

GRADUATE STUDENT INTERNSHIP / CO-OP PROJECT FORM

PROJECT	TITLE:	Swallow Monitoring in the Little Campbell River Watershed		
	LOCATION:	South Surrey, South Langley, White Rock, BC		
	TERM:	6-8 weeks	FROM: Flexible, April 2017	TO: Aug 2017
PROJECT SPONSOR	NAME:	Christy Juteau	TITLE:	Stewardship Coordinator
	ORGANIZATION:	A Rocha Canada	BRANCH / SECTION:	
	ADDRESS:	19353 – 16 Avenue, Surrey BC V3Z9V2		
	EMAIL:	Christy.juteau@arocha.ca		
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TOPIC OR RESEARCH QUESTION: <small>(Briefly describe the research question being addressed through this project)</small>	Initiating new research and contributing to on-going monitoring of Barn Swallow populations in the Little Campbell River watershed.			
KEYWORDS: <small>(List key words to describe the field of study and project)</small>	Ornithology Swallow conservation Nest success / monitoring Bird banding			
PROJECT DESCRIPTION & RELEVANCE: <small>(Provide an overview of the context for the internship / co-op project and why it is important. Describe the project and its tangible, intended outcomes.)</small>	<p>Overview:</p> <p>A Rocha is an international nature conservation organization that is committed to environmental action through community-based conservation projects, promoting the stewardship of species and their habitats. A Rocha's approach to conservation includes three elements: (1) scientific research, (2) community-based conservation, and (3) environmental education. A Rocha delivers stewardship projects in 19 countries on six continents and is partnered with the International Union for the Conservation of Nature (IUCN).</p> <p>A Rocha Canada, established in 2000, has been actively involved in habitat stewardship in the Little Campbell River watershed since 2003. Our work in the watershed includes species inventories and habitat assessments, habitat stewardship and restoration (often working in partnership with other organizations and private landowners), and environmental education (focused on school and community groups). Brooksdale Environmental Centre functions as a hub for research, community agriculture, sustainable living, and environmental education, and hosts over 2000 students per year.</p> <p>Swallows (family <i>Hirundo</i>) are declining in Canada, likely due to loss of nesting and foraging habitat, declines in prey (insect) abundance, and climate change. In particular, Barn Swallows (<i>Hirundo rustica</i>) have been listed as threatened in Canada since 2011 and have declined by 76% in the past 40 years. In an effort to better understand the causes of swallow decline and their status locally, A Rocha began monitoring Barn Swallow nests at 15 sites within the Little Campbell River watershed in 2014 and 2016. Preliminary findings have shown an association between percent pasture and clutch size up to 100m from the nesting site and a limited impact of predation on nesting success.</p> <p>Interns on this project will have the opportunity to contribute to A Rocha's on-going swallow monitoring program along with developing their own project that will further swallow conservation in BC's lower mainland. This project will contribute to general knowledge about swallow ecology and the causes of swallow decline in BC while taking a local-scale approach to species conservation and habitat protection. A Rocha focuses its conservation work at the watershed-level as a way to meaningfully involve community partners and protect habitats within their immediate surroundings. Interns will thus be expected to focus a substantial portion of their projects within the Little Campbell River watershed. However, swallows are clearly not limited by watershed boundaries, and the intern may also explore the causes and implications for swallow decline and conservation at a broader scale using citizen science (e.g., eBird) or other publically accessible datasets.</p> <p>Project Details:</p> <p>Interns will have some flexibility to design their own research questions based on their background, degree of experience and specific interests. Potential questions include:</p> <ol style="list-style-type: none"> 1. How does competition with house sparrows affect swallow nesting success? 2. How is nesting density of barn swallows affected by surrounding land cover and agricultural practices? 3. What is the availability of swallow prey (mainly insects) in the Little Campbell River watershed; how is swallow prey affected by land cover? 4. What are swallow nest predators; how do predators affect stress during egg laying? 5. How often do swallows reuse nests, and does this affect productivity? 6. Where are swallows foraging in the lower mainland and how is this related to land cover and agricultural practices? <p>Interns may also have the opportunity to design and/or contribute to habitat augmentation for a breeding population of cliff swallows in a heritage barn at A Rocha's Brooksdale Environmental Centre.</p> <p>The intern will work directly under the supervision of A Rocha Canada's Stewardship Coordinator, Christy Juteau, RPBio. He/she will work closely with Mrs. Juteau at the A Rocha office on a daily basis for approximately 6 weeks. The intern may also work remotely and communicate daily with Mrs. Juteau. Depending on the specific project, the intern may work in partnership with the Vancouver Avian Research Centre (VARC), Environment Canada and/or Simon Fraser University. Opportunities available for the intern include conducting regular nest surveys as part of A Rocha's on-going swallow monitoring program, helping to design and conduct insect surveys, using GIS to map land cover and the distribution of swallow nest and foraging locations, and conducting literature reviews and statistical analyses. The project will likely involve spending a considerable amount of time in the field, while computer work (literature reviews, GIS work, analyses and writing) will take place in an office at A Rocha's Brooksdale site or remotely. The final outcome of the project will be a written report and formal presentation of the results at a symposium held at Brooksdale, to which partner organizations and community members will be invited.</p>			

AVAILABLE FUNDING:	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	IF YES, THEN LIST AMOUNT:	
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PROJECT TYPE (Check the relevant type(s) of work to be undertaken for this internship / co-op project)

<input checked="" type="checkbox"/>	FIELD WORK	<input checked="" type="checkbox"/>	GIS ANALYSIS (potentially if the student has the skills and interest)
<input type="checkbox"/>	RESEARCH PROPOSAL DEVELOPMENT	<input type="checkbox"/>	POLICY ANALYSIS
<input checked="" type="checkbox"/>	LITERATURE REVIEW	<input checked="" type="checkbox"/>	SURVEY DESIGN
<input checked="" type="checkbox"/>	SHORT STUDY / ASSESSMENT	<input checked="" type="checkbox"/>	MODEL DEVELOPMENT (research prioritization framework)
<input checked="" type="checkbox"/>	DATA COLLECTION	<input type="checkbox"/>	OTHER please describe:
<input checked="" type="checkbox"/>	DATA / STATISTICAL ANALYSIS		

EXPECTED DELIVERABLES: (Summarize the intended project deliverables, e.g., research report, data analyzed, and presented in a spreadsheet format, etc.)	Written report and oral presentation of project results Digital copies of data and analysis
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SKILLS NEEDED, SUPPORT AVAILABLE: (Summarize the key skills/capabilities needed, and the training or support available for technical components of the project)	Some familiarity with ornithology and bird sampling techniques is required. Experience monitoring bird populations, including nest surveys and/or bird banding, and GIS would be ideal, but the project will be refined to fit the experience and interests of the intern(s). A Rocha will be able to provide some training in swallow nest survey techniques and GIS analysis. The intern may have the opportunity to participate in swallow banding under the guidance of the Vancouver Avian Research Centre.
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