



## PERMIT ISSUED UNDER SECTION 73 OF THE *SPECIES AT RISK ACT*

18-PPAC-00006

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Subject to the conditions described in this permit, the holder of this permit ("Permit Holder"), or any qualified person acting under the authority of the Permit Holder, is authorized under the authority of subsection 73(1) of the *Species at Risk Act*, S.C. 2002. c.29 (SARA) to engage in activities (as described in this permit) that kill, harm, harass, capture, take, possess, or collect individuals of the following threatened or endangered aquatic species listed on Schedule 1 of SARA:

Stickleback, Paxton Lake Benthic Threespine (*Gasterosteus aculeatus*), Endangered  
Stickleback, Paxton Lake Limnetic Threespine (*Gasterosteus aculeatus*), Endangered  
Stickleback, Vananda Creek Benthic Threespine (*Gasterosteus aculeatus*), Endangered  
Stickleback, Vananda Creek Limnetic Threespine (*Gasterosteus aculeatus*), Endangered

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### Permit issued to:

University of British Columbia (UBC; "Permit Holder"):  
Attention to: Dolph Schluter  
Zoology Department, University of British Columbia  
6270 University Boulevard  
Vancouver, BC V6K 4G4  
604-822-2387  
[schluter@zoology.ubc.ca](mailto:schluter@zoology.ubc.ca)

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### Location of Proposed Activity

#### This permit is only valid at the following location(s):

Nearest community (city, town, village): Van Anda, Nanoose Bay  
Province: British Columbia  
Name of watercourse(s), waterbody(ies): Emily, Paxton and Priest lakes on Texada Island.

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### Valid Permit Period

This permit is valid from 2018-04-01 until 2018-10-31.

If the Permit Holder cannot complete the activity during this period, Fisheries and Oceans Canada (DFO) must be notified in advance of the expiration of the time period. DFO may, where appropriate, provide written notice that the valid permit period to complete the permitted activity has been extended.

The period during which other conditions of this permit must be complied with are provided in their respective sections below. DFO may, where appropriate, provide written notice that these periods have been extended.

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## Description of the Activity

The activities authorized by this permit consist of:

- a) A planned removal sample of 50 adults from each species in Paxton Lake, Priest and Emily lakes (Vananda Creek watershed) for the purposes of long-term monitoring of phenotype and genotypes. Half will be male and half will be female. Fish will be transported to UBC for the purposes of projects (b), (c), and (d).
- b) The 50 fish from Priest Lake (Vananda Creek watershed) in (a), 25 of each sex, will also be used for experimental studies of the interaction between stickleback and crayfish.
- c) Planned removals of 30 males from Paxton Lake to make crosses for a study of the evolutionary forces acting on "solitary" stickleback populations, the first stage in the origins of the stickleback species pairs. 25 of these males will come from the Paxton Lake sample listed in (a). Five additional males will be transported to UBC for the purposes of this project.
- d) Planned removals to make multiple laboratory genetic crosses between benthics and limnetics from different species pair lakes. This will include: 5 additional male Paxton limnetics; 5 additional male Paxton benthics; 10 additional male + 5 additional female Priest limnetics; and 10 additional male + 5 additional female Priest benthics. Five female limnetics and female benthics from Paxton Lake also needed for this study will be taken from (a).
- e) Non-lethal measurements of male color using 20 males of each species in from Paxton and Priest lakes. Applicant assumes a 5% incidental mortality for this set of individuals, but no planned mortalities.

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## Terms and Conditions of Permit

The activity must be carried on in accordance with the following conditions:

### 1. General Conditions

- 1.1. A copy of this permit shall be kept on site at all times in the possession of the Permit Holder or a person acting under the Permit Holder's authority.
- 1.2. All persons undertaking the activity under the authority of the Permit Holder shall do so under the direction and oversight of the Permit Holder and shall be made familiar with the conditions of this permit.
- 1.3. Activities shall comply with the conditions identified within this permit. Activities that affect individuals of species at risk other than those specifically identified within this permit are not authorized under this permit.
- 1.4. Adverse effects on the habitat of the species at risk identified in this permit or other fish, and activities that adversely affect fish habitat, are not authorized under this permit.

### 2. Conditions to avoid or minimize the impact of the activity on individuals of the species:

- 2.1. To the extent possible, activities shall be conducted in a manner whereby any individuals of the species shall be handled only in the circumstances authorized under this permit and with the least amount of harm.
- 2.2. The following measures shall be implemented to minimize the impact of the activity on individuals of the species:
  - 2.2.1. With the exception of "lethal sampling limits," proposed works shall be conducted using the techniques outlined in the "Guidelines for the Collection and In Situ Scientific Study of Stickleback Species Pairs (*Gasterosteus* spp.)" (Recovery Team for Non-Game Freshwater Fish Species in BC [RTNFFSBC], 2008).
  - 2.2.2. Minnow traps shall not be set for more than 2 hours at a time.
  - 2.2.3. Known nesting sites shall not be targeted for trapping.

- 2.2.4. Males expressing a high degree of nuptial coloration shall not be retained, and shall be released at the earliest opportunity.
- 2.2.5. Individuals to be sampled shall be temporarily placed in holding containers with fresh lake water, changed frequently to maintain temperature and oxygen close to ambient levels.
- 2.2.6. All sticklebacks not required for planned removals (described in 2.2.7.1) shall be released to the wild following recovery.
- 2.2.7. Work shall be discontinued immediately and the Species at Risk Program shall be contacted at [sara@pac.dfo-mpo.gc.ca](mailto:sara@pac.dfo-mpo.gc.ca) to report the occurrence and to determine the potential for any further works that may affect Paxton Lake or Vananda Creek Threespine Sticklebacks (Benthic or Limnetic) in the event that:
  - 2.2.7.1. the maximum number of planned removals (25 male, 25 female benthics from Emily Lake; 25 male, 25 female limnetics from Emily Lake, 35 male, 25 female benthics from Paxton Lake; 35 male, 30 female limnetics from Paxton Lake; 35 male, 30 female benthics from Priest Lake; 35 male, 30 female limnetics from Priest Lake) specified in this permit is exceeded; or,
  - 2.2.7.2. the maximum number of incidental mortalities (3 benthics from Emily Lake; 3 limnetics from Emily Lake; 4 benthics from Paxton Lake; 4 limnetics from Paxton Lake; 5 benthics from Priest Lake; 5 limnetics from Priest Lake) specified in this permit is exceeded.

**3. Conditions that relate to monitoring and reporting:**

- 3.1. The Permit Holder shall monitor the effects of the activity and the avoidance and mitigation measures and standards referred to in this permit to determine whether they were conducted according to the conditions of this permit, and were successful at avoiding and mitigating the impacts of the permitted activities on the species [or critical habitat or residences of its individuals].
  - 3.2. A report shall be submitted to DFO in a form acceptable to DFO by December 31, 2018. Without limiting the generality of the foregoing, the report shall contain the following information, to the satisfaction of DFO in its sole discretion the satisfaction of DFO in its sole discretion:
    - 3.2.1. an assessment of whether the measures and standards mentioned in conditions 2.1 and 2.2 were successful at avoiding and mitigating the impacts of the permitted activities on the species, its critical habitat, or its residences;
    - 3.2.2. details of any contingency measures that were followed to prevent impacts greater than those authorized by this permit; and,
    - 3.2.3. the final total of individuals affected and the nature of the effect (death, sub-lethal harm, damage, destruction, etc.), and the total area of habitat affected and a description of the functions and features of the habitat affected.
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**Authorization Limitations and Application Conditions**

This permit cannot be transferred or assigned to another party. If the activity authorized under this permit is sold or transferred to another party, or if other circumstances arise that result in another party taking over the activity, the Permit Holder shall advise DFO in advance if the ownership or responsibility for the activity is expected to change.

The failure to comply with any condition of this permit may result in an offence under section 97 of SARA and may result in charges being laid under the *Species at Risk Act*.

This permit may be revoked or amended to ensure the survival or recovery of Paxton Lake or Vananda Creek Threespine Sticklebacks (Benthic or Limnetic). Without limiting the generality of the foregoing, DFO may:

- suspend any permitted activities to avoid or mitigate additional adverse direct or indirect effects to Paxton Lake, or Vananda Creek Threespine Sticklebacks (Benthic or Limnetic);
- amend or revoke this permit; and
- direct the Permit Holder to carry out at the Permit Holder's expense any modifications or actions deemed necessary by DFO to avoid or mitigate existing impacts or to avoid further adverse direct and indirect impacts to Paxton Lake or Vananda Creek Threespine Sticklebacks (Benthic or Limnetic).

This permit is valid only with activities and species listed herein and for no other purposes. It does not authorize the Permit Holder to collect, buy, sell, trade, damage or destroy the residence of, or destroy part of the critical habitat of a wildlife species that is listed as extirpated, endangered or threatened, or any part or derivative of such an individual. This permit does not purport to release the Permit Holder from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.

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Date of Issue: 2018.2.21

Approved by:  \_\_\_\_\_

Karen Leslie  
Regional Manager, Species at Risk Program  
Ecosystems Management Branch  
Pacific Region  
Fisheries and Oceans Canada

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