Okanagan's flawed Canada goose management plan won't resolve community concerns with geese

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The rationale for the Okanagan Valley Goose Management Program (OVGMP) contains misinformation and omissions. In this document, we will address the claims that the Okanagan Canada geese are not native to the area, that they are non-migratory and that lethal management to control the goose works.

CLAIM #1: Okanagan Canada geese are not native to the region:

The allegation that Canada geese are not native to British Columbia reflects a ploy often used by wildlife managers to obtain public acceptance of lethal culling of native species. In the book, Birds of Canada, by W. Earl Godfrey, revised edition, 1986, the distribution is given as follows: "[The Canada goose] Breeds from the Komandorskie and Kurile islands (formerly) and from western Alaska eastward to Labrador and Newfoundland Maine and Massachusetts. Winters from southern Canada (locally) south to northern Mexico and the Gulf Coast of United States."

Every species account of North American birds in every book or on the internet includes all ~~of~~ British Columbia in the natural range of the Canada goose. Birds are mobile; their distribution is not static, but ever-changing, adapting, sometimes expanding and sometimes shrinking in response to a multitude of variables, so at the local level we can often see dramatic change, but overall Canada geese are and always have been native to British Columbia.

Local conditions determine suitability of habitat for any part of the bird's life cycle. Open, not frozen, water is obviously a major, but not the only, determining factor in the northern limit of where the geese can spend all or part of winter. Being strong flyers, having food that can be walked to is not essential for Canada geese in fall, winter or spring, unlike during relatively brief molt and breeding periods in the summer. Suitability of conditions vary both through the seasons and from year to year.

CLAIM #2: Okanagan Canada Geese are non-migratory:

The claim has been made that the Canada geese in the Okanagan Valley goose management area are non-migratory. The *Summary of 2018 Canada Goose Management Program: Egg Addling and Population Surveys* states:

> "Translocated young of the 1960's and 70's did not have the opportunity to imprint on mature geese (i.e., parents) and did not learn migratory patterns. These geese and their progeny remained in areas to which they were relocated. The current non-migratory goose population in the Okanagan Valley is comprised of hybrid offspring from different stocks of geese that were introduced decades ago. As such, these geese do not fall into the recognized subspecies defined by Banks et al. (2004)."

There are two issues that arise from the above statement: the first that the Okanagan Canada geese are not migratory; and the second that they are not a recognized subspecies. The second issue will addressed under Claim #3.

The claim that the geese are non-migratory, while erroneous, is understandable, as the geese "all look alike" and can be seen in all seasons. But studies made with geese who were marked so that one goose could be distinguished from another, or equipped with radio telemetry devices so that their movements could be tracked, showed that is not necessarily so.

After the breeding season some birds, called "molt migrants" fly to different locations to molt. There they shed and regrow their primary flight feathers almost simultaneously and for four to five weeks are flightless. The molt migration tends to be northward. In one study, "Summer-banded Canada geese originating from populations in 26 states and 6 Canadian provinces were captured in coastal areas of James Bay and Hudson Bay between the borders of Quebec and Manitoba." (https://www.jstor.org/stable/3802654?seq=1).

The suitability of habitat chosen by molting geese depends on "attractants", which primarily means food, a favourite being "turf grass" – grass lawns and greenswards, that they can reach from water, on foot.

Geese feel safer on the water, especially during that flightless stage or while tending their young. That is why habitat modification can be so important and is often all that is needed to reduce Canada Goose populations, and the concerns they produce, to acceptable levels.

Flightless geese cannot hop over even low barriers, such as a foot-high hedge, for example. If the barrier is between safety (water) and food (turf grass) conditions are not suitable for them during either the molt or during nesting. A gently sloping sand beach offers no barriers, but also no food. However, if the beach is between water and short grass, conditions are perfect for molt migrants.

Short grass (mowed) attracts geese as they "graze", like sheep, biting off the grass at ground level or even pulling it out by the roots. Grass left to grow long and go to seed is not of use to them (and may also hide predators, like foxes, from view).

While it is essential to direct people not to feed geese (which many people love to do), the first and primary attractant to urban areas is turf grass adjacent to water with a clear sightline between the two. Food provided by humans is a supplement or bonus, but not the main attraction.

For more discussion of nest site selection and migration, see Appendix 1.

Claim #3: Okanagan Canada Geese are not a recognized sub-species:

The species is native, notwithstanding claims to the contrary. It has been stated that the Okanagan Canada geese derive from birds moved there in the 1960s and `70s. "Young Canada geese and eggs from elsewhere in Canada and the U.S. were translocated here to encourage

the creation of an Okanagan goose population." It has been said that "these are hybrid offspring of several different subspecies of Canada Geese".

Essentially a subspecies (the term is often used synonymously with "race" or "geographic variation") is one or more populations of a species living in different parts of that species' range, and distinguishable by some usually minor characteristic, such as wing length or tone of darkness or lightness of some colour.

But the deciding factor between calling such an identifiably, if only slightly, different form is the ability for them to breed with each other, more or less randomly, producing viable young, themselves capable of breeding. A "hybrid" is the offspring created when one species mates with another and produces young which may or may not be viable. A Canada goose mating with a snow goose (as can happen) may produce a hybrid, but that sort of incident is very rare. Hybrids between some species may be less likely to reproduce, or even sterile.

Where one subspecies' range abuts another, there can be a seamless flow of the distinguishing characters, for example from small to large or from dark to light.

The bird is a Canada Goose, recognized by the Canadian Wildlife Service as a Canada goose and a migratory species.

For information on Canada goose subspecies, see Appendix II.

CLAIM #4: Lethal management is necessary to control the local Canada goose population:

It is understandable for one to think that each Canada goose removed from the population is one less goose. The number removed will be subtracted from the whole. This is easily demonstrated by, for example, removing seventy-five bricks from a pile of 100. You have 25 left. That will not change.

But of course, geese are not bricks. A population of geese contains birds in a variety of stages, each individual competing with the other, and with individuals of other species, for the resources that exist within the environment inhabited. As well, the population will inevitably be reduced by various sources of mortality, including predation, accident, or disease.

Competition within the species – intraspecific competition – is usually not apparent to us, nor is competition with other species whose needs overlap that of the Canada goose – interspecific competition – but each bird seeks "optimal" food, "optimal" nest sites and "optimal" roosting locations in competition with other members of its own and other species.

A single goose usually lays about a half dozen eggs beginning around her third year of life, but the number of eggs, thus potential size of subsequent brood, can range from a couple of eggs to as many as nine, or even, exceptionally, more. Notwithstanding the protective nature of the parents, mortality is high among goslings. Indeed, a single raccoon or skunk can eliminate most, even all, of a clutch of eggs. A mink, a hawk or even a large fish can pick off most, or even all, of a brood of goslings.

Wild animal populations tend to fluctuate but on average the number of birds of a given species that survives to sexual maturity is more or less equal to the number that die in the same expanse of time.

Populations fluctuate based on such factors as the availability of food, water and shelter. When the number of individual geese within a population are removed through culling, the population tends to increase for two reasons. First, the resources available to survivors, increase. More food per individual results in healthier birds, higher survival rates of goslings and larger brood sizes. Second, other birds will move into the region.

Where food, nest sites and roosting locations increase, the location becomes more "optimal". This is particularly true for the molt migrants, the birds who want a safe place for the flightless part of their life cycle and are not of local origin. The net effect can be what is called "compensatory mortality", or the "population rebound" effect.

The killing becomes endless and unnecessary. It is important for politicians and provincial and municipal staff to address conflicts between the geese and residents through humane, effective and cost-efficient plans that do not result in the futile killing of Canada geese. Such plans help build community buy-in, mitigating the kind of unfortunate social divisiveness that occurs between those who want to kill and those who do not. Such a plan can address the conflict issue while building respect for and understanding of our wonderful natural heritage of native wildlife.

Non-lethal wildlife management for Canada geese:

1. Know the difference between breeding and nesting geese and moulting geese.

2. Egg addling and disturbance of breeding pairs of geese addresses the nesting population. These can be fairly effective measures in the spring. However, they do not address the moult migrants.

3. Most complaints involve interactions between residents and moult migrants during the summer months when both are using parks and open areas. Lethal removal of some birds from the moulting population will simply provide space for other birds to occupy. Habitat modification provides a non-lethal, less expensive option that forces the birds to look elsewhere to moult.

4. Examine guides to effective habitat modification: https://www.animalalliance.ca/wp-content/uploads/2016/01/Goose_Manual-Habitat-Modification.pdf.

5. Establish a long term non-lethal plan: https://www.humanesociety.org/sites/default/files/docs/HSUS%20Canada%20goose%20Mgt%20Plan%202019.pdf\

6. Appendix I:

Nest site selection is by the female, and usually occurs after mating and migration. The female normally returns to the region where she was hatched, so that if a male from an urban flock mates with a female from a rural or wilderness flock, nesting is most likely to occur in the rural or wilderness location. Similarly, if the female was hatched in an urban location and the male in a wilderness location, their nesting is more likely to be in the urban locality where the female originated.

The pair bond is for life. Thus, wintering grounds and breeding grounds may or may not be the same – meaning the birds may or may not migrate. Reduction in suitable rural and wilderness nest sites in conjunction with increase in suitable urban nest sites, is a contributing factor to changes in flock distribution, as is accessibility to food. Flying birds can move a long distance from water (safety) to food (nourishment) but for a brief time in summer when they cannot fly, during both nesting and molt, safety and nourishment must be adjacent to each other, one accessible from the other.

In determining a non-lethal strategy to reduce conflict between the birds and humans, it is important to understand which population is being targeted, the nesting population or the molt migrants. Conflicts are often more common because the geese molt in late June to early August on some of the same beaches and parks that are most heavily used by communities.

Appendix II:

In *Birds of Canada*, Godfrey had this to say about subspecies of the Canada goose: "The subspecies of this goose are at present imperfectly understood." He then lists ten subspecies, of which four nested in B.C., and one or two north of B.C. that would migrate through the province.

But that all has to be reconsidered for several reasons. First Godfrey was drawing upon earlier information while research continues to the present and we learn more and more about Canada geese.

Second, new methods of determining relationships have led to new assessments of what determines different subspecies are.

Third, not only the translocation projects that moved one "subspecies" into the range of another, but changes in the ranges of subspecies themselves, in response to massive environmental alterations caused by human development that have occurred, render old range maps obsolete.

And fourth, more sophisticated technical analysis of DNA and other non-obvious features of the geese has allowed better understanding of the taxonomy of Canada geese. In fact, what Godfrey called the Canada goose has now been "split" into two distinct species, the Canada goose and the cackling goose, each with its own suite of subspecies, most identifiable only in the hand, by an expert, or via DNA analysis.

The Canada goose is now thought to have seven subspecies, each of which is sometimes given its own English name which we will also provide here.

The first known to science (1758) was the Atlantic Canada goose (*Branta canadensis canadensis*).

In 1938, it was decided that geese further inland were a bit different, and they became the interior Canada goose (*B.c. interior*).

In 1946 the Canada geese in B.C., the ones that were most likely to be seen in the interior, were, it was realized, just a little different from those interior birds, and they were named the Moffitt's Canada goose (*B.c. moffitti*).

Between that subspecies and the more eastern birds it was realized a few years later, that some Canada Geese in the interior were quite large, and in 1951 this race was called the giant Canada goose (*B. c. maxima*) although some experts say, they are the same as the Moffitt's Canada goose. Opinions are divided, but if the giant Canada goose was a genuine subspecies, and not just a hefty Moffitt's Canada goose, it was of great concern as it was very endangered, at one time thought to be extinct. Its range was central North America, and it is as typical as any of what most of us think of as "the" Canada goose. Efforts were made to save it from actual extinction. Since Canada geese subspecies all look very much alike, freely interbreed where their ranges overlap and produce viable offspring sharing characteristics of both parents, it can all be very confusing.

That same year, 1952, formal recognition was given to the Vancouver Canada goose (*C. b. fulva*), originally found up and down the west coast, and quite typical of Canada geese overall.

Different, however, were the small, dark Canada geese up in Alaska, seen as a distinct form as long ago as 1858, when they were named the dusky Canada goose (*B. c. occidentalis*). Also small, also found in Canada's northwest, but not so dark and much more common, was the lesser Canada goose (*B. c. parvipes*), formally recognized as a distinct subspecies in 1852.

Primarily it was concern for the fate of the endangered giant Canada goose that led to efforts to translocate the birds to safe areas in hope of staving off extinction. That worked. But as it was the same species as Canada geese already there (since the species was to be found across the entire continent) they mixed and mingled, to the disgust of "purest" taxonomists. It became increasingly hard, therefore, to know what was what, but to repeat: they are all Canada geese.

As complicated as all that is, it gets worse. Away back in 1832 a very small "Canada goose" that usually had a white ring around the base of the neck was given a distinct name, the Hutchin's goose. Actually, it was one of many smaller Canada geese, and for now, it is believed there are four of these "types" of geese, maybe five – the fifth being extinct, so it's kind of hard to know for sure. They constitute a distinct different species of goose called the Cackling goose, but most people think they are just a small Canada goose.

There is that first one, recognized in 1832 (*Branta hutchinsii hutchinsii*), and another, which nests in the Aleutian Islands, and was given scientific recognition in 1836, as a Canada goose, now called the Aleutian cackling goose (*B. h. leucopareia*). It, too, was once endangered.

The Bering cackling goose (*B. h. asiatica*), was named in 1946, and is the uncertain one, at any rate now extinct.

And then there is the Taverner's cackling goose (*B. h. taverneri*) named after Canadian ornithologist P.A. Taverner, in 1951.

It was Mr. Taverner who wrote the first book published by the National Museum of Canada under the title *Birds of Canada*, published in 1937. At that time Taverner recognized only four subspecies of Canada goose, "lumping" them into the one species that included what we now call the cackling goose.

The same year, 1951, the same scientist, French-born American Jean Théodore Delacour, who named a subspecies after Taverner, also identified the Vancouver Canada goose (*C. b. fulva*), mentioned above. It is a west coast subspecies that looks pretty much like any other Canada goose.

Both the cackling and the Canada goose are native to B.C. whatever mixing and matching of subspecies occurs within each species thanks to humans changing the environment and moving birds around. What characterizes them is that while hybrids between the two species may occur, in fact they tend not to. Cackling geese mate with cackling geese and Canada with Canada, but both do so with little or no subspecies, or race, based preference, whatever the geographic origin of their respective ancestors.

Goose Management Program

Okanagan Valley Goose Management Program (OVGMP)

Like so many communities in southern BC, the Okanagan Valley struggles with management of non-migratory Canada Geese. It is important to stress that the nesting birds targeted in this program are not native to the region. These are hybrid offspring of several different subspecies of Canada Geese introduced into the Okanagan in the 1960's and '70's. Young Canada geese and eggs from elsewhere in Canada and the US were translocated here to encourage the creation of an Okanagan goose population.

What was not foreseen or considered was the inability of these geese to migrate because they had no parents or natural triggers to guide them, and their ability to adapt and thrive in the mild Okanagan climate. The consequences have been a steadily growing population with few natural controls and a need to manage this population; before water quality and distribution systems were affected and beaches rendered inhospitable.

Egg addling involves shaking eggs or coating them with non-toxic biodegradable food-grade corn oil within 14 days of incubation to make them non-viable. Once addled, eggs are returned to the nest. Geese continue to incubate until they realize the eggs will not hatch. By then it is generally too late in the year to produce more eggs. Adults are not harmed and will continue with their regular life cycle.

Key to the success of the program is finding new nests. The public is asked to report lone geese, pairs of geese, or nest locations on private or public land by emailing coordinator@okanagangooseplan.com or calling 1-877-943-3209.

For more information visit: www.okanagangooseplan.com

Links: Goose Brochure