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A NEW SPECIES OF *PERO* FROM WYOMING AND IDAHO (LEPIDOPTERA: GEOMETRIDAE)

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ABSTRACT: A new species of geometrid, *Pero washakiensis*, from Wyoming and Idaho is described from a series of 76 males and 21 females. The habitus of this species is unique. The male genitalic characters are closest to *P. behrensaria*, *modesta*, and *morrisonaria*. The female genitalic characters are closest to *P. curuma*.

KEY WORDS: Insecta, Lepidoptera, Geometridae, *Pero*, Wyoming, Idaho, NEW SPECIES.

Eighteen species of *Pero* in North America north of Mexico were recognized by Poole (1987) in his revision of the genus. Adults of the new species described herein fly early in the season when weather conditions are extremely variable and often unfavorable for moth collecting. Apparently this is the reason that this species has not been recognized previously.

Pero washakiensis Ferris, NEW SPECIES

(Figs. 1-14)

DESCRIPTION. Holotype MALE (Figs. 1-2): Antenna simple, dorsal surface with segments alternately pale gray and brown giving a banded appearance. Legs pale gray overlaid with darker gray and very dark brown scales producing a speckled appearance. Palpi medium gray-brown, pale tipped and flecked with darker scales. Abdomen (D and V) covered with pale gray, medium gray, and gray-brown scales. Thorax and head densely covered by pale tipped gray-brown hairs; distinct dorsal thorax scale ridge composed of hair-like scales. Dorsal forewing medium gray brown (produced by a combination of pale gray, medium gray-to-brown, and dark brown-to-black scales), median area sharply delineated by irregular dark brown a.m. and p.m. lines, p.m. line with darker shading basally and pale edging and shading distally; fine dark terminal line with partial adterminal line of four white spots (varying from one to four in paratypes) on upper half of wing; white lunate cell-end spot; outer margin distinctly crenulate. Dorsal hindwing pale-to-medium gray-brown with slightly darker shading along outer margin; fine dark irregular p.m. band bordered outwardly by narrow white band; fine dark terminal line with one small white adterminal spot in cell space Rs-M₁; oval black ventral discal cell spot shows through dorsally. Wings beneath paler gray brown; FW dorsal cell spot and adterminal spot repeated; FW and HW p.m. lines repeated; distinct HW oval black discal cell spot. FW length (thorax to apex) 18 mm; series range 16-18 mm. Genitalia (Figs. 5-11): the 8th sternite or genital plate (Fig. 5) has been stained for clear visualization. Line drawings (direct tracings from photographs) of the tip of the right valve (Fig. 7) and subscaphium (Fig. 9) are included for easy comparison to the illustrations in Poole's revision.

The everted vesica (Fig. 11) lacks any adornments or armature, and has been stained for visualization. Several male paratypes were dissected, but not the holotype.

FEMALE (Figs. 3-4): Similar to male with slightly paler antennal markings and with typically more pronounced VHW markings. Range of FW length 15–17 mm. Genitalia (Figs. 12-14): a tracing from a photograph of the ostium bursae and ductus bursae section (Fig. 12) indicates the large and open ostium associated with *washakiensis*; the ductus seminalis is shown at the left. Several female paratypes were dissected, but not the specimen illustrated in Figs. 3-4.

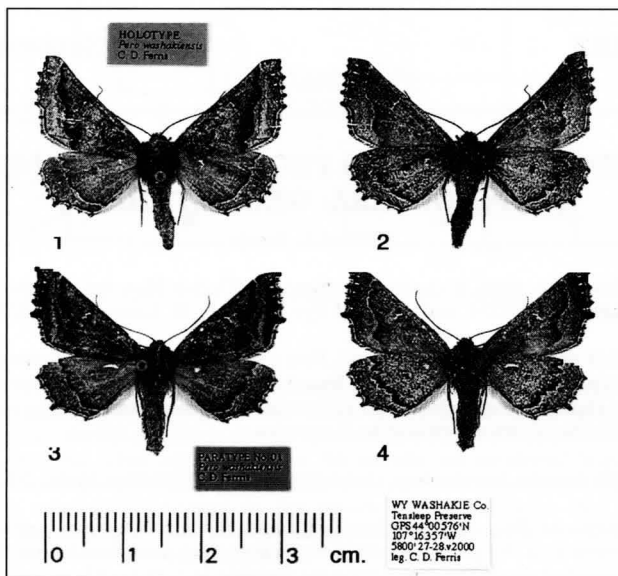


Fig. 1-4. Type label, dorsal (1) and ventral (2) photographs of male holotype of *Pero washakiensis*; paratype label, dorsal (3) and ventral (4) photographs of female paratype. Both specimens have the same locality label shown at bottom right.

KNOWN DISTRIBUTION (Fig.15): Wyoming: Albany, Big Horn, Carbon, Natrona, Sweetwater, Washakie Cos.; Idaho: Bannock Co., in suitable habitat.

TYPE MATERIAL: Holotype male; Wyoming, Washakie Co., The Nature Conservancy Tensleep Preserve, GPS 44°00.576'N, 107°16.357'W, 5800', 27-28.v.2000. Paratypes (75♂, 21♀): Wyoming, Washakie Co., (26♂, 6♀) from type locality, 27-29.v.2000; (23♂, 9♀) from other areas in the Tensleep Preserve, 5000-6600', 1998-2000, leg. C. D. Ferris; Albany Co., (1♂) T12N R27W S13, 8640', 29-30.vi.99; (9♂) T13N R77W S9, 10, 11, 7700-8410', 4.v-21.vi.1994-2000, leg. C. D. Ferris, J. S. Nordin; (1♂) T15N R71W S29, 8310', 8.vi.88, leg. J. S. Nordin; (2♂, 4♀) T15N R73W S1, 7450'-7468', 16.v-21.vi.1977-2000; Big Horn Co., (1♂) Five Springs, Creek, 5700', 30.vii.94, leg. J. S. Nordin; Carbon Co., (1♂) 6.7 mi. W. of Encampment, 18.vi.81, leg. R. Lavigne; Natrona Co., (1♂) Casper Mtn., 22.vi.80, leg. R. Lavigne; Sweetwater Co., (2♂, 1♀) Cedar Mtn. area, 7120-7270', 2, 21.vi.98, leg. C. D. Ferris, J. S. Nordin. Idaho, Bannock Co., (8♂, 1♀) T7S R35E S5, 4920', 6, 21.v.97, leg. J. S. Nordin.

DISPOSITION OF TYPES: The holotype male and the female paratype no. 01 are being deposited in the American Museum of Natural History, New York, NY. Six paratypes are in the Entomology Museum, University of Wyoming, Laramie. Additional paratypes will be placed in the Allyn Museum of Entomology/Florida Museum of Natural History and other public museums.

DIAGNOSIS: Note: numbers in parentheses refer to figures in Poole's revision. This species differs from all other known North American *Pero* by lacking a pronounced dark or

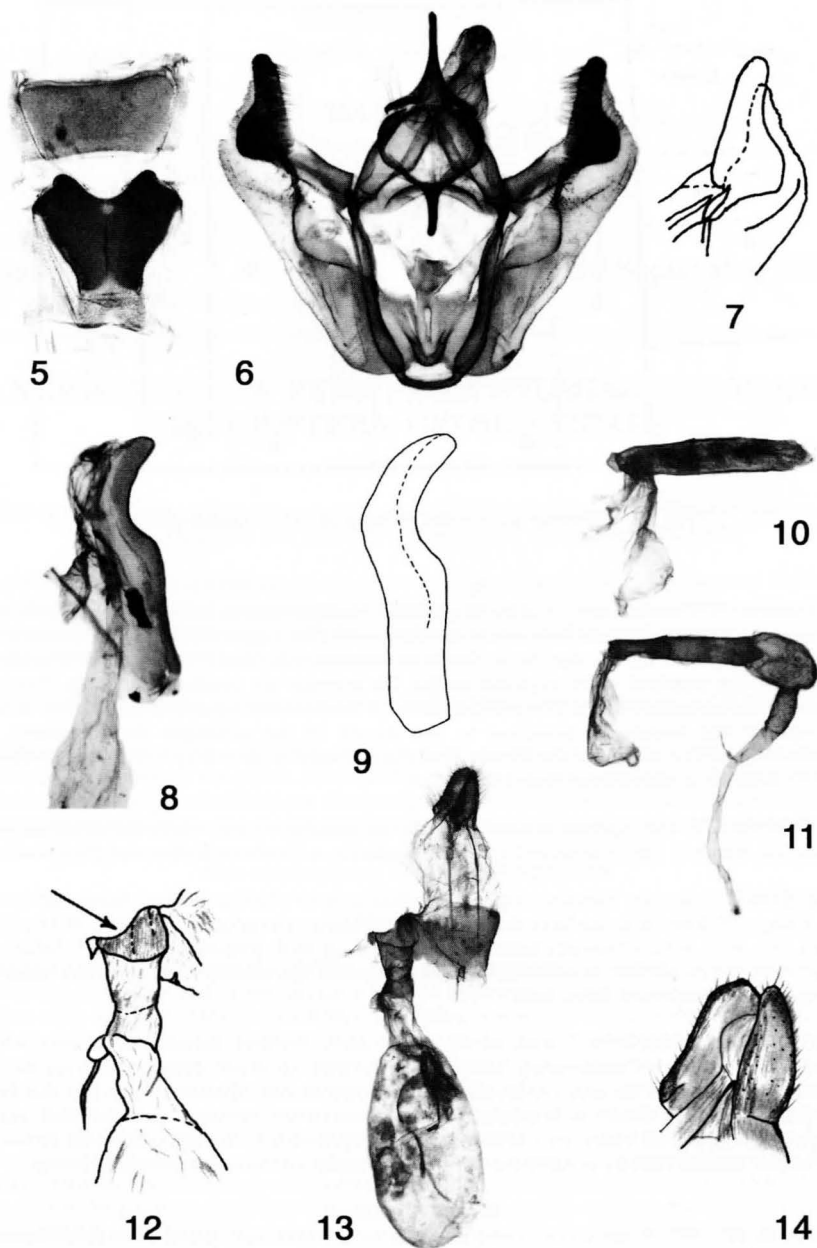


Fig. 5-14. Male (Figs. 5-11) and female (Figs. 12-14) genitalia of *Pero washakiensis*. 7th (top) and 8th sternite (5); ventral view of genitalia minus aedeagus (6); line tracing of right valve tip (7); lateral view of subscaphium (8); outline tracing of subscaphium (9); lateral view of aedeagus (10); lateral view of aedeagus with vesica everted (11). Enlarged view of ostium bursae and ductus bursae (12); female genitalia (13); enlarged tracing of ovipositor lobes (14).

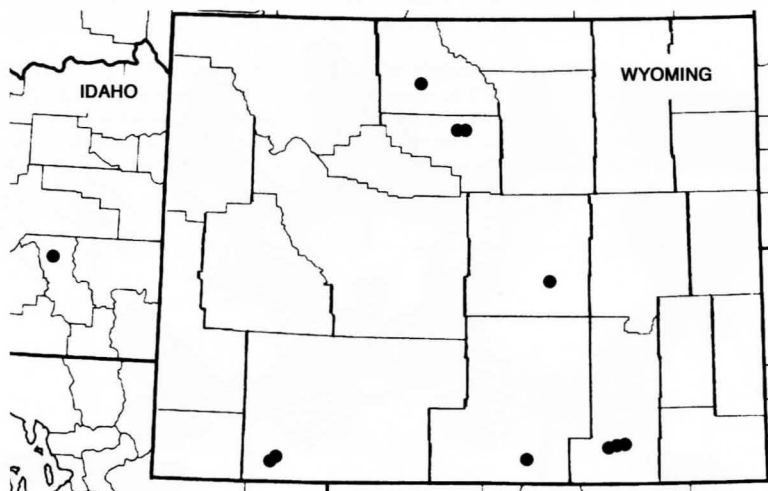


Fig. 15. Currently known distribution of *Pero washakiensis*.

contrasting DFW median area, and by its generally mottled habitus. In the male genitalia, the subscaphium is intermediate between *P. morrisonaria* (Hy. Edwards) (621a) and *P. modesta* (Grossbeck) (626a); the 8th sternite is closest to *modesta* (659) and *P. behrensaria* (Packard) (660) but the terminal lobes adjacent to the 7th sternite are produced laterally, forming symmetrical secondary lobes. The everted vesica of *modesta* has a patch of small setae on the dorsum of the membrane proximal to the mouth of the aedeagus that is absent in *washakiensis*. The ostium of the female genitalia is closest in geometry to *curuma* (Schaus) (1003), a Mexican species not found in the U.S.

ETYMOLOGY: This species is named for the geographic county where the holotype was collected, which in turn was named for Chief Washakie, a Shoshone Indian and great warrior.

BIOLOGY: Unknown. Elevation range from 4920' to 8640' (1500 to 2635m). Adult flight period: 4 May – 26 June (with the later dates normally at higher elevations); one male, 30 July (Big Horn Co., WY). Adults typically taken at black light on well drained slopes and hillsides in sagebrush-steppe habitat, in association with *Juniperus* sp., usually *J. scopulorum* Sargent. Juniper is the suspected larval host.

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Literature Cited

Poole, R. W., 1987. A taxonomic revision of the New World moth genus *Pero* (Lepidoptera: Geometridae). U.S. Dept. of Agric., ARS, Technical Bulletin No. 1698, 257 pp.