

A NEW STATE RECORD FOR *TROGODERMA TEUKTON* (COLEOPTERA: DERMESTIDAE) IN COLORADO WITH NOTES ON OTHER *TROGODERMA* SPECIES¹

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ABSTRACT: The dermestid beetle species *Trogoderma teukton* is newly reported from Colorado. This species previously has been reported in the U. S. only from Iowa, Minnesota, North Dakota, and Washington. Beetles were recovered from traps baited for *T. granarium*. Notes on the occurrence of *T. glabrum*, *T. granarium*, *T. inclusum*, *T. simplex*, and *T. variabile* also recovered from traps are presented. Included is a list of Coleoptera trapped in commercial grain elevator and storage facilities in Colorado.

A survey of potential insect pests associated with grain elevators and storage facilities was conducted in Colorado during the summers of 1996 and 2000. The trapping survey was initiated to monitor for the khapra beetle, *Trogoderma granarium* Everts, a well-known and serious pest of stored grain (Hinton 1945; Beal 1956; Armitage 1958; Barak 1989). Initially detected in California in 1953, *T. granarium* was eradicated from the United States and Mexico by 1966 (Barak 1989). The khapra beetle, considered the most destructive member of the Dermestidae to stored grain products (Anonymous 1978), is now a quarantined insect in the United States and under strict USDA regulations governing the importation of goods from infested countries (Anonymous 1984; Barak 1989). In cooperation with the United States Department of Agriculture (USDA-APHIS-PPQ), this survey was conducted as a component of the Cooperative Agricultural Pest Survey (CAPS) program.

Six trapping locations, with two to three bait stations per location, were established in 1996 across four counties in western Colorado. Grain elevators and storage facilities in Olathe (Montrose county), Delta (Delta county; two sites), Fruita (Mesa county; two sites), and Silt (Garfield county) were chosen based on availability, accessibility, and a known presence of dermestid beetles. All specimens recovered during the survey were collected using vertical wall mount insect traps (AgriSense®, Fresno, Calif.). Traps were baited for *T. granarium* using a combination of pheromone lure and wheat germ food bait. All trap locations were initially set up on 4 June and serviced every two weeks until 21 August. Servicing of traps included the removal of all insects captured and replacement of food bait and pheromone lure. Trap captures were taken to the laboratory for separation, identification, and enumeration.

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A total of 65 traps was screened for *T. granarium*. Although the target insect was not detected, a typical diversity of Coleoptera associated with stored grain was found (Table 1). Of particular note are the *Trogoderma* recovered over the course of the trapping season. A single specimen of *Trogoderma teukton* Beal was collected 24 July from a bait station located in a grain elevator in Fruita, Colorado. A single specimen of *T. inclusum* LeConte was also collected on this date from the same bait station. *Trogoderma teukton* previously had been reported in the United States only from Iowa, Minnesota, North Dakota (Beal 1956), and Washington (Hatch 1962), with possible distribution in Illinois and Indiana (Downie and Arnett 1996). The species has also been found but not previously reported from Montana with single specimens taken at Laurel, Yellowstone Co., 21-IV-58 (Bartholf), and Lewiston, Fergus Co., 2-VII to 14 VIII-88 (Lindgren funnel trap; C. E. Seibert). The former is on deposit at the U. S. National Museum of Natural History; the latter in the collection of Montana State University (R. S. Beal, *in litt.*). *Trogoderma teukton*

Table 1. Beetles collected from baited trap stations placed in grain elevators and storage facilities located in select Colorado counties in 1996 and 2000.

Taxa	Common name	County
Anobiidae		
<i>Stegobium paniceum</i> (L.)	drugstore beetle	Weld
Bostrichidae		
<i>Rhyzopertha dominica</i> (F.)	lesser grain borer	Mesa, Montrose, Weld
Cucujidae		
<i>Cryptolestes</i> sp.	grain beetle	Weld
<i>Oryzaephilus surinamensis</i> (L.)	sawtoothed grain beetle	Delta, Montrose, Weld
Curculionidae		
<i>Sitophilus zeamais</i> Motschulsky	maize weevil	Weld
Dermestidae		
<i>Attagenus unicolor unicolor</i> Brahm	black carpet beetle	Weld
<i>Trogoderma glabrum</i> Herbst	glabrous cabinet beetle	Garfield, Mesa, Montrose, Weld
<i>Trogoderma inclusum</i> LeConte	larger cabinet beetle	Mesa
<i>Trogoderma simplex</i> Jayne	no common name	Delta, Garfield, Mesa, Weld
<i>Trogoderma teukton</i> Beal	no common name	Mesa
<i>Trogoderma variabile</i> Ballion	warehouse beetle	Delta, Garfield, Mesa, Montrose, Weld
Mycetophagidae		
<i>Typhaea stercorea</i> (L.)	hairy fungus beetle	Weld
Tenebrionidae		
<i>Alphitobius diaperinus</i> (Panzer)	lesser mealworm	Delta, Weld
<i>Cynaenus angustus</i> (LeConte)	larger black flour beetle	Delta, Mesa, Weld
<i>Palorus subdepressus</i> (Wallaston)	depressed flour beetle	Delta, Mesa, Montrose, Weld
<i>Tribolium castaneum</i> (Herbst)	red flour beetle	Weld
<i>Tribolium confusum</i> J. duVal	confused flour beetle	Delta, Mesa

has been reported in Canada only from Montreal, Quebec (Campbell et al. 1989). *Trogoderma simplex* Jayne and *T. glabrum* Herbst were encountered in low numbers throughout the survey with total captures of 9 and 39 beetles, respectively. High numbers of the ubiquitous warehouse beetle *T. variabile* Ballion (Beal 1954) were consistently removed from traps across all locations throughout the survey period. An average of 25 beetles per week per bait station was recorded for *T. variabile*.

A similar survey was conducted in 2000 utilizing six trapping locations throughout Weld county in eastern Colorado. As the trap used in the previous survey was no longer commercially available, Storgard® FliteTrak® M² pit-fall traps (Trece, Inc., Salinas, Calif.) baited specifically for khapra beetle, *T. granarium*, and warehouse beetle, *T. variabile*, were used. The bait was a combination of khapra beetle and warehouse beetle pheromone and oil-based food attractant. A total of 120 traps was screened for *T. granarium* with no positive identifications. Only three *Trogoderma* species were caught in Weld county traps from 25 May through 19 September. *Trogoderma variabile* was recovered in high numbers at each servicing date, averaging 42 beetles per bait station per week. *Trogoderma simplex* and *T. glabrum* appeared less consistently and in lower numbers totaling 150 and 12 beetles, respectively. Further trapping is necessary to determine a distribution of *T. teukton* and *T. inclusum* east of the Rocky Mountains. All specimens recovered, including all *Trogoderma* reported here, were deposited in the C. P. Gillette Museum of Arthropod Biodiversity, Colorado State University.

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