

**The University of Western Ontario**  
**BIOLOGICAL AGENTS REGISTRY FORM**  
 Approved Biohazards Subcommittee: July 8, 2011  
 Biosafety Website: [www.uwo.ca/humanresources/biosafety/](http://www.uwo.ca/humanresources/biosafety/)

This form must be completed by each Principal Investigator holding a grant administered by the University of Western Ontario (UWO) or in charge of a laboratory/facility where the use of Level 1, 2 or 3 biological agents is described in the laboratory or animal work proposed. The form must also be completed if any work is proposed involving animals carrying zoonotic agents infectious to humans or involving plants, fungi, or insects that require Public Health Agency of Canada (PHAC) or Canadian Food Inspection Agency (CFIA) permits.

This form must be updated at least every 3 years or when there are changes to the biological agents being used.

Containment Levels will be established in accordance with Laboratory Biosafety Guidelines, 3rd edition, 2004, Public Health Agency of Canada (PHAC) or Containment Standards for Veterinary Facilities, 1<sup>st</sup> edition 1996, Canadian Food Inspection Agency (CFIA).

Electronically completed forms are to be submitted to Occupational Health and Safety, (OHS), (Support Services Building, Room 4190 or to [jstanle2@uwo.ca](mailto:jstanle2@uwo.ca)) for distribution to the Biohazards Subcommittee. For questions regarding this form, please contact the Biosafety Officer at extension 81135 or [biosafety@uwo.ca](mailto:biosafety@uwo.ca). If there are changes to the information on this form (excluding grant title and funding agencies), contact Occupational Health and Safety for a modification form. See website: [www.uwo.ca/humanresources/biosafety/](http://www.uwo.ca/humanresources/biosafety/).

Please ensure that all questions are fully and clearly answered. Failure to do so will lead to the form being returned, which will cause delays in your approval and frustration for you and your colleagues on the Committee.

**If you are re-submitting this form as requested by the Biohazards Subcommittee, please make modifications to the form in bold print, highlighted in yellow. Please re-submit forms electronically.**

PRINCIPAL INVESTIGATOR:	<b>Brent Sinclair</b>
DEPARTMENT:	<b>Biology</b>
ADDRESS:	<b>BGS 2078</b>
PHONE NUMBER:	<b>x83138</b>
EMERGENCY PHONE NUMBER(S):	<b>519-281-4214 (cell), 519-473-5653 (home)</b>
EMAIL:	<b>bsincla7@uwo.ca</b>

Location of experimental work to be carried out :

Building :	<b>BGS</b>	Room(s):	<b>2056, 2053, 0062, 0066</b>
Building :	<b>Biotron</b>	Room(s):	<b>Insect module</b>
Building :		Room(s):	

**\*For work being performed at Institutions affiliated with the University of Western Ontario, the Safety Officer for the Institution where experiments will take place must sign the form prior to its being sent to the University of Western Ontario Biosafety Officer (See Section 15.0, Approvals).**

FUNDING AGENCY/AGENCIES: **NSERC, Marsden Fund, Ontario Ministry of Research and Innovation**

GRANT TITLE(S): **Low temperature Biology of Insects; Evolution of cold tolerance in New Zealand Stick Insects; Insect low temperature performance in an era of climate change**

UNDERGRADUATE COURSE NAME(IF APPLICABLE): \_\_\_\_\_

List all personnel working under Principal Investigators supervision in this location:

<u>Name</u>	<u>UWO E-mail Address</u>	<u>Date of Biosafety Training</u>
<b>Hiroko Udaka</b>	<b>hudaka@uwo.ca</b>	<b>18 November 2010</b>
<b>Caroline Williams</b>	<b>cwilli67@uwo.ca</b>	<b>7 Aug 2008</b>
<b>Katie Marshall</b>	<b>kmarsh32@uwo.ca</b>	<b>8 September 2009</b>
<b>Heath MacMillan</b>	<b>hmacmil2@uwo.ca</b>	<b>12 February 2010</b>

Justin Saindon	jsaindon@uwo.ca	12 February 2010
Litza Coello	lcoello@uwo.ca	14 Sept 2011
Evelyn Boychuk	eboychu@uwo.ca	18 January 2011

**Please explain how the biological agents are used in your project and how they are stored and disposed of. The BARF without this description will not be reviewed.**

We use live insects, as well as tissues, for all aspects of the projects in the lab. Typical uses include:

- 1) Rearing to a specific life stage or maintenance of a laboratory colony.
- 2) Measurement of whole organism parameters on live animals, for example, survival of low temperature exposure, knockdown at low temperatures, desiccation survival, energy use under different conditions, metabolic rate measurements.
- 3) Extraction, sampling and measurement of specific tissues, for example, removal of haemolymph or measurement of gut volume.
- 4) Working with homogenates of whole insects or specific tissues. These are usually destructive analyses to measure biochemical parameters like lipid content, RNA abundance or enzyme activity.
- 5) Genetically-based knockdown of specific genes. We have recently started using *Drosophila melanogaster* with specific gene inserts that allow us to knockdown expression of target genes.

All insects, even those native to Ontario are handled with the intention of preventing inadvertent release, and with regard to CFIA recommendations. Species that pose a risk of establishment are housed in the Biotron insect module and SOPs there are followed to prevent release.

Disposal depends on the insect and the situation. Insects sampled for destructive analysis pose no further threat and are disposed of according to the waste management guidelines of any reagents. Most insects that are not cold hardy are killed by being placed in a -20 freezer for >7 days (very cold hardy species are killed in liquid nitrogen) and either disposed of in the garbage (species that pose no risk, e.g. are native to Ontario), or the waste is autoclaved and then disposed of.

Note that none of the species we work with pose any threat to human health.

**Please include a ONE page research summary or teaching protocol in lay terms.  
Forms with summaries more than one page will not be reviewed.**

**We are interested in all aspects of insect biology at low temperatures, ranging from molecular biology through physiology to large scale patterns. Research in the lab falls under the following main themes:**

- 1) What genes are essential for insects to survive low temperatures?**
- 2) Why are some insects killed by sub-zero temperatures even though they don't freeze?**
- 3) How do some insects survive freezing?**
- 4) What are the impacts of repeated cold exposure on insects?**
- 5) How did insect cold tolerance evolve?**
- 6) Why do insects lose the ability to move at low temperatures?**
- 7) What determines how much energy insects use overwinter?**

**The primary aim of this research is simply to understand how insects survive and thrive at low temperatures, but it has important implications for understanding how insect populations will respond to changing winters that result from ongoing anthropogenic climate change.**

## 1.0 Microorganisms

1.1 Does your work involve the use of biological agents?  YES  NO  
 (non-pathogenic and pathogenic biological agents including but not limited to bacteria and other microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)? If no, please proceed to Section 2.0

Do you use microorganisms that require a permit from the CFIA?  YES  NO

If YES, please give the name of the species \_\_\_\_\_

What is the origin of the microorganism(s)? \_\_\_\_\_

Please describe the risk (if any) of escape and how this will be mitigated:

*Please attach the CFIA permit.*

Please describe any CFIA permit conditions:

1.2 Please complete the table below:

Full Scientific Name of Biological Agent(s)* (Be specific)	Is it known to be a human pathogen? YES/NO	Is it known to be an animal pathogen? YES/NO	Is it known to be a zoonotic agent? YES/NO	Maximum quantity to be cultured at one time? (in Litres)	Source/ Supplier	PHAC or CFIA Containment Level
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3

*\*Please attach a Material Safety Data Sheet or equivalent from the supplier if the bacterium used is not on this link:*  
[http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA\\_Ecoli\\_list.pdf](http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA_Ecoli_list.pdf)

Additional Comments: \_\_\_\_\_

## 2.0 Cell Culture

2.1 Does your work involve the use of cell cultures?  YES  NO  
 (If NO, please proceed to Section 3.0)

2.2 Please indicate the type of primary cells (i.e. derived from fresh tissue) that will be grown in culture:

Cell Type	Is this cell type used in your work?	Source of Primary Cell Culture Tissue	AUS Protocol Number
Human	<input type="checkbox"/> Yes <input type="checkbox"/> No		Not applicable
Rodent	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Non-human primate	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Other (specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No		

2.3 Please indicate the type of established cells that will be grown in culture in:

Cell Type	Is this cell type used in your work?	Specific cell line(s)*	Containment Level of each cell line	Supplier / Source of cell line(s)
Human	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Rodent	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Non-human primate	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Other (specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No			

*\*Please attach a Material Safety Data Sheet or equivalent from the supplier. (For more information, see [www.atcc.org](http://www.atcc.org))*

2.4 For above named cell types(s) indicate PHAC or CFIA containment level required  1  2  2+  3

Additional Comments: \_\_\_\_\_

## 3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials?  YES  NO  
 If no, please proceed to Section 4.0

3.2 Indicate in the table below the Human Source Material to be used.

Human Source Material	Source/Supplier /Company Name	Is Human Source Material Infected With An Infectious Agent? YES/UNKNOWN	Name of Infectious Agent (If applicable)	PHAC or CFIA Containment Level (Select one)
Human Blood (whole) or other Body Fluid		<input type="checkbox"/> Yes <input type="checkbox"/> Unknown		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
Human Blood (fraction) or other Body Fluid		<input type="checkbox"/> Yes <input type="checkbox"/> Unknown		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
Human Organs or Tissues (unpreserved)		<input type="checkbox"/> Yes <input type="checkbox"/> Unknown		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
Human Organs or Tissues (preserved)		Not Applicable		Not Applicable

Additional Comments: \_\_\_\_\_

**4.0 Genetically Modified Organisms and Cell lines**

4.1 Will genetic modifications be made to the microorganisms, biological agents, or cells described in Sections 1.0 and 2.0?  YES  NO If NO, please proceed to Section 5.0

4.2 Will genetic modification(s) involving plasmids be done?  YES, complete table below  NO

Bacteria Used for Cloning *	Plasmid(s) **	Source of Plasmid	Gene Transformed or Transfected	Will there be a change due to transformation of the bacteria?	Will there be a change in the pathogenicity of the bacteria after the genetic modification?	What are the consequences due to the transformation of the bacteria?

\* Please attach a Material Safety Data Sheet or equivalent if available.

\*\* Please attach a plasmid map.

\*\*\*No Material Safety Data Sheet is required for the following strains of E. coli:

[http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA\\_Ecoli\\_list.pdf](http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA_Ecoli_list.pdf)

4.3 Will genetic modification(s) of bacteria and/or cells involving viral vectors be made?

YES, complete table below  NO

Virus Used for Vector Construction	Vector(s) *	Source of Vector	Gene(s) Transduced	Describe the change that results from transduction

\* Please attach a Material Safety Data Sheet or equivalent.

4.3.1 Will virus be replication defective?  YES  NO

4.3.2 Will virus be infectious to humans or animals?  YES  NO

4.3.3 Will this be expected to increase the containment level required?  YES  NO

**5.0 Will genetic sequences from the following be involved?**

- ◆ HIV  NO  YES, specify
- ◆ HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens  NO  YES, specify
- ◆ SV 40 Large T antigen  NO  YES
- ◆ E1A oncogene  NO  YES
- ◆ Known oncogenes  NO  YES, specify
- ◆ Other human or animal pathogen and or their toxins  NO  YES, specify

5.1 Is any work being conducted with prions or prion sequences?  NO  YES

Additional Comments: \_\_\_\_\_

Section 5.0 - Incomplete

## 6.0 Human Gene Therapy Trials

6.1 Will human clinical trials be conducted involving a biological agent?  YES  NO  
(including but not limited to microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)  
If no, please proceed to Section 6.0

6.2 If YES, please specify which biological agent will be used:  
Please attach a full description of the biological agent.

6.3 Will the biological agent be able to replicate in the host?  YES  NO

6.4 How will the biological agent be administered?

6.5 Please give the Health Care Facility where the clinical trial will be conducted:

6.6 Has human ethics approval been obtained?  YES, number:  NO  PENDING

## 7.0 Animal Experiments

7.1 Will live animals be used?  YES  NO If **NO**, please proceed to section 7.0

7.2 Name of animal species to be used **Insects (see below)**

7.3 AUS protocol #

7.4 Will any of the agents listed in section 4.0 be used in live animals  
 NO  YES, specify:

7.5 Will the agent(s) be shed by the animal:  
 YES  NO, please justify:

## 8.0 Use of Animal species with Zoonotic Hazards

8.1 Will any animals with zoonotic hazards or their organs, tissues, lavages or other body fluids including blood be used (see list below)?  YES  NO - If **NO**, please proceed to section 8.0

8.2 Will live animals be used?  YES  NO

8.3 If **YES**, please specify the animal(s) used:

- |                             |   |                             |
|-----------------------------|---|-----------------------------|
| ◆ Pound source dogs         | <input type="checkbox"/> YES                                    | <input type="checkbox"/> NO |
| ◆ Pound source cats         | <input type="checkbox"/> YES                                    | <input type="checkbox"/> NO |
| ◆ Cattle, sheep or goats    | <input type="checkbox"/> YES, species                           | <input type="checkbox"/> NO |
| ◆ Non-human primates        | <input type="checkbox"/> YES, species                           | <input type="checkbox"/> NO |
| ◆ Wild caught animals       | <input type="checkbox"/> YES, species & colony #                | <input type="checkbox"/> NO |
| ◆ Birds                     | <input type="checkbox"/> YES, species                           | <input type="checkbox"/> NO |
| ◆ Others (wild or domestic) | <input checked="" type="checkbox"/> YES, specify <b>Insects</b> | <input type="checkbox"/> NO |

8.4 If no live animals are used, please specify the source of the specimens:

## 9.0 Biological Toxins and Hormones

9.1 Will toxins or hormones of biological origin be used?  YES  NO If no, please proceed to Section 9.0

9.2 If YES, please name the toxin(s) or hormones(s)  
Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

9.3 What is the LD<sub>50</sub> (specify species) of the toxin or hormone

9.4 How much of the toxin or hormone is handled at one time\*?

9.5 How much of the toxin or hormone is stored\*?

9.6 Will any biological toxins or hormones be used in live animals?  YES  NO  
If YES, Please provide details:

\*For information on biosecurity requirements, please see:

[http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity\\_Requirements.pdf](http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity_Requirements.pdf)

Additional Comments: \_\_\_\_\_

## 10.0 Insects

10.1 Do you use insects?  YES  NO - If NO, please proceed to Section 10.0

10.2 If YES, please give the name of the species. **see attached sheets**

10.3 What is the origin of the insect? **see attached sheets**

10.4 What is the life stage of the insect? **see attached sheets**

10.5 What is your intention?  Initiate and maintain colony, give location:  
 "One-time" use, give location:

10.6 Please describe the risk (if any) of escape and how this will be mitigated:  
**see attached sheets**

10.7 Do you use insects that require a permit from the CFIA permit?  YES  NO  
If YES, Please attach the CFIA permit & describe any CFIA permit conditions:  
**See attached sheet**

## 11.0 Plants

- 11.1 Do you use plants?  YES  NO - If **NO**, please proceed to Section 11.0
- 11.2 If YES, please give the name of the species. **see attached sheets**
- 11.3 What is the origin of the plant? **see attached sheets**
- 11.4 What is the form of the plant (seed, seedling, plant, tree...)? **trees**
- 11.5 What is your intention?  Grow and maintain a crop  "One-time" use
- 11.6 Do you do any modifications to the plant?  YES  NO  
If yes, please describe: **Repotting, pruning and fertilising**
- 11.7 Please describe the risk (if any) of loss of the material from the lab and how this will be mitigated:  
**see attached sheets**
- 11.8 Is the CFIA permit attached?  YES  NO  
If **YES**, Please attach the CFIA permit & describe any CFIA permit conditions:  
**see attached sheets**

## 12.0 Import Requirements

- 12.1 Will any of the above agents be imported?  YES, country of origin **see attached sheets**  NO  
If **NO**, please proceed to Section 12.0
- 12.2 Has an Import Permit been obtained from HC for human pathogens?  YES  NO
- 12.3 Has an import permit been obtained from CFIA for animal or plant pathogens?  YES  NO
- 12.4 Has the import permit been sent to OHS?  YES, please provide permit # **see attachments**  
 NO

## 13.0 Training Requirements for Personnel Named on Form

All personnel named on the above form who will be using any of the above named agents are required to attend the following training courses given by OHS:

- ◆ Biosafety
- ◆ Laboratory and Environmental/Waste Management Safety
- ◆ WHMIS (Western or equivalent)
- ◆ Employee Health and Safety Orientation

As the Principal Investigator, I have ensured that all of the personnel named on the form who will be using any of the biological agents in Sections 1.0 to 9.0 have been trained.

**An X in the check box indicates you agree with the above statement...**   
**Enter Your Name** Brent Sinclair **Date:** 19 August 2011

**14.0 Containment Levels**

14.1 For the work described in sections 1.0 to 9.0, please indicate the highest HC or CFIA Containment Level required.  1  2  2+  3

14.2 Has the facility been certified by OHS for this level of containment?  
 YES, location and date of most recent biosafety inspection: **Biotron - not in my records**  
 NO, please certify  
 NOT REQUIRED for Level 1 containment

14.3 Please indicate permit number (not applicable for first time applicants): **BGS 2056: BIO-UWO-0163**

**15.0 Procedures to be Followed**

15.1 Are additional risk reduction measures necessary beyond containment level 1, 2, 2+ or 3 measures that are unique to these agents?  YES  NO  
If YES please describe:

15.2 Please outline what will be done if there is an exposure to the biological agents listed such as a needlestick injury or an accidental splash:  
n/a

15.3 As the Principal Investigator, I will ensure that this project will follow the Western Biosafety Guidelines and Procedures Manual for Containment Level 1 & 2 Laboratories (and the Level 3 Facilities Manual for Level 3 projects). I will ensure that UWO faculty, staff and students working in my laboratory have an up-to-date Hazard Communication Form, found at <http://www.shs.uwo.ca/workplace/newposition.htm>

**An X in the check box indicates you agree with the above statement...**   
**Enter Your Name** Brent Sinclair **Date:** 19 August 2011

15.4 Additional Comments: Note that the Biosafety manual makes no reference to legislation or protocols applicable to insects or plants.

**16.0 Approvals**

1) UWO Biohazards Subcommittee: SIGNATURE: \_\_\_\_\_  
Date: \_\_\_\_\_

2) Safety Officer for the University of Western Ontario SIGNATURE: \_\_\_\_\_  
Date: \_\_\_\_\_

3) Safety Officer for Institution where experiments will take place (if not UWO): SIGNATURE: \_\_\_\_\_  
Date: \_\_\_\_\_

Approval Number: \_\_\_\_\_ Expiry Date (3 years from Approval): \_\_\_\_\_

Special Conditions of Approval:

## Addendum: Insects used in the Sinclair lab

Species	Origin	Life Stage	Intention	Risk	CFIA Permit?*
<i>Drosophila melanogaster</i>	Various (including local collections). Under international agreement, permits are not required for transfer of <i>D. melanogaster</i> . Some of these flies are genetically transformed to knock down specific genes.	All	Long-term culture	Low. <i>D. melanogaster</i> is cosmopolitan, and common in London. Risk for transgenic flies is very low as they have much reduced lifespan, vigour and reproductive success compared to wild type.	None required
<i>Drosophila affinis</i> , <i>D. hydei</i>	Local collections	All	Long-term culture	None.	None required
<i>Drosophila Algonquin</i> , <i>D. borealis</i> , <i>D. cardini</i> , <i>D. erecta</i> , <i>D. immigrans</i> , <i>D. mojavensis</i> , <i>D. obscura</i> , <i>D. persimilis</i> , <i>D. pseudoobscura</i> , <i>D. quinaria</i> , <i>D. rubida</i> , <i>D. seychellia</i> , <i>D. simulans</i> , <i>D. subobscura</i> , <i>D. triauraria</i> , <i>D. willistoni</i> , <i>D. yakuba</i>	Tucson <i>Drosophila</i> stock centre, Yucson, AZ, USA  Collections worldwide, but primarily North America.  (note: the <i>Drosophila</i> stock centre has now moved to San Diego)	All	Long-term culture	Low. Many of these species are native to Canada. None are known agricultural pests, and we are careful to maintain them using techniques that minimise escape.	Attached
<i>Drosophila replete</i> , <i>D. affinis</i> , <i>D. arawakana</i> , <i>D. mercatorum</i>	San Diego <i>Drosophila</i> species stock centre	All	Long-term culture	Low. Many of these species are native to Canada. None are known agricultural	Attached

						pests, and we are careful to maintain them using techniques that minimise escape.	
<i>Drosophila ananassae</i> , <i>D. auraria</i> , <i>D. funebris</i> , <i>D. kaneokoi</i> , <i>D. takahashii</i> , <i>D. virilis</i>	Ehime stock centre, Japan. (all stocks originally collected in Japan, although many species cosmopolitan)	All		Long-term culture	Low. Some of these species are native to Canada. None are known agricultural pests, and we are careful to maintain them using techniques that minimise escape.	Attached	
<i>Drosophila nepalensis</i>	Maharishi Dayanand University, India	All		Long-term culture	Low. This species is not an agricultural pest, and we are careful to maintain them using techniques that minimise escape.	Attached	
Madagascar hissing roaches <i>Gromphadorhina portentosa</i>	Outreach colony, U of Toronto, Missisauga (culture originally from pet trade in Canada)	All		Long-term culture (largely for outreach)	Low. These animals won't survive outside, and don't become pests in buildings.	None required.	
Pennsylvania Wood Roach, <i>Parcoblatta pennsylvannica</i>	Pinery Provincial Park, Ontario	All		Long term culture (hopefully!)	None. This species does not survive in buildings and is locally native, although urban environments are very poor habitat.	None required	
New Zealand Stick	New Zealand	All		Medium-term	Low. These species	Attached	

<p>Insects:  <i>Clitarchus hookeri</i>,  <i>Niveaphasma annulata</i>, <i>Micrarachus hystriculeus</i></p>			<p>are unlikely to survive in Ontario because their life cycles are poorly synchronised to our extreme conditions. None of these species exhibits the characteristics of an invasive species.</p>	
<p>Willow leaf beetle  <i>Chrysomela aenicollis</i></p>	<p>All</p>	<p>Western North America (currently California)</p>	<p>Medium-term experiments</p>	<p>Attached</p>
<p>Woolly bear caterpillars  <i>Pyrrharctia isabella</i></p>	<p>Late instar larvae, pupae, adults</p>	<p>Local collections</p>	<p>Short-term experiments</p>	<p>None. Live on campus.</p>
<p><i>Eurosta solidaginis</i></p>	<p>Larvae, prepupae, adults</p>	<p>Local collections</p>	<p>Short-term experiments</p>	<p>None required.</p>
<p>Spring field cricket,  <i>Gryllus veletis</i></p>	<p>all</p>	<p>University of Lethbridge (colony established from SW Ontario collections)</p>	<p>Long-term culture</p>	<p>None, live on campus.</p>
<p>Fall field crickets <i>G. pennsylvanicus</i></p>	<p>all</p>	<p>U of Torontyo, Mississauga Culture</p>	<p>Long-term culture</p>	<p>None, live on campus</p>

	established from SW Ontario field collections.					
Acorn Weevils, <i>Curculio glandium</i>	Pelee Island, ON	larvae	Short-term experiments	None, Native to SW Ontario, lack of appropriate habitat, present in this area, larvae unlikely to escape and survive in winter.	None required	
Eastern spruce budworm, <i>Choristoneura fumiferana</i>	Insect production facility, Great Lakes Forestry Centre, Canadian Forest Service	Larvae (sometimes reared to adults)	Short-term experiments	None. Native to Ontario, inappropriate habitat in and around London, diapausing larvae unlikely to escape, moths usually killed on emergence to be measured.	None required	

\*Note that CFIA does not renew permits if further imports are not planned (and in some cases, they can't, for example, the Tucson stock center no longer exists). We simply continue to adhere to the conditions of the initial permit.

## Addendum: Plants used in the Sinclair lab

Note: these plants are grown in the B&G greenhouses.

Species	Origin	Form of plant	Intention	Risk	CFIA permit?
Garry Oak ( <i>Quercus garriana</i> )	Oregon (Nursery stock)	Bare root (now trees)	Grow for caterpillar food (project currently in hiatus)	None – subjected to phytosanitary inspection before shipping, inspected by CFIA after arrival, will not survive Ontario winters.	Attached
Peach-leaf willow ( <i>Salix amygdaloides</i> )	SW Ontario (Nursery stock)	Small trees	Grow for food for willow leaf beetles	None, local species.	None required.



Permit No./N° de permis:  
P-2006-04445  
ORIGINAL  
2006/11/20  
year/mo/day  
année/mois/jour

**IMPORT PERMIT**

**PERMIS D'IMPORTATION**

Page 1 of 1

THIS PERMIT IS ISSUED PURSUANT TO: CE PERMIS EST DÉLIVRÉ CONFORMÉMENT À:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX

<b>Importer/Importateur</b> UNIVERSITY OF WESTERN ONTARIO  BIOLOGY DEPARTMENT 1151 RICHMOND STREET LONDON, ONTARIO N6A 5B8 Applicant Name: SINCLAIR, BRENT Phone: 519 661-2111 EXT 83138 Fax: 519 661-3935		<b>Exporter/Exportateur</b> UNIVERSITY OF ARIZONA / TUCSON DROSOPHILA STOCK CENTER BIOLOGICAL SCIENCES WEST ROOM 606 - 1041 EAST LOWEL STREET TUCSON, ARIZONA UNITED STATES	
<b>Quarantine/Destination/Quarantine</b> Same as importer's address stated above.		<b>Producer/Producteur</b>	
<b>Valid/Valide</b>	<b>from/du</b> 2006/11/20 year/month/day année, mois/jour	<b>to/au</b> 2009/11/20 year/month/day année/mois/jour	<b>Country of Propagation or Production/Le pays de multiplication ou de production</b> UNITED STATES
<b>For the entry of/ Pour l'entrée de:</b> <input type="checkbox"/> Single shipment/Chargement simple <input checked="" type="checkbox"/> Multiple shipments/Chargements multiples			
<b>Place of entry into Canada/Lieu d'entrée au Canada:</b> ALL REGULATED PORTS			
<b>FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:</b> (Description of things(s)/Description de la ou des choses) INSECTS: DROSOPHILA SPP.			
<b>A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS</b>			

**Selected Conditions / Conditions Choies**

**INSECTS: DROSOPHILA SPP.**

1. The permit holder shall be personally responsible for ensuring that the imported organisms are confined and handled so as to prevent dissemination of pest organisms in Canada.
2. No living imported organisms or the living progeny thereof may be transferred to any other location or person in Canada without the prior written consent of the Plant Health Division.
3. All imported organisms and the progeny thereof are to be killed when the intended experimentation is completed.

Authorized By:/Approuvé par:

For the Minister of Agriculture and Agri-Food  
Pour le ministre d'agriculture et agroalimentaire

The information is required by (for) the Canadian Food Inspection Agency for the purpose of verifying import products. Information may be accessible or protected as required under the provisions of the Access to Information Act.



Canadian Food Inspection Agency  
Government of Canada

Agence canadienne d'inspection des aliments  
Gouvernement du Canada

Permit No./N° de permis:  
P-2009-04276  
ORIGINAL  
2009/12/03  
year/mo/day  
année/mois/jour

## IMPORT PERMIT

## PERMIS D'IMPORTATION

Page 1 of/de 2

THIS PERMIT IS ISSUED PURSUANT TO:/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX	
<b>Importer/Importateur</b> UNIVERSITY OF WESTERN ONTARIO - BIOLOGY DEPARTMENT  1151 RICHMOND STREET NORTH LONDON, ONTARIO N6A5B7  Applicant Name: SINCLAIR, BRENT Phone: 519-661-2111 EXT 83138 Fax: 519-661-3935 Email: BSINCLA7@UWO.CA	<b>Exporter/Exportateur</b> UC SAN DIEGO DROSOPHILA SPECIES STOCK CENTER  UC SAN DIEGO, BIOLOGICAL SCIENCES 9500 GILMAN DRIVE LA JOLLA, CALIFORNIA UNITED STATES 92093
<b>Quarantine/Destination/Quarantaine</b> Same as importer's address stated above.	<b>Producer/Producteur</b>
Valid/Valide from/du 2009/12/03 to/au 2010/12/04 year/month/day year/month/day année/mois/jour année/mois/jour	<b>Country of Propagation or Production / Le pays de multiplication ou de production</b> UNITED STATES (CALIFORNIA)
<b>For the entry of/ Pour l'entrée de:</b> Single shipment/Chargement simple <input checked="" type="checkbox"/> Multiple shipments/Chargements multiples	
<b>Place of entry into Canada/Lieu d'entrée au Canada:</b> ALL REGULATED PORTS	
<b>FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:</b> (Description of things(s)/Description de la ou des choses) INSECTS: DROSOPHILA MERCATORUM, DROSOPHILA REPLETA, DROSOPHILA ARAWAKANA, DROSOPHILA OBSCURA, DROSOPHILA AFFINIS	
<b>A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS</b>	

## Selected Conditions / Conditions Choies

**INSECTS: DROSOPHILA MERCATORUM, DROSOPHILA REPLETA, DROSOPHILA ARAWAKANA, DROSOPHILA OBSCURA, DROSOPHILA AFFINIS**

1. This permit is issued pursuant to section 43 of the Plant Protection Regulations under the following conditions:

- a) The insects and progeny thereof must be used for research purposes only.
- b) At the time of importation, the insects governed by this permit must be clearly identified with labels, tags or other efficient identification means that are affixed to all containers.
- c) The insects must be shipped directly to the destination specified in this permit and must be transported in secure containers that will prevent accidental release of the insects.
- d) All imported plant or media material must be destroyed following emergence / removal of the insects.



Canadian Food Inspection Agency  
Government of Canada

Agence canadienne d'inspection des aliments  
Gouvernement du Canada

**Permit No./N° de permis:**  
P-2009-04276  
ORIGINAL  
2009/12/03  
year/mo/day  
année/mois/jour

**IMPORT PERMIT**

**PERMIS D'IMPORTATION**

Page 2 of/de 2

THIS PERMIT IS ISSUED PURSUANT TO:/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX

<u>Importer/Importateur</u>	<u>Exporter/Exportateur</u>
UNIVERSITY OF WESTERN ONTARIO - BIOLOGY DEPARTMENT  1151 RICHMOND STREET NORTH LONDON, ONTARIO N6A5B7  Applicant Name: SINCLAIR, BRENT Phone: 519-661-2111 EXT 83138 Fax: 519-661-3935 Email: BSINCLA7@UWO.CA	UC SAN DIEGO DROSOPHILA SPECIES STOCK CENTER  UC SAN DIEGO, BIOLOGICAL SCIENCES 9500 GILMAN DRIVE LA JOLLA, CALIFORNIA UNITED STATES 92093

**Selected Conditions / Conditions Choies (Continued/Suite)**

- e) The insects and progeny thereof must be used only at the destination specified in this permit.
- f) The insects and progeny thereof must be kept in a secured area which controls peoples' access.
- g) The insects and progeny thereof must be held and used in a facility at the destination specified in this permit. The facility must be designed or constructed in a manner that will prevent inadvertent escape of the insects. The importer must ensure that the insects and progeny thereof are not released into the environment.
- h) The insects and progeny thereof must not be removed from the destination specified in this permit nor sold or distributed to any person, business, company, institution, etc.
- i) At the end of the research project, the insects and progeny thereof including any material infested with them must be destroyed by incineration, burning, autoclaving or otherwise rendered non-viable.

Authorized By/ Approuvé par:

*George Zatch*

For the Minister of Agriculture and Agri-Food  
Pour le ministre d'agriculture et agroalimentaire

The information is required by (for) the Canadian Food Inspection Agency for the purpose of verifying import products. Information may be accessible or protected as required under the provisions of the Access to Information Act.



Permit No./N° de permis:  
P-2006-04446  
ORIGINAL  
2006/11/20  
year/month/day  
année/mois/jour

**IMPORT PERMIT      PERMIS D'IMPORTATION**

Page 1 of 1

THIS PERMIT IS ISSUED PURSUANT TO/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT À:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÉGLEMENT SUR LA PROTECTION DES VÉGÉTAUX

<b>Importer/Importateur</b> UNIVERSITY OF WESTERN ONTARIO  BIOLOGY DEPARTMENT 1151 RICHMOND STREET LONDON, ONTARIO N6A 5B8 Applicant Name: SINCLAIR, BRENT Phone: 519 661-2111 EXT 83138 Fax: 519 661-3935		<b>Exporter/Exportateur</b> DROSOPHILA STOCKS OF SHIME UNIVERSITY  KYOTSU-KYOIKU BLDG. BUNKYO-CHO 3 MATSUYAMA, JAPAN 790-8577	
<b>Quarantine/Destination/Quarantaine</b> Same as importer's address stated above.		<b>Producer/Producteur</b>	
<b>Valid/Valide</b>	<b>from/du</b>	<b>to/au</b>	<b>Country of Propagation or Production/Le pays de multiplication ou de production</b>
	2006/11/20 year/month/day année/mois/jour	2009/11/20 year/month/day année/mois/jour	JAPAN

For the entry of/ Pour l'entrée de:  Single shipment/Chargement simple  Multiple shipments/Chargements multiples

Place of entry in Canada/Lieu d'entrée au Canada:  
ALL REGULATED PORTS

**FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:**  
(Description of things(s)/Description de la ou des choses)  
INSECTS: DROSOPHILA SPP.

**A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS**

**Selected Conditions / Conditions Choies**

- INSECTS: DROSOPHILA SPP.**
- The permit holder shall be personally responsible for ensuring that the imported organisms are confined and handled so as to prevent dissemination of pest organisms in Canada.
  - No living imported organisms or the living progeny thereof may be transferred to any other location or person in Canada without the prior written consent of the Plant Health Division.
  - All imported organisms and the progeny thereof are to be killed when the intended experimentation is completed.

Authorized By/ Approuvé par:

For the Minister of Agriculture and Agri-Food  
Pour le ministre d'agriculture et agroalimentaire

The information is required by (for) the Canadian Food Inspection Agency for the purpose of verifying import products. Information may be accessible or protected as required under the provisions of the Access to Information Act.





Permit No./N° de permis:  
P-2006-04444  
ORIGINAL  
2006/11/20  
year/month/day  
année/mois/jour

**IMPORT PERMIT**

**PERMIS D'IMPORTATION**

Page 1 of dc 1

THIS PERMIT IS ISSUED PURSUANT TO/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT À:

<b>THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX</b>	
<b>Importer/Importateur</b> UNIVERSITY OF WESTERN ONTARIO  BIOLOGY DEPARTMENT 1151 RICHMOND STREET LONDON, ONTARIO N6A5B8 Applicant Name: SINCLAIR, BRENT Phone: 519 661-2111 EXT 83138 Fax: 519 661-3935	<b>Exporter/Exportateur</b> MAHARISHI DAYANAND UNIVERSITY  DEPT. OF BIOCHEMISTRY & GENETICS ROHTAK, HARYANA INDIA 124001
<b>Quarantine/Destination/Quarantaine</b> Same as Importer's address stated above.	<b>Producer/Producteur</b>
<b>Valid/Valable from/du</b> 2006/11/20 <b>to/au</b> 2009/11/20 year/month/day year/month/day année/mois/jour année/mois/jour	<b>Country of Propegation or Production/Le pays de multiplication ou de production</b> INDIA
<b>For the entry of/ Pour l'entrée de:</b> <input type="checkbox"/> Single shipment/Chargement simple <input checked="" type="checkbox"/> Multiple shipments/Chargements multiples	
<b>Place of entry into Canada/Lieu d'entrée au Canada:</b> ALL REGULATED PORTS	
<b>FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:</b> (Description of things(s)/Description de la ou des choses) INSECTS: DROSOPHILA SPP.	
<b>A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS</b>	

**Selected Conditions / Conditions Choies**

INSECTS: DROSOPHILA SPP.

1. The permit holder shall be personally responsible for ensuring that the imported organisms are confined and handled so as to prevent dissemination of pest organisms in Canada.
2. No living imported organisms or the living progeny thereof may be transferred to any other location or person in Canada without the prior written consent of the Plant Health Division.
3. All imported organisms and the progeny thereof are to be killed when the intended experimentation is completed.

Authorized By:/approuvé par:

For the Minister of Agriculture and Agri-Food  
Pour le ministre d'agriculture et agroalimentaire

The information is required by (for) the Canadian Food Inspection Agency for the purpose of verifying import products. Information may be accessible or protected as required under the provisions of the Access to Information Act.



Canadian Food Inspection Agency  
Gouvernement du Canada

Agence canadienne d'inspection des aliments  
Gouvernement du Canada

Permit No./N° de permis:  
P-2011-01579  
ORIGINAL  
2011/04/12  
year/mo/day  
année/mois/jour

**IMPORT PERMIT**

**PERMIS D'IMPORTATION**

Page 1 of 1

THIS PERMIT IS ISSUED PURSUANT TO/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT À:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÉGLEMENT SUR LA PROTECTION DES VÉGÉTAUX

<b>Importer/Importateur</b> UNIVERSITY OF WESTERN ONTARIO  DEPARTMENT OF BIOLOGY BIOTRON BUILDING, ROOM 120 1151 RICHMOND STREET NORTH LONDON, ONTARIO Applicant Name: SINCLAIR, BRENT J. Phone: 519-661-2111 EXT 83138 Fax: 519-661-3935 Email: BSINCLA7@UWO.CA		<b>Exporter/Exportateur</b> LANDCARE RESEARCH NEW ZEALAND  231 MORRIN ROAD, ST. JOHNS AUCKLAND NEW ZEALAND 1142	
<b>Quarantine/Destination/Quarantaine</b> Same as importer's address stated above.		<b>Producer/Producteur</b>	
<b>Valid/Valide from/du</b>	2011/04/12 year/month/day année/mois/jour	<b>to/au</b>	2014/04/12 year/month/day année/mois/jour
		<b>Country of Propagation or Production / Le pays de multiplication ou de production</b> NEW ZEALAND	
<b>For the entry of/ Pour l'entrée de:</b>		Single shipment/Chargement simple <input checked="" type="checkbox"/> Multiple shipments/Chargements multiples	
<b>Place of entry into Canada/Lieu d'entrée au Canada:</b> ALL REGULATED PORTS			
<b>FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:</b> (Description of things(s)/Description de la ou des choses) INSECTS: CLITARCHUS HOOKERI, NIVEAPHASMA ANNULATA, MICRACHUS HYSTRICULEUS			
<b>A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS</b>			

**Selected Conditions / Conditions Choies**

**INSECTS: CLITARCHUS HOOKERI, NIVEAPHASMA ANNULATA, MICRACHUS HYSTRICULEUS**

1. The permit holder shall be personally responsible for ensuring that the imported organisms are confined and handled so as to prevent dissemination of pest organisms in Canada.
2. All imported organisms and the progeny thereof are to be killed when the intended experimentation is completed.
3. No living imported organisms or the living progeny thereof may be transferred to any other location or person in Canada without the prior written consent of the Plant Health Division.

Authorized By:/Approuvé par:

For the Minister of Agriculture and Agri-Food  
Pour le ministre d'agriculture et agroalimentaire



Canadian Food Inspection Agency  
Government of Canada

Agence canadienne d'inspection des aliments  
Gouvernement du Canada

Permit No./N° de permis:  
P-2010-03029  
ORIGINAL  
2010/09/08  
year/mo/day  
année/mois/jour

IMPORT PERMIT

PERMIS D'IMPORTATION

Page 1 of/de 2

THIS PERMIT IS ISSUED PURSUANT TO / CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE PLANT PROTECTION ACT AND REGULATIONS / LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX

<b>Importer/Importateur</b> THE UNIVERSITY OF WESTERN ONTARIO  1151 RICHMOND STREET NORTH, DEPARTMENT OF BIOLOGY LONDON, ONTARIO N6A5B7  Applicant Name: SINCLAIR, BRENT J. Phone: 519-661-2111 EXT. 83138 Fax: 519-661-3935 Email: BSINCLA7@UWO.CA		<b>Exporter/Exportateur</b> SANTA CLARA UNIVERSITY - DEPARTMENT OF BIOLOGY  500 EL CAMINO REAL SANTA CLARA, CALIFORNIA UNITED STATES 95053	
<b>Quarantine/Destination/Quarantaine</b> Same as importer's address stated above.		<b>Producer/Producteur</b>	
<b>Valid/Valide from/du</b> 2010/09/08 <b>to/au</b> 2011/09/08 year/month/day year/month/day année/mois/jour année/mois/jour	<b>Country of Presentation or Production / Le pays de multiplication ou de production</b> UNITED STATES (CALIFORNIA)		
<b>For the entry of/ Pour l'entrée de:</b> Single shipment/Chargement simple <input checked="" type="checkbox"/> Multiple shipments/Chargements multiples			
<b>Place of entry into Canada/Lieu d'entrée au Canada:</b> ALL REGULATED PORTS			
<b>FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:</b> (Description of things(s)/Description de la ou des choses) INSECT: CHRYSOMELA AENEICOLLIS			
<b>A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS</b>			

## Selected Conditions / Conditions Choies

INSECT: CHRYSOMELA AENEICOLLIS

1. This permit is issued pursuant to section 43 of the Plant Protection Regulations under the following conditions:

- The insects and progeny thereof must be used for research purposes only.
- At the time of importation, the insects governed by this permit must be clearly identified with labels, tags or other efficient identification means that are affixed to all containers.
- The insects must be shipped directly to the destination specified in this permit and must be transported in secure containers that will prevent accidental release of the insects.
- All imported plant or media material must be destroyed following emergence / removal of the insects.
- The insects and progeny thereof must be used only at the destination specified in this permit.



Canadian Food Inspection Agency  
Government of Canada

Agence canadienne d'inspection des aliments  
Gouvernement du Canada

Permit No./N° de permis:  
P-2010-03029  
ORIGINAL  
2010/09/08  
year/mo/day  
année/mois/jour

**IMPORT PERMIT**

**PERMIS D'IMPORTATION**

Page 2 of/de 2

THIS PERMIT IS ISSUED PURSUANT TO/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX

**Importer/Importateur**

THE UNIVERSITY OF WESTERN ONTARIO

1151 RICHMOND STREET NORTH, DEPARTMENT OF BIOLOGY  
LONDON, ONTARIO  
N6A5B7

Applicant Name: SINCLAIR, BRENT J.

Phone: 519-661-2111 EXT. 83138 Fax: 519-661-3935

Email: BSINCLA7@UWO.CA

**Exporter/Exportateur**

SANTA CLARA UNIVERSITY - DEPARTMENT OF BIOLOGY

500 EL CAMINO REAL  
SANTA CLARA, CALIFORNIA  
UNITED STATES 95053

**Selected Conditions / Conditions Choies (Continued/Suite)**

- f) The insects and progeny thereof must be kept in a secured area which controls peoples' access.
- g) The insects and progeny thereof must be held and used in a facility at the destination specified in this permit. The facility must be designed or constructed in a manner that will prevent inadvertent escape of the insects. The importer must ensure that the insects and progeny thereof are not released into the environment.
- h) The insects and progeny thereof must not be removed from the destination specified in this permit nor sold or distributed to any person, business, company, institution, etc.
- i) At the end of the research project, the insects and progeny thereof including any material infested with them must be destroyed by incineration, burning, autoclaving or otherwise rendered non-viable.

Authorized By:/Approuvé par:

*M. Rodrigue*

For the Minister of Agriculture and Agri-Food  
Pour le ministre d'agriculture et agroalimentaire



Canadian Food Inspection Agency  
Government of Canada

Agence canadienne d'inspection des aliments  
Gouvernement du Canada

Permit No./N° de permis:  
P-2008-00550  
AMENDED  
2008/03/15  
year/mo/day  
année/mois/jour

IMPORT PERMIT

PERMIS D'IMPORTATION

Page 1 of 2

THIS PERMIT IS ISSUED PURSUANT TO/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX

<b>Importer/Importateur</b> UNIVERSITY OF WESTERN ONTARIO  BIOLOGY DEPARTMENT 1151 RICHMOND STREET LONDON, ONTARIO N6A5B7 Applicant Name: WILLIAMS, CAROLINE Phone: 519-661-2111 EXT 80166 Fax: 519-661-3935	<b>Exporter/Exportateur</b> VARIOUS EXPORTERS  STATE OF OREGON  UNITED STATES
<b>Quarantine/Destination/Quarantaine</b> Same as importer's address stated above.	<b>Producer/Producteur</b>
Valid/Valide from/du 2008/02/01 to/au 2011/02/01 year/month/day année/mois/jour	<b>Country of Propagation or Production / Le pays de multiplication ou de production</b>  UNITED STATES (OREGON)
For the entry of/ Pour l'entrée de: _____	Single shipment/Chargement simple <input checked="" type="checkbox"/> Multiple shipments/Chargements multiples
Place of entry into Canada/Lieu d'entrée au Canada: ALL REGULATED PORTS	
<b>FOR THE IMPORTATION OF/POUR L'IMPORTATION DE:</b> (Description of things(s)/Description de la ou des choses) QUERCUS SPP.	
<b>A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS</b>	

## Selected Conditions / Conditions Choies

## QUERCUS SPP.

1. The Phytosanitary Certificate must accompany the shipment.

2. The material must be certified free from Columbia Root Knot Nematode (MELOIDOGYNE CHITWOODI).  
Certification/Inspection Requirements:

1) The phytosanitary certificate must bear one of the following additional declarations:

"The material was produced and prepared for export in accordance with the conditions of entry specified in Quarantine Directive 82-01 of February 1, 1982."

or

"The soil originated in an area in which, on the basis of official surveys, Meloidogyne chitwoodi does not occur."

04/15/2008 15:11 FAX 5196613935

03/16/2008 10:40 FAX 613 228 8605

UWO BIOLOGY  
CFIA Import-Export

007  
0003/0003



Canadian Food Inspection Agency  
Government of Canada

Agence canadienne d'inspection des aliments  
Gouvernement du Canada

IMPORT PERMIT

PERMIS D'IMPORTATION

Permit No./N° de permis:  
P-2008-00550  
AMENDED  
2008/03/15  
year/mo/day  
année/mois/jour

Page 2 of 2

THIS PERMIT IS ISSUED PURSUANT TO/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT À:

THE PLANT PROTECTION ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA PROTECTION DES VÉGÉTAUX	
<p><u>Importer/Importateur</u> UNIVERSITY OF WESTERN ONTARIO</p> <p>BIOLOGY DEPARTMENT 1151 RICHMOND STREET LONDON, ONTARIO N6A3B7</p> <p>Applicant Name: WILLIAMS, CAROLINE Phone: 519-661-2111 EXT 80166 Fax: 519-661-3935</p>	<p><u>Exporter/Exportateur</u> VARIOUS EXPORTERS</p> <p>STATE OF OREGON</p> <p>UNITED STATES</p>

**Selected Conditions / Conditions Choisies (Continued/Suite)**

3. The material must be certified free from European Brown Garden Snail (HELIX ASPERSA).  
Certification/Inspection Requirements:

1) "Material is free of European brown garden snail (HELIX ASPERSA)."

4. A Phytosanitary Certificate is required to accompany the consignment, containing the following Additional Declaration:

"This shipment conforms to 7 CFR 301.92 which regulates the movement of nursery stock for Phytophthora ramorum from the States of California, Oregon, and Washington."

The material must be free of all growing media, soil and related matter.

Authorized By/Approuvé par:

*Johanne Coulombe*

For the Minister of Agriculture and Agri-Food  
Pour le ministre d'agriculture et agroalimentaire

The information is required by (for) the Canadian Food Inspection Agency for the purpose of verifying import products. Information may be accessible or protected as required under the provisions of the Access to Information Act.

CFIA / ACIA 3061 (9/04)

Canada

UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE  
PLANT PROTECTION AND QUARANTINE

FOR OFFICIAL USE ONLY

# PHYTOSANITARY CERTIFICATE

PLACE OF ISSUE

SALEM, OREGON

NO FPC 9482391

DATE INSPECTED

April 21, 2008

TO: THE PLANT PROTECTION ORGANIZATION(S) OF

CANADA

## CERTIFICATION

This is to certify that the plants, plant product or other regulated articles described herein have been inspected and/or tested according to appropriate official procedures and are considered to be free from the quarantine pests, specified by the importing contracting party and to conform with the current phytosanitary requirements of the importing contracting party including those for regulated non-quarantine pests.

## DISINFESTATION AND/OR DISINFECTION TREATMENT

DATE	2. TREATMENT
CHEMICAL (active ingredient)	4. DURATION AND TEMPERATURE
CONCENTRATION	6. ADDITIONAL INFORMATION

## DESCRIPTION OF THE CONSIGNMENT

NAME AND ADDRESS OF THE EXPORTER Sevenoaks Native Nursery 29730 Harvest Drive SW Albany, Oregon 97321-9416	8. DECLARED NAME AND ADDRESS OF THE CONSIGNEE University of Western Ontario - Biology 1151 Richmond Street London, Ontario N6A 5B7 Canada
NAME OF PRODUCE AND QUANTITY DECLARED 100 Quercus seedlings	10. BOTANICAL NAME OF PLANTS Quercus garryana
NUMBER AND DESCRIPTION OF PACKAGES 1 Box	12. DISTINGUISHING MARKS None
PLACE OF ORIGIN Lincoln county, Oregon, USA	14. DECLARED MEANS OF CONVEYANCE UPS
	15. DECLARED POINT OF ENTRY unknown

WARNING: Any alteration, forgery, or unauthorized use of this phytosanitary certificate is subject to civil penalties of up to \$250,000 (7 U.S.C. Section 7734(b)) or punishable by a fine of not more than \$10,000, or imprisonment of not more than 5 years, or both (18 U.S.C. Section 1001).

## ADDITIONAL DECLARATION

Import Permit, TAD: P-2008-00550 presented. The plants in this shipment are certified having been produced and prepared for export in accordance with the conditions of entry specified in the C.D.A. Quarantine Directive 82-01 of February 1, 1982. The plant material is free of *Helix aspersa* (Brown Garden Snail) and substantially free from other land snails and slugs. This shipment conforms to 7 CFR 301.92 which regulates the movement of nursery stock for *Phytophthora ramorum* from the states of California, Oregon and Washington.

DATE ISSUED April 21, 2008	17. NAME OF AUTHORIZED OFFICER (Type or Print) Deborah A. Driesner	18. SIGNATURE OF AUTHORIZED OFFICER <i>Deborah A. Driesner</i>
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Liability shall attach to the United States Department of Agriculture or to any officer or representative of the Department with respect to this certificate