Capturing Nuisance Urban Canada Geese Using the Bird Immobilizing Agent Alpha-Chloralose in Reno, Nevada: What We Learned

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ABSTRACT: This paper discusses several challenges Wildlife Services (WS) personnel encountered while conducting alpha-chloralose (AC) treatments on Canada geese in Reno, Nevada during May and June 2003. While the WS AC training manual provides guidelines for the safe and effective anesthetization of Canada geese using this chemical immobilization tool, we encountered and solved problems and challenges that had not been reported in previous reports on projects using AC. Problems we encountered ranged from being accosted by drunks to interrogations by "elderly ladies" worried that we might be taking their favorite goose. Challenges in collecting immobilized geese resulted from river currents and their effect on AC-treated geese, moss entangling the boat motor propeller on ponds, and automatic sprinklers turning on at inopportune times. It is hoped that addressing these real-world experiences can help others become more proficient in AC field use.

KEY WORDS: alpha-chloralose, bird damage control, *Branta canadensis*, Canada goose, nuisance, urban wildlife

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INTRODUCTION

Wildlife Services' use of alpha-chloralose (AC) as an avian immobilizing agent for Canada Geese in small numbers is well documented. Doses and delivery techniques have been fine-tuned over the years. The WS AC training manual provides guidelines and label requirements for the safe and effective anesthetization of Canada geese. The manual also provides a list of equipment and materials personnel should have readily available when using AC in the field. Research data occasionally mentions problems that were encountered during AC treatments. In spring 2003, Wildlife Services (WS) experimented with the use of AC to capture urban Canada geese (*Branta canadensis*) in Reno, Nevada. The "targeted" geese were causing both human health and safety issues and property damage.

Canada geese have been rounded up in Reno, Nevada using funnel traps since 1989 (Hall and Groninger 2002). These goose round-ups have proven very effective at capturing large numbers of depredating geese. The additional use of AC at round-ups came as a result of cooperators requesting WS use a lower profile method of capturing urban geese. The funnel trap (Bub 1991) used by WS in Reno consists of an 8 × 8 × 5-ft gathering pen constructed with wire panels. Attached to the pen and extending in a "V" from the pen are two "wings" or leads, made of 4-ft-high orange plastic fencing. The length of the leads can be adjusted, based on the terrain or the number of birds expected to be caught. Once the trap is in place, geese are herded toward the trap, with the leads funneling them into the gathering pen. Once secured in the holding pen, the geese are transferred to holding cages secured on a specially-designed 5 × 10-ft flatbed trailer. The trap would be set up before sunrise, and the geese would be moved toward the trap as soon as it was light enough to see the geese. The highly visible equipment suddenly showing up at a park or on a golf course would inevitably draw a crowd.

WS hoped the use of AC would be less intrusive at the treatment sites. Also, at some areas that were experiencing goose problems, WS could not effectively use a funnel trap, and it was hoped that the use of AC would allow these areas to be more effectively treated. High activity locations, such as city and county parks, were places where the use of funnel traps caused the greatest concern, while golf courses and gated communities proved less of a problem in terms of people concerned about the use of a funnel trap.

The AC treatment sites were located within Washoe County Nevada, with most (90%) taking place within Reno city limits. The remaining 10% of the treatment sites occurred outside city limits, in gated communities, on the border of Reno city limits. AC was used in all these areas with very good responses from co-operators and the general public. However, in the course of conducting these projects, we learned some practical information that has not previously been reported in relation to AC use.

WHAT WE LEARNED

Park Personalities

WS personnel learned that every park has its own unique "personality". These personalities are created by the people who frequent the park on a regular basis. These frequent visitors became known as "regulars" by WS personnel. A few parks were treated several times due to the large number of geese present, giving WS personnel ample opportunity to become familiar with these parks "regulars."

Territorial Transients

Transient/homeless individuals frequented every park WS treated in Reno, Nevada. Several of these individuals became belligerent and were very protective of "their park". Most confrontations were defused by simply explaining the reason why WS was in the park. On two occasions, transient individuals asked if they could have the captured geese so they could eat them.

Passionate Park 'Regulars'

'Regulars' are people who do not live in the park but come to the park on a daily basis. Joggers, walkers, and elderly women typically make up this group, with the majority of goose feeding activities being conducted by elderly citizens. These individuals were very concerned about "their geese". In one park that required repeated AC treatments, the public relations person (PRP) was stopped by 5 elderly women who threatened to call the police if "Maurice" was taken or harmed. Maurice turned out to be a male domestic goose that lived at the park and had bred with a wild Canada goose.

When one of these 'regulars' witnessed a tranquilized goose being caught, rather than be upset, they would ask if the goose was sick and if it was going to be brought back to the park when it was better. The joggers and walkers were concerned for the welfare of the geese, but none ever complained after being told the geese were being relocated. The people fed geese on a daily basis tended to be the most upset, and they were the most confrontational about the geese being removed.

Dog-Walkers

The dog-walkers have been listed separately from the park regulars, because they created their own special challenges. Most dog-walkers would let their dogs chase the geese. This created a problem in situations when a goose that was just starting to be affected by AC was chased by a dog. WS soon learned to establish a person to watch for the dog-walkers and to steer them clear of any treated geese.

Park Employees

WS found that park employees could be both a help and a hindrance. It proved best in most situations to openly communicate with the employees that were responsible for each park's management. However, on two occasions open communication proved counter-productive, when park personnel then wrongly told a few park patrons that WS was "coming to kill all the geese in the park". For the most part, it was advantageous to coordinate with the park employees. For example, the sprinklers could be shut off on days treatments were scheduled to occur. It is very frustrating to have a sprinkler turn on right next to a goose that is just starting to be affected by AC, and watch it stagger into a pond or into some one's picnic lunch. WS found that 98% of park personnel were supportive of the wildlife damage management (WDM) work and wanted some or all of the geese removed from the Reno parks.

Project Personnel

It is vital that project personnel work as a team, in order for any WDM activity to be conducted efficiently and effectively. Project personnel must be able to react and respond to any and all developing situations. Reno WS personnel filled both of these roles in an exemplary manner.

Boatman

A designated boatman proved to be a valuable asset to the Reno treatments. The boatman was responsible for his personal equipment (waders, life jacket), boat, and motor, battery for the electric motor, and oars. The boatman had the responsibility to operate the boat, to recover geese, and to watch the boat and equipment when not in use at the treatment site, in order to prevent theft. The boatman was also expected to see that the electric motor batteries were fully charged for each day's project.

Public Relations

While all WS personnel were prepared to address field questions from the public during AC projects, it proved valuable to have one PRP assigned to handle the majority of questions from concerned park patrons. This allowed WS personnel who were actively treating geese or watching a treated goose to concentrate on the task at hand, and still not make the citizens feel they were being ignored. If a question was asked while a WS person was not able to stop and answer, they would direct the citizen to the designated PRP. The PRP was instructed to watch the treatment area, and try to anticipate individuals that might have a question and intervene when possible.

Bird Handler

When a goose was captured, it would immediately be placed in a holding cage in a shady location, out of the public's view. In most instances, the person who caught the bird would place it in the cage. However, in situations where several birds were down and one might be in danger, an auxiliary bird handler would help capture and transport birds to the holding cage. The PRP was usually able to handle both the PR and auxiliary bird handling tasks very efficiently.

Adequate Personnel

"Always have enough personnel" is a good motto. This is obvious enough; it is better to have too many than too few personnel.

Equipment

Before WS initiated AC use in Reno, a careful inventory of necessary equipment was taken. All the needed equipment and supplies were ready and on hand when the AC projects commenced. However, after the AC treatments commenced, our ideas as to what kinds and types of equipment were needed changed somewhat.

Boats

A plastic V-hull 7-ft dingy was used in Reno for all boat work. This boat was able to carry one person, motor, battery, net, oars, and one crate for holding captured geese. While this boat sufficed for the projects in Reno, it was considered too small by all WS personnel who used it to recover AC-treated geese. Because of the boat's small size, it could only hold one person. It was extremely difficult for the single occupant to run the motor, steer the boat, net a floating goose, and avoid capsizing, all at the same time. It was soon apparent that a larger tri-hull boat would be better suited for this type of work– a boat that could carry two people would be ideal. A positive point about using the small dingy was that it

could be carried by one person, where a larger boat would likely require two people.

Boat Motors

An electric 1-horsepower motor was used to power the dingy. This proved adequate even for activities on the Truckee River. The problems encountered in Reno involved the propeller. Two of the treatment sites had lakes that in their deeper parts were overgrown with moss. When WS used the boat and motor in the first lake, moss entangled the propeller and made it impossible to move the boat. To remove the moss, the motor had to be completely removed from the transom and brought into the boat. Keeping a set of oars on board resolved this problem.

Oars

The first few AC projects WS performed were in parks with large, moss-free lakes, and oars were considered to be a nuisance since space in the boat was limited. The dingy came with one 3-ft plastic oar with a paddle only 5 inches wide. This "almost an oar" device was initially favored because of its small size and because it would fit under the goose holding crate in the bottom of the boat. However, when the first mossy lake was encountered and the motor failed due to moss entanglement, this one small oar proved to be grossly inadequate. That incident prompted the acquisition of a set of six-foot-long wooden oars. These oars proved invaluable for use on the Truckee River when the water was too shallow or the river rocks were too large for the electric motor to be effective.

Vehicle Security

Whenever possible, WS personnel would park as close as possible to a treatment site. This was done for several reasons. The close proximity shortened the distance a captured goose had to be carried to a holding pen, and it was possible to use the truck for shade by placing the goose crates in the shade of the truck. Many times the area alongside the truck was the only secure area with shade. However, on two treatment sites, the truck could not be driven close enough to the treatment area to allow the truck to be in sight at all times. On one such occasion, when a goose was being brought back to the truck, a transient was caught attempting to remove a pair of boots left in the truck bed by a WS employee who had changed into waders. On another occasion, a person was caught attempting to remove a goose from one of the holding cages. These instances led WS to assign a person to vehicle security duty in situations where all the equipment could not be locked up in the cab, or the geese had to be held at locations out of sight of WS personnel. Also, locks were placed on the holding pens, and geese in cages that were not ready to be carried to the truck or trailer had to be watched at all times.

Environmental Concerns

Rivers

We learned that river current can create unique situations with birds treated with AC. While we anticipated some of the situations, others were a surprise. In one project, several geese that had been treated in a park located along the Truckee River were scared into the river when a drunk pulled up in a noisy pickup and started yelling at WS, demanding to know what they were doing. Two geese swam over to a sand bar a few yards from the bank and remained there until they went to sleep. One other goose swam down river 50 yards and continued floating, half conscious, down river towards a waiting net. This apparently "conked out" goose floated to within 10 feet of the capture net, at which time it bumped into a submerged metal bar, and reacted by swimming upstream 6 feet or so. The goose was apparently working on reflex actions, as it never opened its eyes or acted alarmed. After swimming upstream, it stopped paddling and consequently drifted back down towards the bar again. As soon as the goose made contact with the bar, it would again swim 6 feet up stream, then stop paddling and repeat this process. The net handle was 12 inches too short to allow the bird to be netted. The bird repeated this swimming, bumping, swimming action for about 45 minutes. Eventually, it appeared that the goose worked off the effects of the AC dose and swam upriver 100 yards, flew 3 feet up a steep bank, and for the next 2 hours showed no indication of any effect of the drug.

Weather

Another challenge was keeping the birds sufficiently cool. AC is known to affect thermoregulation, and this effect is one reason the projects were scheduled to start before sunrise. The geese were held in plastic crates that would comfortably hold 4 geese, or they were put in cages on a trailer. The shifting sun presented a challenge, as the birds had to constantly be moved to be kept in the shade. The need to keep the birds cool and in the shade was always a concern and a constant challenge.

RECOMMENDATIONS

1. Scout project areas thoroughly and watch for potential problems, whether they might be human or environmental.
2. Coordinate with proper personnel, making sure the people you contact are the ones who have authority to make decisions.
3. Designate a public relations person.
4. Obtain proper equipment for each project environment.
5. Anticipate security needs, and designate a security person when warranted.

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Response of Canada Geese to a Dead Goose Effigy

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ABSTRACT: The North American Canada goose population increased at a rate of 10.5% per year, 1966 - 2001. Canada geese rank as the third most hazardous species in regards to collisions with aircraft. Sound Canada goose management tools are critical for a safer airport environment. We conducted field evaluations of a Canada goose effigy during the breeding season with territorial pairs and in late summer with post-fledging flocks to determine if geese were deterred by the effigy. No difference in territorial pairs was found between pretreatment and treatment periods for Canada geese when goose effigies were placed within their territories. In post-fledging flocks, the mean number of geese observed during pretreatment (74.9 ± 12.9), treatment (14.8 ± 4.5), and posttreatment (53.6 ± 14.2) periods differed ($P < 0.01$). There was no difference ($P = 0.56$) between the mean number of geese observed during a second round of 5-day pretreatment (58.7) and 5-day second round treatment (43.7) periods. By itself, the goose effigy was not effective as a Canada goose deterrent after approximately 5 days. However, this effigy may have some potential in an integrated goose control program conducted outside of the breeding season. Further evaluation of the effigy as part of an integrated Canada goose control program is recommended.

KEY WORDS: bird damage control, *Branta canadensis*, Canada goose, deterrents, effigy

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INTRODUCTION

Long term population trends from North American Breeding Bird Survey (BBS) data (1966 - 2002) show an increase of 10.4% per year ($P < 0.01$) for Canada geese (*Branta canadensis*) populations in North America (Sauer et al. 2003). The giant Canada goose (*B. c. maxima*) population in the Mississippi flyway has increased from about 800,000 in 1993 to about 1.5 million in 2000 (U.S. Fish and Wildlife Service 2000). Ankney (1996) noted that it is not possible to predict when the giant Canada goose population will stop increasing.

Wildlife-strikes cause serious safety hazards to aircraft. Wildlife strikes cost civil aviation at least $489.8 million annually in the United States (Cleary et al. 2003). Canada geese rank as the third most hazardous species in regards to collisions with aircraft (Dolbeer et al. 2000). From 1990 to 2002, geese were involved in 1,027 strikes with civil aircraft and caused $351 million in total costs (Cleary et al. 2003). In September 1995, 24 people were killed and a $190-million aircraft was destroyed when an AWACS aircraft crashed on takeoff at Elmendorf Air Force Base, Alaska, after striking Canada geese (Wright 1997). Sound management techniques that reduce goose numbers in and around airports are therefore critical for safe airport operations.

Large-scale killing of nuisance birds is often undesirable or impractical (Dolbeer 1986, 1998; Dornbush et al. 1996, Smith et al. 1999); thus, there is considerable demand for effective nonlethal techniques to deter bird use of problem sites. Numerous harassment and frightening techniques for reducing conflicts involving birds are available (Solman 1994, Cleary 1994, Dolbeer et al. 1995). Many of these techniques are expensive, ineffective, require multiple years to achieve desired results, produce temporary results, or have not been evaluated quantitatively. Realistic dead bird effigies of gulls (*Larus* spp.) and turkey vultures (*Cathartes aura*) have shown promise as species-specific frightening devices (Saul 1967, Stout et al. 1975, Stout and Schwab 1979, Stout and Schwab 1980, Seamans et al. 2000, Tillman et. al. 2002). Currently, a device called the Dead Goose Decoy is marketed as a non-lethal method to scare geese away from designated areas. This device consists of a plastic Canada goose decoy that has the form and appearance of a dead goose. No studies on the efficacy of the device have been published in peer-reviewed journals or proceedings. Our goal was to evaluate the efficacy of this Canada goose effigy.

METHODS

Territorial Pairs

This study was conducted from March to April 2001 on the 2,200-ha National Aeronautics and Space Administration's Plum Brook Station (PBS) in Erie County, Ohio. Eight territorial pairs of Canada geese were located on 8 separate ponds (≤ 0.4 ha) on PBS. Counts of geese were conducted for 7 days at about the same time each day to establish the consistent use of each pond by at least one pair of Canada geese. Four of the 8 ponds were then randomly selected to receive 2 goose effigies. Counts of geese on each pond were again conducted as during the pretreatment period for 7 days.

Because territorial Canada geese maintain their territory and generally do not leave their territory for another occupied territory, the control and treated pairs may be considered as independent. The change in numbers of geese using the ponds was compared using *t*- tests.

Post-fledging flocks

During August through September 2002, we located 6 ponds (0.4 - 2.0 ha) in Erie and Huron Counties, Ohio that were actively used by Canada geese. We counted geese on each pond or within 25 m of the pond between 1300 and 1600 hrs for 5 consecutive days (pretreatment). Two

days following the last pretreatment count, at least 2 effigies per 0.4 ha were placed between 0800 and 1100 hrs in each pond as per the manufacturer's suggestions. Counts were conducted as during pretreatment for 5 consecutive days (treatment). At the end of the 5-day treatment period, effigies were removed and geese were counted on the ponds for 5 consecutive days (posttreatment). The mean number of geese using all ponds was compared between periods using Kruskal-Wallis analysis of variance (Statisix7 2000).

Following the posttreatment period, 4 ponds were selected to receive effigies for a second time. At the 2 ponds not retested, goose use had become too inconsistent to effectively test the control technique. Counts were conducted as during the earlier portions of the study but continued until Canada goose numbers were similar to the posttreatment numbers. The change in numbers of geese using the ponds during this portion of the test was compared using *t*- tests.

RESULTS

Territorial Pairs

There was no difference (t =0.66; 49 df; P = 0.51) at the 4 control ponds in the mean (± SE) Canada goose numbers between pretreatment (2.1 ± 0.5) and treatment (2.7 ± 0.7) periods. At the 4 treated ponds, there also was no difference (t =0.52; 51 df; P = 0.61) in mean Canada goose numbers between pretreatment (1.1 ± 0.1) and treatment (0.9 ± 0.2) periods.

Post-fledging flocks

The mean number (± SE) of geese observed on the 6 ponds during pretreatment (74.9 ± 12.9), treatment (14.8 ± 4.5), and posttreatment (53.6 ± 14.2) periods differed (W = 17.65; P < 0.01). There was no difference (Z = 0.58; P = 0.56) between the mean number of geese observed on the 4 ponds during the second round 5-day pretreatment (58.7 ± 20.7) and 5-day second round treatment (43.7 ± 15.6) periods.

DISCUSSION

Territorial pairs of Canada geese showed no response to the goose effigies. The manufacturer claims that geese will abandon nests and eggs when a decoy is placed near a pair's nest. We did not observe this behavior at any of our 4 treatment ponds. However, during the post-fledging period, the presence of goose effigies had an initial repellent effect at all sites tested. Canada geese were observed either flying towards treated ponds and then flaring away, or landing on the water only to flush off of the pond within 30 seconds of landing. By the end of the first 5-day treatment period, geese were generally returning to the pond but were staying at least 25 m away from the effigies. During the second 5-day treatment period, geese were observed swimming next to or between the pairs of effigies within 1 to 3 days of effigy placement.

Effective Canada goose management programs generally require an integrated approach to be ultimately successful (Booth 1994, Smith et al. 1999). The presence of goose effigies may enhance other control techniques, such as pyrotechnics that simulate gunfire (danger), lasers (Blackwell et al. 2002), and chemical repellents (Dolbeer et al. 1998). The short-term (1 week) use of effigies at the start of an integrated control program to disperse Canada geese from an airfield or other site should prove useful.

Further experiments with goose effigies may include use of pyrotechnics and lasers to determine whether, if used in combination, the effectiveness of these techniques might be enhanced. Also, the use of lethal control could be added to see if a combination of all 4 techniques would create effective control.

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