

Study Report: Army cutworm (*Euxoa auxiliaris*) moths summering in Great Basin National Park

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Background

Since 2003, cheatgrass (*Bromus tectorum*) die-offs have occurred sporadically in low, dry areas of the Intermountain West. Native army cutworms (*Euxoa auxiliaris*) consume cheatgrass and exotic mustards (Brassicaceae) to produce the die-offs.

Army cutworms overwinter as larvae and feed at night. Larvae pupate in late spring and emerge as miller moths that follow the bloom of flowering plants to high elevations for the summer. “Millions” of moths were found in Great Basin National Park after larval outbreaks and cheatgrass die-offs in 2014.

Army cutworm outbreaks seem to occur in the Intermountain West after these events follow each other:

1. a dry winter and summer
2. heavy late summer rain
3. many adult moths return in fall to lay eggs
4. dry weather resumes through winter.

Understanding *Euxoa auxiliaris* outbreaks and migrations in the Intermountain West will let us better predict cheatgrass die-offs. Predicting die-offs will let us take advantage of these times of reduced competition from cheatgrass to seed desirable species in cheatgrass-invaded areas.

This study

The 41 miller moth collection locations from 2014 were clustered in 13 spots in Great Basin National Park. I visited 11 of these sites in mid-August, 2020. I searched excellent miller moth habitat: rocks, fallen logs, and wooden bridges along cool streams, and high elevation conifer stands. I was surprised that moths had been found in an old orchard, and in fairly open piñon and piñon-juniper stands. But I didn't find any miller moths; I was disappointed, but not surprised--and not discouraged.

I haven't seen or heard of any army cutworm outbreaks or cheatgrass die-offs in the Intermountain West since 2014. However, newspaper reports this spring followed major flights of moths across west Texas/eastern New Mexico and Colorado/Wyoming. Some of the moths must have been blown to the Great Basin, but I didn't find any. Yet.