

## **WESTERN GLACIER STONEFLY 90-DAY FINDING QUESTIONS AND ANSWERS**

### **What are the conclusions of the U.S. Fish and Wildlife Service regarding the petition to list the western glacier stonefly?**

The Service completed a 90-day finding on a petition to list the western glacier stonefly under the Endangered Species Act (ESA). After evaluating all of the scientific information described or cited in the petition and information readily available in our files, we concluded that the petitioners provided substantial information indicating that protecting the species under the ESA may be warranted. Therefore, we are initiating a full biological status review to determine if listing the species is warranted.

### **What is a 90-day finding?**

A 90-day finding is an initial review to determine whether or not a petition presents substantial information indicating that listing a species under the ESA may be warranted, thereby necessitating a full status review of the species. The standard for “substantial information” is the amount of information that, when reasonably viewed in light of all information available in the petition and in our files, tends to show that the listing action may be warranted.

### **What does the Service look at to determine if listing a species may be warranted?**

We conducted an analysis of the information the petition provided regarding five factors specified in the ESA. The five factors include: (A) the present or threatened destruction, modification or curtailment of a species’ habitat or range; (B) overutilization for commercial, recreational, scientific or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting a species’ continued existence. The petitioners presented substantial information indicating that listing the western glacier stonefly may be warranted based upon factors A, D, and E. Specifically, information was substantial regarding habitat loss and deterioration induced by climate change, vulnerability of small populations, and the inadequacy of existing regulatory mechanisms regarding environmental changes due to climate change.

### **What does the western glacier stonefly look like?**

The western glacier stonefly is a species of insect in the taxonomic order Plecoptera, also known as the stonefly order. Adults are dark-colored and have a body length and wing length ranging from 0.2 to 0.4 inches. The females are almost twice the size of males. The immature stage (nymph) of the western glacier stonefly has not been described.

### **How does a western glacier stonefly live?**

The specific life history of the western glacier stonefly is not known. However, stoneflies’ egg and nymph stages require an aquatic habitat and adults require a terrestrial habitat. Stoneflies could complete their life-cycle in 1 year or it may take up to 2 or 3 years for the nymph to emerge from the water and mature into a short-lived adult. Adults of the western glacier stonefly have only been collected in July and August near or within the streambed of glacier-fed streams.

### **Where do western glacier stoneflies live?**

The western glacier stonefly has only been found in or near five streams on the east side of the Continental Divide in Glacier National Park in northern Montana. All but one of the western glacier stonefly specimens were collected between 1963 and 1969. One individual was collected in 1979.

### **How many western glacier stoneflies are there?**

We do not know how many western glacier stoneflies exist or if the species is still extant. No specimens have been reported since 1979. In the past the species appears to have been quite rare. Only 25 specimens have been collected in total with only 1 to 4 individuals collected at any one survey location. During the upcoming status review, we intend to seek more information on the species and whether it is still extant.

### **Why should we care about the western glacier stonefly?**

There is little information available regarding the life history of the western glacier stonefly. In general, stoneflies are typically found in clean, cold running waters that have high oxygen content. Therefore, they are sensitive to temperature and chemical changes in their environments. Their presence can be an indication of a healthy stream ecosystem.

### **What factors may impact the western glacier stonefly?**

**Habitat loss due to climate change:** The western glacier stonefly is apparently a narrowly-distributed species known only to occur in a few glacier-fed alpine streams in Glacier National Park, Montana. The ongoing melting and projected disappearance of glaciers in the Park due to warming temperatures could eliminate them as a source of cold, clean water which may be necessary to support the aquatic forms of the species' life cycle. Alteration of precipitation regimes also projected to occur with climate change could affect the volume of snowmelt resulting in seasonal or permanent stream dewatering which reduces the extent of available habitat.

**Inadequacy of existing regulatory mechanisms:** A changing climate appears to be the primary cause of potential habitat loss and deterioration for the western glacier stonefly. Existing regulatory mechanisms may not adequately address environmental changes due to global climate change and the greenhouse gas emissions which contribute to increasing global temperatures.

**Small Population:** The western glacier stonefly, if extant, apparently has a small population size and limited geographic range. Small population size and limited range may contribute to the species' vulnerability to extinction from impacts caused by other stressors such as habitat loss and deterioration.

### **Are there other factors affecting the western glacier stonefly?**

We evaluated other potential stressors including water temperatures which exceed the physiological tolerance of the species or alter the timing of development and breeding to the point that population size is impacted. However, there was not enough information presented in the petition or in our files to conclude that these stressors are likely impacting the species now or would impact the species in the future. We will evaluate all potential threats to the species more thoroughly during our status review.