

ADDITIONAL NEARCTIC RECORDS OF *WOCKIA ASPERIPUNCTELLA*, WITH NOTES ON ITS DISTRIBUTION AND STRUCTURAL VARIATION (LEPIDOPTERA: URODIDAE)

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ABSTRACT.—Records of *Wockia asperipunctella* (Bruand) from eastern and western Canada indicate a much wider distribution than suspected. They suggest that this European species is also native to North America and thus probably Holarctic. Variation in forewing coloration and genitalia are noted and illustrated.

RÉSUMÉ.—De mentions canadiennes de *Wockia asperipunctella* (Bruand) démontrent qu'elle a une répartition néarctique beaucoup plus étendue qu'on ne soupçonnait. Ces données suggèrent que l'espèce de l'Europe est probablement indigène au continent nord-américain et holarctique. L'auteur décrit et illustre les variations de coloration des ailes et des genitalia.

KEY WORDS: Alberta, Betulaceae, Blastobasidae, British Columbia, Canada, Carposinidae, Cosmopterigidae, distribution, Europe, genitalia, Holarctic, hostplants, Manitoba, Michigan, Ontario, North America, Pyralidae, Québec, Salicaceae, Tortricidae, USA.

The European *Wockia asperipunctella* (Bruand, 1852) was reported recently from the northeastern United States on the basis of 6 specimens from four states (Heppner, 1997). I have identified several additional specimens that markedly extend the known range of the species in North America, bringing the total known specimens to 60 adults and one preserved larva. Five adults have been reared from larvae found on *Populus tremuloides* Michx. (Salicaceae) and one preserved larva from a different collection also was found on that host plant. Several of the specimens that I examined were in good to excellent condition, enabling me to assess variation in coloration. I examined genitalia, where I also noted some variation.

GEOGRAPHICAL DISTRIBUTION

The additional records (summarized in Fig. 5) are as noted below. Collection abbreviations:

CFS = Canadian Forestry Service, Sainte-Foy, Québec, Canada
CIQ = Collection d'insectes du Québec, Sainte-Foy, Québec, Canada
CNCI = Canadian National Collection of Insects, Ottawa, Ontario, Canada
USNM = U.S. National Museum, Washington, DC, USA
ZMUH = Zoological Museum, University of Helsinki, Finland.

MAINE

- Penobscot Co., Lincoln, dates ranging from July 6 - August 8 [no year], leg. A. E. Brower: 23 ex. (USNM); 2 additional specimens reported by Heppner (1997).
- Penobscot Co., Enfield, 10 Jun 1986, 5.VI.1988, leg. L. P. Grey: 2 ♂ (M. A. Roberts coll., Steuben, ME)
- Washington Co., Dennysville, 7 Jul [no year], leg. A. E. Brower: 1 ex. (USNM)
- Kennebec Co., Augusta, 30 May 1946, ex *Populus*, leg. A. E. Brower: 1 ex. (USNM)

MICHIGAN

- Cheboygan Co., University of Michigan Biological Station, T37N R3W S33, reared from *Populus* sp., 29 Jul 1997, leg. B. Scholtens: 1 ex. (B. Scholtens coll., Charleston, SC).
- Barry Co., west of Shaw Lake, power line, 28 Jun 1991, leg. G. Balogh: 1 ♀.
- Baraga Co., T49N R34W S33, 22 May 1991, leg. G. Balogh: 1 ♂.
- St. Joseph Co., T8S R12W S15-16, Pigeon River, 18 Jul 1986, leg. G. Balogh: 1 ♀.

- Monroe Co., Petersburg SGA, T7S R6E S15, 10-11 Jul 1987, leg. G. Balogh: 4 ♂, 2 ♀ (previous 4 records in G. Balogh coll., Portage, MI).

VERMONT

- Chittenden Co., Richmond, Univ. of Vermont Jericho Research Forest, 16 May 1991, leg. D. Tobi: 1 ♀ (CNCI)

PENNSYLVANIA

- Susquehanna Co., Dimock, 6 Jun 1988, 12 Jul 1989, leg. D. F. Bray: 2 ♂ (USNM)

QUÉBEC

- St-Maurice, Notre-Dame-du-Mont-Carmel, 8 Jun 1995, 11 Jun 1995, at light, leg. L.-P. Landry: 1 ♀, 1 ♂ (CNCI)
- Lac-des-Aulnes [near St-Donat], 46°22'19" N, 74°11'57" W, larva collected 18 Aug 1982 on *Populus tremuloides*, 1 ♂ emerged 27 Jan 1983, leg. J. Lussier (CIQ).
- Pontiac, Luskville Falls trail, 14 Jun 1990, MVL, leg. J.-F. Landry: 1 ♀ (CNCI)
- Pontiac, Gatineau Park, Ramsey Lake, 21 Jun 1985, MVL, leg. K. Mikkola: 1 ♂ (ZMUH)
- Bagot, Acton Vale, larva collected 9 Jul 1981 on *Populus tremuloides*, 1 ♂ emerged 19 Aug 1981, leg. S. Gagnon, (CFS)

ONTARIO

- Carleton Co., Pinhey Forest, 12 km SW Ottawa, 14 May 1991, 3 Aug 1997, leg. J. D. Lafontaine: 1 ♂, 1 ♀ (CNCI)
- Carleton Co., Mer Bleue, 7 Jun 1992, 4 Aug 1992, MVL, leg. K. Mikkola: 1 ♀, 1 ♂ (ZMUH)

MANITOBA

- Aweme [near Treesbank], 4 Jun 1925, leg. N. Criddle: 1 ♂ (CNCI).

ALBERTA

- Touchwood Lake Road, 20 km E Lac LaBiche, Range 10 Twp 67 Sec. 32 W4, 22 Jun 1994, 1 Jun 1995, at light, leg. G. R. Pohl: 1 ♂, 1 ♀ (CNCI)

BRITISH COLUMBIA

- Vanderhoof, mi. 64 [Hwy 27], Forest Insect Survey lot 64-8255-01, larva collected by beating, 2 Aug 1964 on *Populus tremuloides*, adult emerged 21 Jan 1965: 1 ♀ (CNCI)
- Arras [ca. 20 km W Dawson Creek], 2 Aug 1961, 1 larva on *Populus tremuloides* [collected with a beating sheet] F.I.S. [Forest Insect Survey] 61-7247-01. Larva inflated (CNCI).

Heppner (1997) implied that the presence of this species in North America was likely the result of an introduction dating back at least

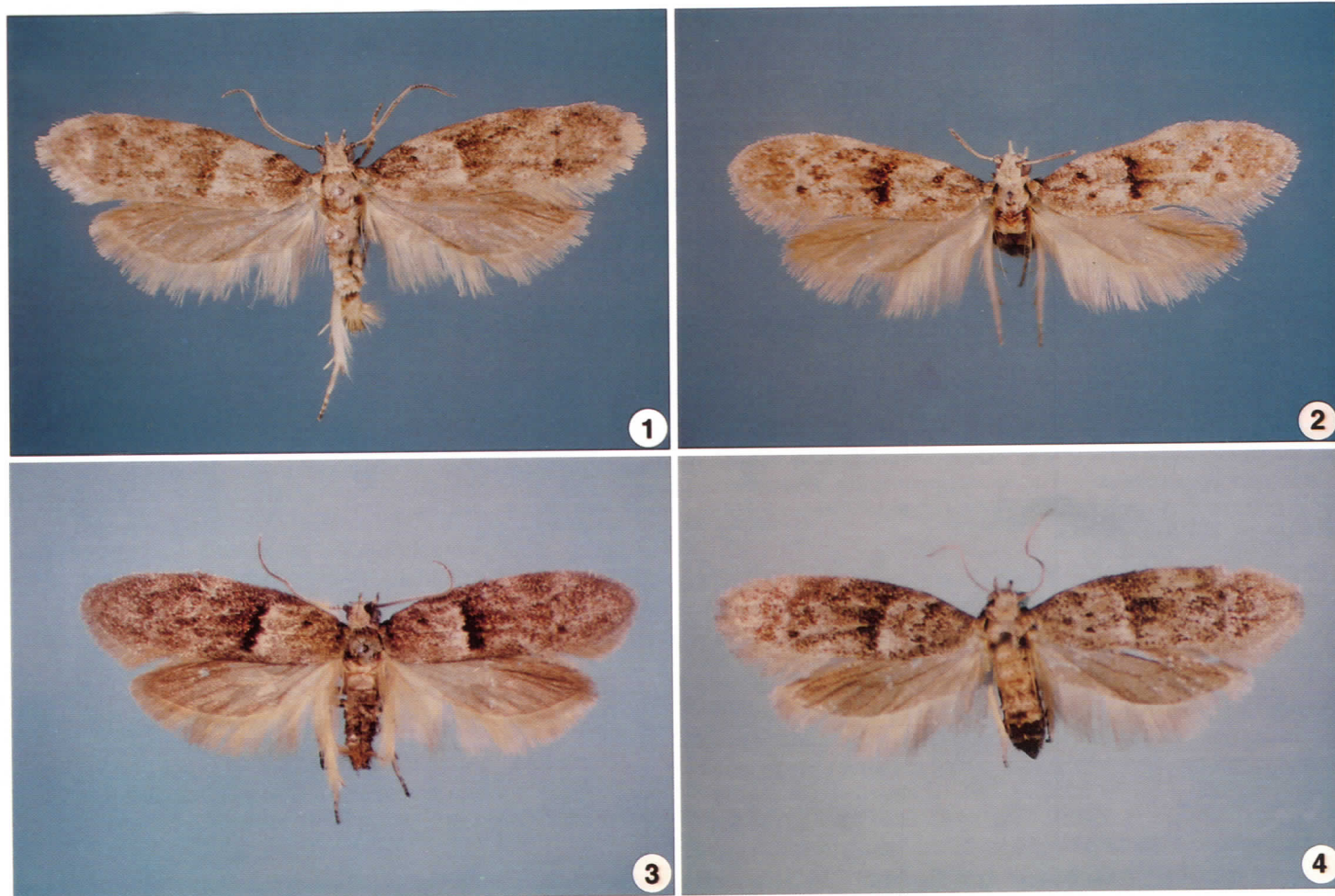


Fig. 1-4. *Wockia asperipunctella* adults: 1) ♂ Québec, Gatineau Park, Ramsey Lake, 21 Jun 1985. 2) ♀ Québec, Gatineau Park, Luskville Falls, 14 Jun 1990. 3) ♂ Pennsylvania, Dimock, 6 Jun 1988. 4) ♀ Vermont, Richmond, Univ. of Vermont Jericho Research Forest, 16 May 1991.

a century. In view of the evidence he had available (few records all from the same general area, apparent rarity), this supposition was reasonable. However, the records from northern Alberta and British Columbia imply differently. These specimens come from places where one would not expect an introduced species to be discovered. The Alberta specimens were sampled during a biodiversity study of old-growth aspen forests in 100-year old stands that have never been logged or disturbed. Likewise, collecting notes associated with the specimens from northern British Columbia specify that the collecting sites were undisturbed. It is extremely unlikely to find introduced species in that region (L. Humble, pers. comm.). If introduced, *Wockia* specimens surely would have been taken around the more populated areas of Vancouver or Victoria much earlier than in northern British Columbia. I consider the evidence as indicative that *W. asperipunctella* is native to North America, thus Holarctic. I do not know if it is reported from Siberia.

Adults of *W. asperipunctella* are diurnal or marginally crepuscular (L. Kaila, pers. comm.). In Finland, they fly around sunset on warm evenings; occasionally they are also active at sunrise. Both sexes have a similar activity pattern although females are much more seldom found. Females can be found by beating the branches of small poplar trees. Thus, it is not surprising that *Wockia* records from North America are so scattered and all made up of single specimens because they were all obtained at light. Many moths with diurnal habits occasionally are attracted to lights. If such species are not searched for specifically during the day, they easily escape collecting, hence they appear to be rare. The nondescript aspect of *Wockia*

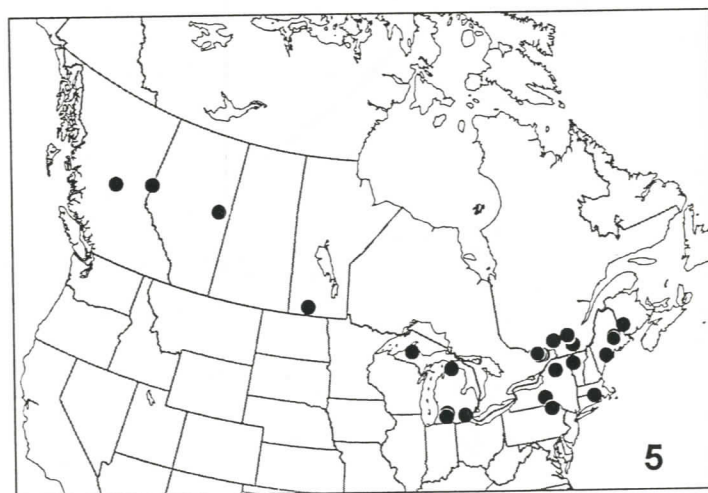


Fig. 5. Known North American distribution of *Wockia asperipunctella*. Localities mentioned in Heppner (1997) are also shown on the map.

adults, combined with the limited amount of diurnal collecting of this kind of microlepidoptera, probably explain the sporadic records. Although I collected a specimen at a light a few years ago, I did not notice the moth in any particular way on that occasion. The concentration of records in the Northeast is easily explained by the relatively greater number of lepidopterists collecting micros in that region. The distribution gaps are evidently due to lack of collecting.

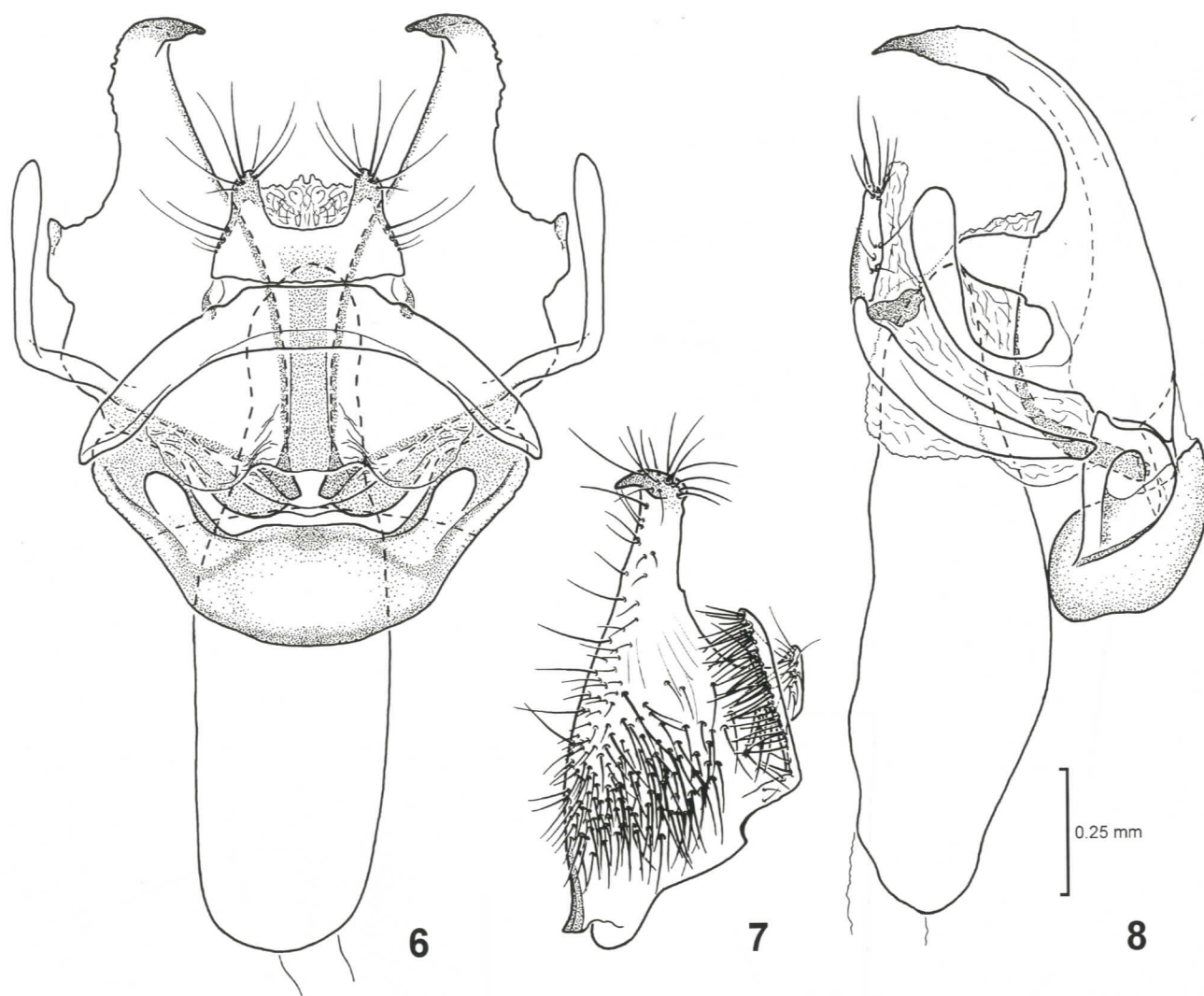


Fig. 6-8. Male genitalia of *Wockia asperipunctella*: 6) Dorsal aspect, setae of valvae omitted. 7) Valva in dorsal aspect, showing setation. 8) Lateral aspect, setae of valvae omitted.

Collecting dates from mid-May to mid-August in Ontario and Québec support Heppner's (1997) suggestion that two generations may occur in the southern part of the range, at least in favorable years, as is the case in the southern parts of its European range.

As the British Columbia larval record suggests, larvae may be encountered more reliably using a beating sheet on small poplar or birch trees. Heppner (1997) mentioned one rearing record from *Betula alleghaniensis* Britton (Betulaceae). In Europe, larvae also have been recorded on *Salix* spp. (Salicaceae) (Kyrki 1988). Their mottled appearance of gray and yellow with a brown head should distinguish them from most other similarly sized larvae (ca. 10-14mm) that can be found on birch or poplar: see Kyrki (1988) for an illustration.

NOTES ON RECOGNITION AND VARIATION

There is appreciable variation in tones of gray, intensity of the black median transverse fascia, and amount of dark gray suffusion (Fig. 1-4) in the North American specimens examined. Based on a comparison with a few specimens from Finland as well as a line-art illustration in Zagulayev (1981), North American *W. asperipunctella* appear to have more markedly patterned forewings than European ones. In his otherwise detailed paper on *Wockia*, Kyrki (1988) does not illustrate the adult moth. He described the forewing pattern as

"grey, with raised black scale-tufts at about 1/3 and numerous scattered black dots." Zagulayev (1981) described the forewings as "dark violet to gray, with darker powder along veins and clusters of blackish erect scales before midpoint and near tornal angle." Specimens examined from Finland have rather uniformly peppery gray forewings with a narrow and broken transverse black median fascia of erect scales and a couple of small black dots in the distal area. Most North American specimens have a heavier black transverse fascia in the basal 1/3 lined on the inner side with a distinct band of very pale gray.

Some North American Blastobasidae, Cosmopterigidae (*Anoncia* sp.), phycitine Pyralidae (especially *Myelopsis minutularia* (Hulst), small specimens of *Meroptera praveilla* (Grote)), and to a lesser degree some Tortricidae (e.g., *Decodes basiplaganus* (Walsingham)) show a superficial resemblance to *W. asperipunctella* when their wings are unspread and when seen with the naked eye. The lack of scales at the base of the haustellum differentiates *Wockia* specimens from phycitine Pyralidae, Blastobasidae, and *Anoncia* (Cosmopterigidae). *Wockia* also lacks the transverse rows of spines on the abdominal terga possessed by Blastobasidae. The forewing pattern of Tortricidae is different from that of *Wockia*: for example, *Decodes* specimens have more defined wavy lines that more clearly delineate differently coloured areas. In set specimens, the hindwing shape dis-

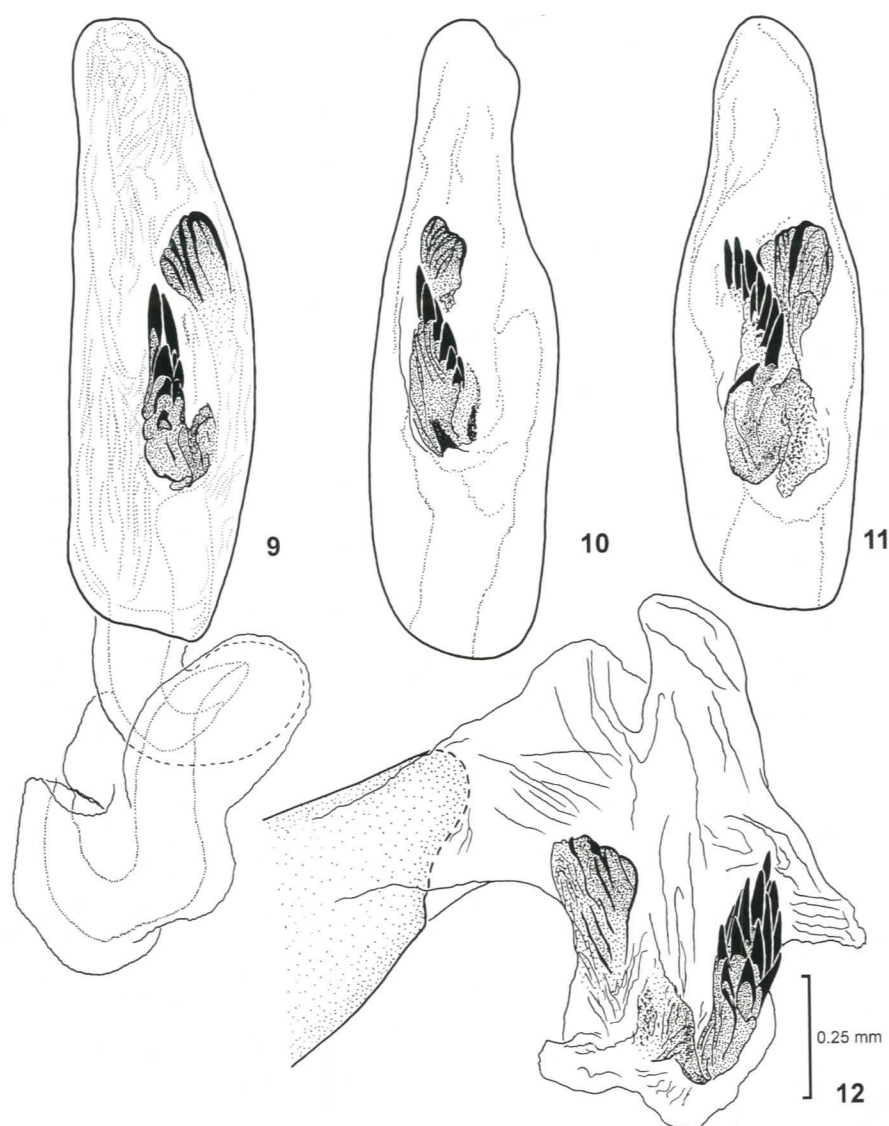


Fig. 9-12. Male aedeagus of *Wockia asperipunctella* in dorsal aspect: 9) Québec, Gatineau Park, Ramsey Lake, 21 Jun 1985 (slide JFL 1513, ZMUH). 10) Québec, Mont-Carmel, 11 Jun 1995 (slide MIC 4054, CNCI). 11) Ontario, 12 km S Ottawa, Pinhey Forest, 14 May 1991 (slide MIC 3529, CNCI). 12) Apex of aedeagus with everted but partly collapsed vesica; Alberta, 30 km E Touchwood Lake, 22 Jun 1994 (slide MIC 4057, CNCI).

distinguishes *Wockia* at once from Phycitinae and Tortricidae. Rubbed *Wockia* specimens could also be confused with Carposinidae, as evidenced by the Manitoba specimen that I found among the unidentified Carposinidae in the CNCI.

The only illustrations of genitalia of *W. asperipunctella* are presented in two European publications (Kyrki, 1988; Zagulayev, 1981) that may not be widely available in North America. Because the superficial appearance of the moth is so nondescript and similar to some other similarly sized Lepidoptera, I present illustrations of its genitalia to aid in recognition. The genitalia of both sexes are unlike those of any other North American Lepidoptera.

Male genitalia (Fig. 6-12). Symmetrical, broad in dorsal aspect. Aedeagus proportionally large. Tegumen narrowly transverse and arched. Uncus bilobed, with lateral and apical setae. Gnathos as two lateral very small lobes. Vinculum large, bulbous, protruded cephalad. Juxta an elongate, lightly sclerotized, dorsally arched plate that becomes diffuse apically. Valva with sacculus markedly upcurved, apically pointed and sclerotized; with a dorso-basal, curved, digitiform process and a latero-medial rounded process; inner surface as well as basal and latero-medial processes densely setose. Vesica with cornuti in a compact cluster, 5-15 set on a diffuse plate, and with

another irregularly rounded plate near cornuti.

Female genitalia (Fig. 13-15). Ostium small, recessed under sclerotized fold of hind margin of sternum VII. Ductus bursae short, with sclerotized walls, as wide as corpus bursae. Corpus bursae elongate and parallel-sided, with a lateral accessory pouch bent over its ventral side, a pair of similar, dentate signa, and a finely dentate, irregularly shaped plate near the junction of the ductus seminalis. Ovipositor very elongate, longer than abdominal segments I-VII combined, posterior apophyses very thin, wire-like.

In genitalia, there is little difference between North American and European specimens. I observed variation in the number of cornuti present in the male vesica in North American specimens (Fig. 9-12), although it does not correlate with geographical range. The majority of the aedeagi examined had an elongate cluster of 6-9 cornuti like those illustrated in Fig. 10-11. Kyrki's (1988) illustration is imprecise as to the number of cornuti although he described them correctly. Zagulayev's (1981) illustration of the aedeagus appears to be incorrect in showing a single, large cornutus and omitting the sclerotized plate. Too few specimens were available to make a similar examination of genital variation in European specimens.

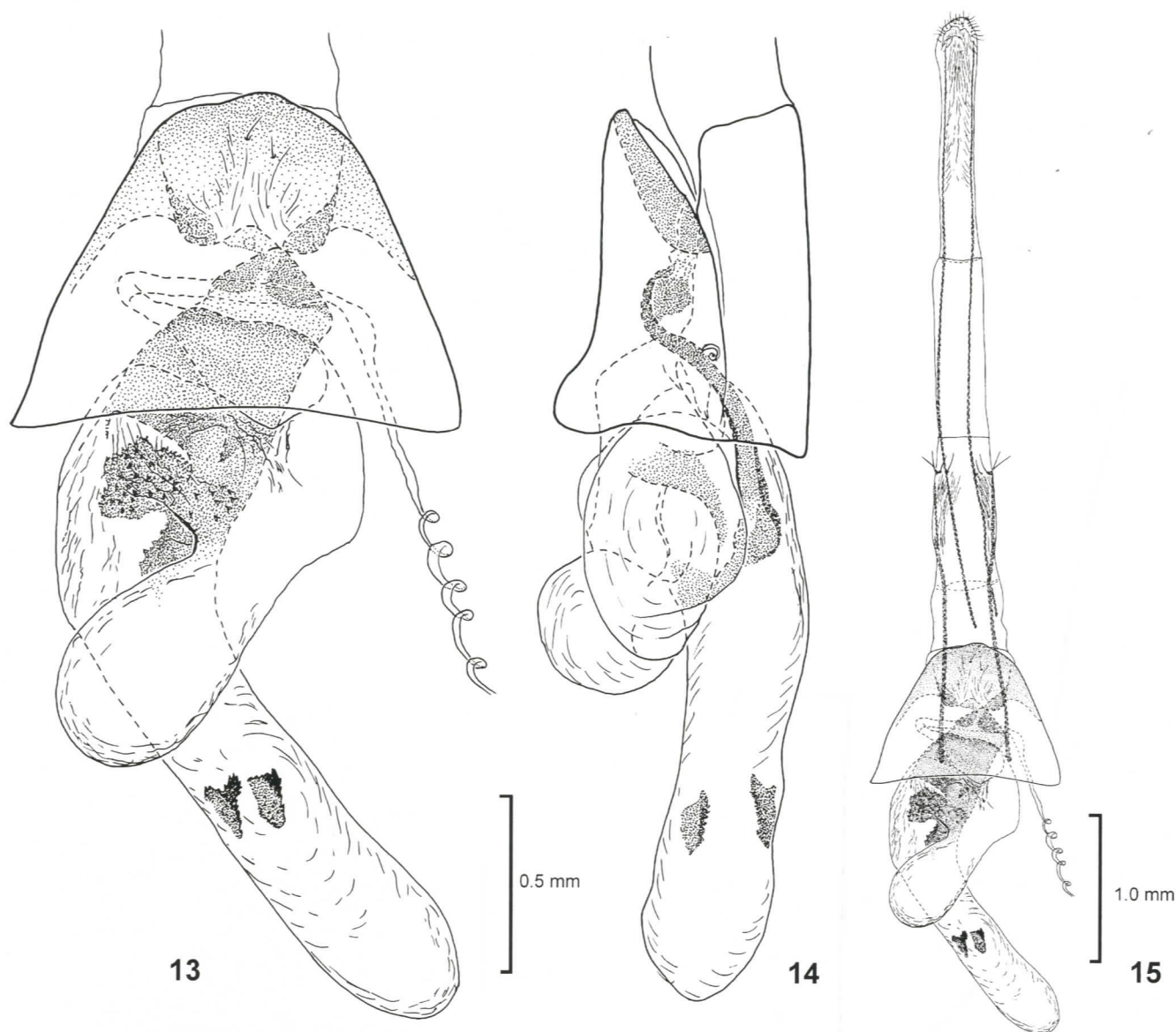


Fig. 13-15. Female genitalia of *Wockia asperipunctella*: 13) Sternum VIII and genitalia, ventral aspect. 14) Segment VIII and genitalia, lateral aspect. 15) Genitalia, segment VIII and extended ovipositor, ventral aspect.

ACKNOWLEDGMENTS

I am grateful to the following individuals for the loan or gift of specimens, for answering my queries about the records, or for permission to examine collections under their care: Mario Fréchette and Céline Piché, Collection d'insectes du Québec (CIQ), Ministère des ressources naturelles du Québec, Sainte-Foy, QC; John Grehan, formerly at University of Vermont (now at Pennsylvania State University at State College); Ron Hodges, USNM, Washington, DC; Lee Humble, Pacific Forestry Centre, Victoria, BC; Léo-Paul Landry, Notre-Dame-du-Mont-Carmel, QC; Kauri Mikkola, Zoological Museum, Helsinki (ZMUH); Georges Pelletier, Centre de foresterie des Laurentides, Sainte-Foy, QC; Greg Pohl, Northern Forestry Centre, Edmonton, AB; Tony Roberts, Steuben, ME, who supplied additional Maine records and information about the late Paul Grey and A.E. Brower's collecting sites; George Balogh, Portage, MI; Brian Scholtens, College of Charleston, Charleston, SC. Lauri Kaila, Zoological Museum, Helsinki, kindly supplied information on biology and adult behavior. Thanks to Bernard Landry, John Heppner, Ron Hodges, and Tony Roberts for stimulating discussions. I thank Lise St-Jean for preparing the colour plate and Eric Rickey for preparing the distribution map and providing technical assistance. Yves Bousquet, John Brown, Henri Goulet, Bernard Landry, and Jerry Powell reviewed the manuscript.

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