



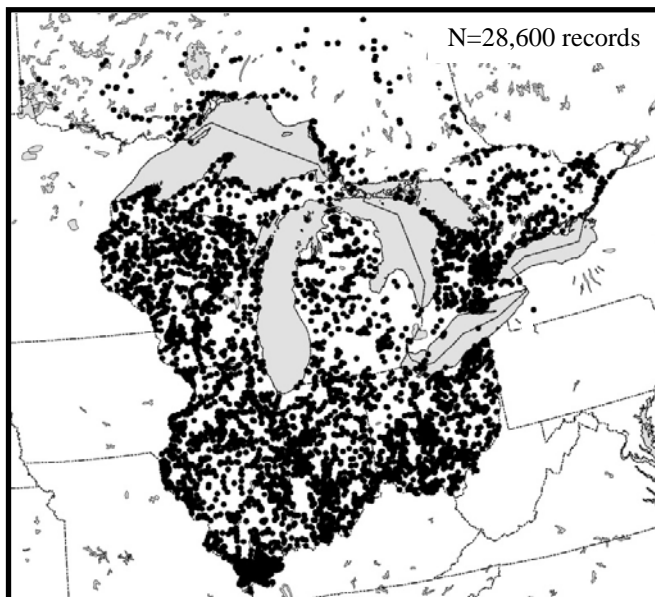
A typical drawer in the McLellan Cabinet

Modeling Presettlement Range of Stoneflies in Midwest, USA and Canada

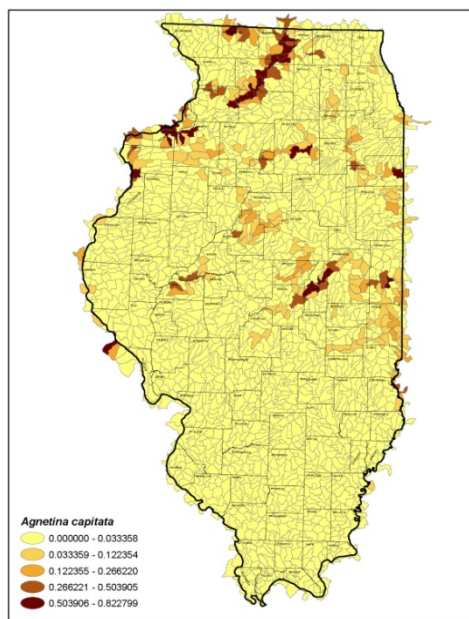
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We have assembled a team of taxonomists, ecologists, GIS specialists, and students to work on a USA National Science Foundation funded project to model the natural range of up to 160 species of stoneflies inhabiting a portion of the Midwest of USA



and Canada. Species records come from museum specimens from 22 regional institutions and from trusted literature records. Most specimens were re-examined, label data were digitized and a unique identifier associated with each pin or vial. Georeferencing was conducted to whatever level the data permitted. Modeling is being conducted at the



USGS HUC12 level with physical and climate data being used from a variety of sources at this scale. This project is generating probability of occurrence values for each HUC12 (as seen below for Illinois). The pattern of highest probability (for instance, ≥ 0.5) HUC12 occurrences will be taken as pre-European settlement range. This will be the expectation for the region. Subsets of data held in reserve are being used to test the model; we also plan to request

funding to do independent, random sampling within HUC12s to determine observed values. These will help in the generation of range loss and objective criteria for species vulnerability assessment.

Our team has also received funding from the US Fish and Wildlife Service to determine the effects of predicted climate change on the distribution of stoneflies, mayflies, and caddisflies in much of the upper Midwest, USA. We will use the climate changes predicted from several CO₂ emissions scenarios over the 21st century to determine how distributions may shift. The resulting information will be key to understanding climate related threats to aquatic insects and in the conservation of species and habitats.

Interesting Winter Emerging Stoneflies (Plecoptera: Capniidae) from Southern California

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Introduction

Southern California has been recognized as a hotspot for biodiversity (Myers et al. 2000). The region is circumscribed by high mountains of the Transverse Ranges, to the North, the San Gabriel's, to the northwest by the Santa Susana's, and to southeast by the Santa Ana's (Hogue 1974). Several streams have formed deep canyons in the San

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