

THE DROSOPHILA OF SULLIVAN COUNTY, TENNESSEE¹

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The drosophilid fauna of the mountainous areas of East Tennessee has been reported by a number of workers (Patterson, 1943; Stevenson, 1952, 1955; Carpenter and Giordano, 1955; also unpublished records of Stalker and Spencer, and Stalker and Carson). Few surveys of the Valley region, however, have been conducted. For purposes of comparison such a survey seemed desirable, and during the summer of 1953, collections were made from twelve localities in Sullivan County for the period of June 7 to August 27, inclusive.

Collections were made from five-gallon cans baited with banana, from trash cans in picnic areas, and to a limited extent from foliage in the immediate vicinity of the "traps". Except for the mountainous area to the east, the county was reasonably well covered in this study. The locations of the collecting sites are indicated in fig. 1, and a description of the stations follow:

Station 1. At Morrison City near the Virginia state line; an open, dry area, 50 feet from a residence; vegetation included cedar, persimmon and honeysuckle.

Station 2. On the outskirts of Kingsport, near Reedy Creek; a well-drained area with oak, beech and horsebeam.

Station 3. A damp, well-shaded area near Sullivan High School, on state highway 81; sycamore, beech, yellow poplar and black walnut.

Station 4. Bays Mountain, near the Tennessee Eastman Corporation recreation area; damp and well-shaded with oak, maple, beech, redbud and dogwood.

Station 5. On U. S. highway 23, near Fort Patrick Henry Dam; sparse vegetation included ash, black walnut, locust, redbud and wildgrape; 50 feet from a stream.

Station 6. On U. S. 23, near Boone Dam; locust, oak and redbud.

Station 7. On state highway 37, near Tri-Cities Airport, 25 feet from a small stream; very sparse vegetation.

Station 8. Near Piney Flats, in a rather dry oak grove.

Station 9. On state highway 37, between Blountville and Bluff City, 50 feet from Weaver Branch; poplar, sycamore, oak, redbud and dogwood.

Station 10. On state highway 37, near Beaver Creek; sycamore.

Station 11. Blountville, 50 feet from Muddy Creek; a well-shaded area of black walnut, ash, sumac, redbud, wild grape and honeysuckle.

Station 12. At Arcadia; 20 feet from Sharps Creek; oak sycamore, hickory, wild cherry, redbud, wild grape and honeysuckle.

The elevations ranged from 1240 feet to 1600 feet above sea level.

Since Sullivan County is one of the most densely populated counties in the northeastern part of the state, many of the

¹ Portions of this paper are abstracted from a thesis submitted by T. M. Carter in partial fulfillment of the requirements for the degree of Master of Arts in the Graduate School of East Tennessee State College.

TABLE I. SUMMARY OF COLLECTIONS FROM SULLIVAN COUNTY, TENNESSEE, JUNE 7 TO AUGUST 27, 1953

Station	1	2	3	4	5	6	7	8	9	10	11	12	Total	%
<i>Drosophila</i>														
<i>affinis</i> subgr	253	311	38	80	24	140	4	29	2	54	13	13	961	5.3
<i>buseckii</i>	126	16	3	41	65	51	14	10	3	51	58	12	450	2.5
<i>hydei</i>	1363	71	139	143	1375	2800	68	86	283	161	159	143	6791	37.7
<i>immigrans</i>	166	61	71	52	87	38	2	64	26	71	52	8	698	3.9
<i>melanog-sim.</i>	4103	456	181	61	141	1070	128	166	185	131	120	111	6853	38.1
<i>melanica</i>	38	—	—	6	—	8	1	4	7	1	1	—	66	0.4
<i>micromelanica</i> *	1	—	—	—	—	—	—	—	—	—	—	—	1	—
<i>nigromelanica</i>	6	—	—	—	—	—	—	—	—	—	—	—	6	—
<i>putrida</i>	12	4	1	1	—	3	3	1	—	1	4	1	31	0.2
<i>quinaria</i>	1	2	2	—	—	—	1	—	—	3	—	—	9	—
<i>robusta</i>	375	115	96	121	90	98	14	57	63	404	290	85	1808	10.0
<i>testacea</i>	21	5	5	4	2	—	—	—	11	2	3	—	53	0.3
<i>transversa</i>	6	25	8	14	1	1	4	37	4	10	50	—	160	0.9
<i>tripunctata</i>	1	13	—	—	—	—	1	4	—	26	18	2	65	0.4
Total*	6472	1079	544	523	1785	4209	240	458	584	915	768	375	17955*	
No. collections	27	12	8	9	10	9	7	6	5	6	6	5	110	
Av. Temp. °F**	78	75	76	74	78	75	78	78	76	76	76	76	76	
Av. Rel. Hum.**	69%	57	67	64	56	52	55	62	67	76	74	69	69	

* Includes *Chymomyza* sp. (1) and *Mycodrosophila* sp. (2).

**At time of collecting, to nearest whole number.

localities used as collecting sites were near human dwellings or in areas frequented by man. This condition is reflected in the large numbers of individuals of the domestic species taken and in the relatively small number of wild species, both as to the number of species and the numbers of individuals of a given species.

A total of 17,995 specimens were collected, nearly 78 percent of which were of domestic species. *D. hydei* and *D. melanogaster-simulans* were the most abundant, each representing about 38 percent of the collection. *D. busckii* and *D. immigrans* were present at all stations but always in small numbers.

Among the wild species, *D. robusta* was the most abundant, with nearly 10 percent of the collection, followed by the *affinis* subgroup (predominantly *D. affinis*) with about 5 percent. The other wild species, *D. melancia*, *micromelanica*, *nigromelanica*, *putrida*, *quinaria*, *testacea*, *transversa*, and *tripunctata*, collectively, composed only about 6 percent of the total. Included in the collections were three specimens of two other drosophilid genera, *Chymomyza* and *Mycodrosophila*. The collection data are summarized in Table I.

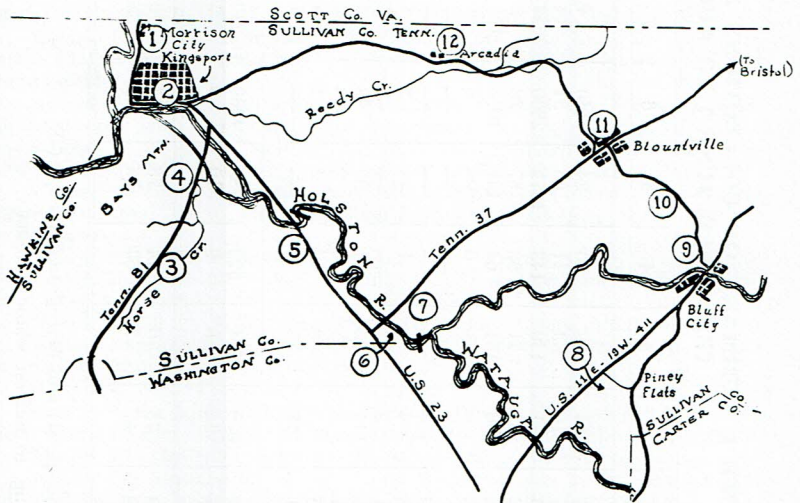


Fig. 1. Map of a portion of Sullivan County, Tennessee, showing the collecting sites described in the text.

LITERATURE CITED

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