

## Thomas Eisner

It was with great sadness that we learned of the recent death of Dr. Thomas Eisner. Tom was president of the Xerces Society for many years, but his contributions to our knowledge of insects and their conservation go far beyond that role.

Many people know the work of Tom Eisner without realizing it was his. His photographs of a tethered bombardier beetle twisting its abdomen to squirt a boiling-hot chemical directly at its attacker have been widely published and are instantly recognizable. They also elegantly encapsulate his life: his acute observations of natural history led to the innovative design of an experiment to investigate the little-known subject of the ways insects use chemicals, and it was all captured with top-notch photography. The only thing that's missing is music. Tom was a concert-grade pianist,

and a piano was a permanent fixture in his Cornell University lab.

At Cornell, Tom's research crossed boundaries between disciplines as he pioneered the field of chemical ecology. He explored the ways in which insects use chemicals to communicate, mate, defend, and eat. When teaching, his lectures were standing-room only.

Tom believed that scientists had an ethical obligation to be conservationists. As a tireless advocate for invertebrates he spoke out on issues ranging from the protection of tropical forests to endangered species. He also was a gifted writer, with more than five hundred articles and books published.

"Once you fall in love with them, you can't fall out of love," he said of insects in an interview on National Public radio. "There's no end to the marvel."

## Xerces Moves to Protect Cold-Water-Dependent Insects

Among the animals most threatened by climate change are those that depend upon cold-water habitats. They require cool, clear rivers and streams fed by glacial meltwater and snow melt, two sources that are becoming less dependable in the face of a warming climate and changing precipitation patterns.

It is vital that we ensure that the creeks these species live in are not further degraded by water diversion, grazing, extensive recreation, pollution, and other activities. The Xerces Society has asked for Endangered Species Act list-

ing for the most vulnerable cold-water invertebrates—the Arapahoe snowfly (*Capnia arapahoe*), the western glacier stonefly (*Zapada glacier*), the Gila mayfly (*Lachlania dencyanna*), the straight snowfly (*Capnia lineata*), and the Idaho snowfly (*Capnia zukeli*). ESA protection would mean that habitat of these insects would be protected and restored.

To date, the U.S. Fish and Wildlife Service has responded on just one of these species, the Arapahoe snowfly, determining that protection may be warranted and initiating a status review.

## Xerces Ramps Up Efforts to Protect Bumble Bees

Recent work by the Xerces Society and leading bumble bee researchers has established that at least five species of formerly common North American bumble bees are declining and at least two species are now facing extinction. The Society is leading efforts to protect the most imperiled bumble bees and educate people about how they can help these animals.

A petition was submitted to the U. S. Department of Agriculture's Animal and Plant Health Inspection Service in early 2010 to request regulation of the interstate shipping of commercial bumble bees in order to protect wild bees from diseases carried by these shipments. This action was supported by many scientists, citizens, and farming and conservation groups. In addition, working with Dr. Robbin Thorp, we filed a petition to ask the U.S Fish and Wildlife Service to list Franklin's bumble bee

(*Bombus franklini*) as endangered under the Endangered Species Act.

In November 2010 a diverse group of researchers, conservation groups, commercial producers, and agencies gathered at the St. Louis Zoo to develop a conservation strategy for North American bumble bees. We worked with multiple partners to convene this meeting, including the Conservation Breeding Specialist Group of the International Union for Conservation of Nature (IUCN), the St. Louis Zoo, the USDA's Pollinating Insects Research Unit, and the University of Illinois. The meeting enabled unprecedented cooperation, which we hope will culminate in an effective conservation plan.

The Society also helped launch the IUCN Bumblebee Specialist Group, which will engage researchers to conduct a global status assessment of the world's approximately 250 species of



Rusty-patched bumble bee (*Bombus affinis*), photographed by citizen monitor Johanna James-Heinz in Peoria, Illinois.

bumble bees, in order to prioritize their conservation. The group is chaired by Dr. Paul Williams of the Natural History Museum in London; Sarina Jepsen, director of the Xerces Society's Endangered Species Program, is deputy chair.

Over the past three years, Xerces has engaged hundreds of citizens to search for bumble bees and submit their photographs to the Society. This project

has been highly successful at expanding our knowledge of where rare and declining species still occur. For example, the highly imperiled rusty-patched bumble bee (*Bombus affinis*) is known only from a few locations in six U.S. states and one Canadian province. Discoveries of this species in Massachusetts, Minnesota, and Pennsylvania were made by Xerces Society citizen monitors.

## Advocacy Pushes County to Protect Rare Fender's Blue Butterfly

Fender's blue (*Icaricia icarioides fenderi*) is an endangered butterfly living in Oregon's Willamette Valley. The butterfly's host plant is Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*), which itself is threatened. Since 2001 the U.S. Fish and Wildlife Service has documented incidences in which Yamhill County's roadside-maintenance activities have harmed the lupine in violation of the Endangered Species Act. These activities impact the butterfly as well.

Recently, working with a coalition of local citizens and conservation groups, the Xerces Society sent the County a notice of intent to sue. As a direct result of this action, Yamhill County is developing a Habitat Conservation Plan to guide its road-maintenance efforts to avoid further harming the Fender's blue. Where disturbance cannot be avoided, the plan will specify ways in which the County can mitigate for the harm it has caused.

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