COLORADO STATE UNIVERSITY EXTENSION

WESTERN COLORADO ENTOMOLOGY INTERNSHIP

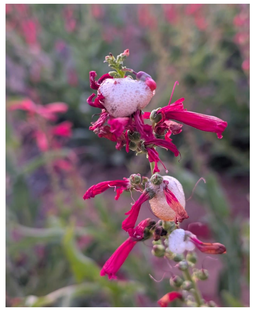
Gráinne McCready – Extension Intern
Melissa Schreiner - Extension Entomologist
Tristan Kubik - CNHP Entomologist

EXTENSION ENTOMOLOGY

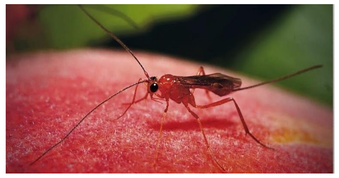
CSU Extension provides a wide array of research-based resources for communities and businesses in Colorado as our land grant institution. I got to experience many aspects of entomological work by shadowing Tri-River Area Extension Entomologist, Melissa Schreiner. She provides information, education, insect identification, and other resources to businesses on the Western Slope. Melissa serves Mesa, Delta, Montrose and Ouray counties.

Agricultural Entomology

We visited farms and seed producers to sweep-net the fields. Through photos and collecting insect specimens,
I helped document the diversity of pollinators, predators, and pests on several Extension surveys. Knowing what insects are showing up on their land helps farmers to make informed management decisions.



Spittlebug foam on penstemon at Southwest Sweed



Mac wasp photo at the Palisade Insectary Facility

Palisade Insectary

At the Palisade Insectary I learned about biological control agents such as the mac wasp (*Macrocentrus ancylivorus*), which is released in orchards to control the invasive peach moth.

Site Visits at Southwest Seed and Upper Colorado Environmental Plant Material Center

We surveyed two large flower and grass farms to learn more about integrated pest management in seed production. At SW Seed, we sampled three types of penstemon and scarlet globemallow fields, examined spittlebug presence, and light trapped. The Upper Colorado Environmental Plant Center is operated by the Douglas Creek Conservation District and the White River Soil Conservation District in northwest Colorado. They grow native plants, including regionally adapted varieties, which are used to restore ecosystems in national parks and beyond. This is where I completed a CSU Extension photography training and gathered needed photo data.



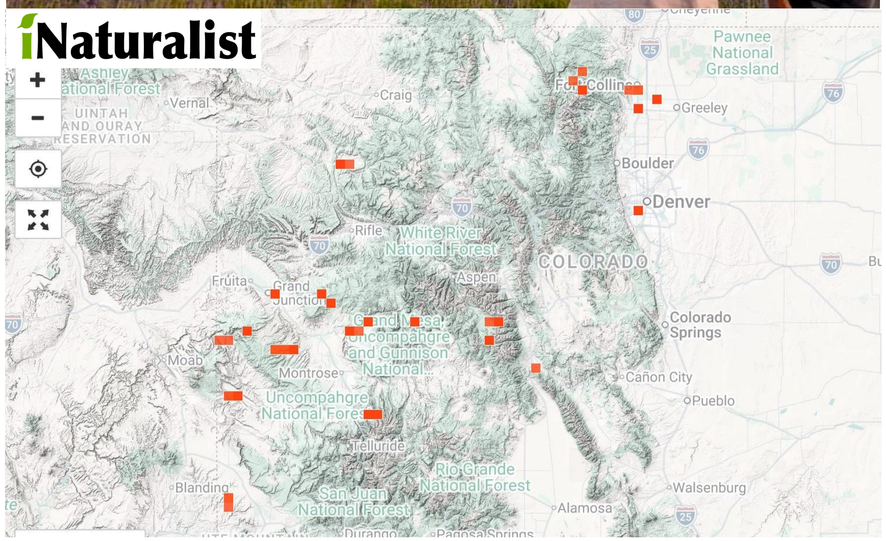
Eliza Marolt, Ava Demyanovich, and Grainne McCready with the Western Colorado insect collection

Western Colorado Insect Collection

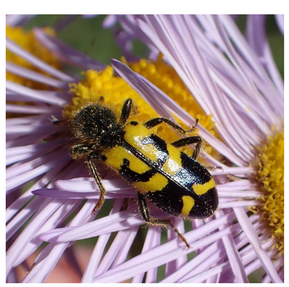
Tri-River Area Extension has a wonderful insect teaching collection of around 40 drawers of specimens from around the state. Siegele Conservation Science interns and I were trained on using a Dino Lite microscope and practiced diagnostic identification.

DATA COLLECTION

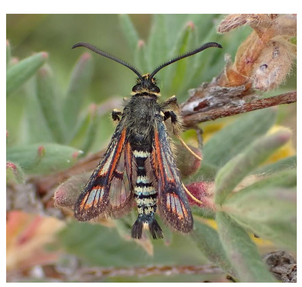




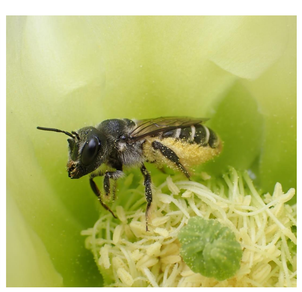
iNaturalist is the platform we used for recording insect observation data. Experts and citizen naturalists alike can document their observations and help identify them. The crews I participated submitted photos to iNaturalist to track our survey effort through research grade photo data submissions.
Ecosystems Visited: High alpine, canyon-desert, pinyon-juniper, wetlands, riparian, mountain shrubland, spruce-fir, and ponderosa pine.
Counties Visited: Mesa, Ouray, Delta, Montrose, Gunnison, Dolores, Rio Blanco, Garfield, Chaffee, Hinsdale.
Observations Documented: 453, **Species Documented:** 208
Photos Taken: around 1,200, **Farms Visited:** 6



Trichodes ornatus



Albuna pyramidalis



Bee in family Megachilidae

COLORADO NATURAL HERITAGE PROGRAM

CNHP is a non-academic department in the Warner College of Natural Resources. The mission is to "advance the conservation of Colorado's native species and ecosystems through science, planning, and education for the benefit of current and future generations". The Colorado Natural Heritage Program has generated important biological and mapping data through the 5-year Statewide Natural Heritage Survey (SNHS).



Cotalpa flavida near Gateway, CO



Tristan Kubik, Grainne McCready, Ava Demyanovich, and Laura Franzel surveying near Gateway, CO

My work photographing and collecting specimens throughout the summer has contributed to the SNHS. The survey focuses on rare and imperiled species and their biogeographies. The findings are used by entities like CPW to plan conservation efforts, anticipate the effects of climate change, and make informed decisions regarding land management.

Bog Violet Training

Terry Ireland is a United States Fish and Wildlife biologist who serves to research and protect endangered species across Colorado and New Mexico. He is an expert on the rare Nokomis butterfly and its host plant, a bog violet. I was trained to survey these species and earned a certification.

Discovering Firefly Populations

Colorado Natural Heritage Program Entomologist Tristan Kubik is a leading expert on firefly populations in Colorado. In one night, we found three new populations of the marsh flicker (*Pyractomena dispersa*) in State Wildlife Areas near Salida, CO.



Grainne McCready, Ava Demyanovich, and Eliza Marolt staking out firefly habitat in Salida, CO

Exploring New Ecosystems

We visited unique areas while surveying insects. Some of my favorite spots include Grand Mesa, Delores Canyon, Escalante Canyon, and Cumberland Pass. Colorado has a diversity of ecosystems which means many unique communities of insects and wildlife call this state home.