

Supplement To Lepidoptera of North America

14. Geometroidea

Geometridae: Larentiinae: Eupitheciini (Part)



Contributions of the
C.P. Gillette Museum of Arthropod Diversity
Colorado State University

Cover illustration: *Eupithecia behrensata multiscripta* (Hulst), photo by Clifford D. Ferris

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Geometridae: Larentiinae: Eupitheciini (Part)

by

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C.P. Gillette Museum of Arthropod Diversity

Colorado State University

Errata for September 15, 2018 Edition

Page i, line 1. Delete entry. The Abstract was inadvertently omitted. An updated version appears below.

Page viii, correct spelling to read: *behrensata multiscripta*.

Page 8, line 6, correct spelling to Packard.

Page 10, first paragraph. *Eupithecia chlorofasciata* Dietze was omitted in the list of species not included.

Abstract

A review of of the North American species in the Geometridae: Larentiinae: Eupitheciini (*Eupithecia*, *Nasusina*, and *Prorella*) is presented. A series of species plates arranged in phylogenetic order follows a limited discussion of this group. Each plate illustrates both sexes (when known) of the adult moths and their associated genitalia. Minimal accompanying text provides the following information: literature citation for the original description; type locality; location of the type; biology when known with flight period; geographic distribution; and key diagnostic characters. A comprehensive annotated bibliography is included. The 2018 edition includes ix + 22 pp. + 191 plates and will not be revised. This Supplement provides 35 additional plates with associated text as appropriate.

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EUPITHECIA

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Introductory Notes

Rather than revising the 2018 monograph, which would require reorganization of plate numbers and other editorial changes, it has been decided to issue this Supplement to include new material. Included are 35 new plates arranged in the order in which the additional study material became available. Twenty-nine *Eupithecia* and two *Nasusina* species are represented.

The new material includes additional plates of species previously presented and the following additional species: *cretata* and *chlorofasciata*. Study material for the following species has yet to be obtained: ***Eupithecia*** *pusillata* (see plate 188 in Ferris, 2018 for comments) *litoris*, *albigrisata*, *ammonata*, *olivacea*, *vitreotata*, *dichroma*, *plumasata*, *succenturiata*; ***Nasusina*** *mendicata*; ***Prorella*** *emmendonina*.

Eupithecia chlorofasciata (Hulst) [Plate 226] was not included in the 2018 edition. No discussion appears in McDunnough's 1949 revision of the *Eupithecia*. This taxon remains somewhat of an enigma. In his original description, Dietze clearly indicates the green color. He had two specimens from "Georgia." The original description does not indicate a designated holotype, nor is deposition location indicated [see comment from Cassino & Swett, below]. Specimens appear to be rarely collected and museum material is very limited. A male was not available for study when preparing this Supplement. The female genitalia indicate close affiliation with *Eupithecia miserulata* Grote [Plates 29, 30 in 2018 monograph]. I have been able to examine fresh specimens by photograph, that clearly show the green color suggested by the species name. The green color appears only in specimens collected in the spring and to date at latitudes below 39°N. Under *miserulata* on the BOLD web site are three photos showing the green coloration. The specimens were collected by Mark Dreiling in the spring in Bartlesville, Oklahoma. It's possible that the green coloration is merely a spring form of *miserulata* in regions where there are two annual generations. More study material is necessary, and then some careful barcoding work on the *chlorofasciata* phenotype vs. *miserulata*. If *chlorofasciata* clearly codes out as a separate species, then a neotype or lectotype will need to be designated.

In Cassino, S. E. & Swett, L. W., 1922, Some new Geometridae, *The Lepidopterist*, 3(11): 179–180, the authors state:

“A recent letter from Dr. Dietze to the editor says that the type of *chlorofasciata* has been destroyed by anthrenus, and that it was probably not a *Eupithecia*. *Subvirens*, Dr. Deitze says, was probably a *chloroclystis*. The type of *suspiciosata* is now in the Zoological Museum in Berlin, and a drawing of it is in the Casino collection.

It may be best to strike *subvirens* and *chlorofasciata* from our lists of *Eupithecia*.”

Based on the plate that accompanies the original description of *chlorofasciata*, the moth is clearly a *Eupithecia*. As for *subvirens*, McDunnough (1949, p.553; figs. 14, 15; text fig. 2C genitalia) discussed this species in some detail.

Courtesy of Jim Vargo, a photo of a female *chlorofasciata* is shown below. The green has faded somewhat to yellowish-green. The specimen was collected in Perry Co., Indiana on 15 April, 2013. The genitalia agree with those shown in Plate 226.



Acknowledgments

I wish to thank Paul A. Opler (GMAD) who provided specimens for examination, Jim Vargo, Mishawaka, IN for photos and data, and Steve Nanz, Brooklyn, NY for directing me to the Cassino & Swett article .

Additional Literature Cited

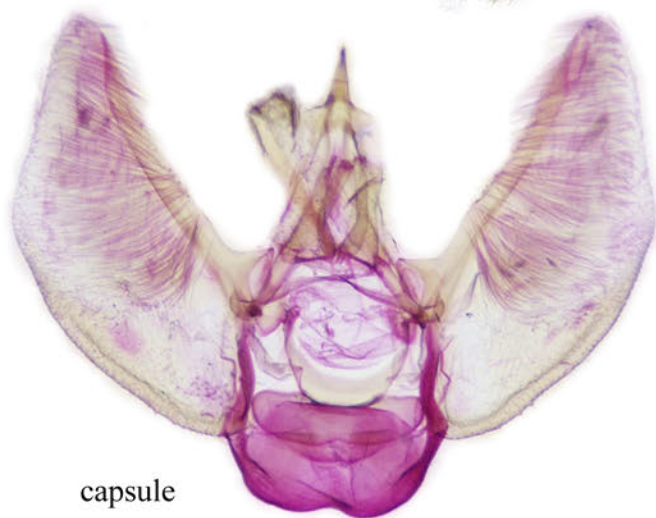
For those users of this site who might wish to check published original descriptions that appear in older journals, the Biodiversity Heritage Library is an excellent resource: www.biodiversitylibrary.org.

Dietze, K. von., 1872. Beitrage zur Kenntniss der arten des Genus *Eupithecia* Curt. *Stettiner Entomologische Zeitung* 33:184–204.

Ferris, C. D., 2018. Lepidoptera of North America 14. Geometroidea, Geometridae: Larentiinae: Eupitheciini (Part). *Contributions of the C. P. Gillette Museum of Arthropod Diversity, Colorado State University*. ix + 22 pp. + 191 plates.

Eupithecia matheri Rindge, 1985

male



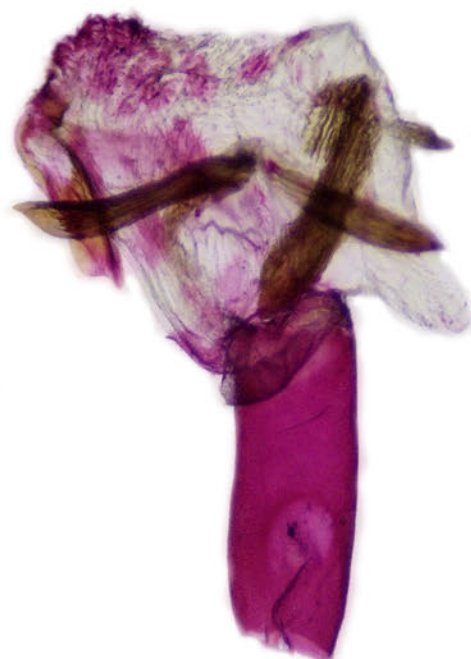
capsule



plate



phallus,
vesica
everted



Eupithecia bryanti Taylor, 1906

female

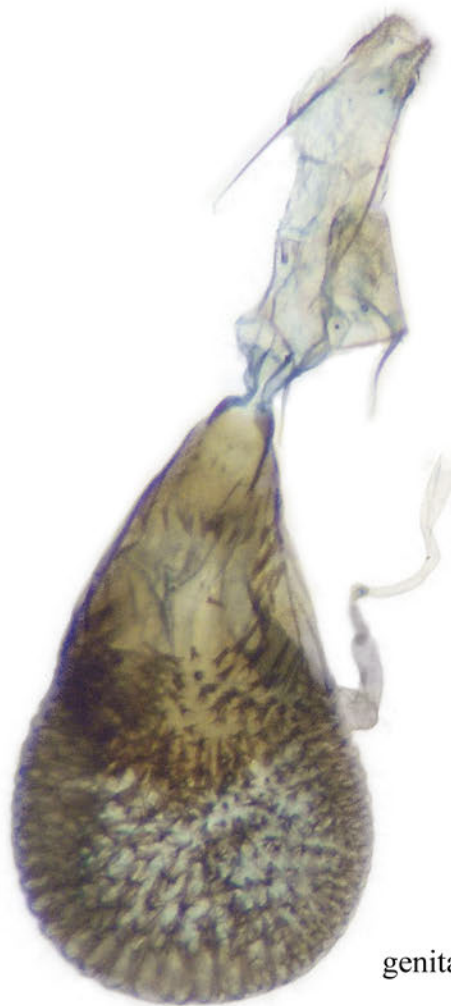
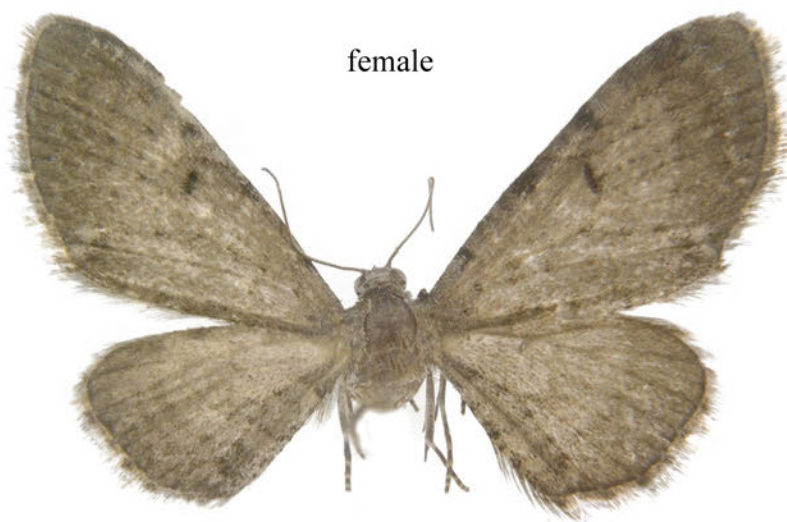


genitalia

Canada, Ontario, Rowan Hills area, 16 June, 2018, leg. J. Troubridge.

***Eupithecia strattonata* Packard, 1873**

female



genitalia

Canada, Ontario, Rowan Hills area, 9 August, 2018, leg. J. Troubridge.

Eupithecia sierrae (Hulst, 1896)

females

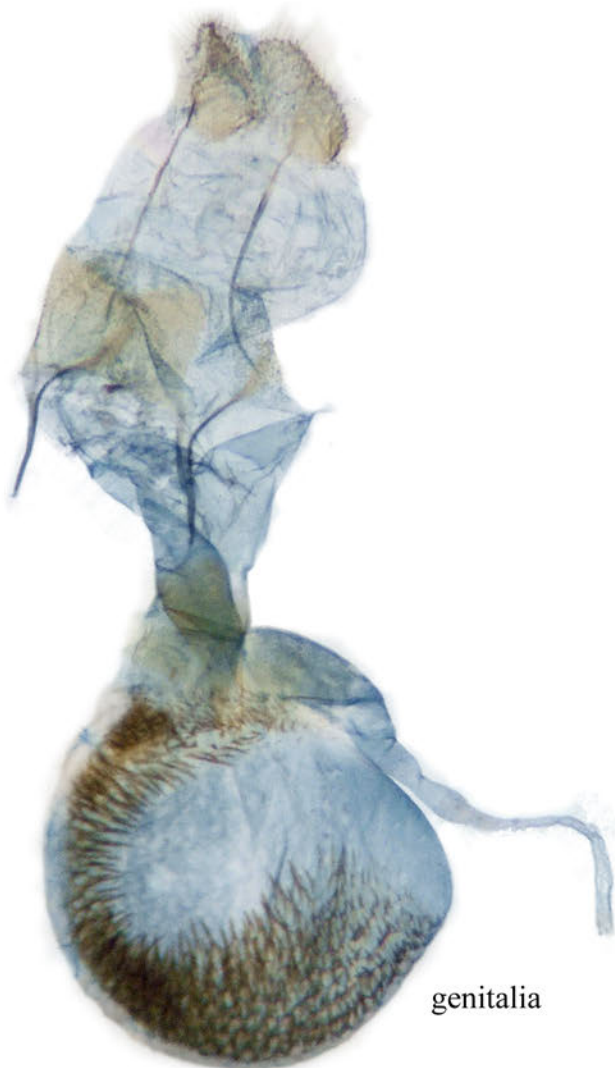


Larimer Co., Colorado



Coconino Co., Arizona

J. S. Nordin collector



genitalia

Eupithecia woodgatata (Cassino & Swett)

males

15 mm

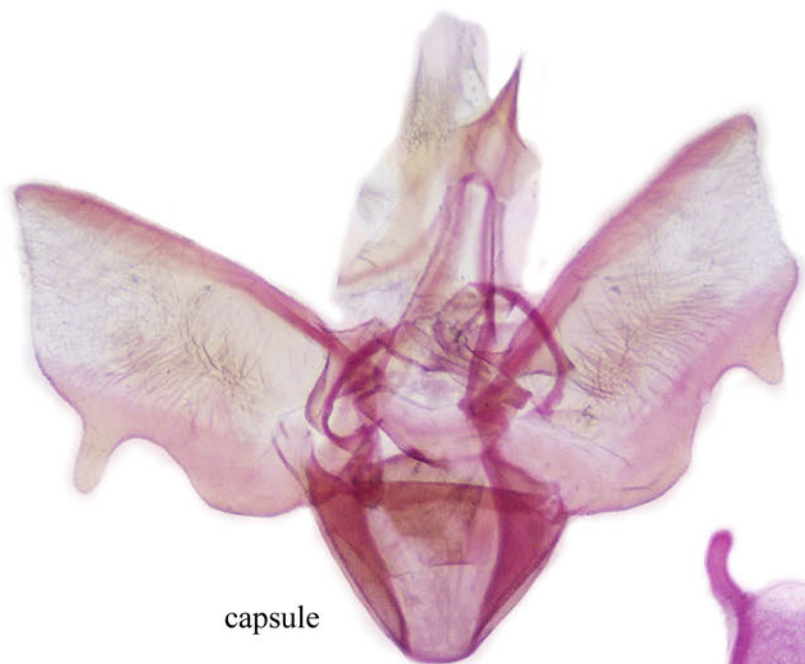


23–24 July, 1987

J. S. Nordin collector

3–4 August, 1987

Wyoming, Albany Co., Sherman Hills East of Laramie, 8200'



capsule



phallus



plate

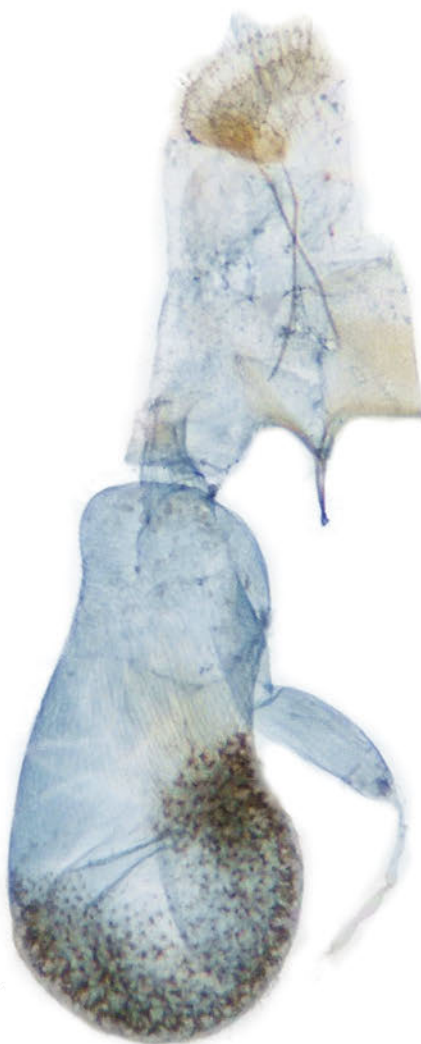
Eupithecia longidens (Hulst, 1896)

females



Idaho, Bannock Co., 4900', June
J. S. Nordin collector

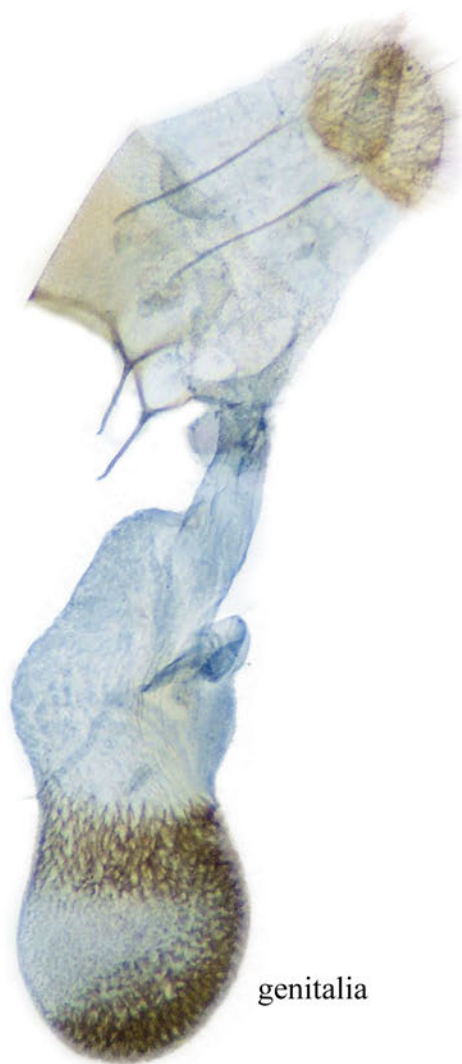
genitalia



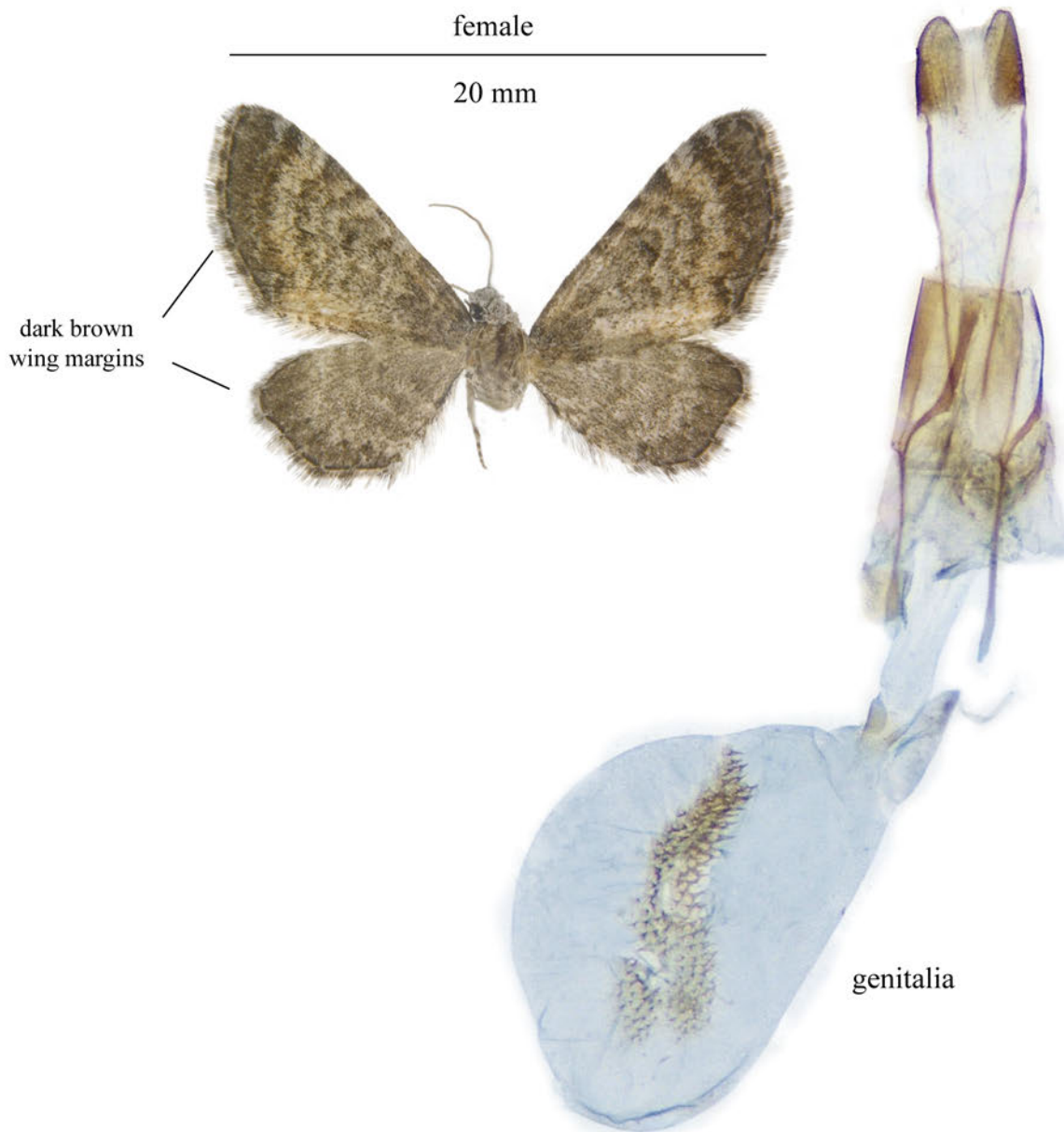
Eupithecia longipalpata Packard, 1876



Colorado, Dolores Co., 7800', 28 May, 2000, J. S. Nordin collector



genitalia

Eupithecia cretata (Hulst, 1896)= ? oddly maculated form of *E. coloradensis* (Hulst, 1896)

Eupithecia cretata was described from a single specimen lacking an abdomen and determined by Hulst to be a male. The type locality is "Colorado" and the holotype is in AMNH. McDunnough (1949) illustrated the type as figure 11, Plate 27. McDunnough (p. 571) provided a brief discussion. The specimen illustrated above was collected on a piñon pine hillside in a black light trap by J. S. Nordin in Larimer Co., Colorado along the east side of Hwy. 287, 5900' on 26 May, 2002. The female genitalia are identical to those of *E. coloradensis*. To my knowledge, the specimen illustrated here is only the second known example of the taxon, which suggests that the moth is a rare or aberrant form of *E. coloradensis*. The specimen is placed in GMAD.

Eupithecia macdunnoughi Rindge, 1952

Enlarged Genitalia Images



phallus



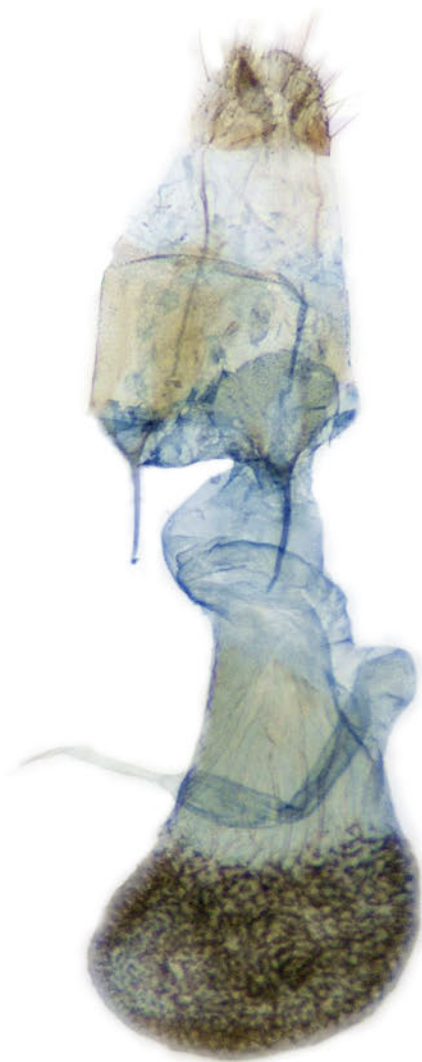
corpus bursae

Eupithecia maestossa (Hulst, 1896)

female



Apache Co., Arizona



genitalia

J. S. Nordin collector

Eupithecia quakerata Pearsall, 1909

female



Apache Co., Arizona



genitalia

J. S. Nordin collector

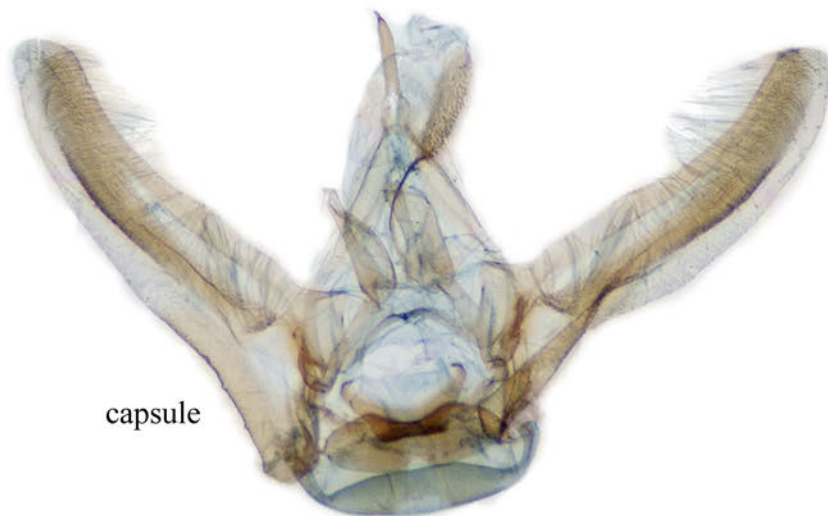
Eupithecia castellata McDunnough, 1944

male

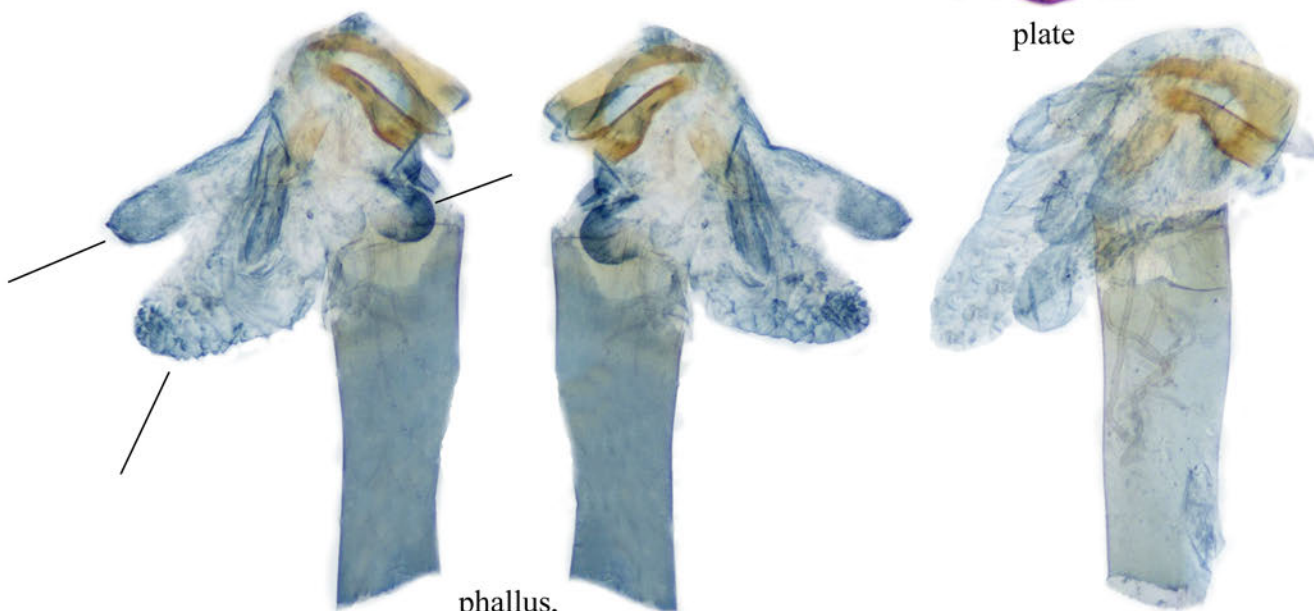
20 mm



capsule



plate

phallus,
vesica everted

Oregon, Lake Co., road 3615 S. end of Bull
Prairie, 6800', 3 July, 1981, at black light,
leg. J. S. Nordin

Eupithecia longipalpata Packard, 1876

male

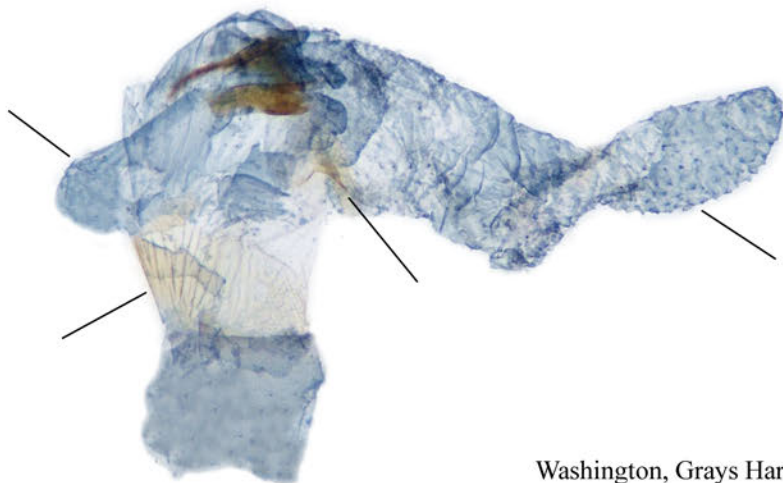
23 mm



capsule



plate



inflated vesica

Washington, Grays Harbor Co., 360', 2 June, 1997

***Nasusina vallis* Ferris, 2004**

female

16 mm



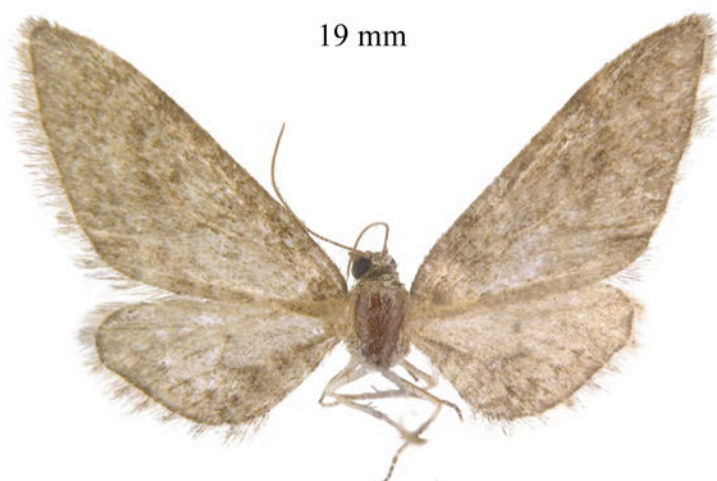
Colorado, Mesa Co., John Brown Canyon,
4966', 7 May, 1996, UV light trap,
leg. J.S. Nordin

genitalia

Eupithecia matheri Rindge, 1985

female

19 mm



New Jersey, Burlington Co.,
10 April, 1980

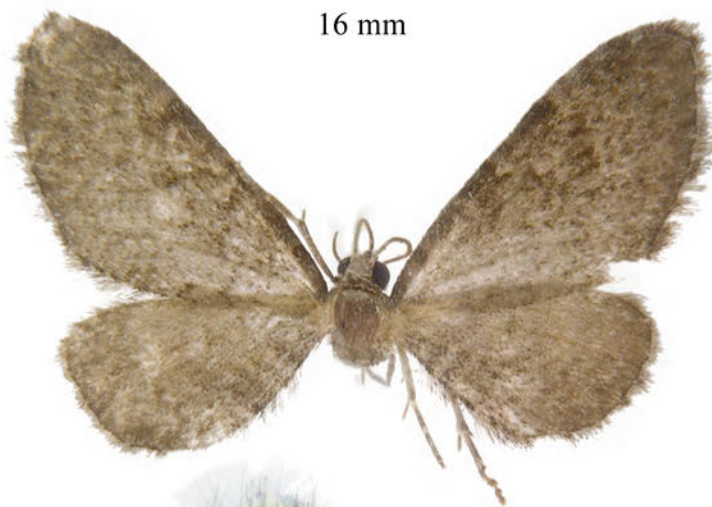
J. S. Nordin collector

genitalia

Eupithecia regina Taylor, 1906

female

16 mm



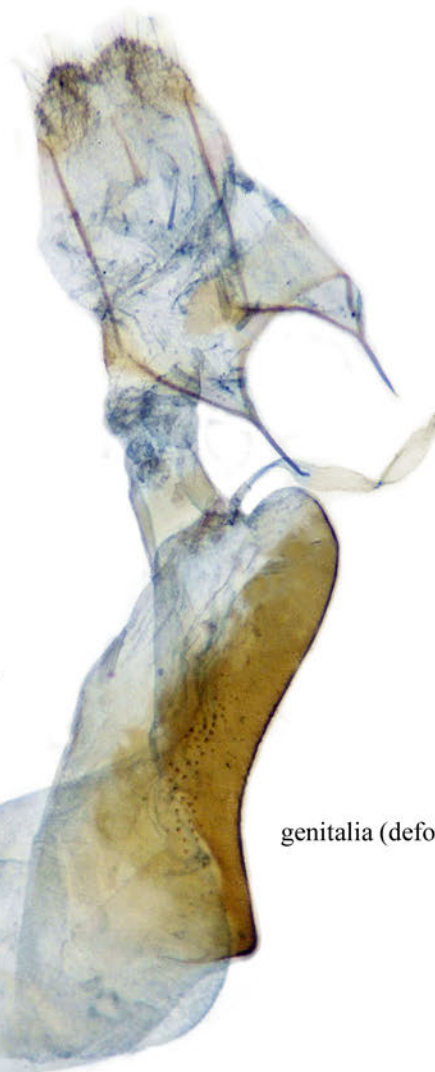
genitalia

Kentucky, Woodford Co., Kentucky
River, 650', 4 May, 1981
J. S. Nordin collector

Eupithecia casloata (Dyar, 1904)

female

18 mm



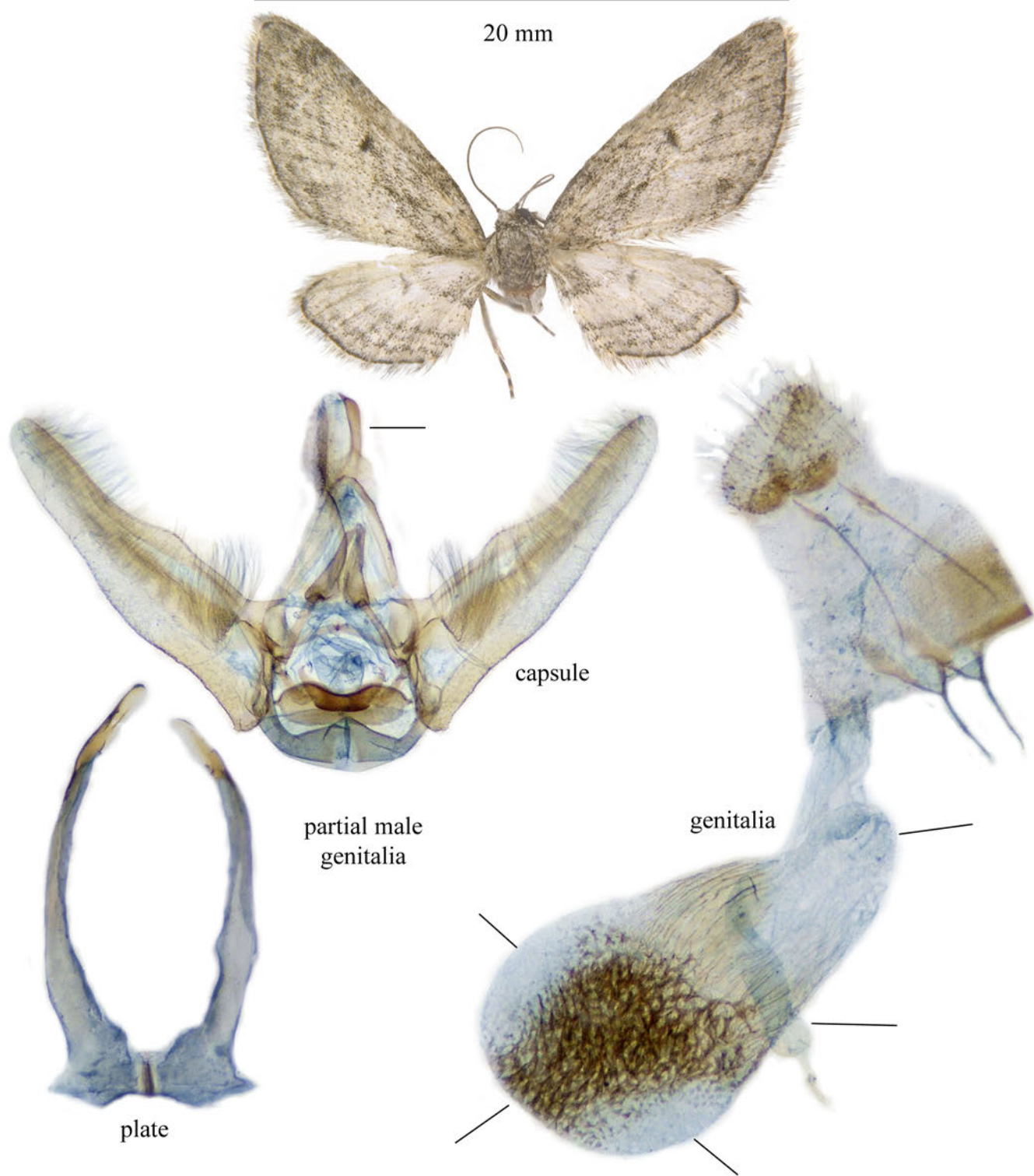
Montana, Glacier Co., 5500', Hwy. 89,
15 miles NW of Kiowa, 19 July, 1967

genitalia (deformed)

Eupithecia longidens (Hulst, 1896)

female

20 mm



Utah, San Juan Co., 7230', 1.5 miles southwest of Monticello, west of Lloyd's Lake, 11 May, 2007

J. S. Nordin collector

Eupithecia interruptofasciata Packard, 1873

female

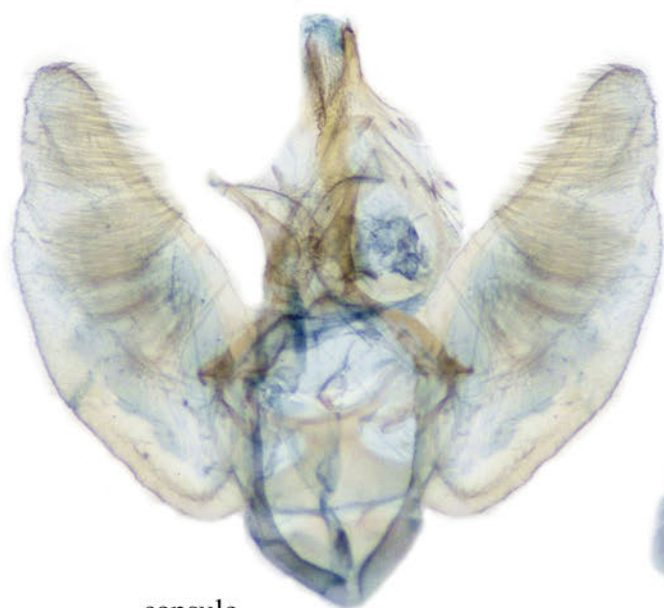


South Dakota, Lawrence Co., 4880',
Iron Creek, T15N, R2E, S30
6 October, 1993
J. S. Nordin collector

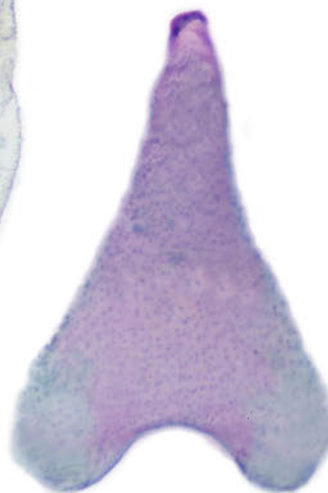
Eupithecia assimilata Doubleday, 1856

male

20 mm



capsule



plate



phallus

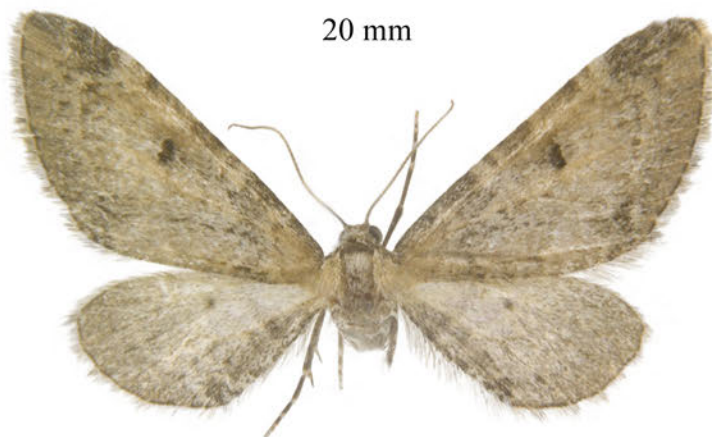
Minnesota, Cass Co., Pillsbury State Forest, jct. Hwy. 1 and Orchard Park Lane, 21–22 June, 1984

J. S. Nordin collector

Eupithecia assimilata Doubleday, 1856

female

20 mm



Colorado, Larimer, Co., 5980', T9N, R70W,
S1, east of Hwy. 287, piñon pine hillside,
12 July, 1996, leg. J. S. Nordin



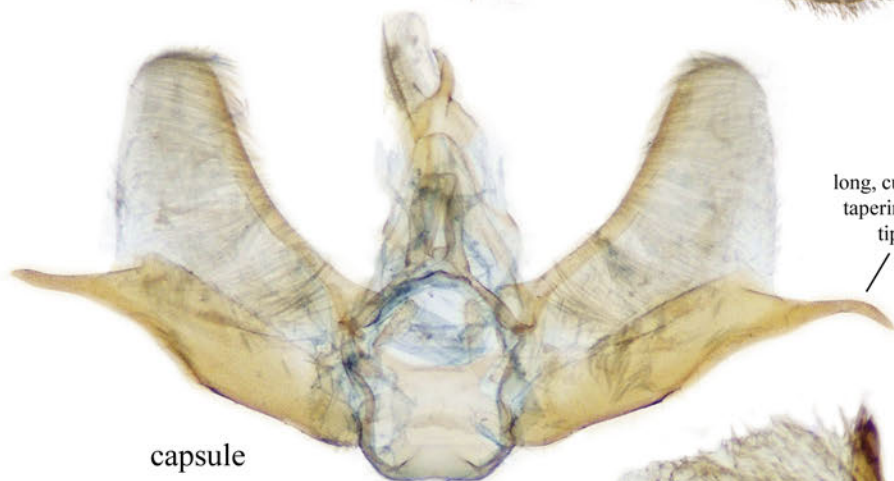
ductus
seminalis

genitalia

Eupithecia cestata (Hulst, 1896)

male

22 mm



capsule

long, curved,
tapering to
tip
/

phallus

California, Contra Costa Co., Morgan
Territory Road, 1800', 27 March, 1981,
at black light, leg. J. S. Nordin

NOTE: The male specimen illustrated in
Plate 146 is incorrectly identified as
E. cestata. It is apparently a male of
E. cestatoides McDunnough.

phallus.
vesica
everted

plate

***Nasusina minuta* (Hulst, 1896)**

female



Utah, Washington Co., Leads Creek NW of Silver
Reef, 4000', T41S, R74W, S36, 15 May, 1999,
at black light, leg. J. S. Nordin

This is an eastern range extension.

genitalia



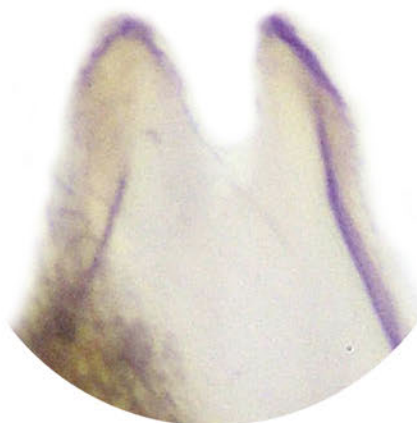
Eupithecia cocoata Pearsall, 1908

male

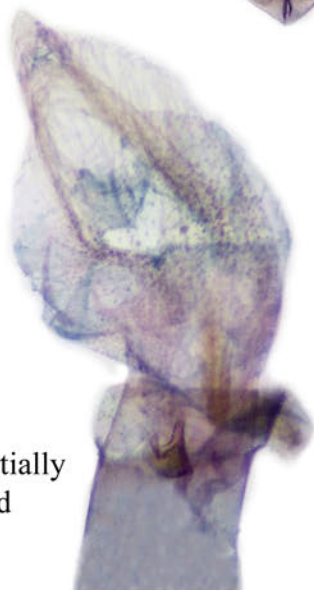
18 mm



capsule



uncus tip, dorsal view

vesica, partially
everted

plate

Kentucky, Mercer Co., Shakers Landing,
Kentucky River, 750', 30–31 May, 1986,
UV light trap, leg. J. S. Nordin

Eupithecia zygadeniata Packard, 1876

female

23 mm



genitalia

Wyoming, Albany Co., 7468', T15N, R73W,
S1, 22 July, 1998, UV light trap, leg. J. S. Nordin

Eupithecia annulata (Hulst, 1896)

female

17 mm



genitalia

Kentucky, Menifee Co., North of Slade,
700', 19 March, 1979, at black light,
leg. J. S. Nordin

Note: *E. annulata* is probably a complex
of species.

Eupithecia mutata Pearsall, 1908 and *E. columbrata* McDunnough, 1940

Female Genitalia



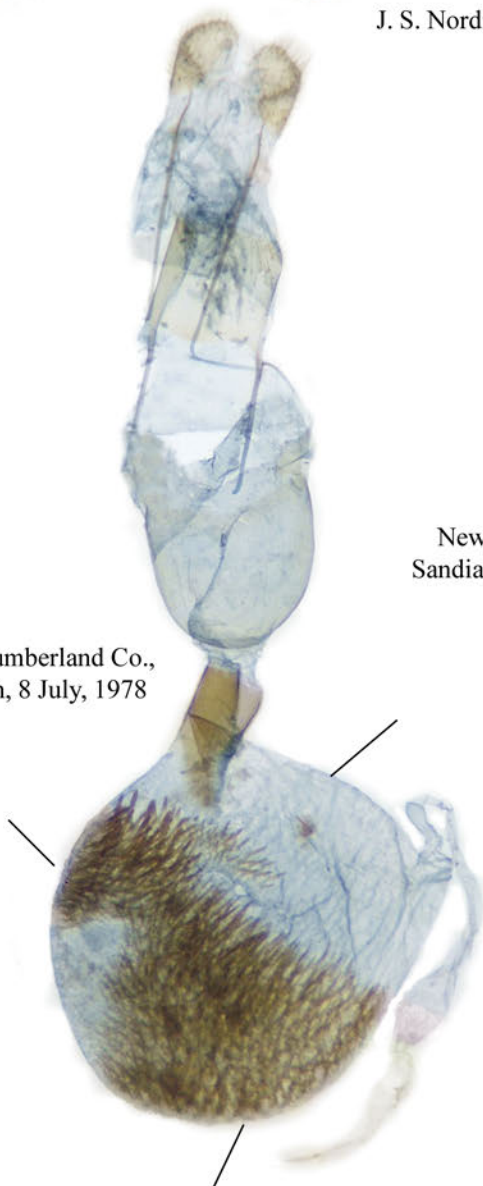
21 mm



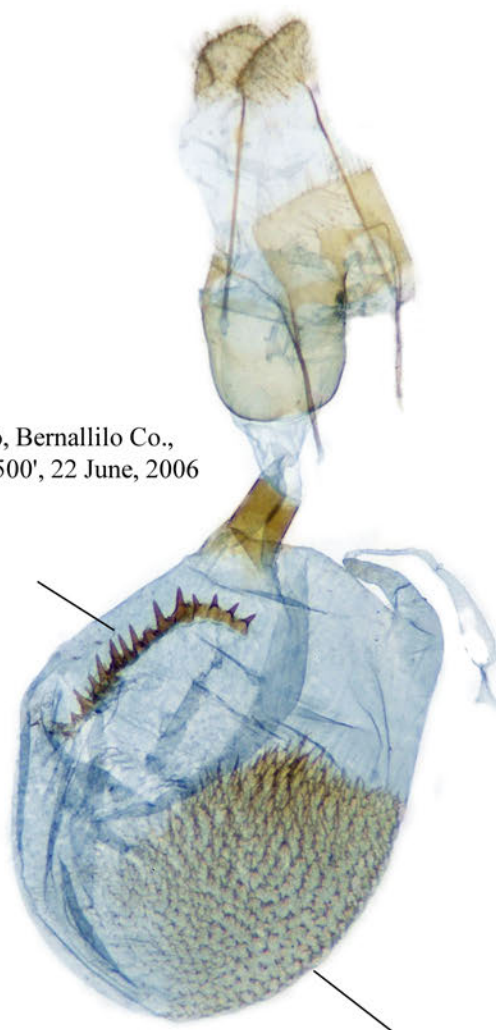
25 mm

J. S. Nordin collector

Maine, Cumberland Co.,
Yarmouth, 8 July, 1978

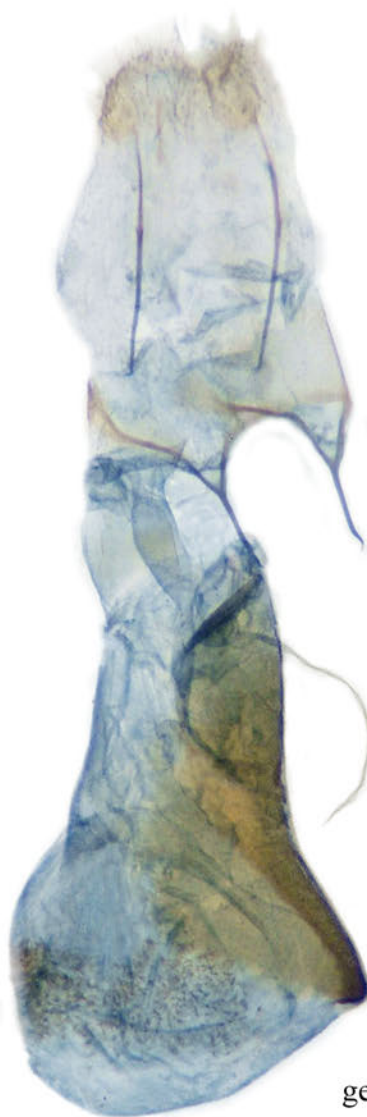


New Mexico, Bernallilo Co.,
Sandia Mts., 7500', 22 June, 2006



Eupithecia casloata (Dyar, 1904)

female



Wyoming, Fremont Co., mile 33.7,
Hwy. 287, 8200', 28 June, 1997
J. S. Nordin collector

genitalia

Eupithecia graefii (Hulst, 1896)

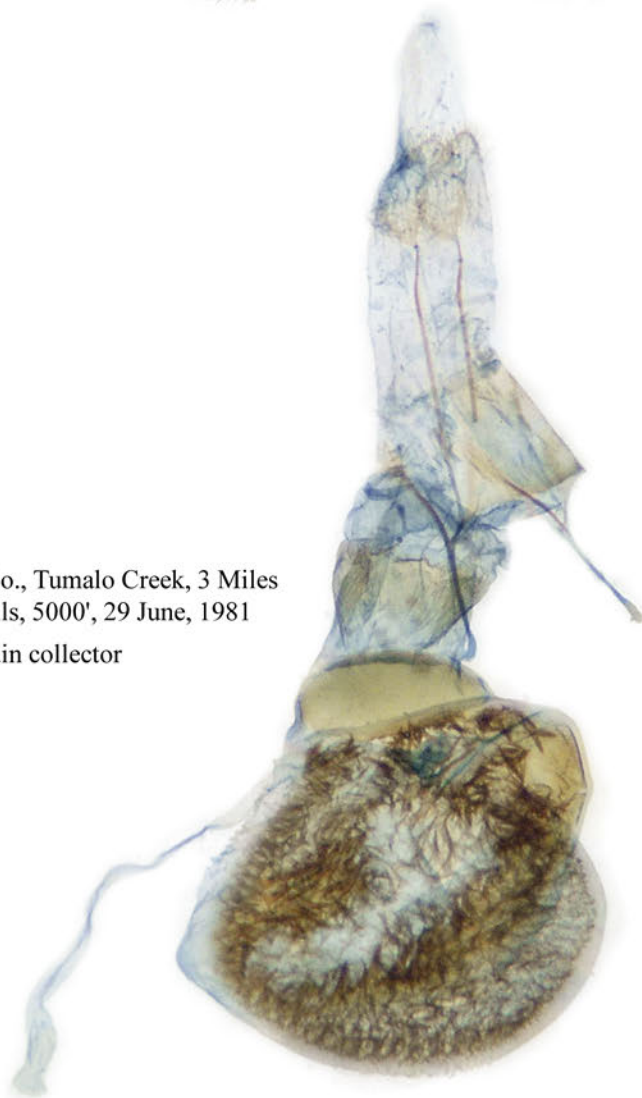
female

24 mm



Oregon, Deschutes Co., Tumalo Creek, 3 Miles
west of Tumalo Falls, 5000', 29 June, 1981

J. S. Nordin collector



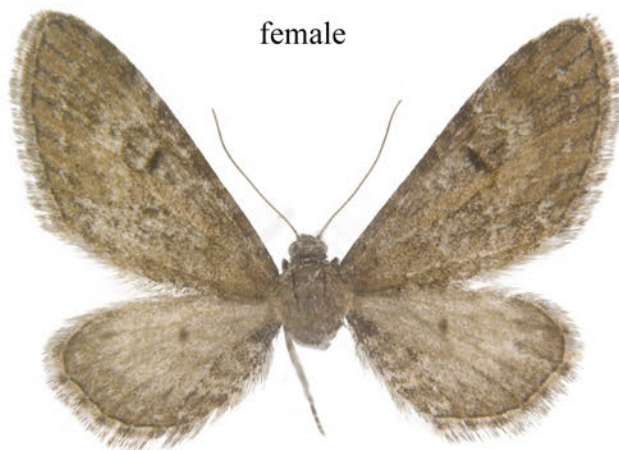
genitalia

Eupithecia gelidata Möschler, 1860

male



female

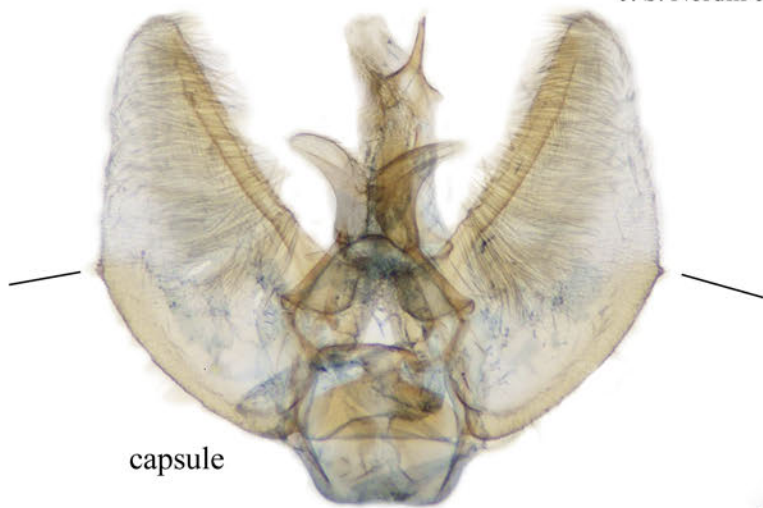


Wyoming, Fremont Co., 20 June, 2001

Wyoming, Albany Co., 22 June, 1992

J. S. Nordin collector

capsule



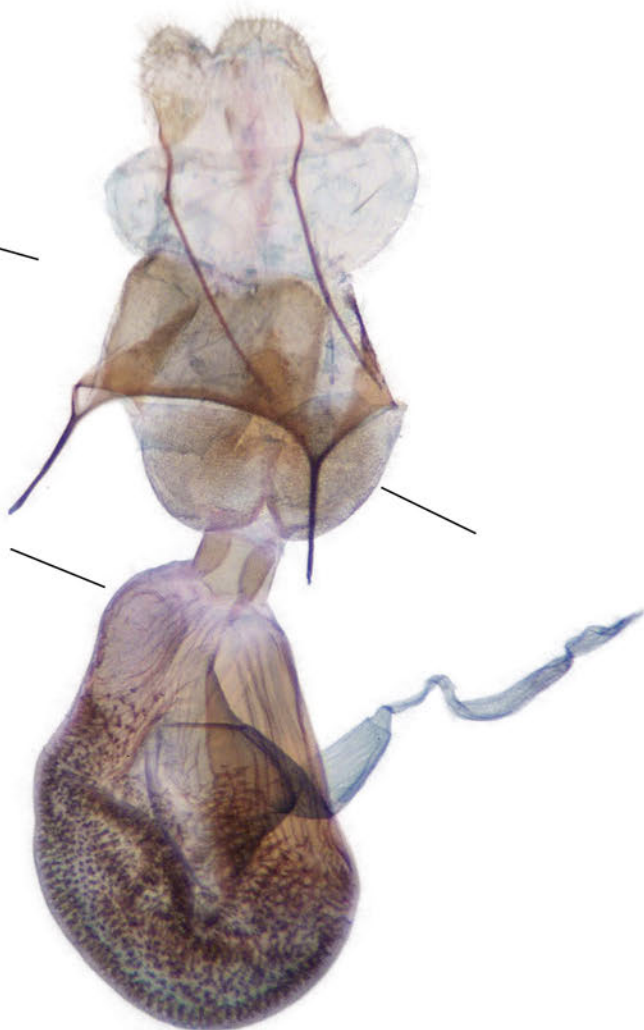
phallus



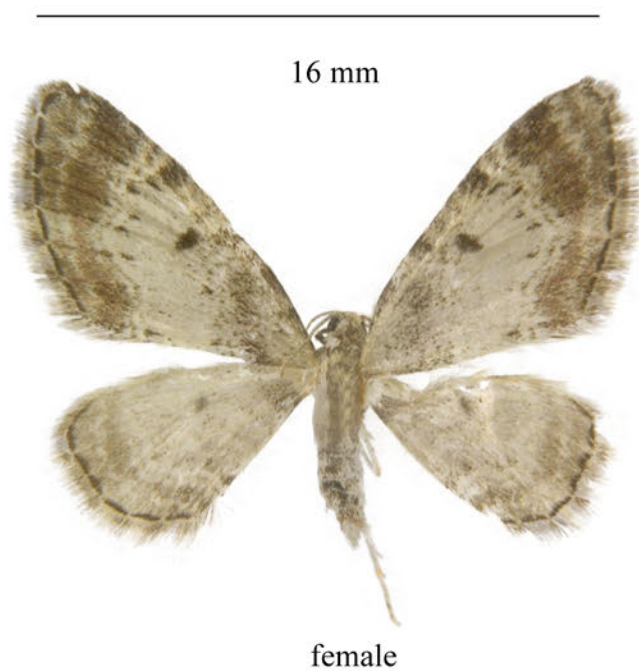
plate



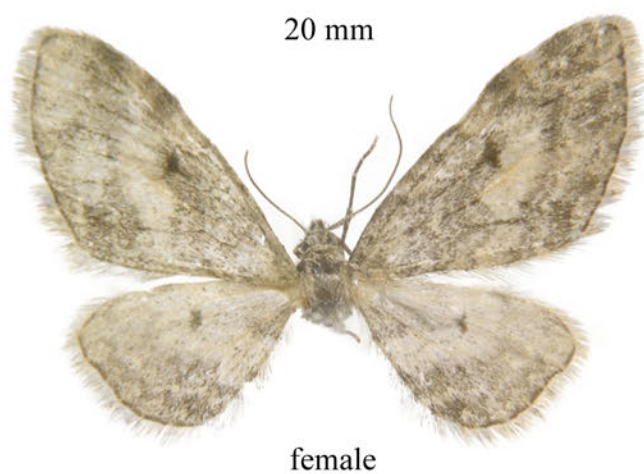
genitalia



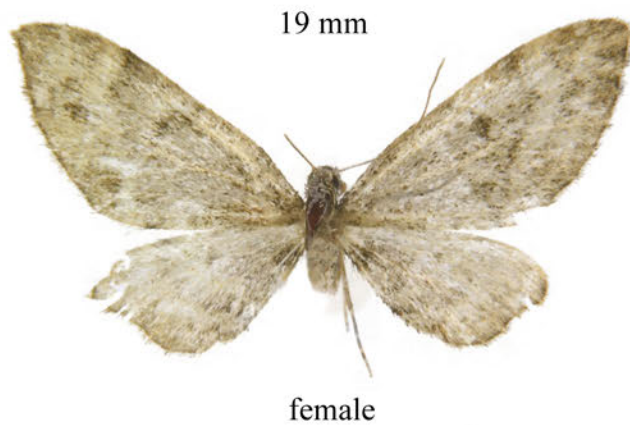
Eupithecia albicapitata Packard, 1876



Oregon, Douglas Co., Hwy. 138, 1.5 miles SW of Tyee, 700', 28 June, 1981, leg. J. S. Nordin

Eupithecia lariciata (Freyer, 1841)

Wyoming, Albany Co., Sherman Hills,
8200', 4 July, 1999, leg. J. S. Nordin

Eupithecia rotundopuncta Packard, 1871

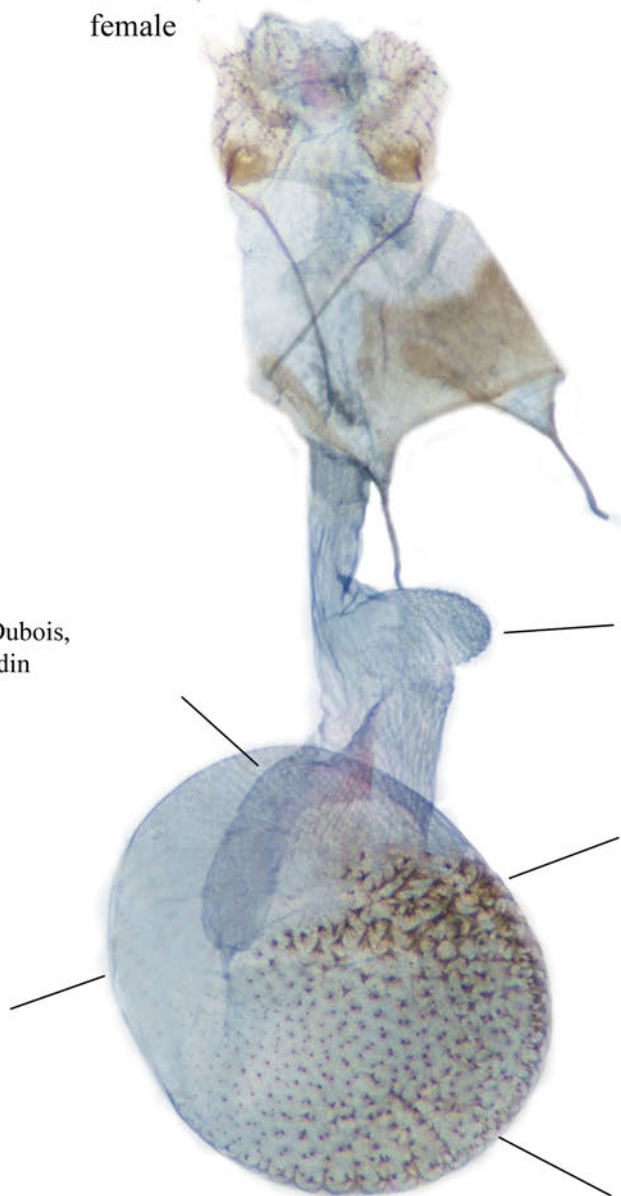
Washington, Mason Co., Hwy. 108, 100',
2 June, 1997, leg. J. S. Nordin

Epithecia unicolor (Hulst, 1896)

22 mm

female

Wyoming, Fremont Co., 10 mi. N. of Dubois,
7900', 22 June, 2001, leg. J. S. Nordin



genitalia

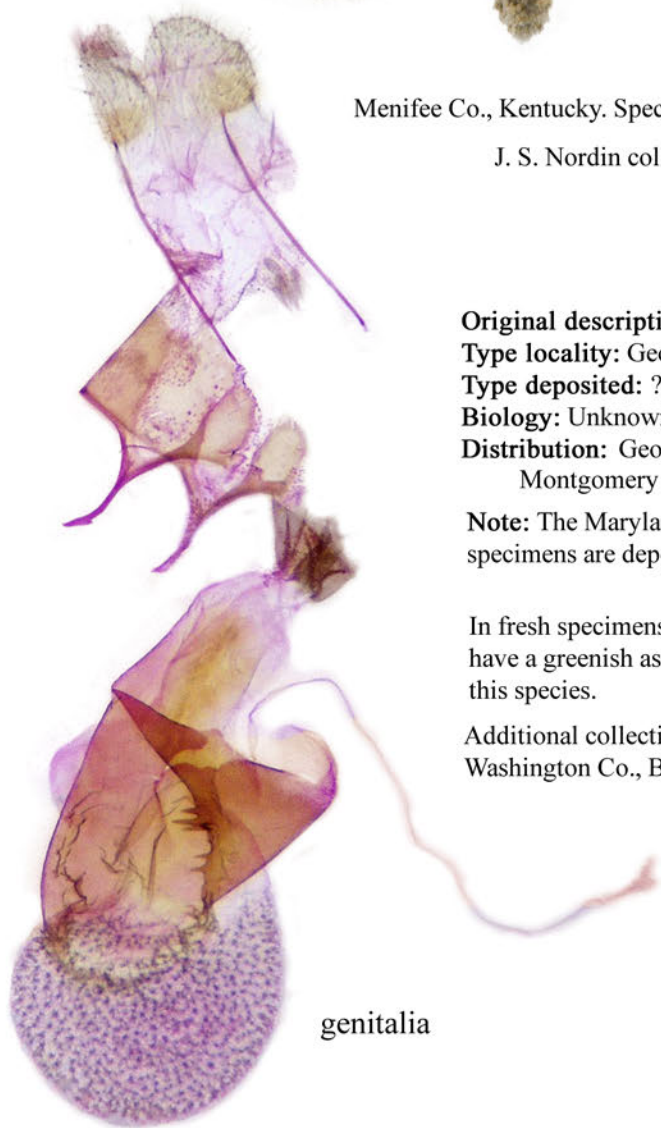
Eupithecia chlorofasciata Dietze, 1872

female



Menifee Co., Kentucky. Specimen deposited in GMAD.

J. S. Nordin collector



genitalia

Original description: *Stettin. ent. Ztg.* 33:192, pl. 1, figs. 8, 9.**Type locality:** Georgia.**Type deposited:** ?**Biology:** Unknown. Apparently a spring flier.**Distribution:** Georgia [type]; Kentucky, Menifee Co.; Maryland, Montgomery Co.; South Carolina; Texas, Hill Co.**Note:** The Maryland (2), South Carolina (1) and Texas (1) specimens are deposited in NMNH and recorded in BOLD.

In fresh specimens, the dorsal forewing pale areas have a greenish aspect. McDunnough (1949) omitted this species.

Additional collection sites are: Indiana, Perry Co.; Oklahoma, Washington Co., Bartlesville.

Notes