

SCIENTIFIC NOTE

NEW STATE RECORD FOR *TOHLEZKUS INEXPECTUS* VIT, 1995 (COLEOPTERA: EUCINETIDAE) WITH A SUMMARY OF DISTRIBUTION AND COLLECTION DATA

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The Eucinetidae genus *Tohlezkus* Vit was erected by Vit (1977) to accommodate an interesting species collected from Turkey. This species, *Tohlezkus ponticus* Vit, 1977, has unique suctorial mouthparts and was collected by sifting highly decayed alder, spruce, and beech logs, or leaf litter immediately adjacent to the decaying wood. A second species, *Tohlezkus rufus* (Sakai, 1980) (originally *Subulistomella rufa* Sakai) from Japan, was collected “from the inside of a decaying tree” (Sakai 1980). A third species, *Tohlezkus orientalis* Vit, 1981, was described from Taiwan, but no habitat data were reported (Vit 1981).

Unexpectedly, a fourth species of *Tohlezkus* was discovered in the southeastern United States, and appropriately named *Tohlezkus inexpectus* Vit, 1995 (Vit 1995; Fig. 1). At the time of description the species was only known from three female specimens collected from a dung trap and leaf litter, two from Tennessee (Sevier Co.), and one from North Carolina (Macon Co.). Updated locality data for the holotype and paratype collected by A. Newton are as follows: **Holotype.** Tennessee: Sevier Co., 8 mi South of Gatlinburg on US 441, Buckeye Nature Trail, N 35.64, W 83.48, 915 m, cove hardwood forest, human dung trap. **Paratype.** Tennessee: Sevier Co., 5 mi South of Gatlinburg on US 441, N 35.653, W 83.514, 670 m, cove hardwood forest with *Tsuga* [Pinaceae], Berlese litter (A. Newton, *in litt.*). Since that time many more specimens have been collected. Updated distribution and biological information from all known specimens are provided below.

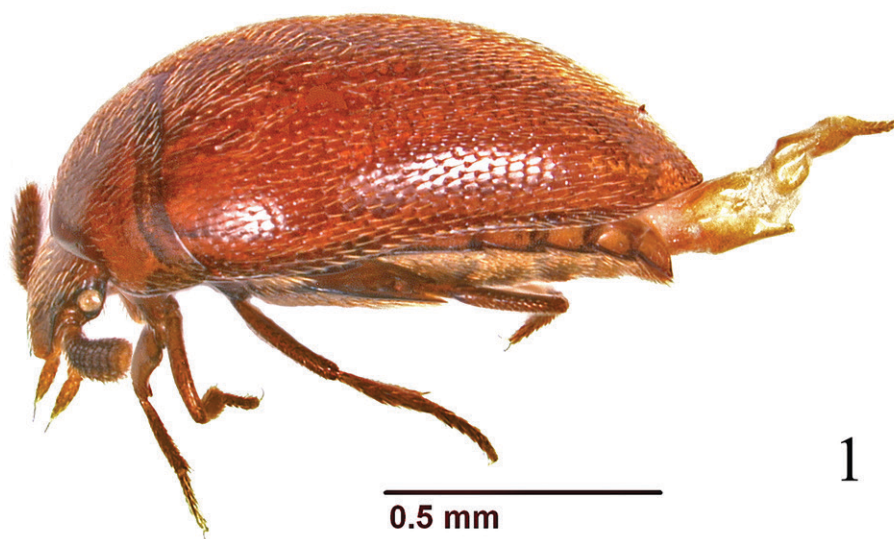
Six specimens were collected during 2001–2006 as part of the Coleoptera portion of the All Taxa Biodiversity Inventory (Carlton and Bayless 2007) at Great Smoky Mountains National Park (GSMNP) (Table 1). Specimens were from North Carolina: Swain County, and Tennessee: Cocke and Sevier counties. All were collected from leaf litter and are

deposited in the Louisiana State Arthropod Museum (LSAM), Louisiana State University, Baton Rouge, Louisiana, USA.

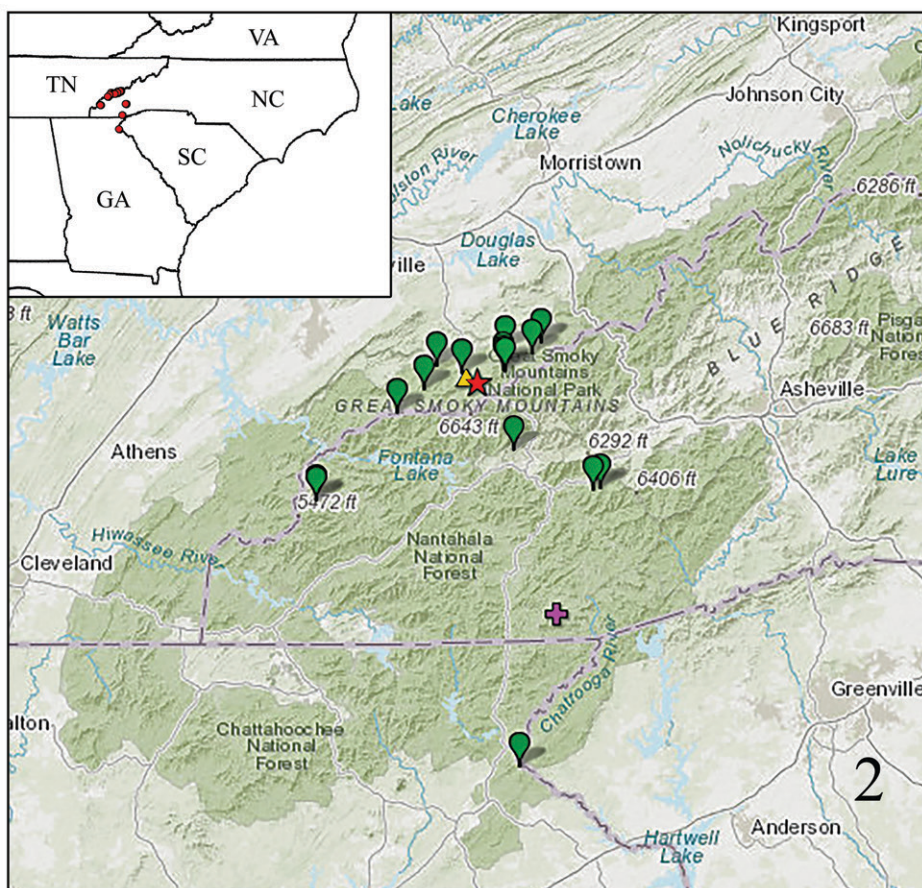
Ferro *et al.* (2012a) sampled both most-decayed coarse woody debris (decay class 5 = CWD5) and leaf litter at six sites in GSMNP. Thirty-four specimens of *T. inexpectus* were collected from CWD5 and one specimen from leaf litter. That study found *T. inexpectus* had a significantly higher abundance in CWD5, in primary forests, and during the spring season. All specimens were collected in Sevier Co., Tennessee and deposited in the LSAM. Additionally, Ferro *et al.* (2012b) collected beetles emergent from fine and coarse woody debris of various decay classes gathered at the same six sites. In total, 163 specimens of *T. inexpectus* were emergent from dead wood and the study found a significantly higher abundance of specimens in weathered fine woody debris (FWD2), coarse woody debris decay class 3–4 (CWD3–4), and primary forests. Specimens were collected in Tennessee: Cocke, Blount, and Sevier counties and are deposited in the LSAM.

Research culminating in Caterino and Langton-Myers (2018, 2019) involved litter sifting in various primary and secondary forests throughout the Southern Appalachian Mountains. Four specimens of *T. inexpectus* were collected from two sites in Jackson Co., North Carolina, and two more specimens were collected from two sites in Graham Co., North Carolina. All specimens were deposited in the Clemson University Arthropod Collection (CUAC), Clemson University, Clemson, South Carolina, USA.

A single specimen of *T. inexpectus* was collected as by-catch (residue) by E. McCarty from Stephens Co., Georgia, **new state record**, by sifting leaf litter while conducting an ant survey in the area (Benton *et al.* 2018). The specimen was collected in the Chattahoochee National Forest in a hemlock-hardwood forest with average soil organic matter



1



2

Figs. 1–2. 1) *Tohlezkus inexpectus*, habitus; 2) Map of collection locations for *T. inexpectus*. Red star = holotype; yellow triangle = A. Newton paratype; purple cross = A. Smetana paratype, approximate location; green pins = additional collection localities.

content of 12.4% and 20–60° slopes. The elevation of the sample was 251 m. Label data for the specimen are as follows: USA: Georgia: Stephens Co., N 34.68, W 83.35, Chatooga River District, 27 March 2018, sifted litter, E. Benton [E. McCarty]. The specimen is deposited in the CUAC.

Summary. *Tohlezkus inexpectus* has been collected from Georgia, North Carolina, and Tennessee and is probably found throughout the Southern Appalachian Mountains (Fig. 2, Table 1). Specimens have been collected from February through October and adults may be present year-round. This species

Table 1. *Tohlezkus inexpectus* collection localities arranged by state, county, and date. FT = forest type; P = primary/old growth; S = secondary. *A. Smetana paratype, approximate location. **A. Newton holotype and paratype, updated localities.

Locality	GPS	Date	FT	Method (# specimens)	Reference
Georgia: Stephens Co.					
Chatooga River District	34.68°, –83.35°	March	-	sift leaf litter (1)	CUAC
North Carolina: Graham Co.					
Joyce Kilmer Memorial Forest	35.3441°, –83.966°	June	P	sift leaf litter (1)	CUAC
Joyce Kilmer Memorial Forest	35.3467°, –83.9688°	July	P	sift leaf litter (1)	CUAC
North Carolina: Jackson Co.					
Balsam Mountain Preserve	35.3699°, –83.1216°	February	S	sift leaf litter (1)	CUAC
Balsam Mountain Preserve	35.3753°, –83.0982°	February	S	sift leaf litter (1)	CUAC
North Carolina: Macon Co.					
Hwy 64, nr. Dry Falls	35.0676°, –83.2389°	May	-	- (1)	Vit 1995*
North Carolina: Swain Co.					
Off Coopers Creek Road	35.4825°, –83.3797°	March	-	sift leaf litter (1)	CUAC
Jenkins Ridge Tr., GSMNP	35.56278°, –83.72°	July	-	sift leaf litter (1)	LSAM
Tennessee: Blount Co.					
Tremont, GSMNP	35.6218°, –83.64116°	April–June	S	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Tremont, GSMNP	35.6218°, –83.64116°	June–Oct.	S	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Tennessee: Cocke Co.					
Albright Grove, GSMNP	35.73611°, –83.27917°	April	P	Berlese, forest litter (1)	LSAM
Albright Grove, GSMNP	35.73611°, –83.27917°	April–June	P	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Albright Grove, GSMNP	35.73611°, –83.27917°	June–Oct.	P	emerg., FWD2 (13)	Ferro <i>et al.</i> 2012b
Albright Grove, GSMNP	35.73611°, –83.27917°	Oct.–April	P	emerg., CWD3–4 (2)	Ferro <i>et al.</i> 2012b
Tennessee: Sevier Co.					
Ramsey Cascade Tr., GSMNP	35.70944°, –83.30667°	March	-	Berlese (1)	LSAM
Greenbrier, GSMNP	35.7191°, –83.3891°	March	S	Berlese, CWD5 (4)	Ferro <i>et al.</i> 2012a
Laurel Falls, GSMNP	35.6801°, –83.6011°	April	P	Berlese, CWD5 (24)	Ferro <i>et al.</i> 2012a
Porters Creek, GSMNP	35.6798°, –83.3975°	April	P	Berlese, CWD5 (2)	Ferro <i>et al.</i> 2012a
Greenbrier, GSMNP	35.7191°, –83.3891°	April–May	S	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Laurel Falls, GSMNP	35.6801°, –83.6011°	April–May	P	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, –83.3975°	April–May	P	emerg., CWD2 (2)	Ferro <i>et al.</i> 2012b
Sugarlands Quiet Wkwy., GSMNP	35.6637°, –83.5251°	April–May	S	emerg., FWD2 (2)	Ferro <i>et al.</i> 2012b
Greenbrier, GSMNP	35.7191°, –83.3891°	April–June	S	emerg., CWD1 (1)	Ferro <i>et al.</i> 2012b
Greenbrier, GSMNP	35.7191°, –83.3891°	April–June	S	emerg., CWD3–4 (3)	Ferro <i>et al.</i> 2012b
Laurel Falls, GSMNP	35.6801°, –83.6011°	April–June	P	emerg., FWD2 (3)	Ferro <i>et al.</i> 2012b

(Continued)

Table 1. (Continued)

Locality	GPS	Date	FT	Method (# specimens)	Reference
Laurel Falls, GSMNP	35.6801°, -83.6011°	April–June	P	emerg., CWD2 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	April–June	P	emerg., FWD2 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	April–June	P	emerg., CWD2 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	April–June	P	emerg., CWD3–4 (4)	Ferro <i>et al.</i> 2012b
Buckeye Nature Tr., GSMNP	35.64°, -83.48°	May	-	human dung trap (1)	Vit 1995**
Porters Creek, GSMNP	35.6798°, -83.3975°	May–June	P	emerg., CWD2 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	May–June	P	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	June–July	P	emerg., CWD3–4 (2)	Ferro <i>et al.</i> 2012b
Greenbrier, GSMNP	35.7191°, -83.3891°	June–Oct.	S	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Laurel Falls, GSMNP	35.6801°, -83.6011°	June–Oct.	P	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	June–Oct.	P	emerg., FWD2 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	June–Oct.	P	emerg., CWD3–4 (2)	Ferro <i>et al.</i> 2012b
Porters Creek Trail, GSMNP	35.66833°, -83.3933°	July	-	Berlese, forest litter (1)	LSAM
Porters Creek, GSMNP	35.6798°, -83.3975°	July–August	P	emerg., CWD3–4 (9)	Ferro <i>et al.</i> 2012b
5 mi S. Gatlinburg on US 441	35.653°, -83.514°	October	-	Berlese, forest litter (1)	Vit 1995**
Laurel Falls, GSMNP	35.6801°, -83.6011°	October	P	Berlese, CWD5 (1)	Ferro <i>et al.</i> 2012a
Porters Creek Trail, GSMNP	35.67028°, -83.39778°	October	P	Berlese, forest litter (2)	LSAM
Porters Creek, GSMNP	35.6798°, -83.3975°	October	P	Berlese, CWD5 (3)	Ferro <i>et al.</i> 2012a
Porters Creek, GSMNP	35.6798°, -83.3975°	October	P	Berlese, leaf litter (1)	Ferro <i>et al.</i> 2012a
Greenbrier, GSMNP	35.7191°, -83.3891°	Oct.–April	S	emerg., CWD3–4 (2)	Ferro <i>et al.</i> 2012b
Laurel Falls, GSMNP	35.6801°, -83.6011°	Oct.–April	P	emerg., FWD2 (1)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	Oct.–April	P	emerg., FWD2 (6)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	Oct.–April	P	emerg., CWD2 (3)	Ferro <i>et al.</i> 2012b
Porters Creek, GSMNP	35.6798°, -83.3975°	Oct.–April	P	emerg., CWD3–4 (94)	Ferro <i>et al.</i> 2012b
Sugarlands Quiet Wkwy., GSMNP	35.6637°, -83.5251°	Oct.–April	S	emerg., CWD3–4 (1)	Ferro <i>et al.</i> 2012b

is rarely collected by sifting litter, but the majority of specimens have been emergent from fine (2.5–7 cm diameter, FWD2) and coarse (8–20 cm diameter, CWD2, CWD3–4) decayed hardwood debris. Most specimens have been collected in old growth forests, but some specimens have been taken in secondary forests. Despite being wingless and associated with dead wood, the ability of *T. inexpectus* to live in fine woody debris, which is generated relatively quickly after a disturbance such as logging, increases the likelihood that it can persist in a disturbed landscape. Where known, all species of *Tohlezkus*

appear to be saproxylic and directly associated with well-decayed wood.

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