little gull (*Larus minutus*) – regular  
ring-billed gull (*Larus delawarensis*) – regular  
Thayer's gull (*Larus thayeri*) – regular

black-headed gull (*Larus ridibundus*) – casual  
California gull (*Larus californicus*) – casual  
Sabine's gull (*Larus sabini*) – casual  
glaucous-winged gull (*Larus glaucescens*) – accidental  
ivory gull (*Pagophila eburnean*) – accidental  
laughing gull (*Larus atricilla*) – accidental  
mew (common) gull (*Larus canus*) – accidental  
Ross's gull (*Rhodostethia rosea*) – accidental  
slaty-backed gull (*Larus schistisagus*) – accidental

\*Franklin's gull is listed as a species of special concern in Minnesota due to loss of breeding colonies caused by their sensitivity to human disturbance, habitat loss (wetland drainage), and drought.



Photo by Carrol Henderson

There are two gull species typically identified as causing damage in Minnesota: the herring gull and ring-billed gull. Populations of both have increased dramatically in the past century due to their ability to adapt to, and thrive in the human environment. Increased food resources, such as human trash, handouts, and agriculture, have probably been a primary factor leading to these increases. In addition, the development of large, inland reservoirs has probably influenced these reproductive booms as well. While other gull species, such as laughing and great black-backed gulls, are also known to cause damage, they are less common in Minnesota. Damage is categorized into four areas: damage to property, agriculture, human health and safety, and harassment of people.

#### Property Damage

Issues concerning damage to property include the fouling of boat docks caused by the guano (droppings) of large numbers of loafing gulls. Rooftops are also favorite loafing areas, and have even been used as colonial nest sites. The accumulation of guano on rooftops can destroy polyurethane roofing materials. Boat and pool covers made of the same materials can also be damaged.

#### Agricultural damage

Damage to agricultural crops has been known to include crops such as blueberries and grapes. While this type of damage is not prevalent in Minnesota, gulls, being opportunists, will also take advantage of stored forage, such as corn silage and other small grains. Livestock feedlots can provide an abundant food source. Fecal materials subsequently contaminate the forage, rendering it unsuitable for consumption by livestock. Other types of damage to livestock operations include predation on domestic ducks, and the potential risk of the spread of various avian diseases, such as avian influenza and Newcastle disease.

#### Human health & safety

Gulls are the primary contributor to the bird-aircraft strike dilemma, accounting for over ½ of all bird strikes. Airports are prime real estate, with wide open vistas in which gulls can safely loaf while on the lookout for predators, and with short grassy areas from which they can forage for insects. These areas are especially attractive if there is an additional food source nearby, such as a landfill, or a large body of water. Reservoirs can also attract large numbers of gulls, potentially elevating fecal coliform levels, thereby rendering the water unfit for human consumption.

#### Harassment of people

Gulls are relentless in their search for an easy meal, and many have learned that people are a great source of food. Individuals who learn to connect people with food can become quite bold. As with most wildlife species, those individuals that have become habituated to people are those who most often cause trouble, usually leading to their demise. Therefore, IT IS ALWAYS BEST NOT TO FEED GULLS, whether it be directly, or indirectly through unsecured trash or exposed pet foods. Other forms of harassment include the defense of nesting colonies that have been established on rooftops, which can be quite offensive as parent birds will often swoop while defecating or vomiting on the intruder.

## **DAMAGE PREVENTION MEASURES**

### **Habitat management**

#### **Agricultural areas**

Gulls are predominantly attracted to agricultural landscapes when they discover an abundant, easily obtainable source of food, such as grain. If the source of food is removed, or access to it is denied, they will leave in search of better fare. Good husbandry practices, such as cleaning up waste grain, are advisable. Covering stored forage out-of-doors with materials such as geo-textile fabric, to prevent access by gulls and other wildlife, is also recommended. Silage, can also be accessed when it is fed to cattle in open feed bunks in barnyard areas. Feeding only amounts that livestock will immediately consume will ensure that no leftovers will be available for marauding birds. Again, be sure that any waste grain is immediately removed from the ground in the feeding area. Research indicates that gulls can consume their entire required daily food intake in as little as 15 minutes. Therefore, one must be diligent and timely in these husbandry efforts. If given access to food, even for a short period of time, they may never leave as they will never get hungry enough to do so. However, preventing feeding for as little as 2 days may cause them to abandon the site entirely.

#### **Landfills**

To reduce the number of gulls feeding and loafing at landfill sites, the same principles of food deprivation will apply as for agricultural areas, only on a larger scale. Preventive measures to consider include completely covering all areas of the active face with a soil cover immediately after every addition of refuse. This can be a challenge to landfill operators due to the gull's ability to gulp down its daily food requirements in 15 minutes! Therefore, diligence and timeliness is again required. Preventing access to the active face through exclusion methods, such as wire grids or tightly-woven plastic mesh is also an option. The proper use of wire grids is discussed under exclusion methods below. Lastly, limiting the size of the active face will minimize the area needing protection.

Other practices to make landfills more inhospitable can be pursued in addition to the removal of the food source. Landfills often provide the wide open vistas that gulls prefer for feeding and loafing in safety. Low-growing vegetation, such as short grasses, is preferred over taller, dense vegetation, which could conceal predators. Short grassy areas are also alternative feeding sites, as they harbor and provide easy access to insects, such as grasshoppers. If operators are diligent in covering the landfill, but leave this alternative food source, gulls may remain in spite of their efforts. Therefore, the planting of alternative, taller grasses, such as native warm-season prairie grass is suggested. Native wildflowers can also be included in the mix to increase aesthetic s and to provide a food source for various pollinators. Vegetation should remain at least 10" tall and be quite dense. All bare soil areas at the landfill site should also be seeded, as these areas can become favored loafing sites. To prevent the invasion of woody species that may compromise a landfill cap, mowing can be conducted once annually, preferably in the spring. Woody growth can also be controlled through spot herbicide applications. If the establishment of native grass is not an option, a reduction in the mowing of

existing grassy areas may also be of benefit. Information concerning species suggestions, and establishment and maintenance of warm-season grasses can be found through the following link

[http://www.epa.gov/reg3hwmd/risk/eco/restoration/Planting\\_Native\\_Grasses\\_at\\_Formerly\\_Contaminated\\_Waste\\_Sit..pdf](http://www.epa.gov/reg3hwmd/risk/eco/restoration/Planting_Native_Grasses_at_Formerly_Contaminated_Waste_Sit..pdf).

The removal of unnecessary water sources is also recommended when trying to eliminate gull habitat on a property. Gulls are attracted to water for a variety of reasons, depending on the size of the water body. Even puddles will provide needed drinking water. Grading can eliminate these smaller sources, while larger areas, such as swimming pools, and wastewater treatment and storm water runoff ponds, may require covering or wire grids (see exclusion methods below). These larger bodies of water provide safe nighttime roosting areas. Smaller ponds can be made less attractive to gulls by the establishment of tall vegetation on the banks. Wetland shrubs and/or tall grasses are recommended. In landfill operations, care should be taken to avoid creating depressions in borrow areas from which soil is excavated for covering refuse. When covering or eliminating a water source is not an option, the repellent Goose Chase, containing methyl anthranilate, can be used to discourage use by gulls. However, this repellent can only be used on non-fish bearing waters such as temporary pools of standing water associated with landfills, airports or decorative fountains, and should not be used in areas where surface runoff has the potential to contaminate lakes or streams.

It is important to note that the implementation of these measures to prevent access by gulls at all landfills may help to reverse the upward spiraling trend in populations of both ring-billed and herring gulls. While these species sometimes come in conflict with people, they also can have a detrimental effect on populations of other shorebird species through competition for nesting sites and predation. Lastly, it is essential that all landfills within close proximity to airports carefully consider these recommendations, due to the hazard of bird strikes to aircraft. As previously mentioned, gulls have a strong affinity to airports, oftentimes choosing those close to their food source as primary or alternative loafing areas.

### Airports

As with landfills, airports also provide the wide open vistas that gulls prefer for loafing and feeding in safety. Therefore, many of the habitat modifications would be the same, such as maintaining all grassy areas in a dense vegetative cover at least 10" in height, and if possible, eliminating water bodies (refer to the paragraph above concerning habitat alterations at water sources). When choosing grass species, care should be taken to avoid varieties that are preferred as forage by geese, such as Kentucky bluegrass, and avoid fertilizing and watering to further discourage use. Studies indicate that high endophytic tall fescue varieties (cool-season, perennial, sod-forming grasses), such as Kentucky 31, are not favored by grazers and some insects, and are being tested at a number of airports to reduce the presence of birds and small mammals, such as cottontail rabbits. Endophytes are fungi that live between the cells of the above ground portions of the plant, and form a symbiotic relationship in which both the plant and fungi benefit. The plant provides the fungi with shelter, nutrients and reproductive potential through its seed, while the plant benefits through protection offered by the fungus in the form of alkaloids, which are a natural deterrent to herbivores. The plant is also more disease and drought tolerant, due to this relationship. While studies have shown that

geese and small mammals will avoid these fescues, they have also shown them to be palatable to grasshoppers. Therefore, if tall fescues are to be used as turf-grasses at airports, maintaining a height of at least 10" is necessary to prevent access to gulls desiring to feed on the insects, as they cannot see over or through the grass when looking for potential predators.

Other food sources, such as earthworms, will also entice gulls to airports. After heavy rains, earthworms come out of the soil to seek dry ground, often finding their way onto airport runways in such numbers that they not only attract large numbers of birds, but can also cause airplanes to slide during takeoff and landing. Currently there are no pesticides approved for use in controlling earthworms, but structural modifications can be made to eliminate this hazard, such as installing worm-proof slit gutters along runways ([http://www.int-birdstrike.org/Warsaw\\_Papers/IBSC26%20WPAE6.pdf](http://www.int-birdstrike.org/Warsaw_Papers/IBSC26%20WPAE6.pdf)). Other habitat alterations that can reduce their numbers along runways include the removal of grass clippings during mowing. Clippings left on the ground after mowing eventually decompose, increasing soil fertility, thus providing better habitat. Removal of clippings will also eliminate cover for small rodents, which may attract birds of prey.

### **Exclusion methods**

A variety of exclusion methods can be used to exclude gulls from rooftops, window ledges, boat docks, stored forage areas, swimming pools, waste treatment ponds, small reservoirs, aquaculture facilities, landfills and outdoor dining areas. Several factors will influence the method chosen: the size of the area to be protected; physical characteristics of the site's shape (ie. window ledge, parapet, flat rooftop, etc.); and cost. Sources for materials or devices used in these techniques can be found at the end of this document.

Many studies indicate that stringing individual, parallel lines (monofilament or wire) over the site to be protected, at a height of 6-8' is effective in preventing access to gulls. Crossing the lines in a grid configuration is also effective in excluding birds. If using monofilament, 100# test line should be used. If using steel wire, .8mm thickness is recommended. To make them more visible to birds, ribbons, strips of aluminum foil, or pie tins can be hung from the lines. However, there is some evidence to indicate that the element of surprise which a bird experiences when encountering nearly invisible lines, may be the mechanism which makes this method successful in preventing their landing on the protected area. Birds may also avoid these areas because a quick escape from them may not be possible, if a predator approaches. More research is needed to determine the methods by which these systems work. Wire lines have been used quite successfully with gulls and various species of waterfowl. The recommended wire spacing varies, depending on the species. For herring and black-backed gulls, the preferred wire spacing is 40'. To prevent access by ring-billed gulls, a wire spacing of 20' is preferred. It should be noted that this method does not work well with laughing gulls, which are smaller in size. The wires should be checked daily for breakage and for any debris that may have become entangled in them. This method is more cost-effective than the use of bird netting, and can be used to restrict access to any of the areas mentioned above. In addition, a single wire can be stretched over long, narrow areas, such as parapets and ledges, to prevent gulls from loafing on these narrow structures.

Netting can be used to exclude gulls from smaller areas, but may be too expensive to use on larger sites, such as reservoirs and landfills. In addition, when hung over roof-tops to prevent access by nesting gulls, it has proven to be ineffective in that some birds nested on top of the netting, somewhat like a large hammock! It can be useful in preventing access to open buildings, and may be of use in other situations where wire lines are not practical or effective. If it were to be used in a horizontal application, a support structure may be required to prevent sagging.

Bird spikes, coils, slopes and bird proof gels can be used to prevent nesting or loafing on small, narrow areas, such as window ledges and parapets. The gels, which are applied with a caulking gun, do not prevent landing, but are sticky and uncomfortable on the feet, causing birds to leave the area and thereafter, preventing their return. Treating larger areas, such as entire rooftops, with these products is, however, not practical. A device called a Daddy Long Legs, or Bird Spider is also available, and can be used to treat larger areas, such as rooftops and boat docks. This device consists of a central, rotating spindle which holds multiple, thin, stainless steel rods that wave and spin in the wind, making it difficult for gulls to land. They are available in several sizes, ranging from 4' – 8' in diameter, and range in price from approximately \$43 - \$55. Larger areas would require several units. A device similar to the Bird Spider is a type of bird sweeper. This is a solar powered unit which has two arms that continually revolve at 30 RPM's, similar to a windmill, except that the arms revolve in the horizontal plane. The arms cover a circular area of 5' in diameter. Mylar flash tape is attached to the ends of the arms to increase their visibility and reach. They can be attached to either flat or sloping surfaces. Again, the drawbacks to using this type of device would be the number needed to cover larger areas, and the cost of the units (approx. \$99.00/ea).

Electrical shock systems are another alternative for protection of long, narrow areas. These systems deliver a harmless, pulsating electrical shock, similar in intensity to static electricity. A solar or AC charger is required to power this system. Professional installation of this product is recommended.

### **Frightening devices (harassment)**

Frightening techniques are often utilized to disperse gulls, and consist of two categories: noise and visual. Some entail a combination of both visual and noise deterrents. These techniques are most effective before birds become firmly established at a site. If site tenacity is allowed to develop, it will be more difficult to cause abandonment of the site in favor of more peaceful areas. It is also helpful to note that site tenacity is stronger toward feeding and nesting areas, than for loafing areas. **Please remember that gulls are federally protected under the Migratory Bird Treaty Act. Once egg-laying begins, it is illegal to disturb the birds, eggs or nests without a federal permit.** Therefore, if a harassment campaign is undertaken to control gull numbers at a nest site, it is essential to do so before the onset of egg-laying. For greatest success, it is best to use a variety of methods to prevent acclimation. Sources for materials or devices used in these techniques can be found at the end of this document.

There are a wide variety of noise devices available including propane cannons, pyrotechnics (shell crackers, screamers and bangers) and other noise makers, such as clappers, motion-activated alarms, and distress alarm call systems. Be sure to check federal and state regulations before using pyrotechnics (a type of

explosive) and local noise ordinances to determine if noise-making devices are permitted in your area. Habituation is the primary drawback to these frightening techniques. With no penalty involved, gulls will quickly learn that most are harmless, especially if they are stationary. They must be moved frequently to avoid habituation. This would include the speakers that deliver distress alarm calls.

Distress alarm call systems can be purchased from a variety of sources and range in cost from \$285 - \$750. The more expensive models are wireless, and include more speakers for broader coverage. Initially, gulls may respond to distress calls by coming in to investigate, before eventually dispersing. Studies indicate that birds emit these calls when held by a predator, in an effort to startle the predator into release. It is thought that nearby birds investigate for the purpose of evaluating the situation, in an effort to decrease their chances of also being preyed upon. Care should be taken when choosing the correct call, as **gull distress calls are specific to both region and species**. Therefore, if possible, use calls that were recorded from birds close to your area. Some gulls that reside in mixed flocks may respond to calls of other species which they associate with. Good quality, preferably digital, recordings should be used. This method is most effective when used in conjunction with other frightening techniques, such as the use of pyrotechnic devices, which are best used when gulls come in to investigate the distress call. After a period of time, birds will return to the site. The time span differs depending on their use of the site (feeding or loafing). It is much more difficult to cause birds to abandon a site if it is a feeding area, as opposed to a loafing area. Be persistent and again, reinforce the distress calls with another form of harassment. As with all noise-making devices, please check local ordinances before using alarm call systems.

Ultrasonic noisemakers have been suggested by various wildlife control supply companies as being a solution to repelling many species of birds. However, buyers beware! Some research indicates that birds do not respond to the use of these devices, and may not even be able to hear sounds in the ultrasonic range. Some studies indicate that they may be useful for a short period of time, but habituation quickly ensues. Considering the high cost, it may be best to rent such a device initially to determine its effectiveness before purchasing.

There are a wide variety of visual frightening devices on the market including predator models; numerous styles of brightly colored mylar objects, such as flags and streamers and balloons (often decorated with scary eyes or predator images); kites resembling avian predators; dead gull effigies; and lasers. There are also a number of motion activated devices on the market, including sprinklers and self-inflating scarecrows, among others. Used alone, these will only be effective for a short period of time, as is the case with most frightening techniques, habituation quickly occurs. Therefore, it is best to use these in conjunction with other types of harassment, such as the use of pyrotechnics or distress alarm calls. Frequently moving and varying the devices used will also help to prevent habituation.

Lasers are also considered to be frightening devices which may be useful in dispersing roosting gulls from waterbodies, such as reservoirs. This technique, however, is only effective at night or in low light conditions such as those caused by fog. Research indicates that lasers will not cause complete abandonment of the roosting site, with gulls returning during daylight hours. For most success, sweeps should occur every half hour from dusk to dawn. Lasers should be used with great caution due to the potential dangers associated with them, and therefore should only be used by trained personnel. The radiation emitted can be a hazard

to the skin and eyes, even when directed at a reflective surface. Therefore, eye protection should be worn by all personnel in the area where it will be used. Care should also be taken to avoid pointing at occupied vehicles (including aircraft). If the laser is a Class IIIb, danger signs must be posted at all entry points to the area in which it will be used. The exposure limits and dangers associated with various classes of lasers can be reviewed through the following link [http://www.asu.edu/radiationsafety/laser/appn\\_C.html](http://www.asu.edu/radiationsafety/laser/appn_C.html).

Dead gull effigies (fresh carcasses, taxidermic or artificial) as frightening devices have been studied and show some promise as a frightening technique in dispersing birds from feeding and, most successfully, from loafing areas. Gulls will avoid areas containing effigies, but only if it is realistic in every detail; is of the same species as the gulls you are attempting to disperse; and is in good condition (looks freshly killed as opposed to decomposed). The positioning and posture of the effigy are also details that shouldn't be overlooked. Taxidermic mounts prepared to mimic agony postures are best. The use of distress alarm calls used in conjunction with pyrotechnic devices, will enhance the effects of the effigies, and prevent habituation. If used alone, however, habituation is likely to occur within a few days. Federal and state permits would be required for the taking of any gull for use as scaring device. Many airports already have permits to remove various birds and mammals from within their boundaries, and so could use the carcasses for this purpose.

The use of falcons as a frightening technique is becoming more widespread and is seen to be more environmentally friendly by the general public than is lethal removal at airports. However, this technique may be cost prohibitive to the majority of business/home owners and agricultural producers. The process requires frequent visits by a falconer with a trained bird of prey, such as a peregrine falcon. The falcon does not hunt the targeted birds, but is flown in a training exercise during which it chases a lure swung about on a tether. The sight of this avian predator flying in the area is enough to cause gulls, and other birds to leave. When used in conjunction with pyrotechnic devices, birds can be trained to connect the sound of the noisemaker with the appearance of the falcon, eventually responding to the noisemaker alone thereby, over time, reducing the number of visits required by the falconer. When used at airports, care should be taken to prevent flocks of dispersing birds from flying in the direction of incoming or outgoing aircraft.

Radio-controlled aircraft can also be useful in dispersing gulls, with some models even manufactured to resemble birds of prey. A skilled operator can even control the direction of the dispersing birds. Their use is limited in adverse weather conditions however, and their effects are not long-lasting. Therefore, it is best to use in conjunction with other frightening techniques, such as pyrotechnic devices.

Border collies are also an environmentally friendly way to disperse birds of many species. The approach of an animal that gulls see as a real predator is quite effective. Trained dogs can control the direction of dispersing birds, and over time, is shown to reduce the number of birds landing in the protected area. However, as with falconry, this method can be expensive, requiring the hiring of an experienced handler with trained dogs. Also, it does little to prevent gulls from flying above airports. Therefore, it is again recommended that this technique is best used in conjunction with other frightening devices.



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## **SOURCES FOR BIRD CONTROL MATERIALS**

Birdbusters  
707 South Gulfstream Avenue #405  
Sarasota, FL 34236  
(866)915-8225  
<http://www.birdbusters.com/>

(bird netting, wire & spikes, alarm call systems, predator models, propane cannons, and lasers)

Nixalite of America  
1025 16<sup>th</sup> Avenue  
East Moline, IL 61244  
(888)624-1189  
<http://www.nixalite.com/>  
(bird spikes, netting, motion-activated sprinklers)

Bird-X  
(800)860-0473  
<http://www.bird-x.com/>  
(bird netting, spikes, & visual scare devices)

Reed Joseph International Co.  
P.O. Box 894  
800 Main Street  
Greenville, MS 38702  
(800)647-5554  
<http://www.reedjoseph.com>  
(LP cannons, pyrotechnics, self-inflating scarecrows [Scary Man], lasers, bird distress & predator calls)

Stoneco, Inc.  
P.O. Box 765  
Trinidad, CO 81082  
(719)846-2853  
<http://originalshellcracker.com>  
(pyrotechnics)

Forestry Suppliers, Inc.  
205 West Rankin Street  
P.O. Box 8397  
Jackson, MS 39284-8397  
(800)647-5368  
<http://www.forestry-suppliers.com/index1.asp>  
(LP cannons, bird netting, distress alarm call systems, predator models)

Flye-Bye Bird Control Products  
(800)820-1920  
<http://www.flybye.com/>  
(spikes, netting, hand held lasers, predator models, shock strips, wire systems, visual scare deterrents)

Bird-B-Gone, Inc.  
Mission Viejo, CA 92692  
(800)392-6915  
<http://birdbgone.com/>  
(spikes, netting, spiders, wire systems, bird slopes, shock strips, gel, visual scare deterrents, distress alarm call systems, motion-activated sprinklers)

Margo Supplies, Ltd.  
P.O. Box 1037  
1065 South Industrial Park Rd.  
Shelby, MT 59474  
(888)652-1199  
<http://margosupplies.com/public/american1/index.html>  
(LP cannons, pyrotechnics, distress alarm call systems, lasers, bird wire systems)

Gempler's  
P.O. Box 44993  
Madison, WI 53744-4993  
(800)382-8473  
<http://www.gemplers.com>  
(bird bangers, owl effigies, LP cannons, screamer sirens, pyrotechnics, distress call systems)

AllPredatorCalls.com  
P.O. Box 911176  
St. George, UT 84791  
(888)826-9683  
<http://www.allpredatorcalls.com/>  
(predator decoys, Hawk Screamer hand call, electronic calls)

Bird Control Depot  
13 Linnell Circle  
Billerica, MA 01821  
1-866-635-9071  
<http://www.birdcontroldepot.com/default.asp>  
(netting, all supplies for installing wire lines)