# Chironomid Pupal Exuviae of Nebraska

The Chironomid Pupal Exuviae of Nebraska (CPEN) project focuses on documenting diversity of non-biting midges (Diptera: Chironomidae) from Nebraska streams, lakes, and springs.

**Overview.** This project was initiated and originally supported by a small NSF Nebraska EPSCoR grant in 2003. Collection of surface floating chironomid pupal exuviae provides information on the life history and ecology of one of the most divers and abundant aquatic insects in the world. Collections taken from Nebraska streams could easily yield up to forty species and seasonal sampling may yield over 100 species from a single site. The specimens can be identified to species or species group producing a high level of taxonomic resolution for biodiversity and ecological research.

Most research was done in collaboration with undergraduate research projects for students in the Department of Life Sciences at Wayne State College.

**Collaborators.** Thanks to William Mausbach, Kaylee Faltys, Cassidy Wessel, and Jessica Wimmer for collaborating on the CPEN project

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**Goals.** The goals of the CPEN research include:

1. Documenting diversity of cold adapted chironomids in the Great Plains.
2. Documenting diversity of chironomids from unique habitats of the region, including habitats in the Nebraska State Wildlife Plan's Biologically Unique Landscapes.
3. Comparing communities of chironomids in the steppe/grassland biomes of North America with those from the steppe/grassland biomes of Mongolia.
4. Analyzing the effect of riparian range condition on chironomid communities.

**Major Findings.** Two publications and nine presentations have resulted in these major findings:

1. Distinct communities of non-biting midges define biologically unique landscapes in Nebraska.
2. Nutrient concentrations structure chironomid communities in many streams of Northern Nebraska.
3. Winter emerging chironomids have increased known diversity for Chironomidae in the region.

**Support.** This project has continued after the original funding and has been facilitated by support from the WSC Department of Life Sciences and School and Natural and Social Sciences.

**Research Interactions.** This research is linked to the MAIS, LECHI, and MACRO projects.