

The Anthomyiidae and Muscidae of the Great Smoky Mountains and Mt. Mitchell, North Carolina (Diptera)

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Abstract: A preliminary listing is presented of the anthomyiid and muscid flies occurring in the Great Smoky Mountains National Park and in the vicinity of Mt. Mitchell. The data are based on collections made in the vicinities of Clingmans Dome and Mt. Mitchell in 1957 by members of the Entomology Research Institute at Ottawa, by the author when visiting Mt. Le Conte in 1958 and 1959 and Mt. Mitchell in 1960 and 1961 and also on an examination of additional material from these regions. Fifty-seven species of Anthomyiidae and one hundred and five species of Muscidae were recognized, of which fourteen and twenty-eight respectively were regarded as occurring chiefly within the eastern and midwestern areas of the United States and transition zones of the Canadian provinces; five anthomyiid and eight muscid species as boreal in habitat; two species of Anthomyiidae, namely, *Chirosia delicata* (Huckett), *Pegomya atlantis* Huckett, and one species of Muscidae, *Phaonia aberrans* Malloch, as restricted in their occurrence to the middle Atlantic states.

INTRODUCTION

The following work was undertaken as a means of bringing together the little known records of anthomyiid and muscid flies captured within the boundaries of the Great Smoky Mountains National Park and in the region of Mt. Mitchell, and as a contribution in a series of studies toward a wider knowledge of their presence and distribution on the higher slopes of the Appalachian Range.¹

The Great Smoky Mountains National Park lies within the southern limits of the Appalachian Range, extending from slightly west of longitude 83°W to longitude 84°W, and varying irregularly in width between the lower parallels of latitude 35°N. It is approximately 54 miles long, and at its widest point, 19 miles. The park extends over nearly 500,000 acres, or about 780 square miles, and contains 16 forested peaks over 6,000 feet in altitude. To the east, about 45 miles, lies Mt. Mitchell in the Black Mountains, where the terrain was sadly denuded of timber during the earlier decades of the century.

PREVIOUS RECORDS

The present literature records of anthomyiid and muscid flies are few, scattered, and sometimes of an ambiguous nature. Brimley (1938) in his list of the insects of North Carolina refers to four species of Anthomyiidae from

¹Huckett, H. C. 1972. The Anthomyiidae and Muscidae of Mt. Katahdin, Maine (Diptera). Journal New York Entomological Society, **80** (4): 216-233, 1 map.

the "mountain region," and four species of Muscidae as "Statewide." Later, under North Carolina, Wray (1967) in the third supplement to the above work, added 19 nominal species to the list of Anthomyiidae and 22 to the Muscidae, adopting the citations given for "N. C." by Stone et al. (1965) in "A Catalog of the Diptera of America North of Mexico."

Whittaker (1952), in a study of the summer foliage insect communities in the park, recorded the presence of 27 nominal species of Muscidae *sens. lat.* The labels on these specimens bear the name Gatlinburg, a town outside the boundaries of the park and contain much detailed information without mentioning the locality as given on maps of the park. Without actual reference to his paper it would be difficult to determine where specimens were collected. I have, therefore, with the cooperation of Dr. Whittaker, attempted to convert the topographical data on these labels to names of localities and trails indicated on official maps of the park.

Chillcott (1961) recorded 10 species of Fanniinae from locations in the park, although unwittingly the name Gatlinburg is cited in several instances. Three species are recorded from Mt. Mitchell.

MATERIALS

The survey is based on the following material that I have had the privilege of examining: the collections of Iowa State University, containing specimens taken by Dr. R. H. Whittaker in June and July 1947, and by the late Professor J. L. Laffoon in the same months of 1958, to whom I am greatly indebted for the extended loan of this and additional pertinent contributions from neighboring counties in the Piedmont region; specimens from the collections of the late Dr. R. R. Dreisbach, taken on a visit to the park in June 1946, and in August 1947, in company with Mr. D. S. Bullock; the small collection of anthomyiid and muscid flies preserved in the museum at park headquarters, containing the only records on hand of specimens from Mt. Buckley, taken by Dr. K. D. Snyder on July 21 and August 2, 1957, a loan made available through the courtesy of Mr. Arthur Stupka, Park Naturalist. Also there are my own collections during a brief visit to the park in May 1957 and to Mt. Le Conte during the latter half of May 1958 and 1959. I stayed at the lodge, situated at an altitude of 6,200 feet, and thus was able to work conveniently on the various trails traversing the extensive slopes of the mountain mass (see Map 1). From mid May to early June 1960 and 1961, I visited Mt. Mitchell, basing my operations from the inn at Stepps Gap, at an altitude of about 6,000 feet (see Map 2).

I have recently received a large assemblage of specimens from the Canada National Collection collected in the park during the summer of 1957 by various members of the Entomology Research Institute at Ottawa. The collections were made on numerous occasions from May to August, the bulk of the specimens

being taken by Dr. J. R. Vockeroth and the late Dr. J. G. Chillcott. The latter extended his visit to include a brief trip in mid August to Mt. Mitchell and Roan Mountain, 6,200 ft., in North Carolina, and to a return to Clingmans Dome on June 3, 1962, and May 22, 1965.

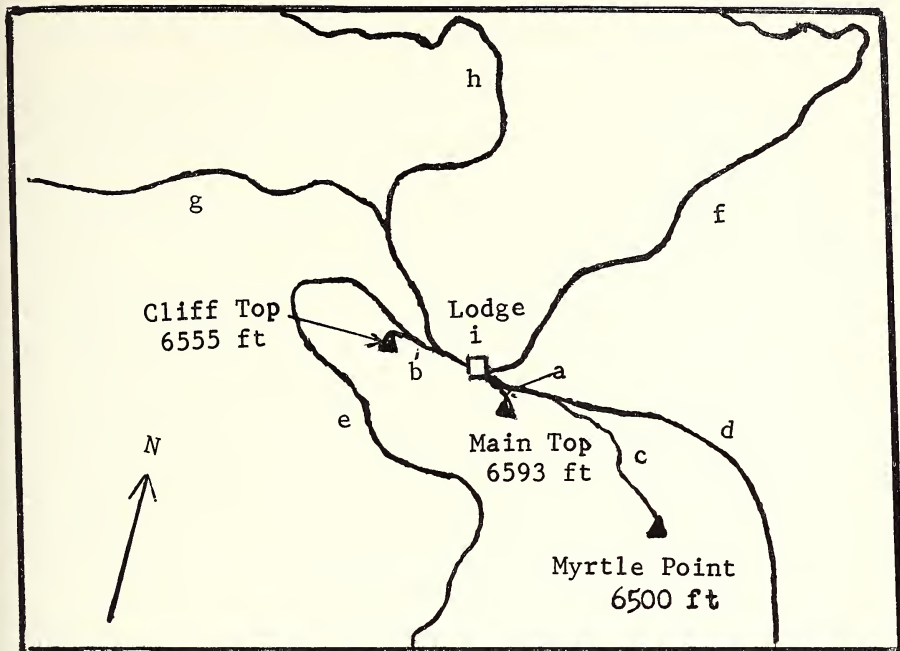
The collections in the park were chiefly made at the higher altitudes, between Indian Gap at 5,100 feet to the summit of Clingmans Dome at 6,642 feet. A few captures were made at lower levels from 2,000 to 2,100 feet at Greenbrier Cove, Mingus Creek and Cherokee. To all these collectors I am deeply indebted, and in particular to Dr. J. R. Vockeroth for his cooperation in having the specimens assembled and thus made available for study. Their names may be found among the list of collectors at the end of this article.

ABBREVIATIONS

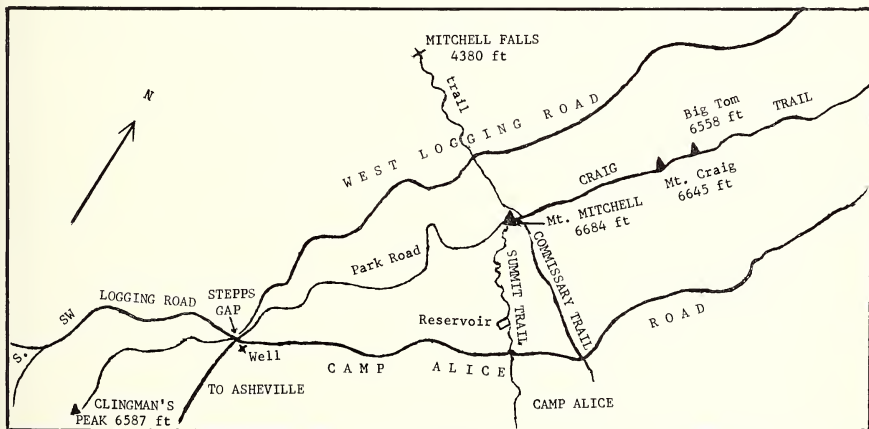
In order to save space, the various locations in the Great Smoky Mountains National Park from which specimens were obtained have been assigned a letter, such as A, B, or C, and also for each species the numbers of specimens from all localities have been combined. Similarly, for each species the numbers of specimens captured on the various trails and logging roads in the Mt. Mitchell region have been combined and the number of locations reduced to the naming of three main collecting areas, as Mt. Mitchell, Clingman's Peak, Mitchell Falls, Roan Mountain in Mitchell County.

- A. Park Headquarters, 1,500 ft.
- B. Mt. Le Conte, upper trails, see map
- C. Mt. Le Conte, lower trails²
- D. Greenbrier Cove and Porters Creek, 2,000-3,000 ft.
- E. Ramsey Cascade trail
- F. Brushy Mountain, 4,911 ft. and Mountain trail
- G. The Chimneys and camp
- H. Newfound Gap, 5,048 ft.
- I. Indian Gap to Clingmans Dome, 5,200 to 6,600 ft.
- J. Indian Gap, 5,200 ft.
- K. Mt. Collins, 5,900 ft. and Collins Gap, 5,700 ft.
- L. Clingmans Dome, upper trail, 6,300 to 6,642 ft.
- M. Forney Ridge trail to Andrews Bald
- N. Mt. Buckley, summit, 6,100 ft.
- O. Sailers Bald, summit, 5,620 ft.
- P. Narrows, nr. Sailers Bald, 5,400 ft.
- Q. Elkmont
- R. Fighting Creek
- S. Cades Cove
- T. Spence Field trail camp, nr. Thunderhead Mtn.
- U. Mingus Creek and Cherokee, 2,000 to 2,100 ft.
- V. Smokemont
- W. Mt. Sterling, summit, 5,842 ft.

² Bullhead, Rainbow Falls, Cherokee Orchard, Trilium Gap, Alum Cave.



SKETCH MAP 1. The upper trails of Mt. Le Conte from the Lodge: a. Main Top, b. Cliff Top, c. Myrtle Point, d. Boulevard, e. Alum Cave, f. Trilium Gap, g. Bullhead, h. Cherokee Orchard, i. Lodge, stables, and campground. Distances from lodge to Cliff Top are one-third mile; to Main Top, one-quarter mile; to Myrtle Point, two-thirds mile (by letter, Arthur Stupka, Park Naturalist).



SKETCH MAP 2. Trails and logging roads at Mt. Mitchell and Clingman's Peak. Distances by trail from summit of Mt. Mitchell to Steps Gap are $2\frac{1}{4}$ miles; to Mt. Craig, $1\frac{1}{4}$ miles; to Mitchell Falls, 2 miles; to Camp Alice, 2 miles (North Carolina Department of Natural and Economic Resources); to Clingman's Peak, $3\frac{3}{4}$ miles.

LIST OF SPECIES AND LOCALITY RECORDS

Family Anthomyiidae *sens. str.**Chirosia delicata* (Huckett)

94 ♂, 309 ♀. B, K, L. Mt. Mitchell, 73 ♂, 31 ♀; Clingman's Peak, 61 ♂, 8 ♀.

Chirosia hystrix (Brüschke)

2 ♀. L, P.

Chirosia pusillans (Huckett) N. COMB.

2 ♂, 8 ♀. P.

Chirosia stratifrons (Huckett)

21 ♂, 13 ♀. Ba, d, g, I, J, K, L, M. Mt. Mitchell, 1 ♂.

Hylemya alcaethoe (Walker)

38 ♂, 28 ♀. A, Bb, d, g, C, D, F, G, I-L, T. Mt. Mitchell, 1 ♂, 15 ♀; Roan Mtn. 1 ♀.

Hylemya latifrons (Schnabl)

1 ♂, 1 ♀. Bg, L. Mt. Mitchell, 1 ♀.

Hylemyza partita (Meigen)

1 ♂. Clingman's Peak.

Delia antiqua (Meigen)

1 ♀. Mt. Mitchell.

Delia arnolitra (Huckett)

5 ♂, 26 ♀. Ba-i, I, L. Mt. Mitchell, 20 ♂, 34 ♀; Clingman's Peak, 12 ♂, 14 ♀.

Delia echinata (Séguy)

1 ♂, 2 ♀. Ba, e, g. Mt. Mitchell, 10 ♂, 3 ♀; Clingman's Peak, 3 ♂, 1 ♀.

Delia inconspicua (Huckett)

2 ♂. Mitchell Falls.

Delia laevis (Stein)

1 ♂. A.

Delia platura (Meigen)

532 ♂, 365 ♀. A, Ba-i, C, F, G, I-P, T. Mt. Mitchell, 116 ♂, 108 ♀; Clingman's Peak, 44 ♂, 26 ♀; Mitchell Falls, 1 ♂; Roan Mtn. 2 ♀.

Delia winnemana (Malloch)

3 ♂. Bg.

Botanophila inornata (Stein)

8 ♂, 2 ♀. A, Bd, g, J, O, P. Mt. Mitchell, 2 ♂.

Paregle cinerella (Fallén)

1 ♂, 15 ♀. F, J, N, O. Mt. Mitchell, 1 ♀; Roan Mtn. 1 ♀.

Paregle radicum (Linnaeus)

2 ♀. L. Roan Mtn. 1 ♂.

Lasiomma abietis (Huckett)

1 ♂. Mitchell Falls.

Lasiomma anthracinum (Czerny)

8 ♂, 1 ♀. Bc, g. Mt. Mitchell, 1 ♂.

Lasiomma octoguttatum (Zetterstedt)

12 ♂, 29 ♀. Bb, c, f, g, h, I, L. Mt. Mitchell, 3 ♂; Roan Mtn. 1 ♂.

Pegohylemyia fugax (Meigen)

4 ♂, 6 ♀. Bb, d, f, g, L. Mt. Mitchell, 1 ♂, 1 ♀.

Pegohylemyia trivittata (Stein)

1 ♂, 1 ♀. C, J.

Acrostilpna atricauda (Zetterstedt)

5 ♂, 2 ♀. F, J, K.

Acrostilpna latipennis (Zetterstedt)

1 ♂. J.

Alliopsis species

3 ♀. Mt. Mitchell.

Eremomyia pilimana (Ringdahl)

16 ♂, 11 ♀. A, B, C. Mt. Mitchell, 3 ♂, 16 ♀; Clingman's Peak, 1 ♂, 5 ♀; Mitchell Falls, 9 ♂.

Nupedia infirma (Meigen)

1 ♂. J. Roan Mtn. 1 ♂, 1 ♀.

Nupedia nigroscutellata (Stein)

1 ♀. A. Mt. Mitchell, 1 ♂, 3 ♀; Clingman's Peak, 2 ♀.

Pseudonupedia intersecta (Meigen)

1 ♂, 3 ♀. Mt. Mitchell.

Pegomya atlantis Hockett

1 ♂. Clingman's Peak.

Pegomya bicolor (Wiedemann)

2 ♀. Bg, L.

Pegomya carduorum Hockett

1 ♀. Bb.

Pegomya connexa Stein

3 ♂, 4 ♀. A, Bg, D, L. Mt. Mitchell, 7 ♂, 1 ♀.

Pegomya finitima Stein

3 ♀. F.

Pegomya flavifrons (Walker)

1 ♀. J. Roan Mtn. 1 ♂.

Pegomya frigida (Zetterstedt)

1 ♂. P.

Pegomya geniculata (Bouché)

3 ♂, 5 ♀. A, C, D, J, L, U.

Pegomya hyoscyami (Panzer) var.

1 ♀. Bd.

Pegomya incisiva Stein

1 ♂, 1 ♀. J, U.

Pegomya juvenilis (Stein)

2 ♂, 3 ♀. A, Bg, D, K.

Pegomya lipsia (Walker)

6 ♂, 6 ♀. A, C, D, G, Q. Mt. Mitchell, 3 ♀; Clingman's Peak, 1 ♂.

Pegomya mallochi Hockett

2 ♀. J.

Pegomya palposa (Stein)

2 ♂, 4 ♀. Mt. Mitchell.

Pegomya rubivora (Coquillett)

1 ♂. Mt. Mitchell.

Pegomya tabida (Meigen) = *Anthomyza gilva* Zetterstedt (Hennig, 1973: 643)

1 ♂, 1 ♀. C, P.

Pegomya univittata (von Roser)

4 ♂. F, P, R.

Pegomya winthemi (Meigen)

1 ♂, 2 ♀. D, F.

Emmesomyia apicalis Malloch³

1 ♂, 6 ♀. A, Bb, d, g, i. Mt. Mitchell, 3 ♀; Clingman's Peak, 1 ♀.

Emmesomyia socialis (Stein)

2 ♀. A, K.

Hydrophoria divisa (Meigen)

1 ♂. Clingman's Peak.

Hydrophoria subpellucida Malloch

1 ♂. D.

Hydrophoria uniformis Malloch

27 ♂. A, Ba-c, g, i, J. Mt. Mitchell, 154 ♂; Clingman's Peak, 109 ♂; Mitchell Falls, 13 ♂.

Anthomyia pluvialis (Linnaeus)

1 ♀. D.

Leucophora johnsoni (Stein)

1 ♂, 2 ♀. Bf, F, J.

Leucophora marylandica (Malloch)

1 ♀. Clingman's Peak.

Paraprosalpia silvestris (Fallén)

4 ♀. J. Mt. Mitchell, 6 ♂, 2 ♀; Clingman's Peak, 1 ♂.

Eustalomyia vittipes (Zetterstedt)

1 ♂, 1 ♀. C, F.

Family Muscidae

Schoenomyza chrysostoma Loew

1 ♂, 1 ♀. L.

Schoenomyza dorsalis Loew

36 ♂, 47 ♀. B, F, I, J, L, N, O, P. Mt. Mitchell, 1 ♂.

Coenosia tigrina (Fabricius)

1 ♀. Mt. Mitchell.

Limosia atrata (Walker)

217 ♂, 379 ♀. A-D, F, I, J-P, T, U. Mt. Mitchell, 40 ♂, 46 ♀; Clingman's Peak, 2 ♂, 7 ♀.

Limosia conforma Hockett

1 ♂, 2 ♀. C, K.

Limosia errans (Malloch)

5 ♂, 7 ♀. I, J, L. Mt. Mitchell, 1 ♀.

Limosia frisoni (Malloch)

4 ♀. J, L.

Limosia lata (Walker)

4 ♂, 8 ♀. Ba-d, g, F, O, P. Mt. Mitchell, 4 ♂, 2 ♀; Clingman's Peak, 1 ♂.

Limosia nivea (Loew)

10 ♂, 24 ♀. A, Bb-g, C, I, J, K, L. Mt. Mitchell, 1 ♂, 11 ♀.

Hoplogaster intacta (Walker)

1 ♂, 5 ♀. C, D, P.

³Steyskal (1973) has indicated that the two taxa *Emmesomyia apicalis* Malloch and *E. socialis* (Stein) are but color variants of the same species. In *apicalis* the palpi are brown, and in *socialis* yellow, and in the latter I find that the arisal hairs are slightly longer. Tentatively I list the two forms separately.

Hoplogaster nigratarsis Stein

25 ♂, 56 ♀. A, C, D, F, I, J, K, L, O, P, T, U.

Neodexiopsis basalís (Stein)

1 ♂, 2 ♀. Bb, C, L.

Neodexiopsis calopyga (Loew)

6 ♂, 29 ♀. A, Bb, d, g-i, C, D, F, I, J, L. Mt. Mitchell, 1 ♂, 10 ♀; Roan Mtn. 1 ♀.

Neodexiopsis major (Malloch)

1 ♂, 7 ♀. Bb, d, D, J, K, L, P. Mt. Mitchell, 1 ♀.

Neodexiopsis occidentis (Stein) = *Coenosia rufitibia* Stein (Huckett, 1972: 170)

2 ♂, 14 ♀. Bb, d, g, D, H, J, L. Mt. Mitchell, 1 ♂, 4 ♀.

Neodexiopsis ovata (Stein)

5 ♂, 16 ♀. A, Bc, g, C, F, H, I, J, L, O. Mt. Mitchell, 2 ♂, 1 ♀.

Macrorchis ausoba (Walker)

6 ♂, 7 ♀. Mt. Mitchell, 2 ♂. Clingman's Peak.

Lispocephala alma (Meigen)

2 ♂, 7 ♀. Bf, g, I, J, K. Mt. Mitchell, 1 ♀; Roan Mtn. 1 ♀.

Lispocephala erythrocerá (Robineau-Desvoidy)

1 ♂. Mt. Mitchell.

Pentacricia aldrichii Stein

1 ♂. Bi. Mt. Mitchell, 2 ♂; Clingman's Peak, 1 ♀.

Lispe albitarsis Stein

7 ♂, 10 ♀. A, Bb-e, g, i, L. Mt. Mitchell, 11 ♂, 19 ♀; Clingman's Peak, 4 ♂, 6 ♀; Mitchell Falls, 1 ♂, 2 ♀.

Lispe sociabilis Loew

1 ♀. Ba. Mt. Mitchell, 3 ♂, 2 ♀.

Lispoidea aequifrons (Stein)

2 ♂, 1 ♀. Mt. Mitchell.

Spilogona caroli (Malloch)

1 ♂, 7 ♀. C, L. Mt. Mitchell, 2 ♂.

Spilogona parvimaculata (Stein)

6 ♂, 3 ♀. C, F, J.

Spilogona torreyae (Johannsen)

2 ♀. A.

Limnophora discreta Stein

2 ♀. Mt. Mitchell.

Limnophora narona (Walker)

3 ♂, 2 ♀. Bb, g. Mt. Mitchell, 1 ♂, 4 ♀; Clingman's Peak, 2 ♂, 1 ♀.

Pseudolimnophora nigripes (Robineau-Desvoidy)

1 ♀. H.

Gymnodia arcuata (Stein)

1 ♂, 29 ♀. Ba, b, d, g, C, D, J, U. Clingman's Peak, 1 ♀; Mitchell Falls, 1 ♂.

Helina johnsoni Malloch

2 ♀. A, L.

Helina obscurinervis (Stein)

2 ♂. F, J.

Helina rufitibia (Stein)

2 ♂, 2 ♀. C, I, P. Mt. Mitchell, 2 ♂, 1 ♀.

Helina tröene (Walker)

1 ♂. A.

Quadrularia laetifica (Robineau-Desvoidy)

22 ♀. I, J, K, L, N. Mt. Mitchell, 4 ♂, 2 ♀.

Hebecnema affinis Malloch

62 ♂, 35 ♀. Ba, b, d, f, g. Mt. Mitchell, 1 ♀.

Hebecnema umbratica (Meigen)

2 ♀. C, J. Mt. Mitchell, 1 ♀.

Hebecnema vespertina (Fallén)

8 ♀. A, I, J, L, U. Mt. Mitchell, 2 ♀; Clingman's Peak, 1 ♂, 2 ♀.

Mydaea brevopilosa Malloch

1 ♂, 1 ♀. Bg, C.

Mydaea discimana Malloch

1 ♀. L.

Mydaea flavicornis Coquillett

1 ♀. Bd.

Mydaea neglecta Malloch

15 ♀. Bb, g, D, F, J, L. Mt. Mitchell, 2 ♀.

Mydaea neobscura Snyder

6 ♀. A, Bg, D.

Mydaea nubila Stein

9 ♂, 3 ♀. A, I, J.

Mydaea obscurella Malloch

1 ♂, 5 ♀. Bg, C, F, T. Clingman's Peak, 1 ♀.

Mydaea occidentalis Malloch

1 ♂. C.

Mydaea palpalis Stein

15 ♂, 3 ♀. Bb, d, f, g.

Mydaea urbana (Meigen)

1 ♀. Mt. Mitchell.

Xenomydaea otiosa (Stein)

1 ♀. J. Roan Mtn. 1 ♂.

Myospila mediatubunda (Fabricius)

46 ♂, 115 ♀. Ba-d, g, i, D, J, L. Mt. Mitchell, 25 ♂, 25 ♀; Clingman's Peak, 7 ♀; Mitchell Falls, 2 ♀.

Fannia americana Malloch

3 ♂, 2 ♀. A, Bg, D.

Fannia bifimbriata Collin

1 ♂, 12 ♀. Bb, d, f, i, C, P.

Fannia brevipalpis Chillcott

1 ♂. A. Mitchell Falls, 3 ♂.

Fannia brooksi Chillcott

8 ♀. C, D, J.

Fannia canicularis (Linnaeus)

1 ♂, 1 ♀. Bb, D.

Fannia ceringogaster Chillcott

1 ♀. L.

Fannia depressa (Stein)

2 ♀. M, Q.

Fannia fuscula (Fallén)

8 ♂, 8 ♀. C, D, E, F, J, Q.

- Fannia immaculata* Malloch
2 ♂, 1 ♀. I, J, L.
- Fannia manicata* (Meigen)
1 ♀. Clingman's Peak.
- Fannia melanura* Chillcott
1 ♀. J.
- Fannia metallipennis* (Zetterstedt)
2 ♀. M, O. Mt. Mitchell, 1 ♂.
- Fannia pellucida* (Stein)
1 ♀. Mt. Mitchell.
- Fannia penepretiosa* Chillcott
1 ♀. C.
- Fannia postica* (Stein)
4 ♀. D, L. Mt. Mitchell, 2 ♀.
- Fannia rondanii* (Strobl)
2 ♂, 8 ♀. C, I, K, L, P. Mt. Mitchell, 2 ♀; Roan Mtn. 1 ♀.
- Fannia scalaris* (Fabricius)
1 ♀. Mt. Mitchell, 1 ♀. Clingman's Peak.
- Fannia serena* (Fallén)
1 ♂, 5 ♀. Bd, g. Mt. Mitchell, 4 ♂, 3 ♀.
- Fannia sociella* (Zetterstedt)
2 ♂, 11 ♀. Bg, C, D, I, K, L, P. Mt. Mitchell, 1 ♂.
- Fannia spathiophora* Malloch
7 ♀. Bf, g, D, J, L.
- Fannia unguolata* Chillcott
2 ♀. A.
- Coelomyia subpellucens* (Zetterstedt)
8 ♂, 2 ♀. Ba, f, g, L, M. Mt. Mitchell, 3 ♂; Clingman's Peak, 1 ♂.
- Azelia cilipes* (Haliday)
2 ♂, 11 ♀. Bb, C, D, F, I, L. Mt. Mitchell, 1 ♀.
- Azelia gibbera* (Meigen)
1 ♂. Q.
- Hydrotaea houghi* Malloch
15 ♀. A, Ba, b, d, g, C. Mt. Mitchell, 2 ♀; Clingman's Peak, 6 ♀.
- Hydrotaea militaris* (Meigen)
4 ♀. Bb, g. Mt. Mitchell, 6 ♀; Mitchell Falls, 1 ♂, 2 ♀; Roan Mtn. 4 ♂, 1 ♀.
- Hydrotaea occulta* (Meigen)
1 ♀. Bg.
- Hydrotaea pilitibia* Stein
9 ♀. A, F, J, K, L, T.
- Hydroteae spinifemorata* Hockett
2 ♀. K, P.
- Lasiops innocuus* (Zetterstedt)
1 ♂. L.
- Lasiops rufisquama* (Schnabl)
2 ♂, 3 ♀. Bg; K, L.
- Dialyta flavitibia* Johannsen
8 ♂, 7 ♀. Ba, g, J, K, L.
- Dendrophaonia marguerita* Snyder
2 ♀. N.

- Dendrophaonia querceti* (Bouché)
1 ♀. Mt. Mitchell.
- Dendrophaonia scabra* (Giglio-Tos)
1 ♂. C.
- Phaonia aberrans* Malloch
169 ♂, 12 ♀. Ba, b, d-g, i, L. Mt. Mitchell, 38 ♂, 4 ♀; Clingman's Peak, 14 ♂.
- Phaonia apicata* Johannsen
16 ♂, 46 ♀. A, Bb-e, g, h, C, D, G, I-L. Mt. Mitchell, 7 ♀; Mitchell Falls, 4 ♂, 5 ♀.
- Phaonia apicata* var. *solitaria* Stein
4 ♂. Mitchell Falls.
- Phaonia atlanis* Malloch
1 ♀. A. Mt. Mitchell, 2 ♂, 1 ♀.
- Phaonia bysia* (Walker)
4 ♂, 9 ♀. A, Ba, g, C, D, J, K, L, P, U. Mitchell Falls, 1 ♀.
- Phaonia cauta* Hockett
12 ♂, 53 ♀. Bb, d, f, g, i, C, D, K, L, P. Mt. Mitchell, 1 ♀; Clingman's Peak, 1 ♀.
- Phaonia curvipes* (Stein)
1 ♂, 31 ♀. Bb, d, f, g.
- Phaonia deleta* (Stein)
1 ♀. A.
- Phaonia errans luteva* (Walker)
6 ♀. I, J. Roan Mtn. 1 ♀.
- Phaonia fuscana* Hockett
5 ♀. C, E, I, K, L. Mt. Mitchell, 1 ♂.
- Phaonia laticornis* Malloch
1 ♀. A.
- Phaonia serva* (Meigen)
5 ♂, 16 ♀. Bg, C, H, I, J, K. Mt. Mitchell, 1 ♀.
- Muscina assimilis* (Fallén)
1 ♂, 6 ♀. Bb, g, D, L. Mt. Mitchell, 2 ♀.
- Muscina stabulans* (Fallén)
1 ♂, 7 ♀. Bb, g, i.
- Pararicia pascuorum* (Meigen)
1 ♂. Ba.
- Graphomya maculata* (Scopoli)
1 ♀. Clingman's Peak.
- Mesembrina latreillii* Robineau-Desvoidy
1 ♂, 91 ♀. A-D, H-L, N, P, W. Mt. Mitchell, 2 ♀; Clingman's Peak, 2 ♀.
- Morellia micans* (Macquart)
1 ♂, 16 ♀. A, Ba, d, g, K, S, T.
- Pyrellia cyanicolor* Zetterstedt
4 ♂, 17 ♀. A, Bf, g, D, I, L, N, U. Mt. Mitchell, 1 ♂, 4 ♀; Roan Mtn. 2 ♂, 3 ♀.
- Orthellia caesarion* (Meigen)
1 ♀. L. Mt. Mitchell, 1 ♂, 2 ♀; Clingman's Peak, 2 ♂, 1 ♀.
- Stomoxys calcitrans* (Linnaeus)
3 ♂, 9 ♀. A, Bb, c, f, g, i, G, J, V.

RESULTS OF THE SURVEY

A total of 57 species of Anthomyiidae *sens. str.* and 105 species of Muscidae were collected. Fourteen anthomyiid and 28 muscid species were regarded as chiefly restricted in their

distribution to eastern and midwestern areas of the United States and the transition zones of the Canadian provinces, namely, Family Anthomyiidae: *Chirosia hystrix* (Brischke), *C. pusillans* (Huckett), *C. stratifrons* (Huckett), *Delia arnolitra* (Huckett), *D. laevis* (Stein), *D. winnemana* (Malloch), *Eremomyia pilimana* (Ringdahl), *Pegomya juvenilis* (Stein), *P. lipsia* (Walker), *P. mallochi* Huckett, *P. palposa* (Stein), *Emmesomyia apicalis* Malloch, *E. socialis* (Stein), *Leucophora johnsoni* (Stein). Family Muscidae: *Limosia errans* Malloch, *L. nivea* (Loew), *Hoplogaster intacta* (Walker), *H. nigratarsis* Stein, *Neodexiopsis basalis* (Stein), *N. calopyga* (Loew), *N. major* (Malloch), *N. occidentis* (Stein), *Lispe albitarsis* Stein, *L. sociabilis* Loew, *Spilogona caroli* (Malloch), *S. parvimaclata* (Stein), *S. torreyae* (Johannsen), *Helina johnsoni* Malloch, *H. obscurinervis* (Stein), *Mydaea flavicornis* Coquillett, *M. neglecta* Malloch, *M. neobscura* Snyder, *Fannia americana* Malloch, *F. brooksi* Chillcott, *F. ceringogaster* Chillcott, *Dialyta flavitibia* Johannsen, *Dendrophoania marguerita* Snyder, *Phaonia apicata* Johannsen, *P. atlantis* Malloch, *P. cauta* Huckett, *P. curvipes* (Stein), *P. laticornis* Malloch.

Five anthomyiid and eight muscid species were regarded as boreal in habitat and as having reached their southern limits of distribution, namely, Family Anthomyiidae: *Acrostilpna atricauda* (Zetterstedt), *A. latipennis* (Zetterstedt), *Alliopsis* species, *Pegomya frigida* (Zetterstedt), *P. incisiva* Stein. Family Muscidae: *Mydaea obscurella* Malloch, *M. palpalis* Stein, *Fannia melanura* Chillcott, *Hydrotaea pilitibia* Stein, *H. spinifemorata* Huckett, *Lasiops rufisquama* (Schnabl), *L. innocuus* (Zetterstedt), *Mesembrina latreillii* Robineau-Desvoidy.

Two species of Anthomyiidae, namely, *Chirosia delicata* (Huckett), *Pegomya atlantis* Huckett, and one species of Muscidae, *Phaonia aberrans* Malloch, are known to be restricted in their occurrence to the middle Atlantic states, from Long Island to north Georgia.

NAMES OF COLLECTORS

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Chillcott, J. G.	Mason, W. R. M.
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Huckett, H. C.	Stupka, A.
Kelton, L. A.	Vockeroth, J. R.
Kukowitch, R. F.	Whittaker, R. H.

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