Army Cutworm Outbreak Produced Cheatgrass Die-offs and Defoliated Shrubs in Southwest Idaho in 2014

By Cindy Salo

On the Ground

- Army cutworms consumed cheatgrass to produce cheatgrass die-offs at low elevations in southwest Idaho in 2014. The larvae also consumed foliage and bark of native shrubs.
- Army cutworm outbreaks seem to occur after many adult moths lay eggs in areas experiencing drought, which received late summer rain to germinate winter annuals, but little subsequent precipitation through the following winter.
- Army cutworms hide in plain sight by feeding at night in winter and hiding in soil or under objects during the day.
- A network of observers in the Intermountain West could help rangeland managers identify die-offs for reseeding with desirable species.

Keywords: Bromus tectorum, Euxoa auxiliaris, invasive plants, revegetation, salt desert scrub, sagebrush steppe.

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Rangeland managers and researchers were mystified in 2003 when kilometer-wide holes appeared in the blanket of exotic cheatgrass (Bromus tectorum) covering large swaths of the Intermountain West. The 2003 cheatgrass “die-offs,” or more correctly, stand failures, occurred in Idaho, Nevada, Utah, Colorado, and New Mexico and have reappeared patchily and sporadically since. Although people disagree about what causes the die-offs, most recognize these events may be opportunities for opportunities for reseeding rangelands invaded by cheatgrass with desirable species.

Cheatgrass die-offs are areas where cheatgrass is usually present but is absent for one or more growing seasons. Winter annual mustards (Brassicaceae) are also absent in die-off areas, and gray litter is usually present. Perennial grasses and forbs are unaffected and often robust, presumably taking advantage of abundant water and nutrients left by the dearth of winter annuals. Die-off areas have abrupt boundaries with normal-appearing cheatgrass or other vegetation, die-offs occur on sites dominated by shrubs, where the absence of cheatgrass can be subtle, and on sites usually dominated by cheatgrass, where the absence of this annual grass leaves the site bare. The 2003 die-offs were estimated to cover over 280,000 ha in northern Nevada alone.3

A few people saw cheatgrass seedlings disappear in early 2003, before the die-offs were apparent. While I explored die-off areas later that year, some of the witnesses shared what they learned with me. Bob Hammon (Colorado State University Extension, personal communication) described a large army cutworm (Euxoa auxiliaris) outbreak in western Colorado in early 2003. The larvae consumed crops and rangeland plants, including cheatgrass. Hammon recounted conditions before and during the outbreak and suggested how they might have affected the insects:

1. A year of dry weather through summer 2002 increased bare ground for egg laying.
2. Numerous adult moths arrived in fall 2002 to lay eggs.
3. Heavy rain in late summer 2002 germinated winter annuals for larvae to eat.
4. Dry weather during winter 2002 to 2003 limited larval diseases.

Weather data from Grand Junction, Colorado4 (Fig. 1) support Hammon’s description. In January 2014, I recognized similar conditions in southwest Idaho and predicted an army cutworm outbreak.

Army Cutworm Life History

Army cutworms are the nocturnal larvae of miller moths. These native North American larvae consume emerging small grains, alfalfa, and canola in winter and early spring in the southern Great Plains5 and southern Canada. Larvae feed above ground at night and usually hide in soil during daylight, but will emerge to feed on cloudy days. Even when feeding above ground, young larvae are tiny enough that they can damage vegetation before they are seen. Dry winter weather reduces

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