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FIRST REPORT OF THE PALEARCTIC SPECIES *CYDIA CONIFERANA* (TORTRICIDAE) IN THE WESTERN UNITED STATES

A single adult male of *Cydia coniferana* (Saxesen, 1840) was collected in Tumwater, Thurston County, Washington State, in 2000. This moth was a non-target in a United States Department of Agriculture/Animal and Plant Health Inspection Service/Cooperative Agricultural Pest Survey (USDA/APHIS/CAPS) program aimed at detecting the European corn borer (ECB), *Ostrinia nubilalis* (Hübner). The collection method was a pheromone-trap baited with hybrid northern/southern strain ECB lure (1:1 Z11/E11-14Ac). This was the first record of *coniferana* recorded from North America since several adults were reared from the bark of red pine in New York (Schaffner 1959). The New York population apparently never established (W. Miller pers. comm.), although the species was listed from North America by Powell (1983).

Cydia coniferana is native to the Palearctic Region where it ocurrs throughout Europe east to Russia, China, and Mongolia. (Bradley *et al*. 1979; Zhang 1994). The larvae feed in the cambium layer of many coniferous trees, including *Pinus spp., Picea spp., Abies spp.* and *Larix sp*. (Bradley *et al*. 1979; Karsholt and Razowski 1996; Zhang 1994). Published information on larval feeding impacts is limited and variable. In England, where *coniferana* infestation is associated with fungal disease, it is not a significant pest (Bradley *et al*. 1979). Central Europen populations of *coniferana* are reported to enter the cambium only after the tree is wounded (Patočka and Turčáni 2005). However, Razowski (2003) reported "occasional damage", especially to pine nurseries, and *coniferana* is identified as a "harmful species" in western Russia (Medvedev 1987).

Fig. 1. Adult males of *Cydia coniferana* in a pheromone trap showing variation in forewing pattern.

Adult *coniferana* are small (10–14 mm) dark moths (Fig. 1) with a wing pattern that is typical of many *Cydia* and *Grapholita* species (see Komai 1999; Razowski 2003). Recognition in sticky traps is difficult without genitalic dissection. Male moths can be identified by a short row of deciduous cornuti in the aedeagus and a ventral toothlike projection on the valves (Fig. 2) (Bradley *et al*. 1979). Some variation of adult morphology was noted in our samples. In particular, the white dorsal patch of the forewing is sometimes absent as noted by Razowski (2003). One feature of the male genitalia, the length of the ventral toothlike projection, was also variable. Descriptions or illustrations of the female genitalia (Bradley *et al*. 1979), pupa (Patočka and Turčáni 2005), and larva (Swatschek 1958) of *coniferana* have also been published.

In the summer of 2005, a preliminary pheromone trap delimiting survey for *coniferana* was conducted in western Washington from King County south to the Oregon border

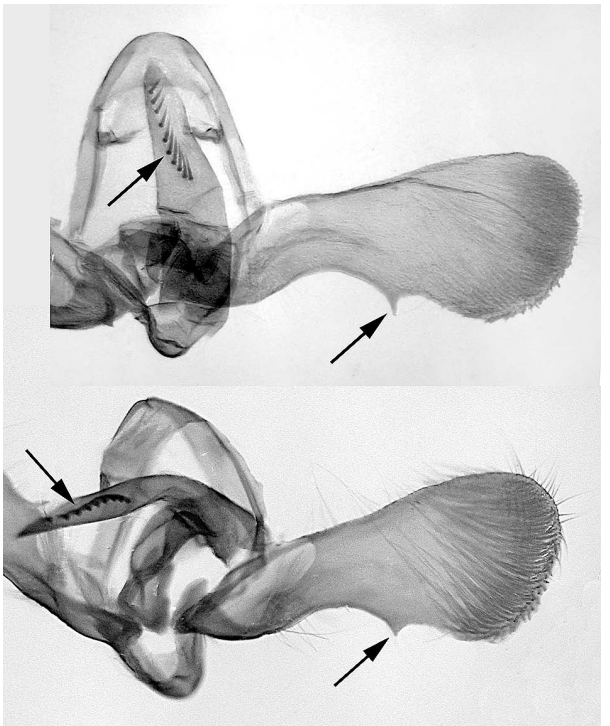

Fig. 2. *Cydia coniferana* male genitalia. Arrows point to the cornuti of the aeadeagus and ventral toothlike projection of the valve. Note variation in length of the ventral tooth of valve.

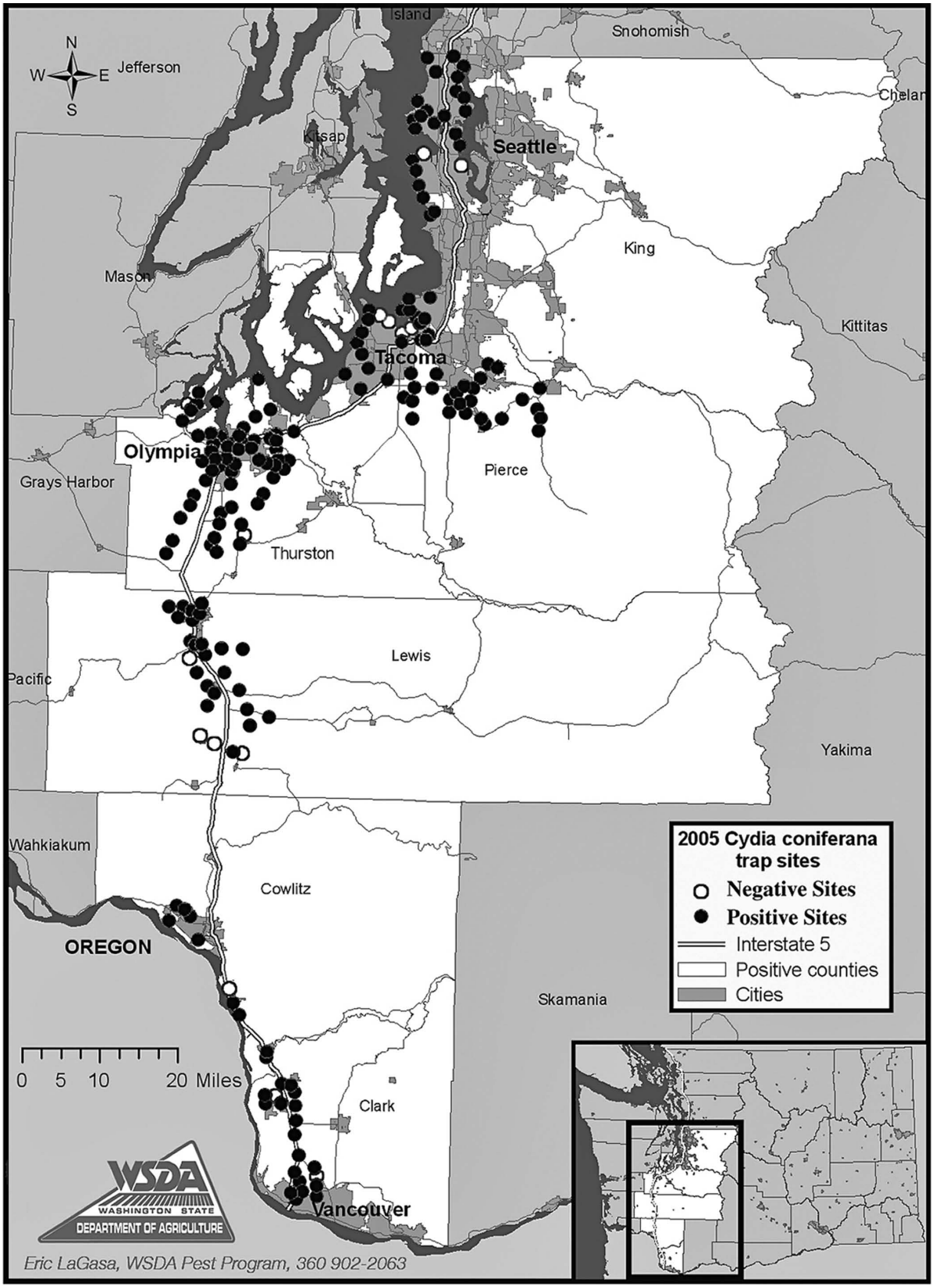

Fig. 3. *Cydia coniferana* collection sites in southwestern Washington State.

TABLE 1. 2005 *Cydia coniferana* trap site numbers and results by county.

County	Total Sites	Positive Sites	% Sites Positive	Total Moths	Average moths (per Pos. Site)
King	30	28	93.3%	885	31.6
Pierce	50	46	92.0%	976	21.2
Thurston	60	58	96.7%	1,453	25.1
Lewis	30	26	86.7%	400	15.4
Cowlitz	10	9	90.0%	154	17.1
Clark	20	18	90.0%	477	26.5
Totals	200	185	92.5%	4,345	23.5

(Fig. 3, also LaGasa and Welch 2005). Traps were placed in a total of 200 roadside or residential yard trees, mostly on *Pinus spp., Abies spp., Pseudotsuga menzesii,* and *Picea spp*. from early June until late August. Pherocon 2® type traps with lures consisting of 0.5 mg of E,8 – Dodecenyl Acetate on a hexane-rinsed red rubber septa were used. The lures were changed no later than every four weeks.

Survey results, summarized by county in Table 1, and illustrated in Figure 3, clearly show that *coniferana* is well established and widespread in the survey area. A total of 4,345 male *coniferana* were collected at 185 of 200 total sites, with an average catch of 24 per trap at positive sites. The average number of moths captured across counties surveyed was fairly uniform, and the distribution of positive sites and catch numbers did not vary substantially between rural/woodland areas and more urban sites. The majority of moths (80%) were captured during August with peak activity around the middle of the month. Additional monitoring is needed to determine the entire duration of adult activity and whether the species produces one or multiple generations in the Pacific Northwest.

Given the prevalent and uniform occurrence of *coniferana* in the surveyed area, it is likely that the current distribution of this moth includes more (if not all) of western Washington and possibly adjacent areas in Oregon and British Columbia west of the Cascade Mountains. Examination (including removal of bark) of potential host tree species in the area infested by *coniferana* revealed some evidence of larval damage matching the description given by Bradley *et al*. (1979), but no larvae were found. *C. coniferana* was found at numerous sites where *Pseudotsuga menzesii* (Douglas fir) was the only conifer present, suggesting that this species may be a potential host.

Voucher specimens collected in this 2005 survey are deposited at the United States National Museum (Washington, D.C), the S. Passoa collection (Columbus, Ohio) and in the Washington State Department of Agriculture Insect Collection (Olympia, Washington).

Multiple introductions of microlepidoptera can occcur on either coast of the United States (see Powell and Passoa 1991). Our data shows that a second introduction of *coniferana* established in the western United States. Regulatory entomologists only consider an organism to be introduced if there is evidence of an established breeding population (Pender 1983). Our data shows this is the case for *coniferana* which justifies inclusion of this species in the checklist of North American Lepidoptera.

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POANES MELANE (HESPERIIDAE) OVIPOSITING ON AN AUSTRALIAN GRASS NATURALIZED IN CALIFORNIA

Additional key words: *Rytidosperma, Danthonia*, introduced species

The use of introduced plants as hosts by native California butterflies has been reviewed by Shapiro (2002) and Graves and Shapiro (2003), who found that the urban and suburban fauna of that state was now largely dependent on such plants. New records of this type appear regularly, demonstrating that butterflies colonize potential host plants more or less quickly after they appear in an area.

On 27 October 2006 I observed a female *Poanes melane* (W.H. Edwards) systematically searching for and ovipositing repeatedly on a low, tufted, apparently perennial grass I did not recognize in a parking strip in Berkeley, Alameda County, California. This grass was common in the neighborhood, occurring in lawns and waste ground in an older residential area of North Berkeley. Unable to identify it using Hickman (1993), I brought specimens to the U.C. Davis Herbarium where it was identified by Jean Shepard as *Rytidosperma racemosum* (R. Br.) Connor & Edgar (formerly placed in the genus *Danthonia*). This species was not recognized as naturalized in California when Hickman (1993) was in preparation. According to Stephen Darbyshire of Agriculture Canada, an authority on the genus, this grass was grown "experimentally" in gardens in Berkeley as early as 1941. It seems to have begun to spread in Alameda County in the early 1950s and is recorded as naturalized only in that county except for a 1978 record from the naval garrison on Angel Island, Marin County. According to Darbyshire and Barbara Ertter of the Jepson Herbarium at U.C. Berkeley as well as my own observations, it is now a fairly common weed in Berkeley and nearby Albany and will probably continue to spread.

Rytidosperma racemosum is originally from Australia. Various members of the genus were tested in California for forage potential as early as 1911 and *R. penicillatum* (Labill.), more commonly known as *Danthonia pilosa* R.Br., is naturalized in California, southern Oregon and Hawaii. It would hardly be surprising to find *P. melane* and other native skippers using these plants elsewhere. Although the ability of *P. melane* to feed and develop successfully on *R. racemosum* has not been demonstrated, it accepts most perennial and some annual grasses in the laboratory. Scott (1986) lists five very diverse grasses in as many genera plus one sedge (Cyperaceae). He does not provide sources for these records. Garth & Tilden (1986) record two native perennial grasses in southern California. Various other records are scattered in the literature, none of them being on *Rytidosperma*, which as noted above was not even recognized as being part of the California flora! Bay Area populations are now "urbanized" and routinely breed on Bermuda Grass (*Cynodon dactylon* (L.)Pers., while inland California populations are confined to riparian-wildland habitats (Shapiro and Manolis, 2007).

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