

Protected Area:	Shuswap Lake Park and Tsutswecw Park
Applicant:	Columbia Shuswap Regional District
Permit Number:	109214
Location:	Shuswap Lake Park and Tsutswecw Park

PROPOSED ACTIVITY:

Conducting a mosquito nuisance control program (“Mosquito control”) as per the standards set out in CSRD Pest Management Plan Confirmation 742-0002-2016/2021 (“the Pest Management Plan”) and the Special Provisions of the Park Use Permit).

PURPOSE

This document is intended to provide an accounting of the factors I have considered and the rationale I have employed as the statutory decision maker in making my decision, under the *Park Act*, with regards to the application for Mosquito control.

FACTS

- The Columbia Shuswap Regional District (the “regional district”) controlled mosquitos in Shuswap Lake Park and Tsutswecw Park from 1994 to 2015 enabled through a Letter of Authorization issued primarily to treat West Nile Virus (WNV). The regional district also controlled mosquitos in 2016 in both of these parks and in 2018 in Shuswap Lake Park, enabled through a Letter of Authorization not issued for public health reasons (i.e., not to treat WNV).
- The regional district applied for a Park Use Permit for Mosquito control in December 2017.
- Mosquitos are currently not a vector for West Nile Virus and there are no related health directives in place supporting Mosquito control (as per email from Sarma Liepins dated May 14, 2019, and June 7, 2019). Thus provisions for control for nuisance biting insects that pose a risk to public health and safety under section 5.7.7 of BC Parks’ Conservation Policy for Ecological Reserves, Parks, Conservancies, Protected Areas and Recreation Areas, September 2014 (the “BC Parks Conservation Policy”) don’t apply.
- Shuswap Lake Park and Tsutswecw Park are Class A parks for the purposes of the *Park Act*.
- The Purpose Statement and Zoning Plan for Shuswap Lake Park states that the primary role of Shuswap Lake Park is to support provincial and regional tourism and recreation interests.
- According to the management plan for Tsutswecw Park, the park contains substantial conservation values particularly related to Salmon habitat as well as recreational values.

FIRST NATIONS CONSULTATION

First Nation consultation revealed some First Nation concerns with mosquito control.

The regional district completed First Nation consultation as part of the pest management plan including considering existing agreements with First Nations (such as SEA), with no FN concerns reported.

The BC Parks Area Supervisor completed additional consultation in 2019. As a result, Little Shuswap Indian Band confirmed in writing that “these (i.e., Mosquito control) treatments should

Decision Rationale - July 08, 2019
[Shuswap Lake Park and Tsutswecw Park- Permit #: 109214]

not be carried out in provincial parks due to potential environmental conflicts.”

STAKEHOLDER and PUBLIC CONSULTATION

Public consultation appears to be adequate as confirmed by the BC Parks Area Supervisor. The regional district completed public consultation as part of pest management plan and BC Parks received additional information from stakeholders. Stakeholder responses received by BC Parks regarding mosquito treatment range from “not an issue as the use of Bti is supposed to be harmless “to “treat only for public health and safety.

DOCUMENTS

- CSRD Pest Management Plan Version 1 Confirmation 742-0002-2016/2021.
- Lewis, D. Phippen C. 2018. CSRD Mosquito Control Assessment Supplement.
- Summary of First Nations Consultation on the Columbia-Shuswap Regional District Mosquito Control Pest Management Plan: CSRD~MOS~PMP~2016/2021.
- Mosquito Control information as per the regional district’s webpage:
<https://www.csr.bc.ca/report-types/mosquito-control>.
- Permit Application (Permit 109214) and all relevant information in ePUPS including information from the regional district.
- Province of British Columbia. October 2002. Management Plan for Roderick Haig-Brown Provincial Park (now Tsutswecw Park).
- Purpose Statement and Zoning Plan. February 2003. Shuswap Lake Provincial Park.
- BC Parks First Nations consultation summary.
- *Park Act* and Regulations.
- Relevant BC Parks policies such as BC Parks Conservation Policy, September 2014.
- Qualified professional opinion:
Sarma Liepins, RPBio, Summary of the Professional Opinion of BC Parks Conservation Section as per Appendix I.
CSRD: e.g. Mosquito Control Assessment Supplement reviewed by Morgan Sternberg, RPBio (see RPBio disclaimer on title page).
- List of supporting literature from BC Parks and from Regional District (see Appendix II).

POSITIONS

- Some parties interested in mosquito control and BC Parks conservation staff differ in their opinion on mosquito control being congruent with BC Parks Conservation Policy.
- Certain parties interested in mosquito control hold that mosquito control is congruent with this policy because they hold that all specific circumstances listed in section 5.7.8 for Nuisance Biting Insect Control are met.
- BC Parks conservation section holds that section 5.7.8 applies only if section 5.7.7 is met. Section 5.7.7 allows mosquito control only if they are a vector for human disease and pose a risk to public safety.
- BC Parks conservation section also holds that the last requirement in section 5.7.8 is not met as the Mosquito control is not consistent with conservation policy.

ISSUES

- Finding an appropriate balance of the various interests such as
 - First Nation input,

Decision Rationale - July 08, 2019
[Shuswap Lake Park and Tsutswecw Park- Permit #: 109214]

- influence of the proposed activity on the effectiveness of mosquito control in neighboring communities,
- effects of nuisance mosquitos on the recreational values in the parks, and,
- effects of the Mosquito control on the conservation values in the treated parks.
- Some members of the public and the regional district are concerned that not treating mosquitos in the parks diminishes the effectiveness of mosquito treatments outside of the parks and consequently negatively affects the quality of life in the communities adjacent to the parks. There is also concern that mosquitos from the park directly affect neighboring communities.
- Biting mosquitos are a nuisance to park visitors and thus directly and detrimentally affect the quality of the recreational experience as confirmed, for example through social media statements, written complaints and verbal communication received by BC Parks. Examples of recreational activities directly impacted include camping and destination and day use activities as for example beach and water based activities.
- For Shuswap Lake Park and Tsutswecw Park BC, BC Parks has a mandate to protect functioning and intact natural ecosystems, as for example spawning salmon habitats (Tsutswecw Park), dependent on intact tropic systems. Although the proposed pesticide for the Mosquito control is likely well targeted and innocuous, eradicating mosquitos very likely affects the tropic systems and species that they support.
- Functioning and intact ecosystems are the cornerstones of the recreational experience in these two parks. Although mosquitos are a nuisance, they are an important component of such ecosystems. Thus, large scale removal of mosquitos from these parks likely alters these ecosystems and thus could likely affect the naturalness and wilderness character which is the basis of the visitor experience.
- The mainland portion of Shuswap Lake Park is zoned for “Intensive Recreation” and consists mostly of a campground, service yard, and day use facility and other infrastructure. Thus, impacting conservation values is more of a concern for Tsutswecw Park and for Copper Island in Shuswap Lake Park than it is for the mainland portion of Shuswap Lake Park.
- The BC Parks Conservation Policy may have some ambiguity with respect to the specific interpretation of section 5.7.7 and 5.7.8. However those sections are intended to be interpreted with whole of the policy. Accordingly, mosquito control for reasons other than public health is currently not permitted anywhere in the BC Parks system.
- Little Shuswap Indian Band does not support mosquito “treatment” due to potential environmental conflicts.

RATIONALE AND DECISION

I have considered all of the relevant facts and all of the arguments brought forward, even if they are not specifically identified in these reasons for decision. I find that:

Decision Rationale - July 08, 2019
[Shuswap Lake Park and Tsutsweww Park- Permit #: 109214]

- The Mosquito control would likely reduce the nuisance effect of mosquitos on visitors to the parks and the neighboring communities. Also BC Parks would like to support communities neighboring protected areas as much as possible.
- Yet the Mosquito control :
 - is inconsistent with BC Parks Conservation Policy. I say this because it is BC Parks' position that section 5.7.8 only applies if section 5.7.7 applies. Section 5.7.8 must be read in light of part 5 itself where, amongst other things, it is set out that the "primary responsibility of BC Parks with respect to insect and disease management is to restore or maintain natural ecosystem processes within protected areas"; and must be read with the whole of the BC Parks Conservation Policy which is intended to ensure protected areas are managed as much as possible to conserve and maintain ecosystems and ecosystem processes among the many other conservation values described. For similar reasons, even if section 5.7.7 need not apply in order for section 5.7.8 to apply, the last requirement in section 5.7.8 – that the activity be consistent with conservation policies, is not met. There is no basis in human health, ecosystem management, or the like for the Mosquito control.
- The Mosquito control may likely negatively affect ecosystems as described in b in the Appendix I in the professional opinion from the BC Parks Conservation Section, and is contrary to the natural/wilderness recreation experience offered in protected areas of the BC Parks system including Shuswap Lake Park and Tsutsweww Park.
- At least one First Nation whose traditional territory overlaps with the parks does not support mosquito control in provincial parks due to potential effects on ecosystems/ the environment.
- In setting out the above points, I have in mind that Shuswap Lake Park and Tsutsweww Park, being Class A parks, are "dedicated to the preservation of their natural environments for the inspiration, use and enjoyment of the public" in accordance with section 5 of the *Park Act*.
- On the above basis, it is my opinion that, to the extent that sections 9(1) and 9(2) of the *Park Act* apply, a park use permit for Mosquito control is not necessary for the preservation or maintenance of the recreational values of either Shuswap Lake Park or Tsutsweww Park.
- On the above basis, it is also my opinion that, to the extent that section 9.1 of the *Park Act* applies, a park use permit for Mosquito control is inconsistent with and is not complimentary to the recreational values of either Shuswap Lake Park or Tsutsweww Park.

Thus, I have decided not to issue a park use permit for Shuswap Lake Park and Tsutsweww Park.

ADDITIONAL COMMENTS

BC Parks commits to work with First Nations, the regional district and neighboring communities to find solutions to the treatment of nuisance mosquitos that protect

Decision Rationale - July 08, 2019
[Shuswap Lake Park and Tsutswecw Park- Permit #: 109214]

ecosystems values and enhance the recreation values in the parks while at the same time reducing the negative effects of nuisance mosquitos on park visitors and neighboring communities.

Signed by:



Volker Michelfelder
A/Regional Director
BC Parks – Ministry of Environment

July 08, 2019

Date

Appendix I: Summary of the Professional Opinion of the BC Parks Conservation Section

Consistent with BC Parks Conservation Policy, BC Parks Conservation Section does not support controlling nuisance biting insects (NBI) in Parks and Protected Areas (PPA) except for human health concerns. In the past, mosquito control was undertaken in some PPA due to concerns with West Nile Virus (WNV). WNV currently is not an issue in BC and there are no related health directives in place supporting mosquito control (pers. comm. Helen Schwantje, BC Provincial Wildlife Veterinarian, May 2019). Also consistent with BC Parks Conservation Policies, there appear to be no active permits allowing pesticide treatments of NBI within BC PPA.

Conservation policy related to NBI is based in science and adheres to generally accepted principals for the protection and recovery of ecosystem integrity, a cornerstone of BC Parks' conservation mandate. Conservation policy was also developed in consideration of legal frameworks and the intent of the Protected Areas Strategy (pers. comm. James Quayle, Conservation Program Manager, BC Parks, June 2019).

Additionally:

- a. Pesticide treatments proposed, if approved, could be undertaken in habitat for the regionally important Adams River Sockeye Salmon and a species at risk, the federally-listed Western Toad.
- b. The trophic effects of removing a segment of the food chain may have unintended implications for non-target aquatic organisms like fish and amphibians; as well as wildlife such as swallows, bats and other wildlife that rely upon flying insects. For further considerations related to trophic effects, see below: Hershey et. al. 1998.
- c. BC Parks is generally not in the practise of artificially controlling potential "pest" organisms (e.g., rodents, birds, bears, etc.) that are native to a protected ecosystem to prevent annoyance to humans within or near a park.
- d. Bti is considered by many to be a generally innocuous pesticide, although some uncertainties related to Bti use are documented in the scientific literature and indicate that more research may be warranted if widespread use of Bti is to continue. Use in the Columbia Shuswap Regional District (CSRD) outside of BC Parks is extensive, thus increasing the relevance of BC Parks Conservation Policies to the overall management of fish and wildlife species of concern.

Appendix II: Literature list

The selected citations are provided to support arguments for more scientific study on the effects of Bti application. Note: This is neither an exhaustive list, nor has it been determined if authors are broadly accepted as authoritative experts. As with many subjects, professional opinions can vary greatly.

- Rubio-Intafante, N. and L. Moreno-Fierros. 2016. "An overview of the safety and biological effects of *Bacillus thuringiensis* Cry toxins in mammals". *Journal of Applied Toxicology* 2016; 36: 630-648.
- Lajmanovich, R.C., C.M. Junges, M.C. Cabagna-Zenklusen, A.M. Attademo, P.M. Peltzer, M. Maglianese, V.E. Marquez, and A.J. Beccaria. 2015. "Toxicity of *Bacillus thuringiensis* var. *israelensis* in aqueous suspension on the South American common frog *Leptodactylus latrans* (Anura: Leptodactylidae) tadpoles". *Environmental Research* 136 (2015) 205-212.
- Hershey A.E., A.R. Lima, G.J. Niemi, and R.R. Regal. (1998). "Effects of *Bacillus thuringiensis israelensis* (Bti) and methoprene on nontarget macroinvertebrates in Minnesota wetlands". *Ecological Applications*. 8. 41-60.
- Jakob, C., B. Poulin, S.R. Leather, and Steve Yanoviak. 2016. "Indirect effects of mosquito control using Bti on dragonflies and damselflies (Odonata) in the Camargue". *Insect conservation and diversity* 9, no. 2 (2016): 161-169.

Below are principal documents submitted by the CSRD or their contractors, for information in addition to the Park Use Permit application for nuisance mosquito control (also not an exhaustive list):

- "Columbia Shuswap Regional District Pest Management Plan: Mosquito Control Management Plan for Golden, Revelstoke and Scotch Creek". March 7, 2016. (Later revised by the CSRD in 2018 to allow for pesticide treatment of fish habitat).
- Phippen, B., and C. Phippen. 2018. "Columbia-Shuswap Regional District, Scotch Creek/Lee Creek Nuisance Mosquito Control Program, 2017 Year-end Report". (The original 2017 version published online was revised at BC Parks' request due to content concerns)
- Lewis, D. and C. Phippen. 2018. "CSRD Mosquito Control Assessment Supplement". Reviewed by Morgan Sternberg, RPBio for accuracy.
- Phippen, B., and C. Phippen. 2018. "Columbia-Shuswap Regional District, Scotch Creek/Lee Creek Nuisance Mosquito Control Program, 2018 Year-end Report".
- [C. Phippen – assumed author]. 2018. "CSRD Response to "Addendum A: Draft Conservation Program comments and recommendations for Level 1 Assessment for Mosquito Control in RHB and SLP (#367102) Sarma Liepins, Thompson Cariboo Conservation Specialist, BC Parks, 08 February 2018"".
- World Health Organization. "Environmental Health Criteria 217, Microbial Pest Control

Decision Rationale - July 08, 2019

[Shuswap Lake Park and Tsutswew Park- Permit #: 109214]

Agent, *Bacillus thuringiensis*". 1999. Published under the joint sponsorship of the United Nations Environment Programme, the International Labour Organisation, and the World Health Organization, and produced within the framework of the Inter-Organization Programme for the Sound Management of Chemicals.