Vilas Park, Madison WI
Integrated Waterfowl Management Plan

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Provided by

The Vilas Park Waterfowl Management Advisory Group

Vilas Park Waterfowl Management Advisory Group

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The following Groups were invited but did not participate:

Bay Creek Neighborhood
Greenbush Neighborhood
Madison Ultimate Frisbee Assoc.

This plan represents the outcome of the deliberations of the Vilas Park Waterfowl Management Advisory Group. However, due to the objections of one of the committee members (Tauber), it does not represent a consensus agreement of the group for all the management alternatives described.

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Introduction

This plan documents past and current waterfowl and gull concerns at Vilas Park and Lake Wingra, provides an overview of waterfowl and gull biology, identifies management agencies, reviews available abatement options, and recommends an integrated plan for management wildfowl at these locations.

This plan describes the management of wildfowl habitat at Vilas Park and Lake Wingra in a manner that the intended species find it unfavorable, and to manage the population of waterfowl and gulls directly. The goal is continued wildlife viewing opportunities while minimizing the concerns from increasingly abundant wildfowl populations.

In order to address concerns about wildfowl impacts, the Vilas Park Waterfowl Management Advisory Group (VPWMAG) was organized to discuss resident Canada goose management options. Subsequently, it was decided to broaden the scope and include resident and migratory Canada geese, ring-billed gulls and feral and wild ducks. While the majority of the recommendations are focused on the resident Canada goose population, this plan allows for coordination of options to make the best use of the integrated management plan for four species. A Small Lakes Protection grant was secured from the Wisconsin Department of Natural Resources to fund development of this management plan.

Problem Statement

Vilas Park, located on 345 acre Lake Wingra, is managed by the City of Madison Parks Division (MPD). It is one of Madison's oldest parks and is the most heavily used swimming beach in the city. In 2009, Park staff recorded a total of 24,327 people using the beach during normal lifeguard hours. It also provides fishing, tennis courts, shelters, playgrounds, open grassy play area and walkways. At 42 acres, and adjacent to Henry Vilas Zoo and the UW Arboretum it offers convenience and quality access to natural resources based recreational activities.

Waterfowl and gulls use the area because they have available food supplies, nearby habitat that provides nesting sites, and protection. We recognize that many park visitors enjoy watching wildlife, including the species discussed in this plan

For many years, MPD staff have received complaints from park users and local businesses requesting that Canada goose conflicts be addressed. MPD encourages a healthy home for natural resources including wildlife. However, MPD also has a responsibility of managing its parks for multiple uses, including human recreation. Likewise, the mission of Public Health-Madison and Dane County (PHMDC) is to promote wellness, prevent disease and help ensure a healthy environment. The PHMDC participated in a study in 2002 and 2003 evaluating tools to assess health impact of beach bacteria at Vilas Park. One of the causes for elevated levels of bacteria identified in the study was feces from the large populations of waterfowl and gulls.

Between 2005 and 2009 Vilas Beach was closed 8 times for high bacteria levels, for a total of 15 days. In 2010, the beach was closed for 43 days. Large amounts of wildfowl fecal material was documented during that time. Due to the high levels of *E. coli* in 2007 the beach was placed on the EPA 303(d) list designating it as impaired water.

- **Vilas Park is the most heavily used beach in Madison**
- **Waterfowl were identified in 1979 as source of beach contamination and closings at Vilas Park**
- **A 2003 study by PHMDC again identified waterfowl and gulls as a contributing factor for increased levels of pathogens**
- **In 2007 the waterway was classified as 303(d) an impaired waterway by the WDNR and Environmental Protection Agency**
- **In 2010 the Vilas Park beach was closed 43 days due to high pathogen levels**

Wildlife Management Values

The Vilas Park Waterfowl Management Advisory Group recognizes that wildlife management is a value-laden endeavor. Our society places different values on, and consequently behaves differently toward, wildlife depending on the circumstances. For example, a captive deer in a zoo or game farm is perceived and treated differently than one ranging freely that is hunted for food or sport. This dichotomy is evident in the attitudes of people about urban wildfowl management. To some, all wildfowl should be left unmolested, while others accept varying degrees of management to manage populations and reduce wildfowl impacts upon human activities.

This plan acknowledges the validity of all these points of view, and recommends management strategies that are likely to be either acceptable or unacceptable to individuals depending on the specific strategy and that person's values. The plan outlines an integrated strategy that is meant to minimize offense to individual values, while effectively reducing wildfowl impacts at Vilas Park to an appropriate level.

Specific Conflicts With Waterfowl And Gulls At Vilas Park

Conflicts with waterfowl and gulls involve the unpleasant and unhealthy nature of feces in public use areas, health concerns over elevated levels of pathogens at swimming beaches, landscape and native plant damage caused by feeding, and aggressiveness behavior of Canada geese toward humans.

Disease Risks-

In 2004, Public Health Madison/Dane County, in cooperation with U.S. Geological Survey, US Environmental Protection Agency and the Wisconsin State Laboratory of Hygiene completed the study Data Collection and Modeling of Enteric Pathogens, Fecal Indicators and Real-Time Environmental Data at Madison, Wisconsin Recreational Beaches for Timely

Public Access to Water Quality Information. Vilas Park Beach was one of the study sites and they found that one of the common causes for elevated bacteria counts at Madison beaches are large populations of waterfowl.

Water samples were collected to determine if *E. coli* O157:H7 was present at Vilas Beach from August, 2002 through September, 2003 with 61% found presumptively positive, resulting in beach closure for the rest of the swimming season. **This rate was 100% higher than other beaches where waterfowl and gulls were less frequent** (Schneider et al.). Further tests of bird feces found *E. coli* O157:H7 present in 40% of duck and goose samples and 80% in gull samples. *E. coli* O157:H7 serotype has been identified in pastures and contaminated ground water and has been recently associated with several high visibility outbreaks of waterborne infectious disease. It produces serious illness (over 63,000 illnesses /year have been reported, some from recreational water use), including death. The infectious dose for *E. coli* O157:H7 is believed to be low from 10-100 bacterial cells (Dupont et al., 1989, Griffin and Tauxe, 1991, U.S. FDA), particularly among immune-suppressed individuals. Therefore, any positive *E. coli* O157:H7 is considered to be a serious human health risk.

In another study conducted by the USDA's National Wildlife Research Center, fecal samples provided from multiple states and Dane County, Wisconsin researchers found the prevalence of *E. coli* serogroups in Canada geese. The overall prevalence for *E. coli* ranged from 2 percent during the coldest time of the year to 94 percent during the warmest months of the year. During March through July, when resident Canada geese dominated the local goose population, the prevalence of enterotoxigenic (ETEC) forms of *E. coli* was 13.0 percent. During the same period, the prevalence of enterohemorrhagic (EHEC) forms was 6.0 percent, while prevalence for enteroinvasive (EIEC) and enteroagglomerative (EAEC) forms were 4.6 and 1.3 percent, respectively. *Salmonella*, *Listeria*, and *Campylobacter* were also present. Prevalence for *Salmonella* was less that 1 percent, while prevalence for *Listeria* in goose feces ranged from 8-12 percent. The prevalence for *Campylobacter* ranged between 0-60 percent depending upon the sampling location (Clark 2003).

This analysis of disease risk demonstrates the potential risk to human health from contact with pathogens in bird feces. Some people are more likely to develop problems than others. Risk factors include:

- **Age.** Young children and older adults are at higher risk of experiencing illness caused by *E. coli* and more-serious complications from the infection.

- **Weakened immune systems.** People who have weakened immune systems — from AIDS or drugs to treat cancer or to prevent the rejection of organ transplants — are more likely to become ill from ingesting *E. coli*.

- **Surgical History.** People who've had surgery to reduce the size of their stomachs are more likely to develop symptoms from *E. coli*, possibly because they have less stomach acid to kill the bacteria (Mayo, 2009).

Disease risk from bird feces varies from year to year and season to season. Summer is the season when pathogens are most prevalent. This is also the season when most humans will come into contact with waterfowl and gulls feces at Vilas Park.

Case Example:

In 2006, Neider Park Beach on Lake Sinissippi, Hustisford, Wisconsin was added to the EPA list of impaired waters due to increased levels of bacteria. While this can be due to a variety of reasons, including high levels of waterfowl in the area.

The Clean Water Act (Section 303(d)) requires that states develop a list of impaired waters, which include those waters where: a) Current water quality does not meet numeric or narrative criteria in a water quality standard (Wisconsin Administrative Code NR 102) or, b) Designated Uses (Fish and Aquatic Life, Recreation, etc.) also described in Wisconsin Administrative Code, are not met. Water samples are taken during the Memorial Day - Labor Day period each year on a weekly basis within 24 hours of rain events and samples are analyzed for *E. coli* at the State Laboratory of Hygiene.

Recognizing that the large population of resident Canada geese that frequented the park were potentially contributing to the increased bacteria levels, the Lake District began to implement resident Canada goose reduction efforts in 2007. In 2009, over 360 Canada geese were removed and efforts continued in 2010. Canada geese were still present for public viewing in lower numbers. Water samples during this period dramatically improved and the success is attributed to Canada goose population reduction (G. Farnham, 2010 pers. comm.).

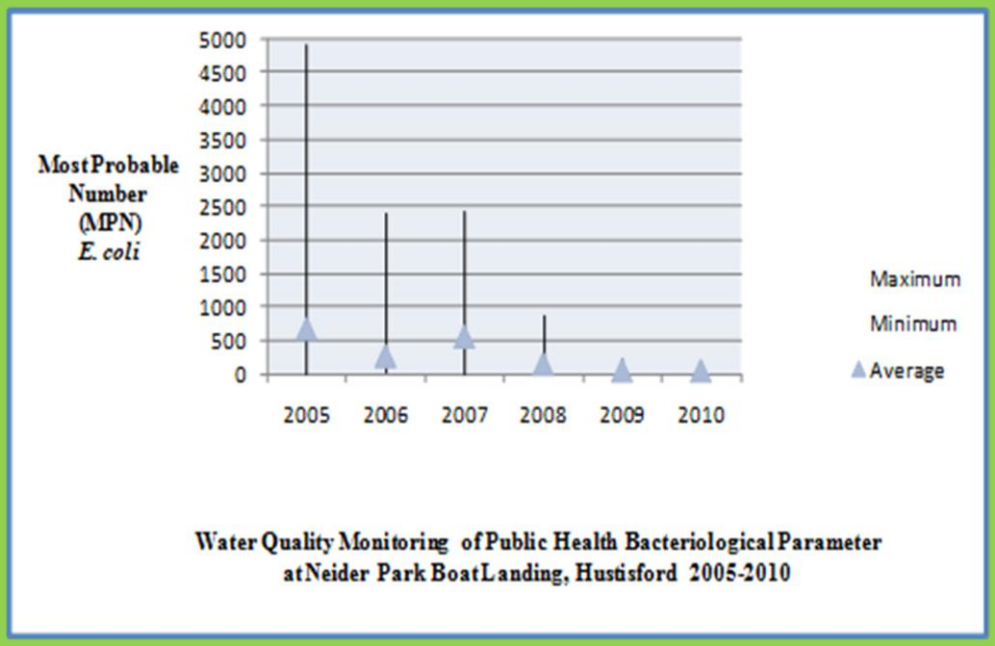

Figure 1 Decreasing *E. coli* levels (MPN/100mL) at Neider Park after resident Canada goose population management in 2009 and 2010. Source- Lake Sinissippi Improvement District

Landscape Damage -
Waterfowl have become persistent foragers in certain areas of Vilas Park. This persistent feeding behavior results in landscape damage that removes preferred vegetation and results in monocultures of undesirable species. Often the soil compaction is significant enough to create a "hard pan" that absorbs little precipitation and facilitates direct run-off of deposited feces during rain events.

Figure 2 Degraded vegetation and soil erosion in area of high waterfowl use.

Re-vegetation of these areas can be difficult to establish because newly emerged plants are grazed by foraging waterfowl. High nutrient runoff can create harmful algal blooms and increase water quality problems. Waterfowl create and use trails when traveling to these high use areas which can contribute to erosion. Establishment of native wetland plantings can be significantly impacted by geese and natural resource managers have had to construct exclosures around areas of wild rice and other desirable plantings. Areas of native sedges on Lake Mendota have been grazed by Canada geese to the point that they are unviable and colonized by invasive exotic grass (R. Hefty, MPD 2010. pers. comm.). Flower and vegetable gardens are highly targeted by waterfowl and require exclosures to prevent extensive damages.

The Patuxent River, Maryland, experienced a major decline in wild rice during the 1990s. Researchers conducted experiments in 1999 and 2000 with fenced exclosures and discovered herbivory by resident Canada geese. Grazing by geese eliminated rice outside exclosures, while protected plants achieved greater size, density, and produced more panicles than rice occurring in natural stands. The observed loss of rice on the Patuxent River reflects both the sensitivity of this annual plant to herbivory and the destructive nature of an overabundance of resident geese on natural marsh vegetation. Recovery of rice followed two management actions: hunting removed approximately 1,700 geese during a 4-year period and reestablishment of rice through a large-scale fencing and planting program (Haramis and Kearns 2007).

Diverse plant life is a crucial part of our ecosystems. Often individual species rely on a variety of plant for their existence. Aldo Leopold (1937) summarized early records of waterfowl in Lake Wingra (from Walter Chase's 1873-96 journals), and at least 17 species of ducks were present. Currently, it is unlikely that that we could match those surveys. Diverse plant life also serves to protect watersheds, stabilize banks, improve soils, moderate climate and provide crucial food and cover for wildlife.

From the vantage point of Veterans Memorial Park (CA), the federal government's $1.25 million effort to restore native plants to the reconstructed riverfront isn't going so great.

Peering over the railing, pedestrians look down on 100 beleaguered tules sedges that survive as stubs only because each has been wrapped with protective plastic.

Without the plastic, these sedges would be "munched down to the mud," said Rick Thomasser, the local flood control district's watershed manager.

As feared, downtown's resident flock of geese have run riot over the plants, pushing aside last summer's wimpy fencing and feasting to their stomach's content. By Kevin Courtney of the Napa Valley Register

Safety-

Accumulations of feces are unsanitary and can become hazardous for runners, bicyclers and sport enthusiasts. Slippery conditions exist with numerous fecal deposits on trails, walkways and playing fields. Sport enthusiasts have complained of stained uniforms as well as injuries from falls. Aggressive geese can chase park users when protecting their nest or young. It is not uncommon for people to complain about being hit and or knocked down by adult geese. Another concern is auto collisions.

Collisions can happen when waterfowl suddenly venture into traffic and drivers swerve or brake heavily causing following drivers to make split second decisions. Waterfowl and gulls also pose a significant concern for aviation. Ducks are maintaining and gulls and resident Canada geese are increasing in numbers and all are large flocking birds with dense bodies that can cause considerable damage to aircraft and risk human and bird life if they encounter each other.

Figure 3 Geese crossing a road with obstructed view for on-coming traffic.

Vilas Park is not within the FAA's 5-mile separation distance of Dane County Regional Airport and a hazardous wildlife attractant. However, other parks managed by the City of Madison are and they do provide habitat for waterfowl and gulls. **Vilas birds exposed to harassment measures are likely to relocate to these areas temporarily.**

Wildfowl Nuisance -

The unsavory experience of recreating in an area covered with wildfowl species is not soon forgotten. People avoid picnicking and playing in areas where feces are pervasive. At Vilas Park, this has resulted in large areas of open lawn that are designated for human recreation (soccer, flag football and Ultimate Frisbee are common) being "off-limits" due to feces. Vilas Park is the primary field location for Regent Soccer Association but individual teams have moved their practices to other parks due to the abundance of feces. Parents report having to 'strip down' their

young soccer players before allowing them in their vehicles and coaches recommends an immediate bath after playing at Vilas Park. This leads to crowding in the clean areas of the park and discourages users from using the park's facilities.

Figure 4 Soccer field used for loafing and feeding by geese and gulls.

Past Goose Management Efforts

Problems caused by Canada geese are not new to Vilas Park. Undergraduate students and faculty from Edgewood College have been involved with surveys and research projects associated with the goose population and issues relating to them for nearly 10 years.

Canada geese abatement techniques that have been used at Vilas Park over the last several years include the following activities:

- Hazed geese physically.
- Purchased fencing to exclude geese from beach area during non-use periods.
- Installed native plantings buffer along lagoon.
- Installed no feeding signage.
- Produced flyers and other media, park users to refrain from feeding wildlife.
- Paid employees for countless hours washing goose feces and repairing landscape damage.
- Conducted research to determine cause of water quality concerns.
- Initiated waterfowl and gull management plan.

Wildfowl Species Included In This Plan

For the purposes of this plan the VPWMAG identified four species of concern: Giant Canada Goose, Ring-billed Gull, Mallard Duck and feral ducks. While geese are the most abundant species at Vilas Park, all four can contribute to human-wildfowl conflicts.

Canada Goose

There are two groups of Canada geese that make an appearance at Vilas Park, migratory and resident. The United States Fish and Wildlife Service (USFWS) identifies resident Canada geese as those that nest within the lower 48 States in the months of March, April, May, or June, or that reside within the lower 48 States in the months of April, May, June, July, and August. The resident Canada goose population in the United States has experienced dramatic growth in the last 30 years, increasing approximately 4 fold from 1 million birds in 1990 to over 3.9 million in 2008 (Dolbeer and Seubert, 2009).

In Wisconsin the population of resident Canada geese was estimated at 6,900 in 1986 and 165,000 in 2010, a 24 fold increase in as many years, well above the WDNR statewide population management goal of 68,000 resident Canada geese (WDNR 1994, Mississippi Flyway Council Technical Section 1996, Van Horn et al. 2009). This growth is evident in south

central Wisconsin, as Canada geese are abundant throughout the year and are only absent for short periods of extreme cold. The DNR annually conducts a mid-winter waterfowl survey usually the first week of January. In 2011, they recorded 38,000 Canada geese that remained in the state despite the harsh winter conditions (Van Horn et al. 2011 unpublished).

As warmer weather returns, conflicts occur as people attempt to utilize open spaces near melting ponds and wetlands. This coincides with goose nesting. Adult geese will defend the area around their nest in an attempt to keep potential predators away. This includes park users walking or recreating in the area. This type of encounter can produce human injury.

A large population of geese that frequents a park can leave up to 1.5 pounds of feces per bird per day. Where resident goose populations are significant (>100 birds), the continuous influx of nutrients contained in Canada goose feces can contribute to the eutrophication of small water bodies, especially those that have restricted circulation and flow-through, which in turn may stimulate nuisance algae and weed growth (Manny et. al. 1994, Unckless and Makarewicz 2007). Eutrophication of lakes can have a negative effect on freshwater fishes by lowering dissolved oxygen levels and increasing the production of blue-green algae (Dodds 2008). Bacteria and particulate matter contained in goose feces, when present in sufficient quantity, may lead to the need for swimming restrictions where geese congregate. Other types of conflicts include deterioration of habitat for other species of wildlife and general loss of use by the public who sponsor the acquisition and maintenance of public properties through local tax contributions.

Biology and Local Conditions -
Four subspecies of Canada geese are found in Wisconsin, the Interior, Lesser, Richardson's and the Giant. The two most common subspecies found in Wisconsin are the **giant Canada goose (resident)** and the **interior Canada goose (migrants)** which migrates through the region in the spring and fall. Most of Wisconsin's migrant Canada geese belong to the Mississippi Valley Population, (MVP). These are geese that exclusively fly from Canada through Wisconsin along the "Mississippi River" flyway which includes most of Wisconsin.

Figure 5 Canada goose in SE WI park in mid- Sept. with colored neck band indicating Hudson Bay origin

Historically, most of the migrant population stopped at Horicon marsh in east central Wisconsin to rest and feed on surrounding agricultural crops before continuing on their journey to southern Illinois. As populations of resident Canada geese grew over the last 30 years, they provided a decoying effect on the migrant population. Canada goose surveys in urban areas now indicate many migrants travel from the breeding grounds near Hudson Bay directly to protected urban areas in Wisconsin.

Canada geese are primarily grazers; they consume the tender new shoots and stems of grasses, clover and aquatic plants. In rural settings agricultural crops, such as corn, soybeans, and wheat, also are consumed, often as these plants emerge after planting, and again after the grain matures. Juvenile Canada geese require a high protein diet for development. They will eat insects, small crustaceans, and mollusks attached to aquatic vegetation. In urban

environments, geese are opportunistic and readily will accept intentional feeding opportunities provided by humans, even though much of it may have little nutritional value. Canada geese prefer to feed near water that lack obstructions that might conceal predators.

Canada geese breed at 2-3 years old. Their clutches average 5 eggs and the guarded nests are located in the proximity of a water body. Often the nests can be located up to ¼ mile away or on elevated roof tops; when the young are hatched after 28 days of incubation, the adults guide the juveniles to water for protection. The juvenile are most susceptible to predation. However, **resident Canada geese have a low mortality rate, often successfully raise 80- 90 percent of the eggs laid.** Once resident geese become adults their mortality rate remains very low, by staying in the protective urban environment they have been referred to as "bullet proof" by waterfowl biologist as they often live up to 20 years.

In mid- June to early July adult geese undergo the molting process. This involves the annual replacement of wing feathers. Most other birds lose single feathers and replacements soon follow, so the ability to fly is not lost. Geese undergo a complete and simultaneous molt where most of their flight feathers are lost over a short period and most of the flock loses the ability to fly for 3-4 weeks. They congregate at bodies of water so they can escape danger.

Figure 6 Molting Canada goose wing with developing replacement feathers.

Adult birds that were not successful breeders and/or immature birds will separate themselves from adults with young and together they will leave the area in a molt migration. This involves the birds traveling up to hundreds of miles, often to Hudson Bay to undergo their molt (explaining why flights of geese are observed in formation in early June). These geese will return to the area in mid-August to join the successful breeders and juveniles. Large numbers of juvenile geese are often observed with one adult pair, this trait is called gang brooding. This allows supervision of the young and unrestricted adult movement. Juvenile geese imprint on the area where they learn to fly and return to the general area when they become breeding age (2-3 yrs.).

Surveys conducted at Vilas Park from 2001–2003 indicated that approximately 80 resident Canada geese were using the park and 400-500 additional geese were attracted to the site during migration, likely due to the decoying effect of the resident Canada geese. Surveys during the 2010 early summer months indicate that the resident population has grown to 130 geese, a 62% increase from 2003. While fall 2010 counts totaled over 400 geese present. One hundred geese can produce up to 150 lbs. of feces per day and over the course of 6-months, 27,000 lbs. (13.5 tons) of feces may be introduced into the Lake Wingra watershed.

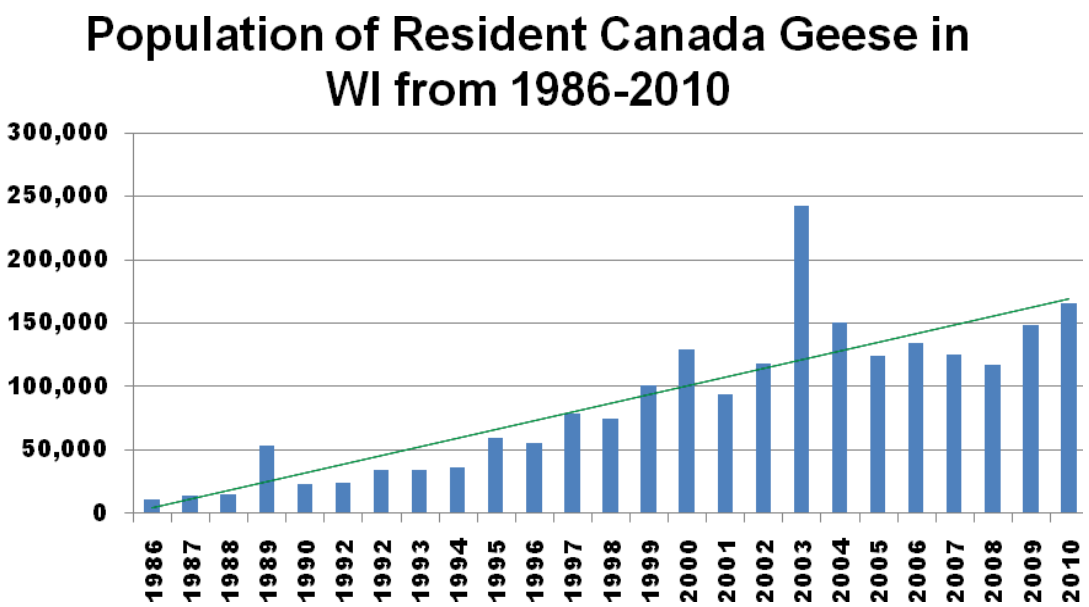

Figure 7 Graph illustrating population growth of approximately 12% per year of the last 24 years. Source - WDNR Waterfowl Breeding Population Survey for Wisconsin 1973-2010.

The majority of Wisconsin's resident Canada geese are located in the southern half of the state and a greater percentage of those are located in the southeast portion. However, surveys indicate that the population is increasing in western and northern Wisconsin (Van Horn 2010). While the WDNR's waterfowl survey is primarily used as a population index, other specific surveys conducted by the City of Madison in 2010 counted 530+ resident Canada geese at five of their parks at the end of June during the flightless period (R. Hefty, MPD 2010. pers. comm.). Other nearby municipalities, Middleton and Monona as well as 60 other communities throughout the state have also had increasing resident Canada goose conflicts over the last 20 years.

Ring-Billed Gull

During most of the last several decades ring-billed gulls expanded their range and increased their populations substantially within the Great Lakes (Scharf and Shugart 1998). Cutbert et al. (2001) report that between 1976-77 and 1989-91 ring-billed gull breeding pairs increased from 102,000 to 284,000 and the 1997-1999 estimates increased to 309,000.

In addition to increases in gull populations in natural habitats, there has been an increase in populations in urban areas where gulls have established colonies on buildings (Dolbeer et al. 1990). Dwyer et al. (1996) documented 7,922 pairs of roof-nesting gulls at 30 colonies in four Great Lakes states, including Ohio with 17 colonies and Wisconsin with 8 colonies. The growth in these populations has been dramatic, for example, in Cuyahoga County, Ohio, there were three roof-nesting colonies with 265 pairs in 1990 and more that 2,549 breeding pairs in 13 colonies in 1994 (Dwyer et al. 1996).

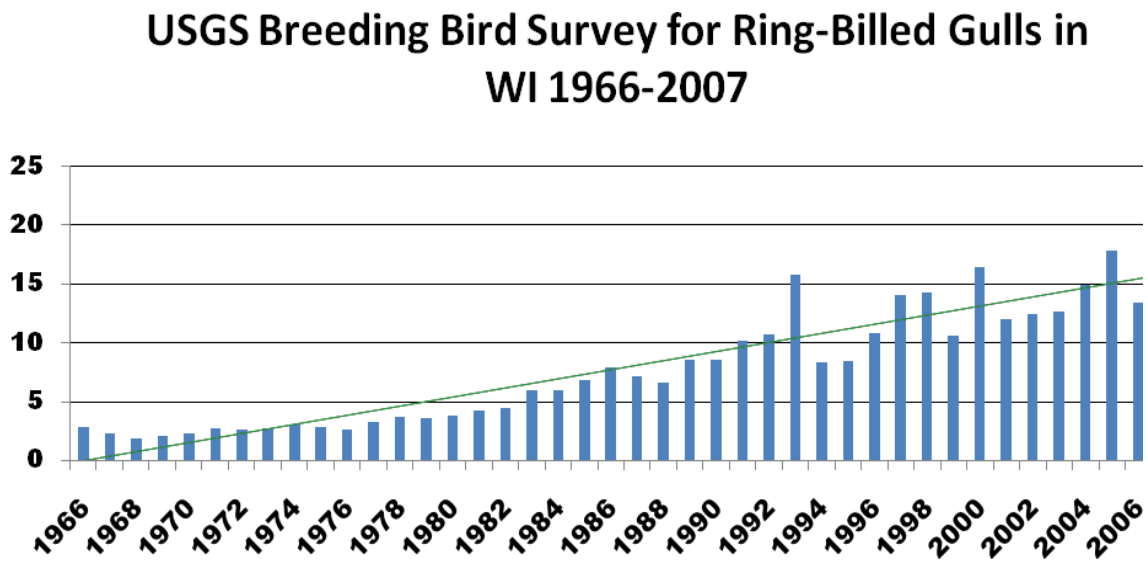

Figure 8 Graph illustrating how frequent ring-billed gulls are observed during breeding bird survey routes in Wisconsin from1966-2007. Source - USGS North American Breeding Bird Survey Results and Analysis 1966-2007.

Figure 9 Adult ring-billed gull.

Biology and Local Conditions -
Ring-billed gulls are a common gull in Wisconsin; populations are concentrated near lakes and other large bodies of water. The ring-billed gull is a medium sized gull with a light gray back and upper wings, and white under parts and yellow legs. It's most distinguishing characteristic is a distinct black band around a yellow bill. Ring-billed gulls don't attain the described adult plumage until their third year, going through various mottled brown plumages. Like most gulls, ring-billed gulls are omnivorous, feeding on animal and plant matter. Common feeding sites are landfills, livestock feedlots, fish hatcheries, open fields, food processing plants and parking lots. Nesting often occurs on islands in natural settings and flat roof tops in urban areas. They are colonial nesters, meaning multiple pairs nest in close proximity to each other. The clutch size of a ring-billed gull pair ranges from 3 to 5 eggs, and the lifespan of ring-billed gulls averages 10-15 years. Spring arrival of migrants in Wisconsin begins in March/April and autumn migration is normally completed in October, however, some ring-billed gulls may remain longer if conditions remain favorable.

Gulls are often involved with conflicts from park users relating to stealing food, noise and the congregation of gulls releasing fecal bacteria. Waterfowl roosting on shorelines can negatively

impact water quality. According to a study conducted by Great Lakes Water Institute, University of Wisconsin, Milwaukee laboratory at a Milwaukee beach on Lake Michigan, *E. coli* levels reaching over 27,000 CFU/100 mL were found in an area where gulls routinely roost (McLellan et al. 2003). **Guidelines dictate the beach be closed when the geometric mean of *E. coli* counts exceed 126/100 mL or when a single sample exceeds 235/ 100 mL.** Lake Wingra gulls are drawn to the public use areas due to intentional and unintentional public feeding and unmolested loafing sites.

Mallard and Feral Ducks

The mallard is the world's most familiar duck (Gooders and Boyer 1986) and is the most adaptable, occupying a wide range of habitats including highly urbanized areas. One of the mallard's foraging characteristics is its ability to utilize agricultural grain crops as well as natural aquatic foods (Johnsgard 1975).

The 2010 total mallard population estimated at approximately 198,000 in Wisconsin. This estimate is 9% above the long term mean (37 years). The overall trend for the breeding mallard population has recently leveled off in the range of 200,000-250,000 following a 20+ year increasing trend (Van Horn et al. 2010).

Biology and Local Conditions -

Urban mallard populations are often hybridized with feral domestic ducks, commonly observed with a variety of plumage combinations. Ducks, similar to abundant populations of resident Canada geese, can contribute to increased bacteria levels (Standridge et. al 1979) and deterioration of vegetation in heavily used areas. While ducks are often drawn to urban park settings due to intentional public feeding it's likely they would continue to be present at lower populations with enforcement of feeding ordinances. Clutch sizes vary from 10-12 eggs and incubation takes about 28 days. They use a variety of nesting habitats including ornamental plantings around residences and natural areas.

Figure 10 Hybridized ducks often congregate with mallards in urban public use areas.

- **North American resident Canada goose population increased approximately 4 fold from 1 million birds in 1990 to over 3.9 million in 2008**
- **Wisconsin's 2010 population estimate of 165,000 resident Canada geese is 142% over the DNR's goal of 68,000 statewide**
- **The Vilas population of resident Canada geese has increased 62% from 2003-2010**
- **Ring-billed gulls have expanded their range and increased their populations substantially within the Great Lakes states**
- **The 2010 total mallard population estimated at approximately 198,000 in Wisconsin**

Waterfowl And Gull Objective For Vilas Park And Lake Wingra

The purpose of this plan is to enable VPWMAG to reach its objective of managing the population of waterfowl and gulls in order to minimize conflicts and maximize the enjoyment of the park. VPWMAG recognizes that philosophies vary from person to person regarding population management when management may involve reducing the number of geese using Vilas Park and Lake Wingra. It is important that all practical and available management tools be considered.

Objectives include the following:

1. ***Provide a cost-effective plan that maintains the population of resident Canada geese within the range of 4- 25 birds from May 1 – September 1.***

2. ***No more than one closed day annually from high bacteria levels derived from urban waterfowl or gulls.***

The Public Health Madison and Dane County tests the water quality at beaches regularly for occurrence of high bacteria levels. Historical records are available for the frequency and cause of beach closings. This information will be used to gauge success at Vilas Beach.

3. ***100% fewer geese congregating in the beach area***

Edgewood College staff and students have been collecting Canada goose counts since 2001 and can continue to provide this data with assistance from lifeguards throughout the summer.

Duck and gull populations will be affected by some of the recommended actions. However, the majority of the recommendations are directed towards resident Canada geese.

Waterfowl And Gull Management Strategies for Vilas Park

This plan takes an integrated approach to managing human-wildfowl conflict at Vilas park. The Vilas Park Waterfowl Management Advisory Group recommends a management hierarchy that seeks to respect society's diverse values about wildlife management by emphasizing those strategies that have the minimum impact on wildfowl, and minimizing the use of strategies that harm them:

1) Education and Outreach
2) Habitat Alteration and Wildfowl Harassment
3) Populations Suppression
4) Wildfowl Removal

Wildlife Acceptance

Across the world, wildlife habitat has been altered as human populations expand and land is used by humans. In some cases when habitat has been altered to create desirable conditions for humans, wildlife have responded by increasing their use of the same habitat. Human uses and needs often compete with wildlife, increasing the potential for human-wildlife conflicts.

The concept of wildlife acceptance capacity vs. biological carrying capacity must be applied to resolving wildlife management conflicts. **The wildlife acceptance capacity is the limit of human tolerance for wildlife or the maximum number of a given species that can coexist compatibly with local human populations.** Biological carrying capacity is the land or habitat's ability for supporting healthy populations of wildlife without degradation to the species' health or their environment over an extended period of time (Decker and Purdy 1988).

These principles are especially important because they define the sensitivity of a community to a wildlife species. For any given conflict situation, there will be varying thresholds by those directly and indirectly affected by the species and any associated damage or their perspective. This damage threshold is a factor in determining the wildlife acceptance capacity. While Wisconsin may have a biological carrying capacity to support a higher population of some bird species that are discussed in this plan, in many cases the wildlife acceptance capacity is lower or has been met in many urban areas.

Once the wildlife acceptance capacity is met or exceeded, individuals without access to a science based plan or professional assistance, get frustrated and may implement population management methods, including illegal lethal methods, to alleviate damage and public health or safety threats. **If the species continues to impact citizens the likelihood of being categorized as a "pest species" is increased and any interactions are viewed as a negative by a larger share of the populace.**

There are options for waterfowl and gull management appropriate for many different settings. Wildlife choose an area because it provides the majority of their basic needs, food, habitat, water and protection. After they have developed patterns of site use they can be difficult to disperse from sites. Some management methods are more suitable to particular locations than others due to practicality and efficacy.

Education And Outreach

Feeding wildlife is a popular activity among citizens and can be significant cause of urban waterfowl and gull congregation and population growth. Intentional wildlife feeding is not necessary for the survival of these species and can be a detriment. The usual items provided provide little nutritional value, disrupt migratory patterns, increase dependence and negatively trains species that humans provide food, clusters wildlife in areas near the public and increases contact with feces and enhances transmission of disease throughout the present population. Avian cholera, avian botulism, and duck plague are diseases that have the potential to decimate populations and all are likely to spread within a high population density.

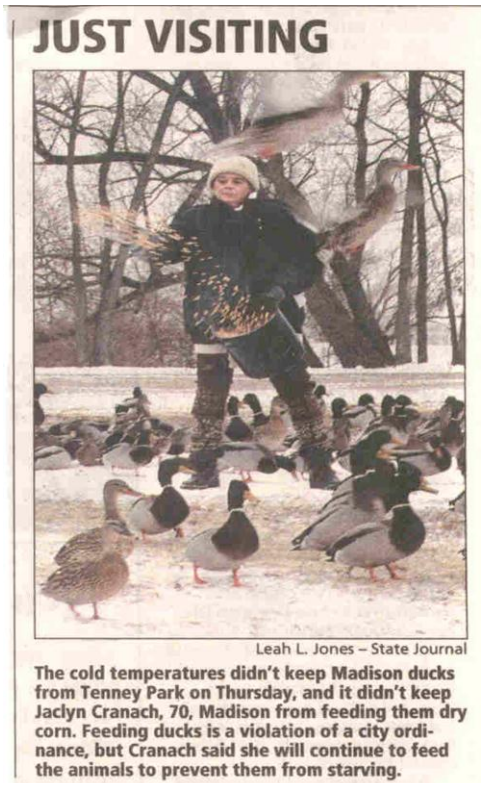

Figure 11 Example of disregard for No-Feeding ordinance

Madison currently has a no-feeding ordinance that restricts feeding. However, public awareness of the consequences is lacking and several actions including signage throughout Vilas Park, outreach efforts by enlightened park users and local organizations and enforcement of the ordinance penalties would benefit wildlife and conditions at Vilas Park.

Unintentional feeding can also draw wildlife to Vilas Park. Currently, the park contains open-top trash receptacles. During busy periods these can fill up to the point of over-flowing. They also allow access to birds and mammals that are tempted by desirable food items. Simple fix would be to provide attached covers to prevent wildlife access. Also, ensure that they are adequately spaced and maintained during high use periods. Many varieties of covered trash receptacles are commercially available; they range from a simple lid to solar powered compactors that don't need to be emptied as frequently. Commonly used receptacles that allow the user to separate recyclable and trash items would be adequate.

Habitat Alteration And Harassment Techniques

Habitat Alteration-Wildlife rely on their senses to safely guide them through situations they encounter. Waterfowl and gulls rely heavily on vision to alert them to danger. Therefore they prefer to frequent areas that allow unobstructed views. Waterfowl and gulls are also highly attracted to mowed grass and shoreline that is provided throughout Vilas Park. It allows easy access to grazing, humans with food and escape to the water if a quick retreat is necessary. The large expanse of grass, near water that Vilas provides is ideal for public recreation and is a welcoming environment for waterfowl and gulls. This preference

Figure 12 Example of vegetative and physical buffer designed to restrict goose access

can be used to purposefully create an area that is less inviting. In some cases by simply allowing the grass to go unmowed in areas adjacent to water with low public use. While this technique has been used at Vilas by creating the vegetative barrier near the lagoon, it can be integrated into future planning processes to achieve greater results. Similar barriers that include discreet fencing have also been useful at directing waterfowl away from public use areas. Other habitat alteration techniques include disrupting the critical area between grass and water with the use of rock rip-rap to make the area difficult to cross. Vilas does also use this technique on Lake Wingra with some success at directing waterfowl access. These techniques are most successful with moderate populations of waterfowl. They can be costly but will provide long-term benefits.

Physical Harassment -
This method involves making the waterfowl and gulls as uncomfortable as possible by getting near and alerting them that they are in danger. This can include arm waving, shouting and running until the birds are uncomfortable and leave. Repeated harassment may cause the geese to move to areas in which they are not harassed. This high visibility method can draw attention from the public and has been looked upon negatively. Because geese often exhibit only a short-term response to this method, it is not a practical or effective long-term solution. However, it is worth implementing because it causes less trust of humans. Beach staff should implement this at practical times throughout the swimming season.

Lights and Lasers - Geese utilizing bodies of water for night roosting should be discouraged. By breaking the bond to night roosts, the birds are forced to develop patterns away from the protected area. A variety of lights and lasers have been shown to disperse geese. This technique is most useful during migration when groups of migrants co-mingle with residents in large groups. Lasers cost about $1000 to purchase and use of less expensive spotlights has been beneficial. Patrolling staff would point a green or red laser at roosting birds away from residences. This technique should not be considered a long-term solution, but implemented in August - November when the above described situation arises

Sound-Making Devices - Sound-making devices have been used in wildlife damage situations for many years and can by effective for short to moderate time periods, depending on the type and use. Most of the devices were designed for agricultural settings and potential to disturb humans make them difficult to utilize in urban locations. Most of the devices are designed to solicit a flight response by either replicating a loud blast or whistle or a distress call that replicates the selected species in peril.

Propane Cannons- These devices use a propane tank and fire shotgun like reports on a timer or by remote. Not recommended for Vilas Park.

Pyrotechnics- Several pyrotechnic devices are available for wildlife harassment. These devices fire from starter pistol size launches or shotguns, and produce loud bangs or a whistling/screaming sound. Pyrotechnics would provide limited use at Vilas Park.

Distress Call Devices- There are several distress call devices available for attempting to deter geese and gulls from unwanted areas. Some of these devices have been tested and used in Wisconsin with mixed results. The devices are costly and generally multiple units would be

required to provide adequate coverage. Due to the high public use and the location where these devices would have to be deployed at Vilas Park they are not recommended.

Sound-making devices can be expensive and are only practical in areas where the noise will not disturb other humans or wildlife. Like other harassment techniques, waterfowl and gulls will habituate to noise making devices over time especially if they are relied on as the main technique. Pyrotechnics and propane cannons use would require authorization due to the nature of their components.

Repellents-
Several commercial repellents are available to apply on turf to dissuade geese from feeding. These products are not listed for use on species other than Canada geese. Goose Chase and Rejex-it Migrate use the food additive Methyl Anthranilate (grape flavoring) and Flight Control-Plus uses Anthraquinone . The three available repellents rely on the geese experiencing the application on turf and finding it distasteful enough to leave. The turf remains treated until the grass grows and the treated portion is mowed. Another application would be required after most mowing.

Repellents are applied at a range from 1-2.5 gallons per acre and cost approximately $100-$250 per gallon. The applied area must dry before the public can enter. Success had been inconsistent with repellent use and use over large properties would be cost prohibitive. Smaller parcels with close management would benefit the most from applications. For this reason the most practical area to use this product is in September- October after grass growth slows on the soccer playing fields and the area is highly used for organized sports.

Figure 13 Example of commercially available repellent

Harassment with Dogs -
Many locations with goose and gull problems have been assisted by the use of dogs to harass the targeted species. In recent years businesses have provided this service usually using border collies with trained staff that make regular visits to locations to chase the birds. Often this technique is used in conjunction with radio-controlled boats. Often the birds will retreat to the water and some dogs are not inclined to pursue. The radio controlled boat allows the user continue harassment until the birds disperse. Border collies mimic the movement of predatory coyotes and foxes to elicit a flight response from the geese or gulls.

Many communities in Wisconsin use dogs in this manner. The cost for these services varies but can cost $550-$800 per week. Some communities have used this technique with volunteers from the local area. They have required demonstrations that the dog can obey off-leash and requested that the owner be available to walk the dog through the park at least one time each day during the appropriate time of the year (non-nesting and molt). The dog cannot harm a goose or other bird during this activity and they are provided with a dog vest to identify them as authorized to conduct the activities. Hazing with dogs may reduce goose use of a site, but goose use is increased in surrounding areas (Castelli and Steggs 2000). This is an important issue to be

considered in Vilas Park given other nearby locations with goose concerns. A second concern is the impact that the presence of free-running dogs may have on park users.

Wildfowl Exclusions-

Figure 14 woven mesh fence preventing goose access to turf

Fencing can disrupt the passageway of waterfowl from water to grass in desirable locations especially during the molting period. Wire grids over small bodies of water have shown to reduce waterfowl use by preventing them from landing on the water. Fencing and gridding can be relatively inexpensive; however it is more suitable for homeowner applications. Grids over small ponds have proven to be successful, but in public areas they are likely to be vandalized and rendered ineffective.

Fencing has been used at Vilas Beach during the summer months to restrict access during the night when staff is not present, it has been effective at times.

Effigies-

Effigies are currently used in many parks and other sites where abundant waterfowl and gulls frequent. This technique is attractive to the public because it is simple and can be effective for short periods. Like most other harassment techniques animals become acclimated to the non-moving effigy and it becomes ineffective. They are inexpensive and easy to implement. In a public area it is likely that the effigy would be vandalized or removed.

Figure 15 Coyote effigy used to deter geese from beach area

Swans -

Swans can be very territorial towards Canada geese including driving them off nests (Kossack 1950). Mute swans continue to be used to keep geese out of ponds in other states. As of July 2010, it is illegal to release mute swans into the wild in Wisconsin and such releases can result in penalties of up to $1,142, as well as restitution costs for any damage caused by these animals. Mute swans can also act as decoys for Canada geese when they are flying over an area. At times mute swans can become more aggressive than geese and result in additional complaints. Due to swan conflicts, ineffectiveness and regulations swans should not be part of an integrated management plan.

Harassment techniques are an important portion of an integrated plan. However, they work best when the targeted population is at a low to moderate population i.e. the initial stages of a conflict. After the conflict has grown, geese habituate to an area and will be difficult to influence. When early harassment efforts do result in dispersal of birds, the responsible manager considers the effects to the recipients of the dispersed birds. Dispersed birds seek

similar habitat in close proximity to the habitat they were accustomed to. Holevinski et al. (2007) found that hazing alone is unlikely to reduce nuisance Canada goose populations in urban communities.

Population Suppression

Population management is achieved by either reducing the recruitment and/or increasing the mortality of the species targeted for management. Minneapolis, MN has researched and managed their goose populations for decades and their conclusions suggests that lethal methods are the most effective and inexpensive (Cooper 2000). The most efficient way to reduce the size of an urban Canada goose flock is to increase mortality among adult geese (Smith et. al. 1999).

Hunting -

Hunting is relied on by natural resources agencies to curtail unwanted growth of over-abundant, hunted species. This is the reason that WDNR initiated an Early Canada Goose Hunting Season in the 1990's. **In 2008, hunters harvested 24,300 resident Canada geese during the early season alone.** However, geese that frequent urban locations rarely leave the protective confines to experience hunter harvest. Hunting in urban parks has been discussed and tried in several locations in Wisconsin with little success. Municipalities usually have firearm discharge restrictions and many locations cannot provide safe zones to shoot. This can also draw the attention of animal protective groups who are opposed to hunting. Due to the location it is not recommended that hunting be utilized to manage the goose population at Vilas Park.

Contraception -

OvoControl-G was developed as an infertility agent for Canada Geese and later, ducks in urban areas. When administered correctly, as a food item to targeted populations it renders the eggs infertile and it can slow recruitment of a population. The product is made available to the intended population over a period of time during the nesting period. Feeding sites are established and the targeted population must be trained to accept the treated pellets. Sites are monitored by applicators to prevent non-target consumption. The product is relatively new and currently it is not registered for use in Wisconsin and is unlikely to be registered in the near future. The WDNR has concerns with non-target consumption and currently it is not an option for use at Vilas Park.

Egg oiling/addling -

Egg oiling and addling can be very effective at reducing the recruitment in a targeted population. By applying oil to the eggs it prevents gases from diffusing through an egg's outer membranes and pores in the shell, causing the embryo to die of asphyxiation (Blokpoel and Hamilton 1989). Typically, the nests are located in the early stages of incubation and the eggs are coated with 100% corn oil.

Figure 16 100% corn oil being applied to goose eggs

Eggs can be floated to gauge the stage of development; it is preferable to oil the eggs soon after the last egg is laid. Each egg is marked with the date in permanent marker and the nests flagged so return visits are easier. The nest is usually visited at least three times during the process to ensure all the eggs were adequately treated and to remove and dispose of them after the

incubation period has expired. An accurate record of the activities must be kept and reported to the permitting natural resources agencies.

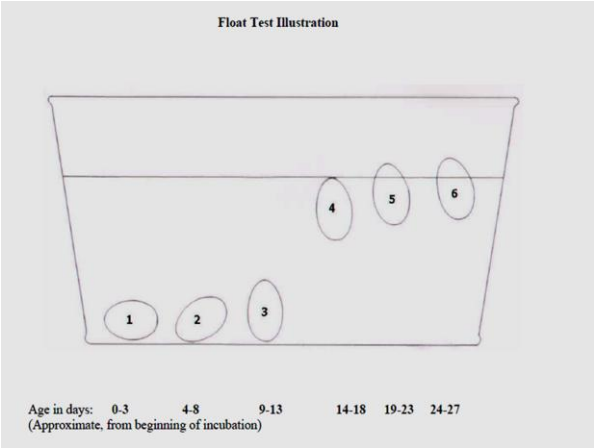

Figure 17 Illustration of floating goose eggs to determine their age

Addling involves vigorously shaking the eggs until sloshing is heard, thus destroying the embryo. This method is as effective as oiling however; it requires more time shaking each egg and thus is less popular. If eggs are simply removed, geese generally re-nest and produce another clutch. Adult geese aggressively defend their nests it is not uncommon for egg oilers to be pursued. It can be beneficial to carry a broom or umbrella to keep the birds at arm's length. **This method is only useful if nests are located in a known area** like an island and access is granted. Geese nests can be difficult to locate and early visits to the area when the birds return and vegetation is low after winter will help in locating potential nesting sites. **Geese that experience nest failure often group together and leave the area in early June with non-breeding age geese.** They return in mid-August to early September and will initiate nesting the following year in the same general area that was tried the year before. Population stabilization can be achieved by aggressive egg oiling programs. However, it is not an effective technique to reduce the local adult population

Wildfowl Removal

Tranquilizing Agents-

Alpha-Chloralose (AC) is a tranquilizing agent use by certified USDA-WS staff only. It is most effective on waterfowl in urban environments. It is delivered as bait to targeted birds and is selective and effective in immobilizing targeted individuals. Due to the potential for disease transmission it is not recommended to relocate birds and it cannot be used within 30 day of a hunting season. The advantage of this technique is that it can potentially be used at any time of the year. Since ducks do not lose the ability to fly during their molt, this is technique is useful to manage populations of ducks if they are identified as a concern.

Figure 18 Canada geese captured during a round-up event

Goose Round-up -

In mid-June to early July geese undergo their molt which renders them flightless. This provides a management opportunity to reduce the population of breeding geese. The effect is immediate and can greatly improve the other abatement techniques utilized on the remaining geese as well as migrants. Relocation of adult geese is not recommended due to their ability to return to the capture site. Juvenile geese were relocated in Wisconsin until the WDNR received complaints

from release locations. At that time it was determined to discontinue relocation and assume that the majority of available habitat was occupied.

Currently, geese can be captured by WS staff trained in handling techniques. Geese are captured in a corral type trap that is mobile and quickly implemented. Captured birds are transported in divided poultry crates to processors where they are euthanized and useable meat is ground for distribution to local food pantries. Prior to being released for human consumption the meat is tested for contaminants. Products are labeled with a consumption advisory if necessary. This technique can raise public attention due to the sentiment that lethal methods are undesirable. Therefore, public relations issues may occur. This method is labor intensive for the staff involved with the capture. The public generally is more receptive to this method if the geese can be utilized for donation to food pantries, Native Americans or animal facilities. **Woodruff et al. (2004) found that an integrated plan that included multiple years of round-ups was required to curb the increasing conflicts in the metropolitan Seattle area.**

An Integrated Wildfowl Management Plan for Vilas Park

An integrated strategy of waterfowl and gull abatement techniques should be used when practical to attempt to achieve the desired objectives. These tools must be used regularly and in a manner to prevent habituation.

1. Develop a subset of the Vilas Park Waterfowl Management Advisory Group to guide the Plan into the future. This team (team) of local representatives will manage the implementation and recommend and use the outlined methods to achieve the listed goals. If a practice appears to be ineffective, consultations with UW Extension wildlife specialists will be initiated. The team will also monitor sampling techniques to gauge level of success or develop surveys to measure improvements. These can include beach water sampling, vegetation and wildlife diversity and park user surveys.

2. Publicize and enforce the No-Feeding ordinance-install signage and ensure all staff is aware of the reasons for the ordinance. Solicit frequent park users to be stewards of the ordinance and inform a park user when feeding is observed. Along with the informational signage, there is a need to get the community more engaged. Other forms of engagement include:
    - Informative flyers placed in the kiosks at the park
    - Articles written and included in neighborhood newsletters
    - Articles written and published in local newspapers
    - A Friends of Lake Wingra (FOLW) representative appears on local news programs

    All of the ideas mentioned above require that a person actually pick up the flyer, read the neighborhood newsletter or see the informational signage. Person to person contact would greatly increase the possibility of educating the public about the problems with feeding wildlife. One way to engage people one on one is to ask volunteers from the neighborhoods, the lifeguards at the beach, and the staff at Wingra Boats, to hand out informational cards directly to people who are visiting Vilas Beach or Vilas Park.

The team working with FOLW, MPD, and Edgewood students will develop, distribute and organize the educational material including one on one contact during high use periods from April to October. MPD staff will install additional signage throughout the park and ensure they remain viewable.

3. Trash Receptacles- Retrofit current receptacles to allow for the use of a lid that will prevent birds and mammals access. If they are inadequate, replace all open-topped receptacles with bird and mammals proof containers. MPD to organize and implement this effort.

4. MPD staff, Lifeguards and beach staff shall remove all accumulations of feces from the beach and access points to Lake Wingra each morning prior to opening the beach for use. This duty needs to be maintained even if the beach is closed for the day. Also, maintain identified Waterfowl & Gull Free Zone from daylight to dusk by physical harassment of birds when present and daily manipulation of (6) coyote effigies from May through September.

5. Landscapes Design Changes- Landscape designs that are unattractive to resident and migrant geese should be considered. The use of native plant buffers should be incorporated in the critical areas between water and mowed grass. It is preferred to use native planting but in some cases it will be more cost effective to stop mowing and allow the present vegetation to grow. These should be used in areas where it will not significantly interfere with public use. Prime areas for buffer strips include the lagoon area and Lake Wingra shoreline. Allow intact buffers to stand until Nov 15, removal after at the discretion of the park manager. A fence will be needed to protect plantings if population reductions do not occur prior. The team to advise and work with MPD to identify areas to implement. Recommended areas are identified in Appendix D.

6. Geese currently using Vilas Park are acclimated to the park, and therefore non-lethal methods alone are not likely to be effective at reducing Canada goose conflicts during initial stages of this plan. However, once goose populations are reduced to a manageable level, then harassment methods will be more effective to deter new geese from becoming acclimated to Vilas Park. Following is a list of non-lethal goose management tools for consideration.

    - Dogs- Use of hired or volunteer dogs to harass resident and migrant waterfowl and gulls has been successful at moving birds to other sites. Local firms are available to provide this service and it is likely to be more effective than volunteers. Often the handler will need to be present for all day or multiple periods each day depending on the geese's reaction. This professional effort should begin when birds return in the spring (February-March) and remain active until nesting is initiated (Late March early April). It can begin again in August after the geese develop the ability to fly and continue to when the migrants arrive (~September 17). While swimming is less of a concern in the fall it is recommended that this effort continue until Nov 1 to prevent the

accumulation of migrants and resident geese. During this less critical period in fall, it is likely local dog owners would be happy to help. Agility or herding trained dogs and owners are a more likely match for this work though any athletic, medium to large breed dog able to follow commands can be used. Possible area organizations that might be contacted are: Badger Kennel Club, Madison agility and WI Working Stock Dog Association – herding. Demonstrated dogs skills should include: returning to owner on command (oral or whistle), staying within owner's command range, herding' ability - knowing not to catch geese, swimming and social – not aggressive around other park users

Dogs and owners should be provided a vest acknowledging their goose management duties. This will help inform other dog owners that Vilas Park isn't a leash-free dog area. Dog vests can be purchased from a pet supply store. Vests should be printed or embroidered with 'Madison Parks Goose Management' or similar.

Each dog owner should be given written instructions and a map showing the limits of the area to be controlled to avoid trespassing on private land. Instructions should include permission to chase waterfowl in the water within 200' of shoreline but not within the swimming area marked by buoys.

Each owner will receive an orientation by a team designee or City staff at the owner's first visit.

Dog owners should sign a waiver to not hold the City of Madison responsible for harm to their dogs either by geese or the surroundings or for dog's aggression (biting) to park users.

City must develop a Standard Operating Procedure in case a goose is hurt or killed in an accident with a dog.

Again this may require all day of persistent efforts. The team will advise and work with MPD on the implementation of both hired and volunteer dog harassment efforts.

- Repellents- Repellents are most effective when the grass growth has slowed. Typically in the fall when populations swell with resident and migrants, would be an appropriate time to use repellents in critical areas like the sport fields that are heavily used. Flight Control Plus, would provide the most benefit during this critical time. The repellent can be applied by sprayer or fogger by local turf service firms. All label and application directions should be followed for effective use. This may require multiple applications from September 1- October 30 to provide benefit. Recommended area for application is identified in Appendix E. This effort to be organized by the team and MPD staff.

- Laser- If geese are night roosting on Lake Wingra or the lagoon during the spring or fall it is advisable to harass them with a laser. This method is effective at disturbing night roosts, especially migrant populations. This can be implemented by MDP staff on evening patrols or local volunteers organized by the team. Each volunteer should be trained where and how to use the laser to be effective. Typically this method is used within the first few hours of night- fall geese that experience this disruption will find an alternative roosting site. Efforts may have to occur each night for 2-6 weeks during September 15-November 1 and March 15-April 15.

- Maintain a Waterfowl & Gull Free Zone in the swimming area and immediately around it. Waterfowl and gulls will be physically harassed if they are observed by MPD, lifeguards or volunteers and coyote effigies will be used each day. Each effigy should have a laminated card explaining why it is being used.

The following techniques can be used to stabilize or reduce geese populations at Vilas Park. **If desired objectives are to be achieved the most effective method to utilize will impact the adult breeding population** (Smith et al. 1999). All nest and egg destruction activities require a WDNR permit and registration on the USFWS website. All goose capture requires a USFWS Depredation Permit, as well as concurrence from WDNR. Captured Canada geese will be processed, tested and provided to food pantries or euthanized and provided to facilities for animal food.

7. Egg oiling - In January of the second year and every year after individuals recruited by the team will apply for a permit to oil resident Canada goose eggs on their respective properties in order to reduce recruitment of Canada geese to the parks. Eggs/nests will be destroyed approximately three weeks after they have been oiled to encourage molt migration and all activities will be reported to the team for data review. This technique will assist with stabilizing the current population. A thorough search of all properties adjoining Lake Wingra will need to occur. Geese should be monitored as they return in late February – early March to identify likely nest locations. Map of likely nest locations in Appendix C

8. Round-ups - In the first and second year of this plan adult resident Canada geese will be captured in mid-June to early July. Adult Canada geese are flightless due to the molt and the juveniles have not yet fledged. Vilas Park sees its highest summer geese numbers during this period. Round-ups are very effective at reducing the local population to desired levels in a short period. Round-ups are best accomplished by experienced wildlife professionals, such as WS aided by Parks staff and volunteers. Geese captured using this method must have the meat contaminant tested and when authorized, distributed for human or animal consumption. MPD will be required to obtain a federal Depredation Permit, this process should start in February by contacting WS. The team will monitor the population at Vilas Park from May 1- June

15 to determine if the plan population goals (4-25 geese) are achieved by other abatement methods to determine if a round-up is required.

Financial Resources Required To Implement Wildfowl Management At Vilas Park

Wildlife populations can be unpredictable and respond differently to abatement techniques. Therefore, adaptive management will be required to respond to situations that develop. The cost estimate below includes activities in the third and fourth years that may not be necessary depending on the response to the first and second year's activities.

Some of the items included in the proposed budget are only associated with year one or two activities and others like repellents and staff time to organize the volunteer dogs is constant. This budget is an estimate; materials may be available at reduced rates.

Activity	Cost	Quantity	Total	Year
No Feeding signage	100	20	2000	1
Repellents	250	12 gal	3000	1,2,3,4
Landscaping buffers	4000	.75 ac	1350	1,2,3
Trash cans	400	20	8000	1
Hire dogs & handler	700	11wks	7700	1,2,3,4
Volunteer dog org.	25	10	250	1,2,3,4
Dog supplies	30	10	300	1,3
Egg oil time	25	24	600	2,3,4
Egg oil supplies	10	1	10	2,3,4
Purchase laser	1000	1	1000	1
Purchase effigies	60	6	360	1
Round-up 1	5000	1	5000	1
Round-up 2	4000	1	4000	2

Total Year 1	$ 28,960.00
Total Year 2	$ 16,910.00
Total Year 3	$ 13,210.00
Total Year 4	$ 11,560.00

Department of Natural Resources Urban Wildlife Damage Abatement and Control (UWDAC) Grant

UWDAC grants are available to any town, city, village and county or tribal government in an "urban area". Grant funding is available to help urban areas develop wildlife plans and/or to implement specific damage abatement and/or control measures for white-tailed deer and/or Canada geese.

A total of $25,000 is available annually. This program provides 50 percent project reimbursement up to a maximum of $5,000 ($10,000 total project cost). Advance payments of 50 percent (not to exceed $2500) of the grant award can be requested at the time the grant agreement is signed.

Eligible projects include:

- Developing an urban wildlife population control plan.
- Monitoring wildlife populations and establishing population estimates.
- Removing deer using sharpshooters as part of a DNR approved project.
- Trapping deer and geese.
- Implementing managed hunts.
- Removing resident Canada geese by approved DNR methods.
- Performing required health and tissue sampling.
- Processing, distributing or disposing of geese or deer to a charitable organization.
- Modifying habitat.
- Implementing any other wildlife control or damage abatement practices approved by the DNR.

Applications are mailed annually in October. Applications must be postmarked **no later than December 1 unless otherwise indicated in the application materials.** Awards are made in January.

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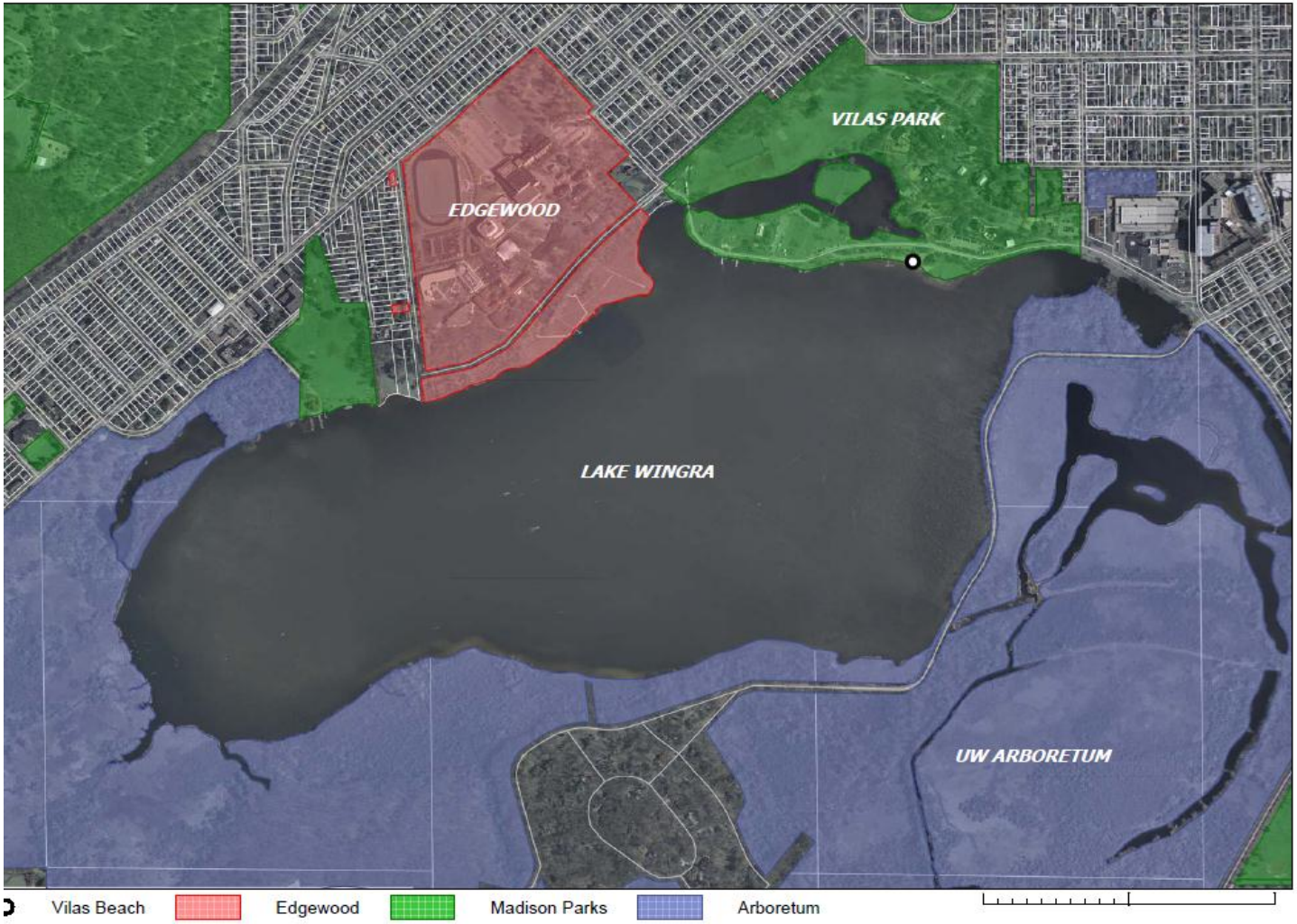
APPENDIX A TIME TABLE OF MANAGEMENT ACTIONS

	Task Description	Project Duration															
		wntr 2011	spng 2011	sum 2011	fall 2011	wintr 2012	sprg 2012	sum 2012	fall 2012	wntr 2013	sprg 2013	sum 2013	fall 2013	wntr 2014	sprg 2014	sum 2014	fall 2014
1	Publicize and enforce the No-Feeding ordinance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2	Secure permits for years activities	■				■				■				■			
3	Retrofit current receptacles/replace wt covered	■	■	■													
4	Remove accumulations of feces from the beach			■				■				■				■	
6	Use of native plant buffers		■	■	■		■	■	■		■	■	■				
7	Use of hired or volunteer dogs		■		■		■		■		■		■		■		■
8	Repellents				■				■				■				■
9	Laser				■				■				■				■
10	Egg oiling						■				■				■		
11	Round-ups			■				■									
12	Physical harassment		■	■			■	■			■	■			■	■	

Winter = Dec – Feb Spring = Mar – May Summer = June- Aug Fall = Sept - Nov

APPENDIX B LANDOWNERS ADJACENT TO LAKE WINGRA



APPENDIX C MAP OF PROBABLE NESTING LOCATIONS

APPENDIX D MAP OF BUFFER STRIP ESTABLISHMENT

Buffer strips approximately 2200’X 15’ equal .75 acres

APPENDIX E LOCATION OF FALL REPELLENT APPLIATION

The three areas equal approximately 1.5 acres

APPENDIX F WATERFOWL AND GULL FREE ZONE

APPENDIX G - MIGRATORY BIRD REGULATIONS, AGENCY ROLES AND SUPPORTING ORGANIZATIONS

U.S. Fish and Wildlife Service (USFWS)

The USFWS is the primary Federal agency responsible for conserving, protecting, and enhancing the Nation's fish and wildlife resources and their habitats. Responsibilities are shared with other Federal, State, tribal, and local entities; however, the USFWS has specific responsibilities for endangered species, **migratory birds**, inter-jurisdictional fish, and certain marine mammals, as well as for lands and waters they administer for the management and protection of these resources.

The USFWS regulates the taking of migratory birds under the four bilateral migratory bird treaties the United States entered into with Great Britain (for Canada), Mexico, Japan, and Russia. Regulations allowing the take of migratory birds are authorized by the Migratory Bird Treaty Act (MBTA) (16 U.S.C. Sec's. 703 - 711), and the Fish and Wildlife Improvement Act of 1978 (16 U.S.C. Sec. 712). The Acts authorize and direct the Secretary of the Interior to allow hunting, taking, and killing of migratory birds subject to the provisions of, and in order to carry out the purposes of the four migratory bird treaties.

The USFWS has authority for issuance of Depredation Permits (DPs) (50 CFR 21.41) to persons who clearly show evidence of migratory birds causing or about to cause damage. In Wisconsin, DPs issued by the USFWS are sent to the Wisconsin Department of Natural resources (WDNR) for review. If the WDNR concurs with the issuance of the DP they will co-sign the DP. An exception has been granted by the USFWS for the take of resident Canada goose nests and eggs. The Final Rule for Migratory Bird Permits; Regulations for Managing Resident Canada Goose Populations, published in 2007 allowed state wildlife agencies, private landowners, and airports to conduct (or allow) indirect and/or direct population management activities, including the take of birds, on resident Canada goose populations. A state can be more restrictive than the federal rule and in Wisconsin's case they have chosen to do so by requiring the issuance of a state permit to destroy eggs and nests of resident Canada geese and registration on the USFWS website *https://epermits.fws.gov/eRCGR*. The advantage is now the permits are without cost and allows local governments to conduct nest and egg destruction anywhere within their jurisdiction.

Depredation permits are required under the MBTA for activities which "take" protected species such as Canada geese, ring-billed gulls, and mallards this includes nests with eggs and live birds. Depredation permits are not necessary for non-lethal harassment of species protected only under MBTA.

The USFWS Region 3 prepared a Final Environmental Assessment Depredation Permits for the Control and Management of Gulls in the Great Lakes Region and signed a Finding of No Significant Impact (FONSI) in 2000 for the management of ring-billed and herring gull damage to protect human health and safety, property and the productivity of other colonial water birds. The USFWS selected the No Action Alternative which supports the current program whereby the USFWS will continue to issue depredation permits on a case by case basis.

Wisconsin Department Of Natural Resources (WDNR)

The WDNR, under the direction of a Governor appointed Natural Resources Board, is specifically charged by the Legislature with the management of the state's wildlife resources. Although legal authorities of the Natural Resources Board and the WDNR are expressed throughout Wisconsin Administrative Code (WAC), the primary statutory authorities include establishment of a system to protect, develop and use the forest, fish and game, lakes, streams, plant life, flowers, and other outdoor resources of the state (s. 23.09 Wis. Stats.) and law enforcement authorities (s. 29.001 and s. 29.921 Wis. Stats.). The Natural Resources Board adopted mission statements to help clarify and interpret the role of WDNR in managing natural resources in Wisconsin. They are:

- To protect and enhance our natural resources: our air, land and water; our wildlife, fish and forests and the ecosystems that sustain all life.
- To provide a healthy sustainable environment and a full range of outdoor opportunities.
- To ensure the right of all people to use and enjoy these resources in their work and leisure.
- To work with people to understand each other's views and carry out the public will.
- And in this partnership consider the future and generations to follow.

WDNR wildlife biologists are involved with various aspects of waterfowl management including manipulating hunting season structure to allow for maximum harvest of over-abundant species, issuance of permits to destroy resident Canada goose nests and eggs and review of all depredation permits issued by USFWS.

USDA Wildlife Services (WS)

WS' mission is: 1) "*to provide leadership in wildlife damage management in the protection of America's agricultural, industrial and natural resources, and 2) to safeguard public health and safety."* This is accomplished through:

- Training of wildlife damage management professionals;
- Development and improvement of strategies to reduce losses and threats to humans from wildlife;
- Collection, evaluation, and dissemination of management information;
- Cooperative wildlife damage management programs;
- Informing and educating the public on how to reduce wildlife damage;
- Providing data and a source for limited-use management materials and equipment, including pesticides.

WS is a cooperatively funded, service-oriented program. Before any wildlife damage management is conducted, a request must be received. As requested, WS cooperates with land and wildlife management agencies to effectively and efficiently reduce wildlife damage according to applicable Federal, State and local laws. WS has the responsibility for responding to and attempting to reduce damage caused by migratory birds as specified in an MOU with the USFWS and in a cooperative agreement with the WDNR, and when funding allows. WS' role in migratory bird management is, disseminating technical assistance including recommendations for USFWS depredation permits and assistance with management actions that may require specialized knowledge and/or equipment. This management includes the use of both non-lethal and lethal damage management methods. WS activities are supported by Congressional authorizations and appropriate National Environmental Policy Act documents.

Friends of Lake Wingra

The Friends of Lake Wingra work on projects, programs and events that are designed to directly involve watershed residents and the general public in protecting a lake. Activities include demonstration projects to exhibit the efficacy of a management or restoration approach, education/outreach projects to elevate general public awareness about the lake or a specific topic related to watershed protection and management to achieve tangible improvements in the lake/watershed conditions.

Vilas Park Wildfowl Management Advisory Group

The (VPWMAG), a group of local citizens representing nearby neighborhoods, landowners, businesses, agency staff and park users want to provide this plan to manage the local waterfowl populations so that conflicts can be minimized and measurable enhancements to this natural resource can be achieved.

Following the March 11, 2011 meeting of the Vilas Park Waterfowl Management Advisory Group, advisory group members were asked to provide comments that reflected their views and values related to approaches to managing wildfowl at Vilas Park. The purpose of these remarks is to document the diverse values and irreconcilable differences among the advisory group members regarding approaches to wildfowl management.

Terri Bleck -

In my view, the geese population has gotten out of hand. In my opinion, the round-up to get the numbers reduced before implementing the other items in the plan seems most likely to succeed. Another option is altering the park so that it is not just mowed grass, or changing the park to a dog park.

Peter Cannon -

Madison Audubon believes that lethal control should be the last resort after all other methods for managing bird populations have been exhausted. Audubon supports initiating a comprehensive non-lethal plan at Vilas employing elements laid out in this report. More intensive management and an adaptive management strategy allowing maximum flexibility may be required at first because of the number of geese habituated to using the park. The non-lethal management program needs to be given sufficient time to work and monitoring of successes and failures needs to be maintained.

Gina Chirichella -

I strongly urge this committee to remember that its original focus was to come up with plan to solve the issue of waterfowl that are making Vilas Beach unusable and unsafe. The experts have weighed in with an integrated plan that meets that objective. I strongly believe we should move forward with that plan and begin restoring Vilas Beach to health and vitality.

Russ Hefty -

I think the report does a great job of outlining the issues and providing an adaptive management strategy to move forward in managing giant Canada geese numbers to reduce conflicts with park users.

Brad Herrick -
Although, I am not a strong advocate for using lethal means to reduce wildlife populations (geese in the case at Vilas) because they have been deemed a nuisance to humans, the geese at Vilas and surrounding areas have become a human health and ecological degradation issue. Because of this I do believe that population control measures should be considered. In addition, I believe more emphasis should be given to habitat modification at Vilas.

Jim Lorman -
I'd like to see us begin immediately with the practices that we all agree on, and further consider lethal control of adults as we have sufficient documentation that will convince those who see lethal control as a last resort that it is necessary in this situation in order to reach the management objectives.

Kirsti Sorsa -
I support all methods needed, including round-ups as necessary, to achieve an acceptable level of waterfowl populations effectively and in a timely manner. My concern is that if a partial solution is implemented, geese will be driven from Vilas to other areas. I am not comfortable transferring the problem elsewhere.

Tom Tagen -
Any solution must be immediate due to the immediate danger to public health. I agree that the best solution is an immediate roundup/kill; with possible follow up use of less invasive and more experimental approaches.

Stacy Tauber -
I agree that we can begin with the non-lethal methods and that those methods need to be vigorously implemented. I also agree that more attention needs to be paid to habitat modification. There are many measures that can be taken short of turning Vilas into a conservation park. The beach area could be attractively fenced. There are significant areas of Vilas Park that could incorporate more natural plantings/less mowing and that would leave sufficient open space and not interfere with use of the level playing fields.