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Robert T. Allen  
*University of Arkansas, Fayetteville*

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# A NEW SPECIES OF *OCCASJAPYX* FROM THE INTERIOR HIGHLANDS (INSECTA: DIPLURA: JAPYGIDAE)

ROBERT T. ALLEN  
Entomology Department  
University of Arkansas  
Fayetteville, AR 72701

## ABSTRACT

A new species of Japygidae, *Occasjapyx carltoni* is described from the Ozark Mountains of the Interior Highlands. This is the first record of the genus outside of California in North America. The genus is also known from China and Japan.

## INTRODUCTION

The eyeless, soil dwelling insects of the family Japygidae in the order Diplura have received scant attention from North American entomologists. Only the California fauna has been studied in detail in a series of papers by Smith from 1959 through 1964. In one of these papers, Smith (1959) discussed the genus *Occasjapyx*. Smith characterized the genus as follows: (1) antennae 24 segmented, (2) first lamina of lacina falciform, (3) tergite VII with posterolateral angles directed posteriorly, (4) forceps asymmetrical with two prominent teeth, (5) body without plumose body setae. These characters also serve to place the genus in the subfamily Japyginae.

*Occasjapyx* presently includes four California species, *O. americanus* (MacGillivray), *O. californicus* Silvestri, *O. koboldi* (Silvestri), and *O. sierrensis* Smith, five species from Japan, and four species from China (Reddell, 1983). This paper describes *Occasjapyx carltoni* new species from the Ozark Mountains of the Interior Highlands. The terminology used here follows that of Smith (1959) used for other species in the genus.

### *Occasjapyx carltoni* new species

Holotype. Female. Arkansas, Newton County, Indian Creek near Kyle's Landing, 7 March, 1988, under rocks along creek bank, C. E. Carlton collector. Slide mount in CMC medium. University of Arkansas Insect Collection. Paratype. Male. Same data as Holotype.

Etymology. This species is named in honor of my colleague and friend and the collector of the specimens, Mr. C. E. Carlton.

## DESCRIPTION

**HEAD.** Dorsal surface with 24 M setae and numerous secondary setae, Fig. 1. Antennae: 24 segments; segment IV with two elongate hair-like sensillae Fig. 17; segment VI, length 0.27 mm., width 0.23 mm., longest data seta on segment VI 0.35 mm.; terminal segment, length 0.12 mm., width 0.06 mm., without placoid sensillae. Maxillae: first lamina of lacina falciform, lamina 2-5 pectinate, Fig. 13; lateral margin of galea with 4 primary setae, 3 additional primary setae, in a row, near the midline, about 10 secondary setae present; thumb of galea bilobed, inner lobe rounded, with 6 sensory cones apically, 2 primary setae towards the base near the lateral margin, outer lobe broadly rounded, asetose, Fig. 14; labial palpi evenly narrowed from base to apex, length 0.20 mm., width at base 0.08 mm., Fig. 15; mandible with 4 teeth, Fig. 16.

**THORAX.** Pronotum: 5 + 5 M, Fig. 2. Meso and metanotum, prescutum: 1 + 1 M, Fig. 3. Scutum: 5 + 5 M, Fig. 4.

**ABDOMINAL TERGITES.** Figures 5-12. Segments I-VII with a median anterior pair of distinct setae, not decreasing in size posteriorly and a small pair of posterior median setae. I: 1 + 1 M; II: 3 + 3 M; III: 4 + 4 M; IV-VII: 5 + 5 M; VIII: 2 + 2 M; IX: 0; X: 2 + 2 M.

**ABDOMINAL STERNITES.** I: prescutum, 3 + 3 M; scutum, 15 + 15 M; II-VI: 16 + 1 + 16 M, 1 decreases in size posteriorly; VII: 18 + 18 M; VIII: 6 + 6 M; IX: 0; X: 13 + 13 M.

**LEGS.** Femur: with several primary and secondary setae. Tibia: setae more numerous in apical  $\frac{1}{4}$ . Tarsi: evenly narrowed base to apex; claws unequal, longest claw 2 Xs length short claw, empodium sclerotized,  $\frac{1}{4}$  length or less of the longest claw; tarsal length, base to apex of longest claw 0.50 mm., width at base 0.11 mm.

**SUBCOXAL ORGANS.** Lateral: with 2-3 rows of glandular setae; sensory setae not evident; median subcoxal organ with about 13 short setae on each side of the organ; median area without disculi or setae.

**FEMALE GENITALIA.** Orifice elongate, transverse opening with narrow anterior and posterior flaps; anterior margin with about 20 setae, posterior margin with about 30 setae; papillae and/or sensory setae absent.

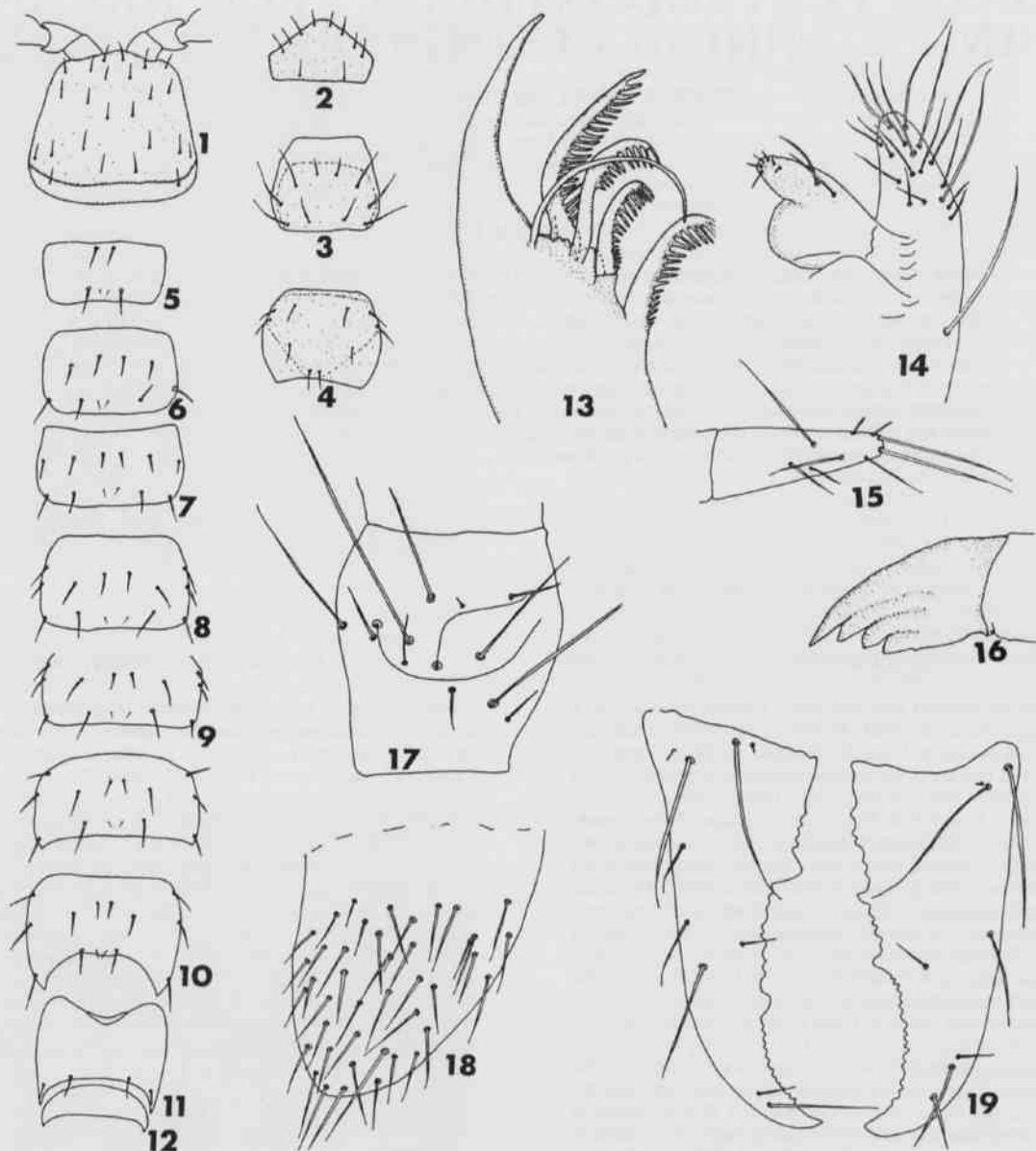
**MALE GENITALIA.** Gonopore: a narrow longitudinal slit; an anterior or posterior flap not evident; anterior margin with about 34 long setae in 2 (possibly 3) rows; posterior margin with about 37-40 small setae arranged in 2-3 rows, posterior to which are 14-16 longer setae arranged in 2 rows. Papillae: one each side, broadly rounded apically, with 40 + longer setae irregularly arranged, Fig. 18.

**FORCEPS.** Left cercus: 1 premedian and one post median tooth; preidental tubercles 4, interdental tubercles 7, postidental tubercles 10. Right cercus: one premedian and one post median tooth; preidental tubercles 5, interdental tubercles 3-4, postidental tubercles 14, Fig. 19.

## DISCUSSION

The discovery of the genus *Occasjapyx* in the Interior Highlands presents an interesting distributional disjunction between the central and western United States. The majority of the Interior Highland endemic taxa have their closest affinities with taxa east of the Mississippi River. Smith (1960) also described a japygid, *Eojapyx pedis* Smith, from Missouri whose closest relatives in the subfamily Provalljapyginae are found only along the west coast of North America. However, since collections of Japygidae are rare and thus we know so little about the distribution of these insects, any definitive statement about this disjunct pattern would be premature.

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Figures 1-19: *Occasjapyx carltoni*. Figures 1-12: Dorsal surface showing position and number of major (M) setae on segments; 1 head, 2 pronotum, 3 mesonotum, 4 metanotum, 5-12 abdominal segments I - IX. Figure 13: lacinia. Figure 14: galea. Figure 15: labial palpi. Figure 16: mandible. Figure 17: antennal segment IV. Figure 18: male lateral papillae. Figure 19: terminal abdominal cerci.

## ACKNOWLEDGEMENTS

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