



## Calling Dragonfly Mercury Project Participants!

### Study Description:

The Dragonfly Mercury Project engages citizen scientists in research that includes the collection of dragonfly larvae from national parks for mercury analysis. Results shed light on mercury risk across the national parks. Over 40 national parks and 800+ citizen scientists have been involved to date! The year 2015 marks our 4<sup>th</sup> consecutive year of broad public engagement.

Mercury is found everywhere (including pristine national parks) and often at levels known to impact human and wildlife health. It threatens natural resources the National Park Service is charged with protecting. The main source of human-caused mercury in most remote national park environments is atmospheric deposition, largely from coal-burning power plants.

Dragonfly larvae (Odonata: anisoptera) can serve as indicators of mercury risk to food webs. These aquatic insects build up high levels of mercury because they are predatory and are long-lived underwater. Additionally, dragonfly larvae are widespread, important food for fish and birds, and are relatively easy to collect.

This project provides an opportunity to involve the park and visitors in a robust scientific study that will contribute to the peer-reviewed literature. Further, it connects people to parks, enlightening citizen scientists about biodiversity and the influence we have upon natural systems.

### Parks Involved:

Thirty-five parks collected samples during the 2014 season. For 2015, we invite **new** parks to participate and fill data gaps! We also welcome past participants who want to continue to establish continuity between the park and citizen scientists.

### Sampling Procedure:

Dragonfly larvae (right) are collected using dip nets either from shore or by wading near shore in streams, ponds, or wetlands. Upon collection, individual larvae are placed in zipper-seal bags, and later shipped on ice to UMaine (eastern parks) or USGS (western parks) for analysis. Individuals are identified to family and length in the field. Select **new** parks will also collect water and sediment samples for mercury and mercury-relevant chemistry. Each participating park will receive a sampling kit that includes all supplies except larger items like nets. Up to 3 water bodies are selected per park, and at least 15 individual larvae are requested from each sampling site. Samples are collected once, typically in summer or early fall, from each site. There is no cost to parks.



*Dragonfly Mercury Project sampling at Saguaro NP (AZ) – the first park to sample in 2015!*

### Study Timeline:

Dragonfly larvae samples can be collected anytime during the 2015 field season. Sampling kits will be sent out on an as-needed basis. Data will be available in 2016.

### Participating Agencies and Partners:

University of Maine (UMaine) | U.S. Geological Survey (USGS) | Schoodic Institute | University of Wisconsin – La Crosse | Dartmouth College | National Park Service (NPS) Air Resources Division | participating national park units and citizen scientists



*Dragonfly larvae (Aeshnidae) ready for shipment.*

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Project Webpage:  
[http://www.nature.nps.gov/air/Studies/air\\_toxics/dragonfly/index.cfm](http://www.nature.nps.gov/air/Studies/air_toxics/dragonfly/index.cfm)

Educational Tools:  
[http://www.nature.nps.gov/air/studies/air\\_toxics/dragonfly/educational.cfm](http://www.nature.nps.gov/air/studies/air_toxics/dragonfly/educational.cfm)