

Berks, Bucks, and Philadelphia counties, Pennsylvania, on masonry along railroads.

The usual habitat of *Pellaea glabella* is described by Shaver (1954) as "mainly the sheer, vertical limestone bluffs near waterfalls or north-facing, vertical limestone cliffs by rivers, and especially such bluffs as are near the water." The limestone masonry, otherwise known as "Hokie stone", which faces most of the buildings on the Virginia Tech campus would seem to bear about as close a similarity to this habitat as any man-made structure might, save the proximity to water. The plants grow from mortar cracks which are well weathered. A search for other occurrences on the older buildings surrounding the Drill Field revealed only a few plants on Eggleston Hall which is adjacent to Owens. Although descriptors such as "north-facing" and "near water" often describe the habitat of this fern, in my experience, its often exposed setting appears to be a hot and dry microsite. The site on Owens is on a northerly exposure and was also deeply shaded by shrubbery immediately adjacent to the building. This

protected setting may have ameliorated an otherwise harsh environment. With the shrubbery now cleared away, it will be interesting to see what changes if any will occur as a result of changes in the microclimate of the site.

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## First Record of *Tamioiphila grandis* (Insecta: Siphonaptera) from Virginia.

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A single female of the giant flea, *Tamioiphila grandis* (Rothschild) was collected by Gerald E. Meier on 20 October 1989 from a female Eastern Chipmunk, *Tamias striatus* (L., 1758) from Burkes Garden, Tazewell County, Virginia. On 14 November 1993, another female *T. grandis* was collected by Ralph P. Eckerlin from a male chipmunk, also from Burkes Garden. Both flea specimens have been deposited in the collection at Northern Virginia Community College as accession numbers M-Ts<sup>1</sup>-89 and M-Ts<sup>2</sup>-93 respectively. We have examined 27 chipmunks from Virginia, yet only two were infested, a

7.4% prevalence.

In the United States, *Tamioiphila grandis* is known from 12 states (CT, MA, ME, MI, MN, NH, NY, OH, PA, RI, VT, WI) (Benton, 1980). In Canada, records exist from southern Ontario, eastern Quebec, and southern New Brunswick (Holland, 1985). The locality nearest to the present site is in Somerset County, PA (Holland & Benton, 1968) approximately 335 km to the north. This is the first record from Virginia and also the southernmost locality known for *T. grandis*.

Holland (1985) remarked that the distribution of *T.*



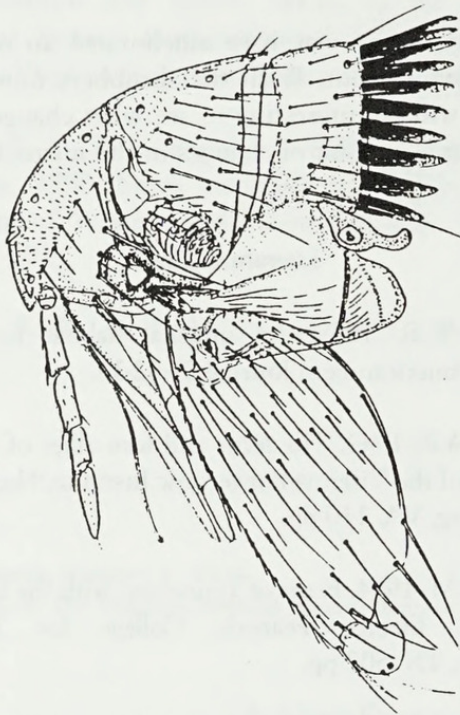


Figure 1. *Tamioiphila grandis* - head, prothorax, and procoxa of female from Burkes Garden, VA

*grandis* does not coincide with the entire range of its chipmunk host. The Eastern Chipmunk ranges from Nova Scotia and New Brunswick in the northeast to Manitoba in the northwest, and to Oklahoma and northwest Florida in the south (Hall, 1981). Although it is not found in the Piedmont of North Carolina, South Carolina, and Georgia, the chipmunk is found in the Appalachian mountains south to Georgia.

*Tamioiphila grandis* has had an involved taxonomic history. It was described as *Typhlopsylla grandis* by Rothschild (1902), transferred to *Ctenophthalmus* by Baker (1905), then to *Neopsylla* by Rothschild (1915). Jordan (1938) created the genus *Tamioiphila* to accommodate the sole species *T. grandis*. Several synonyms also exist. It is placed in the family Hystrichopsyllidae, subfamily Neopsyllinae.

*Tamioiphila grandis* is recognized by the following combination of characters: both genal and pronotal combs present, the genal comb of two spines crossing each other, frontal tubercle present, eye vestigial (Fig. 1), abdominal terga with spinelets, sternite 9 of male with fringe of long bristles, and the large size of 4-6 mm.

The chipmunk appears to be the true host; however, Fox (1940) reports that other hosts include "cottontail

rabbit"; Red Squirrel, *Tamiasciurus hudsonicus* (Erxleben, 1777); and "weasel," *Mustela noveboracensis* (Emmons, 1840) (= *M. frenata* Lichtenstein, 1831). Osgood (1964) dug *T. grandis* out of chipmunk nests, and this flea is probably a nest inhabitant. For this reason, specimens of *T. grandis* are rare in collections. Most records are females collected in spring and fall (Benton, 1980). Both of our records are females taken in the fall.

We gratefully acknowledge the help of Gerald E. Meier, who spent many days in the field with us and who collected the first specimen of *T. grandis*. The comments of an anonymous reviewer improved the manuscript.

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