A journal of world insect systematics
INSECTA MUNDI

1156

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Date of issue: November 28, 2025

Center for Systematic Entomology, Inc., Gainesville, FL

Stidham J. 2025. A new species of katydid of the genus *Pediodectes* Rehn and Hebard (Orthoptera: Tettigoniidae) from the Monahans Sandhills area of Western Texas (USA). Insecta Mundi 1156: 1–4.

Published on November 28, 2025 by
Center for Systematic Entomology, Inc.
P.O. Box 141874
Gainesville, FL 32614-1874 USA
http://centerforsystematicentomology.org/

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A new species of katydid of the genus *Pediodectes* Rehn and Hebard (Orthoptera: Tettigoniidae) from the Monahans Sandhills area of Western Texas (USA)

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Abstract. A **new species** of katydid, *Pediodectes monahansensis* (Orthoptera: Tettigoniidae), is described from the isolated sandhills near Monahans in western Texas (USA). Differences in size, coloration, and characters of the male and female separate this species from other *Pediodectes* Rehn and Hebard species which occur in West Texas.

Key words. Flightless, shinnery oak.

ZooBank registration. urn:lsid:zoobank.org:pub:2C59A0DB-37C5-4505-9139-29AC023E77B4

DOI. https://doi.org/10.64338/im.1156.r3me8

Introduction

The flightless katydid genus *Pediodectes* Rehn and Hebard (Orthoptera: Tettigoniidae: Tettigoniinae) is well represented in the state of Texas (Caudell 1907; Rehn and Hebard 1920; Tinkham 1944, 1948; Walker 2025), especially in the western half, including the species *Pediodectes stevensonii* (Thomas), *Pediodectes daedalus* (Rehn and Hebard), *Pediodectes haldemanii* (Girard), *Pediodectes tinkhami* Hebard, *Pediodectes nigromarginata* (Caudell), and *Pediodectes grandis* (Rehn). All of these species are medium to large in size, live on low plants and trees and are active at night. The species are generally brown, tan, gray, and occasionally have green. All have tiny tegmina, with which the males can call rather loudly. The tegmina only slightly extend beyond the pronotum.

In northwestern Texas, a largely flat plains area, the most common *Pediodectes* species is *P. stevensonii*. It ranges through northwest central Texas and the panhandle. At the southwestern base of the panhandle is an isolated sand covered area known as the Monahans Sandhills, recognized for having several species of plant and animal, including orthopterans, which are found only there. *Pediodectes stevensonii* does not occur in this sandhill area; however, a unique undescribed species of flightless katydid in the genus *Pediodectes* has been found to live in this habitat. The new species, *Pediodectes monahansensis*, hides during the daytime on the shrublike shin oak (*Quercus havardii* Rydb) only in the Monahans Sandhills. It is found most commonly in low areas between sandhills occupied by dense patches of the shin oak. They are never abundant.

Materials and Methods

Specimens were collected by chasing them out of the shin oak by kicking and thrashing. Collected specimens were eviscerated and stuffed with cotton to preserve the coloration. Males had the inner genitalia features exposed during pinning. All specimens of *P. monahansensis* will be deposited in the Texas A&M University (TAMU) insect collection in College Station, Texas.

Taxonomy

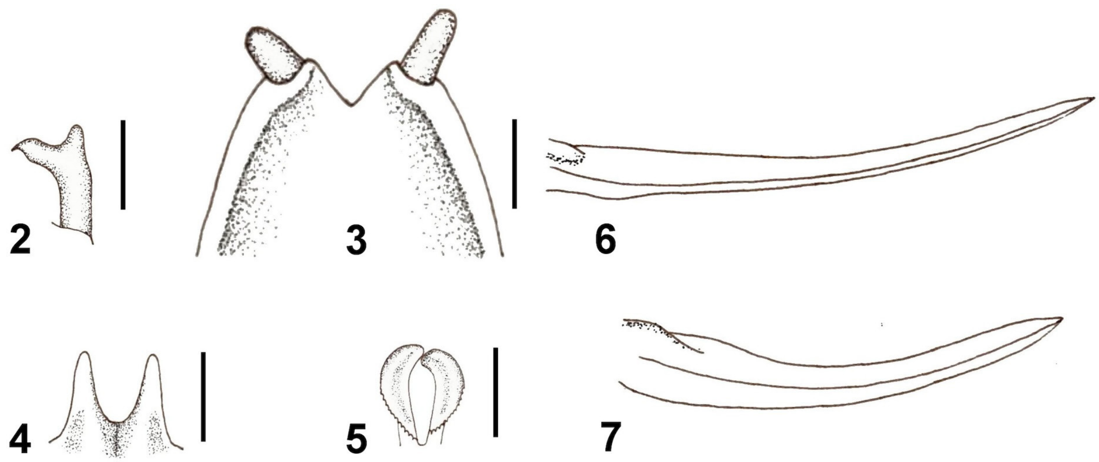
Pediodectes monahansensis **Stidham, new species**
Figures 1–6

Material examined. Holotype male, allotype female and three paratypes (2 M, 1 F): "I20, E. Monahans, Ward Co., VII/9/95" (31.617441, -102.809669). Additional specimens: same locality, VII/7/95 (2 M); same locality VI/29/96 (2 M, 4 F); same locality VI/19/94 (1 M, captured as an immature).

Diagnosis. The coloration of *P. monahansensis* is generally unique, when compared to the other species of *Pediodectes*, with various patterning of tan, green, and sienna (Fig. 1), including a dorsal lateral banding not commonly seen in this genus. Its size is on average smaller than any of the other species in West Texas, including *P. stevensonii*, the most similar species in size to *P. monahansensis* (Table 1). It appears slenderer than other *Pediodectes* species, especially *P. stevensonii.* The ovipositor of *P. monahansensis* is distinctly straighter than that of *P. stevensonii* (Fig. 6–7). Adults are found in June and July. Other species of *Pediodectes* are adult from June through September in the state. The black dorsal line commonly found on the hind femora on some of the other species of *Pediodectes* (*P. stevensonii, P. daedalus, P. nigromarginata*) is seen occasionally on one of the color varieties of *P. monahansensis.*

Description. Males. Body length: 19.9–23.3 mm. Antennae with basal two segments slightly enlarged; first segment flattened, rectangular; second segment cylindrical; all other segments cylindrical, slender; overall length reaching past end of hind femora. Head with front profile ovate, front surface smooth; eye with base almost circular, inner border straight, overall convex, protruding; antennal bases adjoining inner edge of eyes; dorsum

Figure 1. *Pediodectes monahansensis* n. sp., male.



Figures 2–7. *Pediodectes* characters. **2–5)** Male *P. monahansensis*. **2)** Left cercus, dorsal view. **3)** Subgenital plate, ventral view. **4)** Last tergite, dorsal view. **5)** Titillators, dorsal view. **6)** Ovipositor of *P. monahansensis*, length = 21.8 mm. **7)** Ovipositor of *P. stevensonii*, length = 18.0 mm.

Table 1. Average body measurements of *P. monahansensis* and *P. stevensonii*, given in millimeters.

	P. monahansensis		***P. stevensonii***	
	Male	**Female**	**Male**	**Female**
Body	21.4	21.5	22.5	24.3
Pronotum	6.7	7.1	7.7	8.0
Forefemur	6.3	6.5	7.1	6.9
Hind Femur	23.4	25.1	23.1	24.3
Antenna	47.5	45.2	50.0	59.0
Ovipositor		20.7		14.2

convex, fastigium triangular, smooth; genae with posterior edge carinate. Pronotum with surface smooth, dorsum convexly curving uniformly to lateral lobes; dorsal anterior margin slightly concave; dorsal posterior margin straight; lateral lobes shallow with semicircular ventral border curving up to posterior margin; prosternum with pair of short spines. Abdomen with ten tergites, smooth with straight posterior borders; last tergite with two elongate triangular apical lobes separated by a narrow u-shaped spacing (Fig. 4); cerci cylindrical, curving slightly inward with conical apex, inner cylindrical lobe located at about three-fourths cercus length, with a small apical spine (Fig. 2); subgenital plate with obtuse-angulate (concave) apical border, with two short apical styles (Fig. 3); titillator with two lobes, each with ovate apices having several tiny teeth on outer border (Fig. 5). Tegmina tiny, extending to posterior margin of metanotum, circular outline. Foreleg with coxa a short ring with dorsal, anterior elongate spine; trochanter a short cylindrical ring; femur cylindrical, slender, with two ventral lateral carinae, anterior apex with two tiny spines; tibia cylindrical, slender, auditory slit on each side of anterior near base, dorsum with three spurs - one at ventral end of rear anterior slit, one near midlength, one near anterior apex, ventrum with six pairs of spurs along length; tarsus with four segments, basal three similar in length, fourth slightly longer than first, two simple claws. Midleg with coxa a short ring; trochanter short, cylindrical; femur slender with two ventral carinae, one tiny anterior apical spine, two tiny apical posterior spines; tibia slender, with one spur on posterior dorsum near base, two alternating pairs of spurs on dorsum, one apical spur on posterior dorsum, five pair ventral spurs, one pair apical ventral spurs; tarsus similar to fore tarsi. Hindleg with coxa a tiny partial ring; trochanter short, u-shaped segment; femur elongate, reaching well past end of abdomen, swollen in basal half, slender in apical half, two ventral lateral carinae, inner carina along length of femur, outer carina weak and non-existent on basal one/fifth, inner carina with seven to nine small spines, lacks apical spines; tibia rectangular in cross section with two dorsal longitudinal carinae, dorsal outer carina with thirty-one to thirty-two short spines, dorsal inner carina with twenty-eight to thirty short spines, ventral inner carina with eight short spines, ventral outer carina with eight to nine short spines, apex with two enlarged spurs on dorsum and two enlarged calcars plus two central shorter calcars; tarsus first segment with two basal lobes, first segment about one-third longer than second or third segment, fourth segment about same length as first, pair of simple claws.

Females. Body length: 19.6–24.2 mm (excluding ovipositor). Antennae, head, and pronotum similar to male. Abdomen with ten tergites, tergites seven to nine with posterior margin obtuse-angulate; styles conical, slender; supraanal plate with median sulcate, apex triangulate; ovipositor slender, elongate, with slight upward overall curve, about same length as rest of body (Fig. 6). Foreleg same as male. Midleg same as male; femur with two tiny spines on anterior and posterior of apex. Hindlegs similar to male; femur with seven spines on inner ventral carina; tibia with twenty-nine outer dorsal spines and twenty-eight inner dorsal spines.

Species coloration with antennae tan, segments two through four to seven with a dark brown line. Head with uniform coloration varying to darkened with tan, sienna, brown on dorsum and below each eye. Pronotum uniformly pale with dark dorsal rear margin varying to darker (tan, sienna, brown) on dorsum with or without some darkening (brown) on dorsal area of lateral lobes. Abdominal tergites uniform pale to variable with tan, sienna, gray-brown; with a dorsal lateral band, posterior narrow edge of tergites tan-brown, dorsally and laterally either pale tan or pale green. Legs tan or green, sometimes with tan on dorsal edges and pale tan or green below; hind femur with or without a narrow lateral dorsal brown line on basal half, tan or green below; hind tibia green to tan. Ovipositor tan/brown to brown with green ventrum.

Etymology. Named for the sandhill area that the species occupies, the Monahans Sandhills.

Discussion. This species, *P. monahansensis*, adds to the list of unique species of plants and animals found only in the Monahans Sandhills area. It is important to note that the sand in the surrounding areas is rapidly being consumed by local industry and action to permanently protect these isolated species is needed, as the only protected area, the Monahans Sandhills State Park, is a leased site. Additional isolated sandy soil areas exist in Texas, such as east and north of El Paso, north of Abilene, around the Guadelupe Mountains, and in several areas within the Texas panhandle. Although none of these areas are as extensive as the Monahans area, there may be additional new species to be discovered in these areas.

Acknowledgments

I would like to thank the reviewers of this document, Jane Stidham (Collin County Community College) and Tyler Hedlund (University of Illinois, Champaign Urbana), for their assistance in preparing this article. I also thank Dr. John Abbott (University of Alabama) for his assistance as a pre-reviewer.

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Received August 13, 2025; accepted October 14, 2025.
Review editor David Plotkin.