

IDENTIFICATION

Mormon cricket
Anabrus simplex
(Haldeman, 1852)



adult male

39-43 mm



adult female

41-49 mm

SIBLING SPECIES

There are several species in the genus *Anabrus* that look similar to Mormon cricket; however, they rarely reach high densities.



It is important to distinguish Mormon cricket from its less damaging relatives *A. longipes* and *A. cerciata*.



Special structures at the end of male abdomens – cerci – are shaped differently.



Mormon cricket

DISTRIBUTION

MORE INFORMATION

Grasshoppers of Wyoming and the West Web site (University of Wyoming):
www.wygifc.uwyo.edu/grasshopper/gwhwyfrm.htm
USDA-ARS Sidney, MT Web site:
www.sidney.ars.usda.gov/grasshopper/
Mormon Cricket (*Anabrus simplex* Haldeman) Species Fact Sheet by R.E. Pfadt:
www.sidney.ars.usda.gov/grasshopper/ID_Tools/F_Sheets/mormoncr.htm

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LOCAL CONTACT:

MORMON CRICKET



biology and management

LIFE CYCLE

One generation occurs per year. Eggs are laid in the summer. The female uses her long ovipositor to hide the egg $\frac{3}{4}$ inches deep in soil. The eggs can withstand high temperatures and freezing cold. The number of eggs produced per female: 85 to 180. The eggs will start to hatch in very early spring when soil temperatures reach 40°F. Hatching has been noted as early as late January to as late as May across the Mormon cricket's geographic range. Typically, hatching starts in March.

ECONOMIC IMPORTANCE

Mormon crickets can feed on 400-plus plant species, but they prefer broad-leaved plants (forbs). The greatest threat is to high-value irrigated crops, which migrating bands can completely destroy. Grasses are usually attacked only at very high pest densities.

POPULATION DYNAMICS

Many birds, rodents, small predators, spiders, and insects all will prey on Mormon crickets, but, in dense migrating swarms, they have low impact on the population. Weather usually plays the biggest role. Multiple days of wet and cold weather in the early spring can cause high mortality in the nymphs.

CONTROL

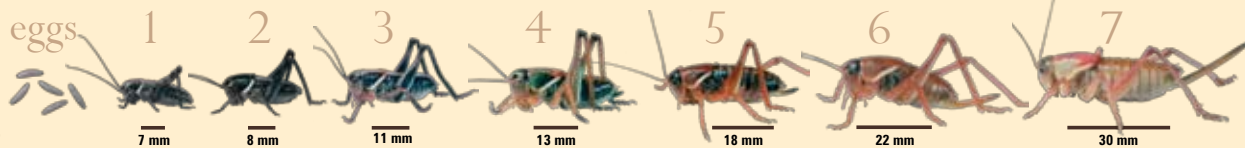
Aircraft applying either dry baits or liquid sprays can be used to treat large areas of rough country in front of and directly on migrating bands of Mormon crickets. Truck and ATV mounted bait spreaders and sprayers can be used on less rugged terrain and against smaller outbreaks. As of 2007, only diflubenzuron and carbaryl active ingredients are labeled for use on Mormon crickets on rangeland. The insecticides can be effectively applied in alternating treated and untreated swaths (Reduced Agent and Area Treatments - RAATs).

HISTORY

Mormon crickets are a native insect that has always generated excitement from human inhabitants of its native range. The first North American immigrants, Paleo-Indians, were probably happy to encounter such an abundant, nutritious food source as migrating bands of Mormon crickets. Later immigrants, like the pioneer farmers of Utah in 1848, were unhappy to watch these insects devour their crops. These encounters with early farmers gave the insect its common name and a bad reputation; however, these large insects are not even true crickets but a species that is not a grasshopper but a large, flightless, ground-dwelling, shieldbacked katydid (Order: Orthoptera; Family: Tettigoniidae).

DEVELOPMENT

From egg hatching to adulthood: 60 to 90 days. The young crickets must go through seven stages (instars) to reach adulthood. Mating occurs 10 days to two weeks after the final molt to adulthood.



Average body length for each nymphal instar is indicated under the bar.

MIGRATORY HABITS

Mormon crickets in migratory bands move for two reasons:

1) to exploit new nutritional resources, namely protein and salt, 2) to avoid being eaten by hungry fellow Mormon crickets approaching from the rear. Millions of Mormon crickets can "march" more than one mile a day. They have been known to move short distances in the first four instars and distances as great as 50 miles from where they hatched during the fifth, sixth, seventh instars and adult portion of their lives.

In migrating bands, females compete for the right to mate with males. This is unusual in the insect world but Mormon cricket males attach a protein-rich spermatophore (sperm packet) to the females at mating. The spermatophore provides the sperm for fertilizing the female's eggs and a dietary supplement as she consumes it after mating.



Female Mormon cricket with spermatophore.

HABITATS

Mormon crickets inhabit rangeland dominated by sagebrush and forbs. Large populations can develop in the open sagebrush-grass associations of the Great Basin and foothills of mountain ranges in western North America.



Treating migrating Mormon crickets with sodium arsenite dust in the 1930s. Unknown photographer.