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A new species of *Passadenoides* Neunzig from Wyoming and New Mexico (Lepidoptera: Pyralidae: Phycitinae)

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Abstract

A new phycitine species, ***Passadenoides montanus***, is described from specimens collected in Albany Co., Wyoming and Grant Co., New Mexico. The adults and male and female genitalia are illustrated.

Key words: ***Passadenoides montanus***, *donahuei*, *pullus*, New Mexico, Phycitinae, Pyralidae, taxonomy, Wyoming

Introduction

In his 2003 revision of one group of the Phycitinae, Neunzig erected the genus *Passadenoides* to accommodate two new species that he described, *donahuei* and *pullus*. *P. donahuei*, the type species, is known from specimens collected in August and September in Placer and San Bernardino counties, California, and Socorro County, New Mexico; *P. pullus* is known from Placer, Plumas, Sierra, and Tuolumne counties, California, also in August and September. A third species has now been identified from material taken in UV light traps by the author and John S. Nordin in Albany County, Wyoming and Grant County, New Mexico, with a flight period from mid-July to early September.

The general morphology of the new species is the same as that described by Neunzig (2003) for the genus as a whole, with specifics provided in the diagnosis and description that follow. The genus *Passadenoides* is distinguished from the closely related genera *Passadena* Hulst, *Eupassadena* Neunzig & Goodson, *Pseudopassadena* Neunzig & Goodson and *Adelperga* Heinrich as follows: several genitalic characters (illustrated below), upturned labial palpus, and male antennae with a ridge of short scales at the base that hide several small spines (Neunzig 2003).

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All of the images were taken with a Fuji S1 FinePix Pro digital SLR camera. The genitalic images were taken through an Olympus SZ60 stereozoom microscope with the Fuji camera body attached to the microscope photo tube. Post processing of all of the images was done with Adobe Photoshop®.

***Passadenoides montanus* Ferris, New Species**
(Figs. 1, 3–6)

Diagnosis. The dorsal forewing of *montanus* (Fig.1) is darker gray than in either *donahuei* or *pullus* (Fig. 2), without the brownish cast of the latter. The contrast between the transverse bands and overall wing color is less pronounced than in *donahuei*, and not so sharp as in *pullus*. The male genitalic components are closer to *donahuei* than *pullus* with regard to the form of the basal process on the valva (Fig. 3) and the three chitinous pieces that comprise the armature of the vesica (Figs. 4–5).

FIGURE 1. *Passadenoides montanus*. 1a, male holotype, Wyoming, Albany Co. with pin labels; 1b, female paratype, Wyoming, Albany Co.

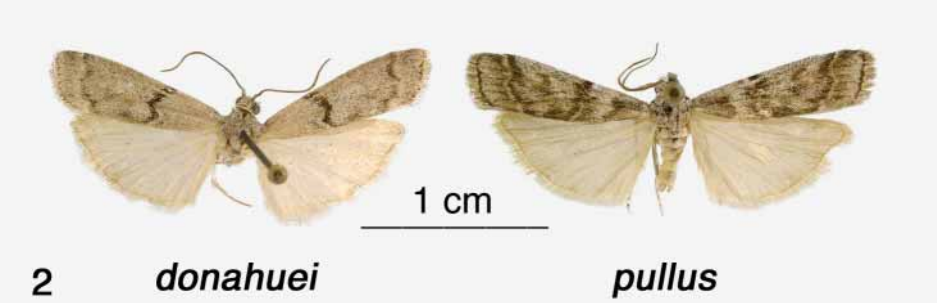

FIGURE 2. Males of *Passadenoides donahuei* (California, San Bernardino Co., 22.viii.1981) and *Passadenoides pullus* (California, Placer Co., 31.viii.1983).

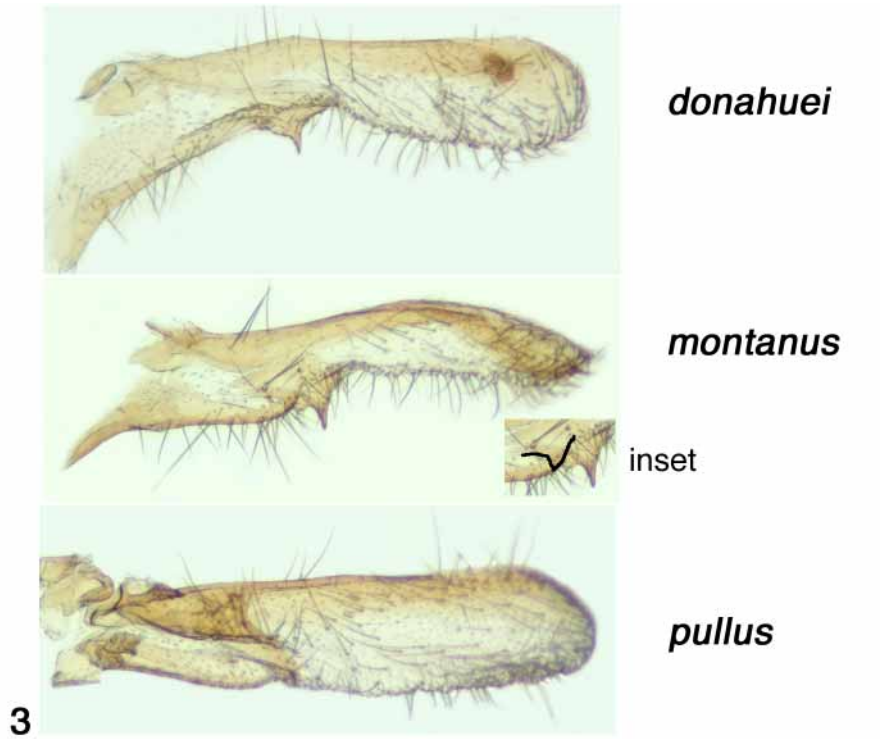

FIGURE 3. Right valva of three *Passadenoides* species, flattened ventral view; inset shows triangular process.

Description. MALES (Fig. 1a). *Forewing length:* 11–14 mm (holotype 13 mm), mean = 13 mm. *Head:* Frons and vertex with white-tipped medium gray scales; labial palpus laterally covered by white-tipped charcoal gray scales. *Thorax:* Dorsum and collar clothed with white-tipped medium gray and charcoal gray scales, and a few scattered brownish-orange scales. *Abdomen:* Clothed with mixture of whitish and pale gray and brownish gray scales. *Legs:* Clothed with mixture of whitish and dark gray to brownish gray scales; femur, tibia, tarsi with alternating pale and dark bands in fresh specimens, faded in worn specimens. *Forewing:* Basal area generally medium gray with a weak darker basal band; irregular gray antemedial band bordered by thin black border basad and thicker black border distad that is wider at the costa than at inner margin; median area medium gray with the color produced by peppering of charcoal grey and very pale gray scales, with a few brownish-orange scales along the length of costa; crescentic reniform spot composed of black scales and dusting of brownish-orange scales in lower cusp and bordered outwardly by narrow band of white scales, the lower portion of which extends distally beyond the lower cusp producing the illusion of a small somewhat obscure pale horizontally oblong spot; a diffuse dark irregular spot located below the reniform just above the inner margin; pale gray postmedian band bordered by black scales heavily on the basal side and moderately on marginal side; thin black terminal line; fringes composed of whitish-tipped

medium gray scales. *Hindwing:* Translucent pale fuscous with darker marginal shading, wider at apex and tapering to anal angle; very thin dark terminal line; fringe composed of uniform pale fuscous (dirty white) scales. **Genitalia** (Figs. 3–5) [10 specimens dissected from Wyoming and New Mexico]: Uncus subtriangular with rounded apex; apical process of gnathos a strongly pointed hook curved upward toward uncus; valva with basal process a broad low ridge with large thorn-like spine near costa and a smaller broad triangular process inward (not clearly visible when valva is flattened for photography as in Fig. 3; digitally outlined in inset), valva slightly constricted in area where spine arises; transtilla absent; juxta a broad U-shaped plate with smooth margins; aedoeagus short and stout; vesica armed with large broadly lanceolate cornutus, a smaller scobinate plate, and smaller yet chitinous piece; everted and inflated vesica reveals a scobinate plate resembling a rooster comb arising separately from membrane, with smaller chitinous piece attached near base of large cornutus (Figs. 4–5).

FEMALES (Fig. 1b). *Forewing length:* 11–15 mm, mean = 13 mm. Wing maculation and color, head, thorax, abdomen and leg color as in males. **Genitalia** (Fig. 6) [3 specimens dissected from different Wyoming localities]: Ostium bursae with broad sclerotized plate; ductus bursae wide with irregularly-shaped scobinate, sclerotized plate originating about midway and extending into corpus bursae, where it is covered with long inwardly-directed spines; corpus bursae outwardly produced at site of a large sclerotized circular plate armed with numerous short, stout, inwardly-directed spines; ductus seminalis very slender, transparent, and originating from the corpus bursae near junction of corpus bursae and the ductus bursae. Location of circular plate on corpus bursae displaced relative to the plate positions in *donahuei* and *pullus*.

Type material. Holotype male: WYOMING, Albany Co., 41°15.09'N, 105°24.48'W, 2525 m, Sherman Range, ca. 16 km east of Laramie, 14.viii.2002, to be deposited in U.S. National Museum of Natural History, Washington, DC. Paratypes currently deposited in collections of the author, J. S. Nordin (Laramie, WY), the University of Wyoming Insect Collection, Laramie, WY, and C. P. Gillette Museum of Arthropods Diversity, Colorado State University, Ft. Collins, CO.

Etymology. The specific epithet *montanus* is derived from the masculine form of the Latin adjective meaning mountain dweller and reflects the montane habitat of this moth.

Biology. Unknown. The habitat (Fig. 7) is moderately dry aspen–coniferous forest at 2290 to 3100 m; all but one specimen from 2440 m and above. Douglas Fir, *Pseudotsuga menziesii* (Mirbel) Franco, and Ponderosa Pine, *Pinus ponderosa* Dougl. ex Laws. are common to all of the collection sites. One of these trees may be the larval host.

Flight period. Based on the specimens collected to date from 14 July to 6 September, depending upon locality and annual weather conditions.

Distribution. Presently known from several areas in the mountainous environs east (Sherman Range) and west (Snowy Range) of Laramie, Wyoming, and from Signal Peak (Pinos Altos Mts.), Grant County, New Mexico.

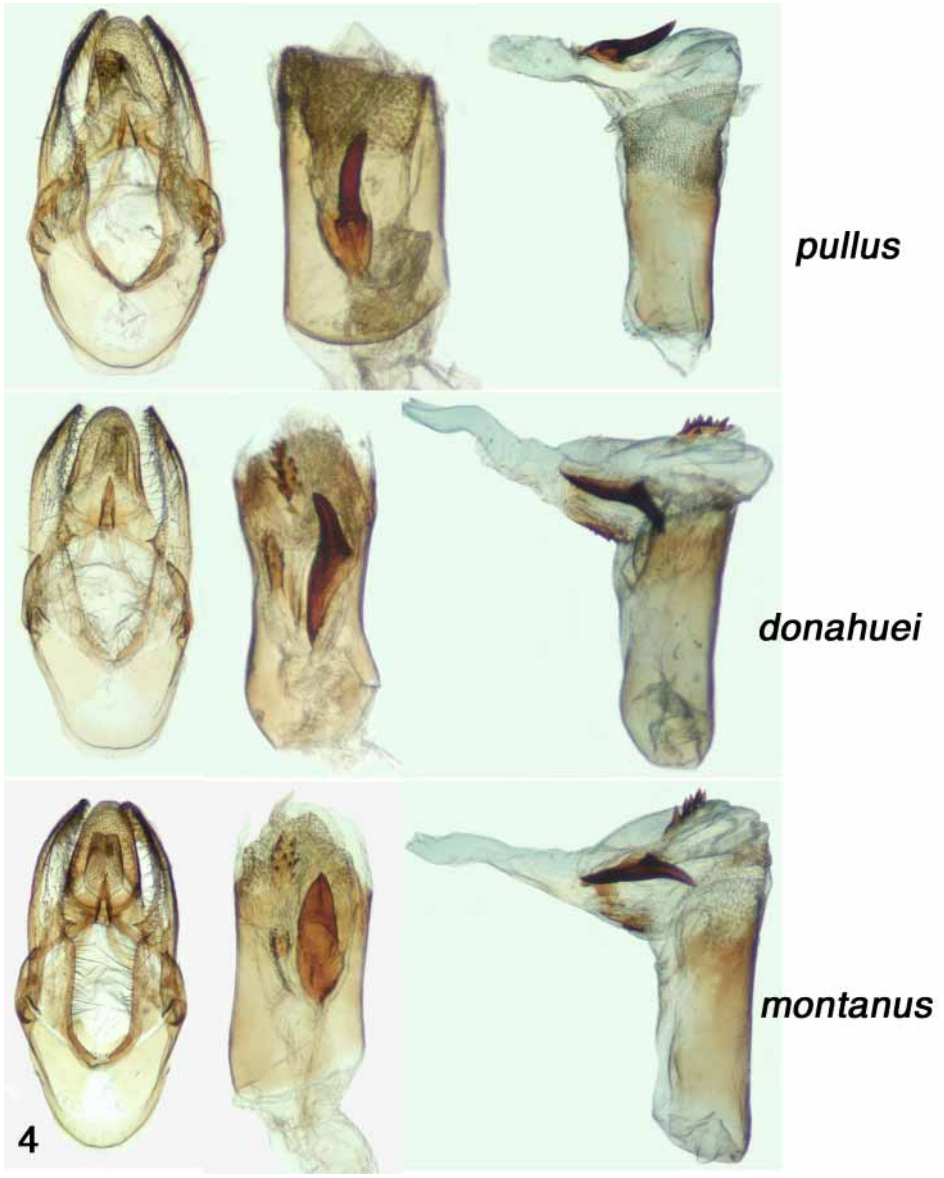

FIGURE 4. Male genitalic structures of *Passadenoides* species. Left to right: genitalia less aedoeagus; aedoeagus; aedoeagus with vesica everted and inflated.

Material examined. 89 male and 28 female specimens (collectors C. D. Ferris = CDF and J. S. Nordin = JSN): WYOMING: Albany Co.: Sherman Range: 41°17.88'N, 105°31.51'W, 2290 m, 15.viii.1999, JSN (1f); 41°15.09'N, 105°24.48'W, 2525 m, 14.viii.2002, CDF (6m incl. HT, 8f); 41°11.569'N, 105°23.509'W, 2516 m, 3.viii.2001, JSN (1m), 8,16.viii.2002, JSN (9m, 1f), 2.ix.2002, JSN (1f), 6.viii.2003, CDF (1m, 1f), JSN (1m), 19.viii.2002, JSN (1m); 41°13.5'N, 105°22.5'W, 2545 m, 5.ix.2003, JSN (1m); 41°15.09'N, 105°24.52'W, 2515 m, 15,24.viii.1999 (2f), 25.viii.2001 (1m), 24.viii.2002 (1m), 21–22.viii.2003 (1m, 1f), 21.viii.2003(1f), all JSN; Snowy Range: 41°07.4'N,

106°02.5'W, 2440 m, 24.vii.2000, JSN (2f); 41°00.10'N, 106°12.69'W, Pelton Creek Rd., 2670 m, 24.viii.1998 (2m), JSN, 18.viii.2001, JSN (56m, 9f); 41°00.28'N, 106°13.14'W, 2700 m, 21.vii.2004, CDF (4m), 41°04.8'N, 106°09.1'W, 2757 m, 29.viii.1997, JSN (1m); 31.viii.2002, JSN (1m); 41°21.07'N, 106°12.55'W, 3100 m, 14.vii.2000, CDF (1f). NEW MEXICO: Grant Co.: 32°35.64'N, 108°09.98'W, 2450 m (Signal Peak, Pinos Altos Mts.), 6.ix.2002, CDF (2m).

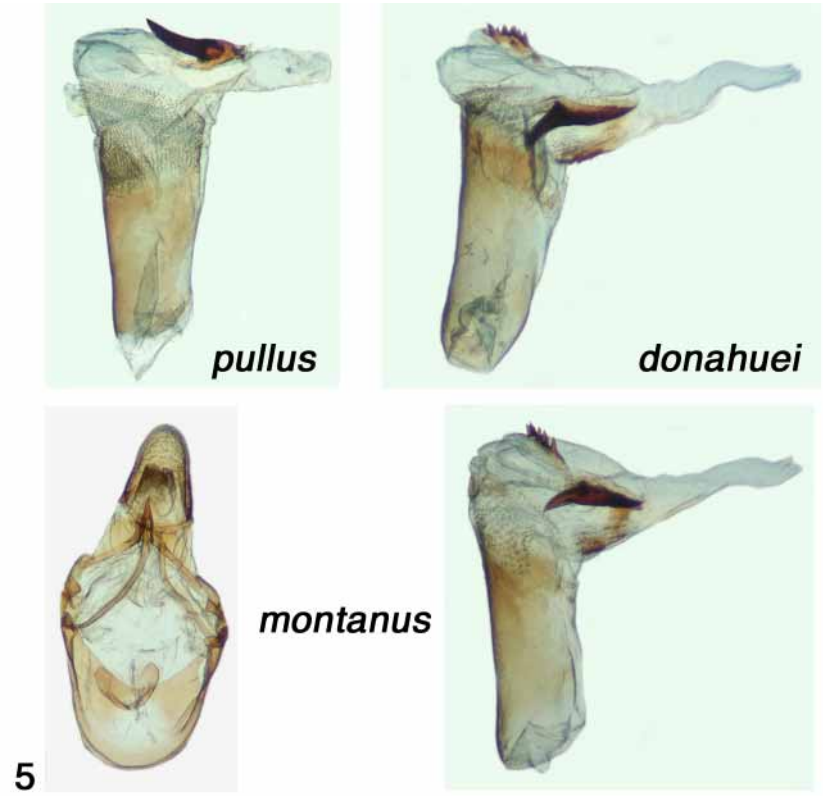

FIGURE 5. Male genitalic structures of *Passadenoides* species. Opposite-side view of aedoeagus of the 3 species; genitalia of *montanus* with aedoeagus and valvae removed to show juxta, gnathos, and tegumen.

Variation. Other than the forewing length as noted in the description, there is little variation. The main variation is in the size and darkness of the forewing basal band and spot just above the inner margin and below the reniform. The two males from New Mexico are somewhat darker in color than the Wyoming specimens, but the genitalia are identical to the Wyoming moths.

Discussion. In habitus *montanus* is similar to *pullus*, but a darker gray; its male genitalia, however, are closer in appearance to those of *donahuei*. The spines on the scobinate

plate in the vesica of *donahuei* are randomly scattered, while in *montanus* they are aligned in two closely-spaced rows producing the aspect of a rooster comb. The small chitinous plate is smooth in *montanus*, while in *donahuei* there are several small spines. In all specimens examined, the end of the valva has a distinct curl not seen in *donahuei* and *pullus*. Females of *donahuei* and *pullus* were not available for genitalic study.

The disjunct known geographic distribution of this species (southern Wyoming and southwestern New Mexico) parallels the known distribution of *donahuei* (eastern California and central New Mexico). One would expect to find colonies in intervening regions at suitable elevation and habitat.

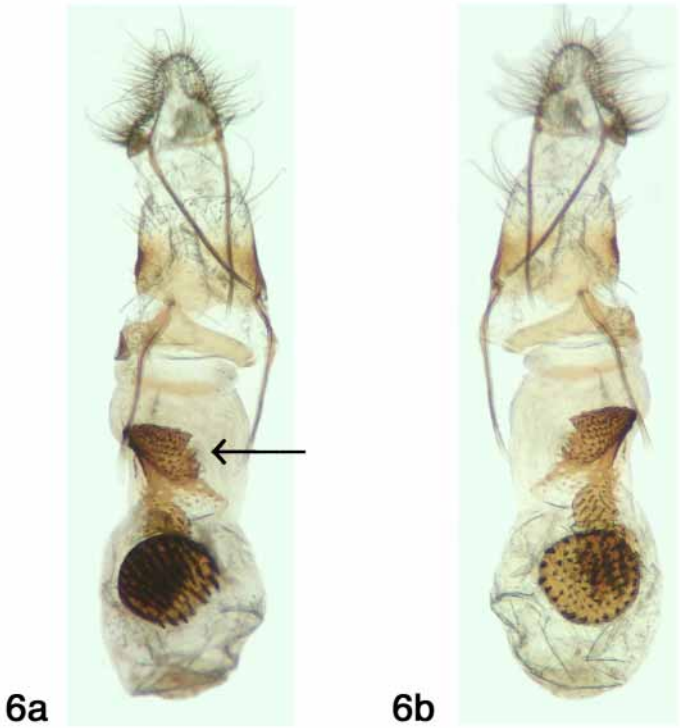

FIGURE 6. Female genitalia of *Passadenoides montanus*. 6a, ventral view, arrow points to origin of ductus seminalis; 6b, dorsal view.

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FIGURE 7. *Passadenoides montanus* habitats. 7a, Lodgepole Creek, Sherman Range, Albany Co., Wyoming, 2500 m, 7.ix.2004; 7b, Signal Peak, Pinos Altos Mts., Grant Co., New Mexico, 2450 m, 18.viii.2004.

Literature cited

Neunzig, H.H. (2003) *The moths of America north of Mexico including Greenland. fascicle 15.5, Pyraloidea Pyralidae (part), Phycitinae (part)*. The Wedge Entomological Foundation, Washington, DC. 338 pp. including 10 color plates.

