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## Sod webworm (Lepidoptera: Pyralidae: Crambinae) moths collected in light traps

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E. A. Heinrichs, Ellis Matheny. 1970. Sod webworm (Lepidoptera: Pyralidae: Crambinae) moths collected in light traps. *Journal of the Tennessee Academy of Science* 45 (2): 61-64.

Keywords: sod webworm species collected as adults in light traps from May to October: *Pediasia trisecta*, *P mutabilis*, *Chrysoteuchia topiaria*, *Agriphila vulgivagella*, *A. ruricolella*, *Microcrambus elegans*, *Argyria nivalis*, *Crambus alboclavellus*, *C. praefectellus*, *C. laquetellus*, *C. leachellus*, *C. satrapellus*

**SOD WEBWORM (LEPIDOPTERA: PYRALIDAE: CRAMBINAE)  
MOTHS COLLECTED IN LIGHT TRAPS**

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**ABSTRACT**

Thirteen species of sod webworm moths were collected during 1968. Distinct differences in flight dates occurred among the species. Trap data indicated that seven species were univoltine while six were most likely multivoltine.

Sod webworm larvae are pests of lawn and pasture grasses. With the increase in urbanization and the consequent increase in the importance of ornamental

lawns the sod webworm has caused considerable concern the past several years. The larvae can be found in the thatch area just above the surface of the soil where they web and feed on the grass. Adult moths are attracted to light and can often be seen in great numbers around lighted areas during summer evenings. Moths can be recognized by their long snoutlike labial palpi and by their habit of folding their wings around their abdomen.

Ainslie (1917) stated that at least 14 Crambid species occurred at Nashville. Very little is known about

Table 1.-Time of flight of species of Crambinae in the Knoxville area, 1968.

Species	Week						
	May	June	July	August	September	October	
<u>P. trisecta</u>	* * * *	* * * *	* * * *	* * * *	* * * *	* * * *	* * * *
<u>P. mutabilis</u>	* * *	* * * *	* * * *	* * * *	* * * *	* * * *	* * * *
<u>C. teterrellus</u>	* * * *	* * * *	* * * *	* * * *	* * * *	* * * *	* * * *
<u>C. laqueatellus</u>	* * * *	* *					
<u>C. praefectellus</u>	* *		* * * *	* * * *	* * * *	* * * *	*
<u>C. satrapellus</u>	*						
<u>M. elegans</u>		* * * *	* * * *	* * * *	* * * *	* * * *	* * *
<u>A. nivalis</u>		* * * *		* * * *	* * * *	* * * *	* * *
<u>C. alboclavellus</u>			* * *	* * *	* *		
<u>C. topiaria</u>				* * *			
<u>C. leachellus</u>						* * *	* * *
<u>A. vulgivagella</u>							* * * *
<u>A. ruricolella</u>							* * *

the species composition of the group in the Knoxville area. In view of the economic importance of this group and the importance of proper identification and some knowledge concerning the life history of an insect prior to control, this study was begun.

#### MATERIALS AND METHODS

Fifteen watt black light traps were placed at three locations: University of Tennessee College of Agriculture Campus, Knoxville; University of Tennessee Plant Science Farm about three miles from the campus; and Green Meadow Country Club golf course near Alcoa. The campus trap was a modification of the trap used by Stanley and Bennett (1965), to which baffles were added. The others were Ellisco traps. Potassium cyanide was used as the killing agent. The campus trap was placed next to a greenhouse and was near bluegrass and Kentucky-31 fescue lawns. The Plant Science Farm trap was placed in Kentucky-31 fescue adjoining an orchard. A large bluegrass area was located about 300 yards from the trap. The golf course trap was surrounded by bluegrass. Traps were emptied daily from May 1 to October 29, 1968. Sod webworm moths were

identified and counted. Those which we could not identify were sent to Dr. A. B. Klots of the American Museum of Natural History in New York for species determination.

#### RESULTS AND DISCUSSION

Thirteen species were collected: *Pediasia trisecta* (Walker), *Pediasia mutabilis* (Clemens), *Crambus teterrellus* (Zincken), *Chrysoteuchia topiaria* (Zeller), *Agriphila vulgivagella* (Clemens), *Agriphila ruricolella* (Zeller), *Microcrambus elegans* (Clemens), *Argyria nivalis* (Drury), *Crambus alboclavellus* (Zeller), *Crambus praelectellus* (Zincken), *Crambus laqueatellus* (Clemens), *Crambus leachellus* (Zincken), *Crambus satrapellus* (Zincken).

The use of the black light trap appears to be a useful survey tool in determining the presence of sod webworm species. It is a more efficient method than hand collecting. Two species, *C. leachellus* and *C. satrapellus*, never have been collected by hand in two years collecting whereas both of these species appeared in trap collections.

There was considerable variation in the flight dates

Table 2.-Number of moths collected at each location for the weekly periods indicated.

Period	Species												
	P. trisecta			P. mutabilis			C. teterrellus			C. topiaria			
	1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	1	2	3	1	2	3	1	2	3	
May	1-7	4	11	-	1	0	-	1	0	-	0	0	0
	8-14	4	22	-	0	0	-	1	2	-	0	0	0
	15-21	19	57	4	9	4	7	20	32	267	0	0	0
	22-28	8	142	1	5	24	4	20	90	180	0	0	0
June	29-4	18	91	6	3	4	0	17	46	161	0	0	0
	5-11	8	112	10	0	1	0	6	48	109	0	0	0
	12-18	2	46	1	1	0	0	6	29	0	0	0	0
	19-25	8	6	1	0	0	0	3	5	7	0	0	0
July	26-2	4	-	5	1	-	0	14	-	42	0	0	0
	3-9	34	218	28	6	1	2	31	91	412	1	5	11
	10-16	26	802	25	11	7	0	31	222	417	0	4	1
	17-23	35	731	23	9	36	9	42	277	731	0	2	2
	24-30	29	699	20	8	92	9	22	349	618	0	0	2
August	31-6	23	396	7	13	78	14	37	216	408	0	0	0
	7-13	46	303	60	1	30	5	41	202	740	0	0	0
	14-20	55	576	209	4	13	2	114	191	4331	0	0	0
	21-27	44	1292	101	14	21	7	137	649	7224	0	0	0
September	28-3	81	1285	42	40	22	17	256	150	1148	0	0	0
	4-10	142	2076	69	61	76	70	168	561	1284	0	0	0
	11-17	189	3452	42	69	99	5	124	435	414	0	0	0
	18-24	217	5488	39	40	152	13	138	538	707	0	0	0
October	25-1	343	4983	31	21	69	1	104	247	384	0	0	0
	2-8	152	1406	25	4	8	35	6	17	193	0	0	0
	9-15	33	676	11	1	4	1	2	8	23	0	0	0
	16-22	35	277	3	0	3	0	0	2	1	0	0	0
	23-29	10	12	0	0	0	0	1	0	1	0	0	0
Total	1569	25,159	763	322	744	192	1342	4407	19,802	1	11	16	
Weekly mean	6.04	1,006.36	3.18	1.24	2.98	2.74	5.16	176.28	825.08	.14	1.57	2.29	

<sup>a</sup>Numbers 1-3 refer to trap locations; 1 = Agriculture Campus, 2 = Plant Science Farm, and 3 = Green Meadow Country Club.

Table 3.—Number of moths collected at each location for the weekly periods indicated.

Period		Species											
		<i>A. vulgivagella</i>			<i>A. ruricolella</i>			<i>M. elegans</i>			<i>A. nivalis</i>		
		1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	1	2	3	1	2	3	1	2	3
May	1-7	0	0	-	0	0	-	0	0	-	0	0	-
	8-14	0	0	-	0	0	-	0	0	-	0	0	-
	15-21	0	0	0	0	0	0	0	0	0	0	0	0
	22-28	0	0	0	0	0	0	0	3	0	0	17	0
June	29-4	0	0	0	0	0	0	3	7	0	1	13	11
	5-11	0	0	0	0	0	0	22	19	11	1	16	13
	12-18	0	0	0	0	0	0	16	7	7	0	7	6
	19-25	0	0	0	0	0	0	5	26	18	0	6	9
July	26-2	0	-	0	0	-	0	6	-	5	0	-	0
	3-9	0	0	0	0	0	0	3	7	5	0	0	0
	10-16	0	0	0	0	0	0	2	1	3	0	1	0
	17-23	0	0	0	0	0	0	4	5	0	0	2	0
	24-30	0	0	0	0	0	0	0	8	2	0	30	11
August	31-6	0	0	0	0	0	0	15	16	6	4	22	27
	7-13	0	0	0	0	0	0	88	83	27	2	15	24
	14-20	0	0	0	0	0	0	49	23	36	1	12	11
	21-27	0	0	0	0	0	0	14	112	51	0	7	4
September	28-3	0	0	0	0	0	0	14	24	11	0	1	1
	4-10	0	0	0	0	0	0	6	24	12	0	4	0
	11-17	0	0	0	0	0	0	10	5	1	3	10	0
	18-24	2	1	0	3	0	0	9	9	4	2	14	2
October	25-1	15	34	24	4	16	2	5	4	5	6	9	0
	2-8	59	35	95	1	0	2	2	1	2	1	1	4
	9-15	24	79	58	0	1	0	2	0	1	0	0	1
	16-22	5	18	16	0	0	0	0	1	1	0	0	1
	23-29	0	1	0	0	0	0	0	0	0	0	0	0
Total		103	168	193	8	17	4	275	385	208	21	187	125
Weekly mean		3.96	6.72	8.04	.31	.68	.17	10.58	15.40	8.67	.81	7.48	5.21

<sup>a</sup>Numbers 1-3 refer to trap locations; 1 = Agriculture Campus, 2 = Plant Science Farm, and 3 = Green Meadow Country Club.

of various species. *P. trisecta*, *P. mutabilis*, *C. teterrellus*, and *C. laqueatellus* were flying the first week in May (Table 1). *Crambus praefectellus* and *C. satrapellus* began flight the second week in May followed by *M. elegans* and *A. nivalis* during the last week of May. *Crambus alboclavellus* appeared in early June followed by *C. topiaria* in July. Three species, *C. leachellus*, *A. vulgivagella*, and *A. ruricolella*, did not appear until the latter part of September.

Six of the thirteen species, *P. trisecta*, *P. mutabilis*, *C. teterrellus*, *C. praefectellus*, *M. elegans*, and *A. nivalis*, were present throughout most of the trapping season (Table 1). These species appear to be multivoltine according to the peak numbers indicated (Tables 2-4). The rest appear to have only one generation per season.

*Pediasia trisecta* and *C. teterrellus* were the most abundant webworm moths collected. It is interesting to note that in six years collecting in Knoxville, Ainslie (1927) never collected *P. trisecta*. Now, as evidenced

by the trap collections, hand collections, and observations around lights, this species seems to be one of the most abundant sod webworms occurring here.

There was considerable variation in number of *P. trisecta* and *C. teterrellus* collected at the various locations. At the Plant Science Farm where Kentucky-31 fescue was the dominant grass near the trap, *P. trisecta* was much more abundant than *C. teterrellus* (Table 2) while at the Green Meadow Country Club where bluegrass was most abundant, *C. teterrellus* was most abundant. Ainslie (1930) states that Kentucky bluegrass is one of the most common grasses fed upon by *C. teterrellus*; it is, therefore, commonly called the bluegrass webworm.

#### CONCLUSION

Black light traps provide a satisfactory means for surveying sod webworm species. They also provide a means of determining the period that the moths are

Table 4.-Number of moths collected at each location for the weekly periods indicated.

Period	Species															
	<i>C. alboclavellus</i>			<i>C. praefectellus</i>			<i>C. laqueatellus</i>			<i>C. leachellus</i>			<i>C. satrapellus</i>			
	1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	1	2	3	1	2	3	1	2	3	1	2	3	
May	1-7	0	0	-	0	0	-	0	5	-	0	0	-	0	0	0
	8-14	0	0	-	1	1	-	2	6	-	0	0	-	0	1	0
	15-21	0	0	0	2	1	0	2	7	2	0	0	0	0	0	0
	22-28	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
June	29-4	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0
	5-11	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0
	12-18	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0
	19-25	5	62	8	0	0	2	0	0	0	0	0	0	0	0	0
July	26-2	0	-	0	0	-	1	0	-	0	0	-	0	0	-	0
	3-9	2	10	4	2	2	9	0	0	0	0	0	0	0	0	0
	10-16	3	12	3	0	5	3	0	0	0	0	0	0	0	0	0
	17-23	0	16	3	2	3	6	0	0	0	0	0	0	0	0	0
	24-30	1	15	6	0	1	3	0	0	0	0	0	0	0	0	0
August	31-6	0	2	5	0	0	1	0	0	0	0	0	0	0	0	0
	7-13	0	2	0	1	1	2	0	0	0	0	0	0	0	0	0
	14-20	0	0	0	2	0	6	0	0	0	0	0	0	0	0	0
	21-27	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0
September	28-3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0
	4-10	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
	11-17	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0
	18-24	0	0	0	0	2	1	0	0	0	0	7	0	0	0	0
October	25-1	0	0	0	12	0	2	0	0	0	0	3	2	0	0	0
	2-8	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0
	9-15	0	0	0	1	0	1	0	0	0	0	1	1	0	0	0
	16-22	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
	23-29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	11	132	30	27	21	46	4	21	5	2	16	4	0	1	0	
Weekly mean	.42	5.28	1.25	1.04	.84	1.92	.15	.84	.21	.77	.64	.17	0	.04	0	

<sup>a</sup>Numbers 1-3 refer to trap locations; 1 = Agriculture Campus, 2 = Plant Science Farm, and 3 = Green Meadow Country Club.

in flight. The traps are not quantitative as some species may not be attracted as much as others and weather affects the catch (Banerjee, 1967). However, they provide some indication as to relative abundance of various species; hand collecting yielded similar information.

This was a preliminary study of the distribution of sod webworms in Tennessee. A study with traps located at various points across Tennessee is planned.

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