



Klamath Network Featured Creature

July 2009

Salmonfly (*Pteronarcys californica*)

FIELD NOTES:

General Description:

Do you fly fish? If so, you probably don't need any introduction to this month's featured creature. The salmonfly is famous for large hatches in the spring or summer, and the feeding frenzy of salmonid fishes that accompany it. The salmonfly is a type of stonefly (Plecoptera).

The larval, or more correctly, the nymphal, stage lives in flowing water. It is one of the biggest of the aquatic insects, reaching lengths of 50 mm (about 2 inches). It is dark brown, with a muscular abdomen that wiggles in your hand. Like all stoneflies, it has two tails (or cerci) and two claws on each leg.

The adult salmonfly is approximately the same size as the largest nymph, with two large dusky wings, covering two smaller wings. Although dark brown in color, they can have brilliant orange/red stripes on the edges of their thorax.

Behavior:

Fearsome looking both as a nymph and adult, the salmonfly is harmless. Nymphs are considered to "shred" organic matter, although in practice, they probably mostly feed on diatoms. Adults do not feed (probably).

Nymphs have been found to move very little within a stream, sometimes only moving a few meters over a 2 week period. The adults, despite their large size and wings, are poor fliers.

Habitat and Distribution:

Pteronarcys nymphs can occur in a wide-variety of streams, from small headwater streams to major rivers, including the Colorado River. Within a stream, they can be found in areas where detrital material (e.g., fallen leaves, wood) accumulates, but always in swift water. The underside of cobbles and boulders at the tail-end of a riffle is a likely place to look for nymphs. If you are lucky enough to be streamside during a hatch, the adults can be found hanging out on riparian vegetation in the shade (wearing very cool sunglasses).



Salmonfly nymphs. Image from Graham Owen
(<http://www.grahamowengallery.com>)



Salmonfly adult. Image from Dr. Mark Vinson, USGS



Salmonfly thinking about habitat and lifestyle choices.
Image by Dr. Eric Dinger, KLMN

Reproduction:

Salmonflies are one of the longer-lived aquatic insects. *Pteronarcys californica* is known to have a 2 – 4 year life cycle as an aquatic nymph, with 3 or 4 years being most typical.

After feeding and growing in the stream, the nymphs will crawl out of the stream onto rocks and low hanging vegetation. Here, they shed their exoskeleton and emerge as adults. Like many aquatic insects, the adult stage will be short-lived (1-2 weeks?), during which the salmonfly will mate and lay eggs before dying.

Interesting Fact:

The long lifecycle of the salmonfly, coupled with a reliance on organic matter from the terrestrial landscape, make this a useful indicator of stream impairment. Because they spend 3 to 4 years in the stream, they are susceptible to short- and long-term impacts. Interruptions to organic matter cycling, transport, or storage can also affect populations. When these are considered along with its limited dispersal and recolonization ability and strong public interest for fly fishing, you may have the premier water quality indicator for fast flowing streams.

Where to see in the Network:

Pteronarcys is common throughout most of the west and is likely found in all of the Network parks with fast-flowing streams. The Klamath Network is currently conducting a pilot project for stream monitoring that will include sampling for stream insects.

More Information:

Stewart, K. W., and B. P. Stark. 1988. Nymphs of North American Stonefly Genera (Plecoptera). Entomological Society of America.

A "Google" search on "[salmonfly](#)" is also productive – especially for anglers!