## 2020 Cooperative Summer Field Training Program

<table>
<thead>
<tr>
<th>USGS Project Scientist</th>
<th>Tabitha Graves</th>
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<tbody>
<tr>
<td>Project start date</td>
<td>5/4/2020</td>
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<tr>
<td>Duration</td>
<td>3 months</td>
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<tr>
<td>Location</td>
<td>West Glacier, Montana, with possible travel</td>
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<tr>
<td>Type of Intern</td>
<td>ESA</td>
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<tr>
<td>Title of Project</td>
<td>Western bumblebee sampling</td>
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### Background
We will be sampling for Western bumblebee in order to evaluate potential drivers of population change (occupancy) for this species. This species (Bombus occidentalis) will be considered for listing under the Endangered Species Act by the USFWS and this data and analysis will directly inform conservation of this species for which the probability of occupancy has declined by 93% over the last 21 years, to approximately 6%.

### Objectives
1. Fill in spatial gaps in previous sampling by sampling using a protocol involving netting and blue vane traps.
2. Identify known locations for Western bumblebee
3. Identify plant association for the Western bumblebee
4. Characterize bumblebee communities

### Intern Tasks
- Conducting sampling of bumblebees and plants. Taking pictures and filling out databases for relevant sampling. Navigating to sample sites using GPS and other tools.
- Pinning bumblebee samples for identification. Identifying and measuring flowering plants. Contact federal and state agencies related to sampling and instruct them in basic sampling techniques. Work is primarily field-based and will involve working in remote environments ranging from open meadows and forests and low elevations to alpine and subalpine zones. Self-reliance is necessary as teams are small.

### Expected Results and Benefits to the Intern
Students will learn important navigation skills, basic bumblebee sampling and identification skills, vegetation identification skills, and appropriate behavior in bear country. They will also learn important communication skills as they collaborate with and provide some training to multiple agencies.

### Skills and Interests of Candidates
- Drivers license and ability to drive a SUV sized vehicle.
- Experience or interest in learning wildlife and vegetation sampling techniques.
- Experience cataloguing biological data in the field and office (electronic and hard copy)
- Experience with backcountry travel.
- Ability or willingness to learn to navigate with a GPS in unfamiliar terrain
- Backpacking experience preferred.
- Willingness to travel and camp in grizzly bear habitat.
- Ability to hike up to 10 miles with a moderate pack weight- 30 pounds.
- Comfortable hiking off-trail
- Must be willing to work long hours with a small crew.
Proficient with Microsoft Word and Excel

R and ArcGIS experience beneficial, but not required.

Ability to use an ATV may be useful, but is not required.

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<tr>
<th>Project Type</th>
<th>Field Work;</th>
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<tr>
<td>Project Discipline</td>
<td>Ecology; Wildlife Biology; Climate Science;</td>
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