

2014-243

MEMORANDUM

TO: Mayor and Council

FROM: Chief Administrative Officer

DATE: October 14, 2014

RE: Update -CRD Regional Deer Management Strategy (RDMS) - Oak Bay Pilot

REASON FOR THE REPORT:

The purpose of this report is to advise Council on the current status of Capital Regional District 's Regional Deer Management Strategy (RDMS) – Oak Bay Pilot.

BACKGROUND:

In response to concerns for public safety and evidence of the growing number of deer fatalities in Oak Bay neighbourhoods and on Oak Bay streets, Council resolved in November 2013 to participate in the Capital Regional District's Deer Management Strategy (RDMS) urban pilot project. The CRD would support the pilot with staff and expertise. Based on CRD budget estimates, Council approved an allocation of \$25,000 in the 2014 municipal budget, with an understanding that population reduction measure was a potential outcome.

The RDMS urban pilot project outlined a number of initiatives for the municipality to follow to reduce deer/human conflict. Public education and awareness formed the foundation of these initiatives.

Earlier in the year two municipal bylaws were reviewed and changed:

- Bylaw #4610 increased feeding deer fines from \$100.00 to \$300.00.
- Bylaw #3536 fence heights for residential side and back yards were reviewed and deemed appropriate

In the spring, a public education campaign was undertaken to promote awareness of how best to mitigate human/deer conflict. Two CRD prepared awareness brochures (Deer in the Capital Region - Information for Residents; and Reducing Deer –Human Conflict – Deterrents) were distributed through the Oak Bay News. Editorials were

printed in the Oak Bay News and regular meetings with concerned citizens were held by the Mayor, and are ongoing. The municipal website also hosted messages from Mayor and Council regarding Deer Management and a section on Frequently Asked Questions. The municipality itself supports deer resistant planting and the use of deer repellents as demonstrated in municipal gardens and parks in the community.

CRD staff, volunteers, and the municipal animal control contractor, undertook a deer count over the course of several days in June. While the count methodology would not stand up to scientific rigor, the methodology used was informed by the provincial wildlife branch that has overall authority for urban deer. Given that we are currently measuring the population by the number of deaths each year, the count is an important relevant undertaking and is considered to be a baseline tool required by the province if/when the municipality submits a permit application for a deer cull. In the future, the deer count could continue to be a yearly event through the CRD (should they carry forward with their role in a Regional Deer Management Strategy) and serve as a helpful indicator of the deer population in Oak Bay.

In the early summer, the municipality acquired two sets of speed boards through ICBC that were strategically located throughout the community as a tool for driver awareness of speed in high collision areas and to reduce risk of deer/vehicle collisions through awareness of speed. The District strengthened its street signage in order to raise greater awareness of the possibility of deer vehicle collisions in our neighbourhoods.

An information session was held in March for Council, along with CRD staff in attendance and the provincial wildlife veterinarian Dr. Helen Schwantje (the provincial biologist Mr. Sean Pendergast was unable to attend), to discuss deer population reduction strategies. Dr. Schwantje has overall provincial authority for the deer population reduction permitting and was able to provide Council with professional guidance and information based on her permitting authority. While she reviewed various options for population reduction and took questions from Council (on various methods including, immunocontraceptives, hazing and frightening, public hunting/sharpshooting, capture and relocation...), she was very clear that the only population reduction method that she would authorize for an urban setting is capture and euthanize. Dr. Schwantje indicated clearly at this time that this is the only humane option available to any municipality in BC that is attempting to address the growing problem of urban deer throughout the province (the attached fact sheet prepared by CRD staff provides the rationale that would prevent the authorization of other methodologies). (See Attachments #1) Further to the discussion of this deer management strategy, the wildlife veterinarian also discussed with Council that deer management is not just a one time event, but that further monitoring and evaluating of human/deer conflict will be required for several years to come.

During this same meeting with Dr. Schwantje, Council requested her assistance to help inform/educate Oak Bay citizens on the capture and euthanize methodology, and why

only this option would be permitted. As the recognized subject matter expert and person of authority, she agreed to assist providing her Minister was in agreement and her time was available. In the meantime staff are heavily reliant on the various information and fact sheets produced and provided by the Provincial Government, several of which have been attached to this report. (See Attachment #2)

Throughout the course of this initiative, the District of Oak Bay and the Capital Regional District have prepared and sent several letters to the provincial government requesting funding for deer management, access to the subject matter expert Dr. Helen Schwantje and access to modified clover traps.

During the summer the municipality was advised that: *"The province cannot agree to the sharing of operational costs. As previously communicated, while the province will provide advice, administer permits and loan equipment, it cannot assume responsibility for urban deer management activities."* Following the request to access for the traps, the municipality has received conflicting information, with recent written correspondence late this summer from ministry staff that said: *"Region One (Vancouver Island Region) has Clover traps (up to 4) that could be made available however, they are not the 'modified' variety. They are not as efficient, require more manpower, would cause more stress to the deer and could possibly be associated (with) slightly higher safety risks to the operators. For these reasons, our Provincial Veterinarian warns against their use for deer in 'capture and euthanize' applications."* The correspondence goes on to further say that *"the Provincial Government does not have suitable traps that can be made available on loan to the District of Oak Bay..."*. As a result of these developments the municipality determined it could not proceed with population reduction until (at the earliest) January 2015.

Also during the summer, the CRD provided Oak Bay with notice that they would no longer be able to provide staff support to the urban Oak Bay DMS pilot after September 30, 2014. The Regional District had limited resources assigned to undertake the pilot project that was scheduled to end in October 2014. Oak Bay staff was directed to write to the CAO of the CRD to request an extension of support to enable Oak Bay to complete its pilot project. As a result the CRD has since indicated they would continue to support Oak Bay through to the end of March 2015.

CURRENT STATUS:

Deer deaths in Oak Bay: trending higher

The number of deer deaths in Oak Bay has continued to increase. The following yearly statistics of deer carcasses removed from the District of Oak Bay have and continue to be collected by our Public Works department:

YEAR	# of deer deaths
2007	3
2008	0
2009	7
2010	8
2011	14
2012	23
2013	40
2014	29 (to the end of September 2014)

In the early summer our Oak Bay Police Department received training from the provincial conservation officer on how best to dispatch injured deer. Although not the best use of our policing resources it has become a more common practice in recent times.

Budget Revision:

As of September, half of the budget allocation (\$25,000) has been spent on the deer management conflict reduction measures described above including public education and communication. The original budget proposed by the CRD last year did not reflect the costs associated with implementation of a deer cull that factored in the appropriate management of the animal in its entirety which would include the use of the meat, hides and hooves. Nor did it reflect the costs associated with use of additional equipment needed to monitor the traps throughout the duration of the cull. CRD staff have been requested to update the budget estimates for the actual deer cull for Council's consideration. These costs will fall into the 2015 budget cycle.

Continued Public Education:

Staff will be introducing posters at recreation centres and all public spaces to remind residents not to feed the deer throughout the fall and winter months.

Permit Application:

Given the number of deer counted over a period of 5 days earlier this year, the CRD had drafted a permit application for up to 50 deer exceeding the initial estimate of 25. There is no scientific evidence or formula that informs any decision regarding scope of the recommended population reduction. Council's most poignant evidence is the escalating deer deaths year over year on the streets of Oak Bay. Municipal staff will be proceeding with review and submission of the permit application to cull up to 25 deer for the Ministry of Forest Lands and Natural Resources.

Deer Management Following the Cull:

Talks are continuing with the Esquimalt and Songhees Nations regarding the distribution of the deer meat and the traditional uses of the entire animal to ensure the complete honouring of the animal's life.

Conversations with the Government of BC -Traps And Subject Matter Expert:

Following the recent Union of BC Municipalities meeting with Hon. Steve Thomson, Minister of Forests, Lands, and Natural Resource Operations, Mayor Jensen sent a letter to ensure confirmation on the Minister's commitment to provide the necessary modified clover traps, and to confirm the subject matter expertise resource of Dr. Helen Schwantje, the provincial wildlife veterinarian.

Provincial Meeting on Deer Management:

At the recent UBCM meeting, Minister Thomson also indicated that his ministry staff would be calling a meeting in mid-November to discuss regional deer management strategies particularly with all those local governments who have already undertaken deer management strategies in their regions and municipalities. District of Oak Bay staff will make every effort to attend this meeting when it is called.

During the UBCM meeting Minister Thomson also indicated that there maybe an interest in undertaking of a pilot relocation project. The details including location and terms of reference have not yet been finalized or released. Speculation is that such a pilot project may be analyzed next year in and around the Cranbrook area and would be for a different species of deer. Staff will continue to monitor the progress of this potential initiative for future consideration.

NEXT STEPS:

There continues to be strong support for, and a vocal opposition against, a deer cull in Oak Bay.

Staff have been working, over the past year, through the various steps outlined in the deer management strategy prepared by the Capital Regional District. Bylaws regarding fencing and feeding have been reviewed and altered as necessary, monitoring of the number of deer and vehicle altercations has been maintained, public education has been undertaken with distribution of two brochures and provincial government literature is linked to our website. Additional signage in the high traffic areas has been installed. These are all mitigation strategies to avoid human/deer conflicts. These initiatives, however, have not reduced the growth of the urban deer population in Oak Bay, and the next course of action is the submission of a permit application to the provincial

government who have overall authority for wildlife management in B.C. If approved, the province would allow the District of Oak Bay to undertake a cull.

While this continues to be a very emotional and sensitive issue, many Oak Bay residents acknowledge being more "deer aware", and despite initiating the recommended actions to minimize deer human conflict, the number of deer killed in Oak Bay in 2014 is trending higher than in any previous year.

Staff will prepare to submit the permit application in the coming weeks, and begin the logistical work with the CRD staff for its implementation. Staff will also be working with the CRD to prepare the necessary Request for Proposals advertisements leading to the selection of an appropriate contractor. The permit, should it be granted, would allow for a cull of up to 25 deer in 2015.

As this permit is a public document, communications support will be required to prepare the community. Staff will assume the responsibility for preparing a communications plan. Staff recommends that given the sensitive nature of this initiative, all information regarding population reduction measures and options be authored and supported by the provincial wildlife veterinarian, Dr. Helen Schwantje to strengthen the legitimacy of the population reduction measures.

FINANCIAL IMPACT:

Staff will continue to work with CRD in revising a budget for Council's consideration.

Council should be made aware that there are limited staffing resources for this project identified within the municipality. The Project Management of this pilot project has been undertaken by the office of the Chief Administrative Officer with some additional contracted services provide by our communications contractor. There are no other staff assigned to this project.

RECOMMENDATION(S):

That Council receive this report for information.



Helen Koning
Chief Administrative Officer

ATTACHMENTS

Frequently Asked Questions

Deer Management Strategy

CRD | Planning & Protective Services

Why is population reduction an important component of a deer management strategy?
Public education, outreach, bylaw enforcement, street signage and traffic calming measures along with fencing, landscape design and deer repellent utilization are all components of a successful deer management strategy. Population reduction is only one component of a deer management strategy. When dealing with an overabundance of deer in an area where there are no natural predators, there needs to be a mechanism to reduce the population to more manageable numbers.

What is the Regional Deer Management Strategy?

The CRD Board provided direction to move forward with a Regional Deer Management Strategy in 2011. The CRD utilized a citizens advisory group (CAG) consisting of eleven members of the public, chosen from applicants by the CRD Board, to guide the development of a regional deer management strategy (RDMS). The strategy is designed to be action based using the Urban Ungulate Conflict Analysis (Hesse 2010) as a foundation to address the deer-human conflicts within the Capital Region.

In April of 2012 the CRD assembled an expert resources working group (ERWG), which included provincial wildlife biologists, the provincial wildlife vet and experts from the private sector, to advise and clarify information for the citizens advisory group. In December of 2012 the CRD Board adopted the Regional Deer Management Strategy. A "terms of reference" was drafted to give the framework for an urban and an agriculture pilot project. The Oak Bay council voted to work with the CRD initiative in June of 2013.
<https://www.crd.bc.ca/docs/default-source/regional-planning-pdf/Regional-Deer-Management/regional-deer-management-strategy.pdf?sfvrsn=2>

Why did Oak Bay agree to participate in the Pilot Program?

Like the municipalities throughout the CRD, the District of Oak Bay has, over the past several years, been hearing concerns and growing complaints from residents throughout the municipality regarding the growing population of black tail deer in Oak Bay and the risk to public safety. We were asked to take action.

Public safety is our primary concern. In the absence of any natural predators, the deer population is on the rise and as a consequence so are the incidents of deer-human conflict throughout our streets and neighbourhood. 40 deer died in 2013 in Oak Bay due to human-deer conflict and these deaths were not humane – they were long and painful and most often the result of vehicle collisions, failed attempts to jump fences, and illness. Oak Bay is expected to surpass these recorded carcass removal numbers in 2014.

The Provincial Government, who has the authority for wildlife management in BC, has reviewed the CRD's Regional Deer Management Strategy and requires the Ministry of Forest Lands and Natural Resource Operations to issue permits authorizing population reduction. After the regional deer management strategy release Oak Bay residents urged council to step forward and participate in the urban pilot project.

Please see the following links for more information: <https://www.crd.bc.ca/docs/default-source/regional-planning-pdf/Regional-Deer-Management/regional-deer-management-strategy.pdf?sfvrsn=2>

Frequently Asked Questions

Deer Management Strategy

CRD | Planning & Protective Services

What does the Oak Bay Urban Pilot Project include?

- Public Education and Communication
- Deer Vehicle Collision mitigation:
 - » Signage
 - » Speed limit considerations
- Bylaws that include:
 - » Fencing (higher back and side fencing allowances for home owners)
 - » Feeding the deer is prohibited and fines have increased to \$300.00
- CRD Database design and compilation: Deer count to better understand the size of the population throughout the community
- Data Analysis: CRD Count + ICBC deer vehicle collisions + Oak Bay carcass removal + Oak Bay resident complaints
- Population reduction – if necessary.
- CRD evaluation of Pilot Project
- Determination of next steps

What can residents do to help address the risks associated with human-deer conflict?

The following brochures are available with more information:

- Deer in the Capital Region Brochure
- Reducing Deer-Human Conflict Brochure
- Ministry of Environment - Discouraging Ungulate Conflicts

Be Deer Aware:

- Use caution when in the proximity of the deer. When driving, slow down and be very aware.
- Deer are most aggressive when they have young to protect (spring and early summer) and in the fall during mating season (end of October through early December.)
- educate your children, neighbours and friends, and prevent your pets from chasing or confronting deer
- not feed the deer! A fine can be levied for feeding deer in Oak Bay.

When are deer most aggressive?

Deer are most aggressive during the spring birthing period as well as the fall/winter mating period (rut). The doe's instinct to protect their fawns from a perceived threat is what could provoke a defensive reaction from doe. The rut is another sensitive time to be aware of potential conflict because the bucks are rutting. They are looking for females to mate with and can become very aggressive towards pets and in rare cases children due to elevated levels of testosterone which causes the bucks to become very focused on the does.

Frequently Asked Questions

Deer Management Strategy

CRD | Planning & Protective Services

What Considerations and Options Were Explored with the Province of BC and the CRD to Add Population Reduction in Oak Bay?

If there is a population reduction, will other deer move into neighbourhoods to fill the void?

Wildlife experts in the provincial government have informed us that the void will not be filled right away with deer from other areas. Black-tail does do not migrate very far from where they were born. They generally don't cover more than a few square blocks. Home range in urban areas is estimated to be about 2.5 square blocks. Bucks, however, will cover slightly more ground in search of females and prime food. Deer generally will not move to a new area unless they are pushed because of predation (animal or people), dense populations and a lack of desirable habitat.

Capture and relocate has not been supported as a deer management option by the government of BC.

This method is not currently supported by the Ministry of Forest Lands and Natural Resource Operations for black-tail deer in this region. The Ministry Forest Lands and Natural Resource Operations stated that it will not authorize the capture and relocation of black-tail deer due to the transportation stress and resulting high mortality rate. Deer habituated to urban and suburban environments do not fare well when introduced into wild environments. http://www.env.gov.bc.ca/cos/info/wildlife_human_interaction/UrbanUngulatesConflictAnalysisFINALJuly5-2006.pdf

Tranquilize and relocate has not been supported as a deer management option by the government of BC.

The Ministry of Forest Lands and Natural Resource Operations has stated that it will not authorize the use of tranquilizers to aid in the relocation of deer due to the high risk of the deer reacting poorly to the tranquilizer. Risks range from no reaction to the deer succumbing to the tranquilizer causing death. Deer habituated to urban and suburban environments do not fare well when introduced into wild environments. Residual tranquilizers impact other animals that consume deer that have been tranquilized.

Immunocontraceptives have not been supported as a deer management option by the government of BC.

This method involves trapping a deer in a clover trap, releasing the males, marking the females and injecting them with a contraceptive. This is currently only possible and legal as part of a research project and the contraceptive application must be supervised by Provincial staff. The cost per doe is approximately \$1000.00 including the contraceptive. It is necessary to trap the deer in order to give the inoculation and manage any appropriate tagging or radio collaring for tracking. The inoculation not only sterilizes the doe, it also makes the meat unfit for human consumption. If the animal dies, scavengers that feed on the inoculated carcass could become contaminated. Approximately 70- 90% of the doe population must be treated in order to start slow population growth. Best results occur in geographically isolated populations. The contraceptives are not currently licenced or approved by Health Canada for use except when being used for experimental scientific research and by permit only. Immunocontraceptive treatment needs to be ongoing in order to be effective over the long term. Treated deer will live out the remainder of the natural life the result being that any population reduction will be very gradual.

Frequently Asked Questions

Deer Management Strategy

CRD | Planning & Protective Services

The farming of Black Tail deer has not been supported as a deer management option by the government of BC.

The Province has never permitted the farming of black tail deer. This is to reduce the risk of transferring diseases between wild populations and domesticated, farmed big game animals. According to the Provincial Big Game Farm Act, the only big game animals that can be legally farmed in the province are Fallow Deer, Reindeer and Bison.

Capture and euthanize is the only population reduction deer management option that has been approved recommended by the Provincial Government and Provincial Wildlife Veterinarian as a deer management population reduction option for an urban area.

Under the direction of professional wildlife experts, deer are baited into modified clover traps. The wildlife experts use the trap to constrain the deer and employ a bolt gun to euthanize the deer. The deer dies quickly and the meat, having not been contaminated by tranquilizers or contraceptives, can be consumed rather than wasted. Talks are underway with First Nations to receive the deer meat along with the deer hides, antlers and hooves which can be used for ceremonial purposes.

This issue of managing the growing population of black-tail deer in our community is a very emotional one for all of us. We will continue to listen to our residents, to work to ensure that we have the most accurate and up to date information available and we remain committed to act responsibly to protect the safety of our residents and the wellbeing of the deer.

Attachment #2



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Conservation Officer Service



Urban Ungulates Conflict Analysis

Dial Toll Free 1-877-952-7277 (RAPP) to report wildlife-human interactions where public safety is at risk.

There is a growing concern within many B.C. communities with respect to the growing numbers of deer populating urban areas. These increases are creating some issues such as higher rates of car accidents involving deer, aggressive behavior towards humans and damage to private gardens.

Recognizing this issue, Ministry staff conducted a thorough review of urban deer conflicts, called "British Columbia Urban Ungulate Conflict Analysis". The purpose of the project was to identify mitigation options for urban ungulate conflicts, including:

- identifying the scope of the conflict;
- reviewing current information regarding conflict reduction, including management practices in other jurisdictions and their effectiveness; and
- providing recommendations regarding a strategy to deliver conflict reduction programs in B.C. and effective management practices to implement.

The report includes conflict reduction strategies, such as repellents, landscaping alternatives, fencing, and vehicle collision mitigation. Population reduction strategies are also discussed in the report, such as capture and relocate programs, as are fertility control strategies and administrative options such as bylaws, regulations, and public education.

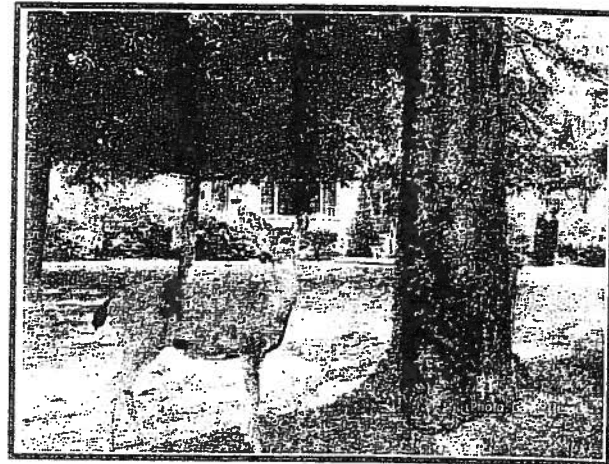
The next steps are to share this report with local municipalities and work collaboratively to assist them with the implementation of the recommendations. Successful resolution will involve cooperation and partnership between the provincial government, municipal governments, and community stakeholders.

[British Columbia Urban Ungulates Conflict Analysis](#) [PDF 6.67MB]

[British Columbia Urban Ungulates Summary Report](#) [PDF 1.56MB]

Wildlife Fact Sheets:

- [FACTSHEET: Urban deer management in B.C.](#)
- [Using Dogs to Haze Urban Deer](#)



- [Donated Game Meat: Standards for the donation of culled game meat](#)
- [Fertility Control Of Deer](#) [PDF 261KB]
- [Feeding Wild Ungulates - why it isn't the answer](#) [PDF 466KB]
- ["Winterkill" In Coastal Blacktailed Deer](#) [PDF 80KB]



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FACTSHEET: Urban deer management in B.C.

</ministries/forests-lands-and-natural-resource-operations/factsheets/factsheet-urban-deer-management-in-bc.html>

Friday, September 5, 2014 10:40 AM

- The Province is committed to helping local communities throughout B.C. manage deer and other wild animals in urban environments.
- In some areas, urban deer have become a safety concern due to the growing number of conflicts between people and pets, increases in deer-related automobile collisions and the tendency of urban deer to attract predators such as cougars.
- Since every community has a different geography, deer population and capacity for dealing with urban wildlife, solutions can vary depending on specific conditions and local attitudes.
- Ministry staff help communities manage urban deer conflicts by taking part in planning committees, providing technical advice, developing hunting regulations, issuing permits to manage urban deer populations and loaning equipment to communities, when available and as required.
- Local governments experiencing urban deer issues are encouraged to develop detailed community management plans that include resident opinion surveys, deer population estimates, "no-feeding" bylaws and educational initiative outlining various conflict reduction strategies.
- Some communities have opted for limited culls as a way of reducing populations to a level where non-lethal, management tools can be used more effectively.
- As part of their deer management plans, communities must make full use of healthy deer carcasses resulting from these culls, for example by donating the meat to First Nations, local food banks or other charitable groups.
- Wildlife experts advise that capturing deer in modified collapsible clover traps and euthanizing them with a bolt gun is the safest, most efficient and most humane method of deer control in urban areas.
- Modified clover traps, which resemble oversized hockey nets, are placed in secluded locations to reduce stress on deer. To further reduce stress, deer are not trapped during daylight.
- Culls are conducted by trained contractors and meat must be processed by a qualified butcher. Organizations accepting wild game meat may distribute it to the public but may not sell it.

Contact:

Media Relations
Ministry of Forests, Lands and
Natural Resource Operations
250 356-5261

Using Dogs to Haze Urban Deer
BC Ministry of Forest, Lands and Natural Resource Operations
April 20, 2012

In communities experiencing high numbers of urban deer where there is public opposition of lethal control measures, proposals have been put forward to use trained dogs to chase the deer (haze) out of town.

Currently there is no provision that would authorize a person to use a dog to harass or haze wildlife. Consideration of permitting this activity would require further policy discussion as well as government approval for an amendment to regulation.

Section 78 of the *Wildlife Act* prohibits the use of dogs to harass wildlife. It reads:

- "A person commits an offence if the person causes or allows a dog to hunt or pursue
- (a) wildlife or an endangered species or threatened species, or
 - (b) game, except in accordance with the regulations."

Regulations do allow the use of dogs to hunt wildlife in specific circumstances, but would not apply in cases of urban deer. Dogs can only be used in hunting deer where the dog is on a leash and under the direct control of the person, as part of a scheduled open season, by a person holding a valid hunting licence.

Hazing of ungulates using dogs has occurred in National Parks in Alberta, however all land is owned by the federal government and wild lands exist directly outside of the towns. Using dogs to haze ungulates becomes much more complicated in urban areas. Associated risks or complications with this activity can include:

- Deer becoming a traffic hazard
- Deer causing property damage
- Deer becoming injured
- Deer becoming a nuisance in adjacent farmland or nearby communities
- Requiring land owner permission to access properties

In consideration of the risks and the current Policy restrictions, this Ministry is not currently contemplating permitting the hazing of urban deer by dogs.

WILDLIFE HEALTH FACT SHEET

FERTILITY CONTROL OF DEER

This fact sheet gives an overview of a relatively new method of controlling overabundant deer - immunocontraception.

Background – Over the past three decades, the number of urban/suburban areas in North America where deer are overabundant has grown enormously. The consequences of high deer density range from vehicle collisions and damage to agriculture crops and gardens, to the loss of the natural biodiversity of other animals and plants. Deer may also serve as disease reservoirs for certain infectious diseases and have injured people and pets. Particularly in urban areas, the options for controlling deer populations are limited.

Options for Controlling Deer Populations – The number of deer in any given area is controlled by four factors: 1) birth, 2) death, 3) emigration (moving out), and 4) immigration (moving in). Emigration and immigration are difficult to influence. Increasing emigration by capturing and moving animals is difficult, expensive, stressful, and results in very high animal mortality from capture and transport and the difficulties adjusting to new habitats. Immigration can be controlled to some extent through hunting and reducing deer density on the urban fringe. Humane killing by gunshot can be effective and humane, even in urban areas, especially when deer are shot by highly trained marksmen under controlled conditions. Fertility control or contraception is the remaining option.

Contraception – Several approaches to contraception of large mammals have been explored, including surgical sterilization, hormone implants, and vaccination. Surgical sterilization requires the capture of deer, a general anesthetic that provides adequate pain control, and sterile surgical techniques employed by a veterinarian. It is highly invasive, expensive and impractical on an operational basis for a wild population. Hormone implants have to be replaced frequently and there are concerns about food-chain effects when treated animals are consumed by people or other animals. The use of vaccines to control fertility (immunocontraception) is considered a promising approach, but those available currently are still experimental, expensive and difficult to implement.

Immunocontraception – Immunocontraception is the use of vaccines to produce antibodies that target the reproductive system or its function. The most tested approach uses PZP (pig zona pellucida) proteins to produce antibodies that attach to the surface of the eggs of treated females and prevent sperm from fertilizing the egg; PZP vaccines are ineffective on males. PZP vaccines do not change normal behaviour, but may extend the breeding season with females coming into heat for more cycles since they do not become pregnant. Another type of vaccine, GonaCon[®], produces antibodies that interfere with normal sexual development at the hormonal level; however, the duration of efficacy of GonaCon[®] is too short (only about 1 year) to be very useful.

The most promising contraceptive vaccine is SpayVac[®], a PZP vaccine developed in Canada. SpayVac[®] is highly effective in deer, lasting several years (up to 6 years) with a single dose. Other PZP vaccines require boosters, increasing the technical challenges, risks to the deer, and the costs. PZP vaccines are advocated by a number of animal welfare groups, including the Humane Society of the US. None of these vaccines are licenced in Canada and are accessed only through an experimental permitting process from Health Canada.

Implementing a Contraception Program on a Deer Population – Using contraception to control deer populations depends on three factors:

- 1) An effective, long-lasting contraceptive vaccine,
- 2) A situation where the deer are tame and confined to some degree, to allow capture, treatment and marking, and
- 3) Adequate funding.

No matter how effective the contraceptive agent, if deer easily enter the population or are too difficult to catch and treat, the population cannot be brought under control with reasonable cost. The ideal situation for applying contraception is a small, isolated island, with small numbers of easily approachable, tame deer. It may also be possible to use contraception in other deer populations but such trials have not been done.

Requirements for a Program – Approximately 90% + of does in a population should be treated. Treatment includes capture, vaccination and a permanent form of marking for identification. Vaccines can be delivered with darts using a marker dye but deer are marked only until the dye wears off. Ear tags and a collar are permanent and allow treated deer to be easily recognized, avoiding accidental recaptures of previously treated animals.

The best time of year to capture deer is during the winter (cooler and animals tend to congregate), however does are usually pregnant at this time. The vaccine does not harm pregnant does or fawns so new fawns will be born the first year of the program. This means a delay in deer number reductions and the new female fawns will need to be treated.

Contraception and Lethal Removal – The process of reducing the population by contraception alone is slow – if there are too many animals before the program begins there is likely to be too many afterwards. Therefore, while with enough time and money, a deer population should be able to be brought under control by contraception alone, the process is complicated, is likely to take up to 10 years and be very expensive. To increase success, shorten the time required, and reduce costs, contraception and lethal removal are recommended to be used together. With this approach, a certain number of deer are treated *before* a number-reducing cull, while the deer are easier to capture.

Controlling a deer population by contraception alone requires that approximately 90% of the does be treated – a very tall order. Combining contraception with lethal removal accomplishes two goals:

- 1) the population size is reduced quickly, and
- 2) a high proportion of the remaining does can be treated.

It is important to understand that treating only 50-60% of the does in a population will be largely a waste of time and money – the main result will be improved survivorship of the remaining deer, with little effect on population size since treated does tend to live longer without the costs of pregnancy and lactation.

Personnel Required to Implement Contraception – Non-government persons require permits to handle and treat wildlife. The administration of drugs to immobilize deer and handling procedures requires specialized training and experience. Volunteers can be very helpful, but must work under appropriate supervision.

Costs – The information given here is very general. The cost of capturing a deer, where the deer are easily approached, is generally \$400-600/deer, even with volunteer help with baiting and monitoring traps – likely the most cost effective capture technique. The vaccine cost is at least \$200/dose = total of \$600-800/treated deer. There are additional costs for personnel time for consultation, preparing implementation plans, and coordinating outreach and community meetings. The cost of culling, whether used alone or in conjunction with contraception, is additional.

Annual monitoring and follow-up treatment is necessary to vaccinate untreated does that enter the population as immigrants, as fawns conceived before their dams were inoculated, or born from untreated does. Implementing immunocontraception is a long-term commitment. In its first year, a program to vaccinate 20-25 does is estimated to cost \$20-25 000. At this time this approach is not considered feasible for widespread use as a deer management tool in British Columbia.

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WILDLIFE HEALTH FACT SHEET

Feeding Wild Ungulates – why it isn't the answer.

Keep wildlife wild – it is BC policy and it makes sense. When humans provide food to wild animals it changes their “wildness”, no matter what species is being fed. There are justifiable reasons to feed wild animals, such as to attract them for capture, but these situations are rare. The consequences of feeding a wild animal unnatural types and amounts of feed can range from mildly irritating behaviour to catastrophic health issues, so understanding the reasons behind this policy is important.

The following guidance is specific to ungulates (hoofed mammals) such as deer, elk, or bighorn sheep but the principle of keeping wildlife wild apply to all wild animals.

Background

Opportunities to come close to wild ungulates are rare but rewarding, especially when the animals are unaware of the humans. Habituation, or increased animal tolerance for close contact with humans, occurs when animals are fed, and with this comes unplanned consequences. Some of the consequences include:

1. Feed Effects

Wild ungulates have specialized seasonal food requirements, which they fulfill by eating a wide variety of foods from their environment. Well-intentioned people may quite literally be “killing with kindness” when they provide unnatural food items to wild ungulates.

- All ungulates are ruminants with specific bacteria in their digestive tracts, specialized to digest their specific diet. It can take weeks for ungulate digestive systems to adjust to new food items. Rapid changes, especially at critical times such as the fall, can result in death, even with ruminants full of (unnatural) food.
- Dry feeds, such as hay, grains or pelleted types, are prepared for domestic livestock and meant to be used with abundant fresh water. Without ready access to water, dry feed can impact in the digestive tract and can kill wild ungulates.
- Grains, pelleted feeds or surplus fruits are high in carbohydrates/protein/energy and even small amounts can cause digestive upsets that lead to diarrhea, bloating and significant damage to ungulate digestive tracts.

2. Population Effects

Wild ungulate populations are naturally limited by a number of factors, including the amount and quality of food their habitat supplies. Animals in poor body condition or with high nutritional needs, such as the young may die when natural environmental conditions and appropriate foods are not present in the right amount and quality to sustain them.

Feeding of wild ungulates by humans increases animal density in the short term by concentrating animals around the feed source. Density increases may also occur over time if the feeding results in

improved body condition or more frequent reproduction. Increased density results in increased competition for natural resources with other animals that share that range. Other consequences of increased animal density include:

- Increased risk of infectious diseases:
 - Disease transmission and outbreaks – animals in close and frequent contact with others transmit organisms more easily than when at lower density. There are many examples across North America where high ungulate density contributes to disease issues, e.g. pneumonia in wild sheep, tuberculosis, brucellosis and chronic wasting disease.
 - Higher stress on individual animals. Stress can lead to reduced immune function, making these animals more susceptible to infections.
 - In BC, viral papillomas (warts) in deer appear to be increasing in urban areas where deer numbers are unnaturally high.
- Poor body condition – animals may not grow or gain weight due to reduced feed quality or quantity.
- Increased conflicts with humans:
 - Increased habituation. Animals that learn to take human supplied feed become habituated, losing their natural wariness of humans. Habituated ungulates can be aggressive towards humans and their pets – especially during the spring when protecting the young fawns or in the fall during the breeding season.
 - Increased motor vehicle collisions causing injuries or death of humans and wildlife.
- Increased mortality from wild predators and humans – when animals are concentrated and much easier to find.
- Other major ecological effects from ungulate feeding are documented across North America and include:
 - Disruption of normal wild animal movement patterns and spatial distribution
 - Alteration of native plant community structure with reduced diversity and abundance
 - Introduction and/or expansion of invasive exotic plant species
 - General degradation of local habitat

Alternatives to Feeding *Better ways to help wild ungulates*****

Wild ungulates benefit when we preserve and restore natural habitats and reduce human-caused disturbances, leaving them alone to conserve their energy to survive severe winter conditions.

- The best way to help wild ungulates survive in severe weather is to maintain high-quality habitat year-round. If animals enter the winter in good condition, most survive persistent deep snow and cold temperatures. Even in well-functioning natural ecosystems, however, some animals succumb during winter months. This is natural, winter mortality helps keep ungulates populations in balance with the available habitat.
- Another way to help wild ungulates in winter is to avoid disturbing them. Animals must conserve their energy to survive in winter conditions. Human-related causes of disturbance such as from recreation (e.g. snowmobile activity) and chasing by domestic dogs can result in wild ungulates expending valuable energy.

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Wildlife Health website: <http://www.env.gov.bc.ca/wld/wldhealth.html>

WILDLIFE HEALTH FACT SHEET

“WINTERKILL” IN COASTAL BLACK-TAILED DEER

This fact sheet gives an overview of the increasingly common issue of **deer in poor health during the late winter and early spring in and around coastal British Columbia**. Some of the information can also be applied to many wild animals during extreme and persistent inclement weather conditions.

The south coast of British Columbia has one species of native deer, the coastal black-tailed deer. The population density of deer varies significantly throughout its range on Vancouver Island and the coastal mainland. They are at moderate to high density on some islands and increasing in some semi-rural, suburban and even urban areas on Vancouver Island and the Fraser Valley. In these areas, deer now inhabit a new type of habitat for the species, sharing fields with domestic livestock and using cultivated landscapes such as golf courses, gardens and shrubs for feeding, in some cases on a year round basis. The lack of natural predators and milder winter conditions in rural and suburban areas also supports increased numbers of deer living near humans.

Every year Ministry of Environment staff and the concerned public report a variable number of deer, particularly the young of the previous year, showing one or several signs that can indicate poor health. These include:

- Loss of fear of humans
- Weakness and presence near homes, on porches, in outbuildings
- Poor to extremely thin body condition
- Poor hair coats – from small areas of hairloss to almost completely bald
- Digestive tract upsets – especially diarrhea, seen as green soft to liquid feces on the ground or coating the tail area
- Death with no apparent warning, especially after a period of supplemental feeding

Surprisingly, there is no evidence that these deer suffer from infectious diseases, but there is indication that the **poor health is associated with high deer density and seasonal nutritional issues**. It is difficult to do laboratory analyses on all deer reported in poor health, but the analyses done so far do not show infectious diseases other than high numbers of parasites in some animals, both in their intestinal tracts and on their skin. And these parasites do not appear to be the primary cause of their ill health but just one of several factors.

Deer that live at low elevation on the coast are born over a more extended period of time than other populations. This results in fawns born later in the year that are typically very small as winter approaches. When they live in habitats that are partially or highly disturbed and not considered natural to them (i.e. farmlands, , gardens, golf courses), they feed on many types of vegetation that may or may not provide proper nutrition. Deer evolved as browsers of native shrub-like plants more than grazers of grasses. Even if their nutrition was the very best, any animal entering the most nutritionally stressful time of the year (i.e. winter) at a small size will be highly stressed. These small deer must not only maintain their weight when the weather is cold, wet and windy, using large amounts of energy, but also invest energy in growing muscle and bone. A very high quality and quantity of nutrition is needed to grow and maintain weight during our wet and windy coastal winters.

There are a number of other animals that live on or in our coastal deer. Several species of ticks, lice, deer keds and internal parasites are normally present in most deer populations. In a highly stressed young animal that may not have the energy to move around much, and in a high density population, the

numbers of parasites on each animal are more likely to increase. The parasites alone - or the combination of them and the nutritional challenges the animals face - can be enough to push struggling young deer "over the edge" and show the signs of poor health noted above.

For many people the solution appears to be to give deer a "high quality" feed when the weather worsens – that is what we would do for our livestock, pets or ourselves. However, for any animal in a negative energy state, even for a horse or a dog, changing to a positive or weight gaining state can be a challenge. For a wild animal that did not evolve to eat a high carbohydrate diet of grains and rich feeds such as apples, grasses and alfalfa, the result can be a slow death. They cannot adjust to and digest feeds that they are not used to, and the result can be diarrhea, impaction (severe constipation) and a worse situation than before. In addition, the provision of supplemental feeds creates another challenge - further increasing animal density and the reliance on unnatural feeds - increasing the likelihood of parasite or disease transmission and further degrading the existing habitat.

Both parasites and improper feeds – too rich or too sudden a change – can start the diarrhea, weight loss and other metabolic changes that can end in emaciation and death. Once they are in this state they cannot be medicated into health – any handling or intensive care causes extreme stress and usually results in death. Many die as a result of end-state metabolic problems such as hypothermia (low body temperature), hypoglycaemia (low blood sugar), or exhaustion, and all of these, if not fatal, add to their stress.

Please do care for these animals by reporting their condition to the Ministry of Environment – we are interested in tracking wildlife health and sampling specific animals. But please do not add to the problem by providing supplemental feed to deer at any time of year – you may be "killing them with kindness". Help us keep BC wild animals wild and healthy.

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