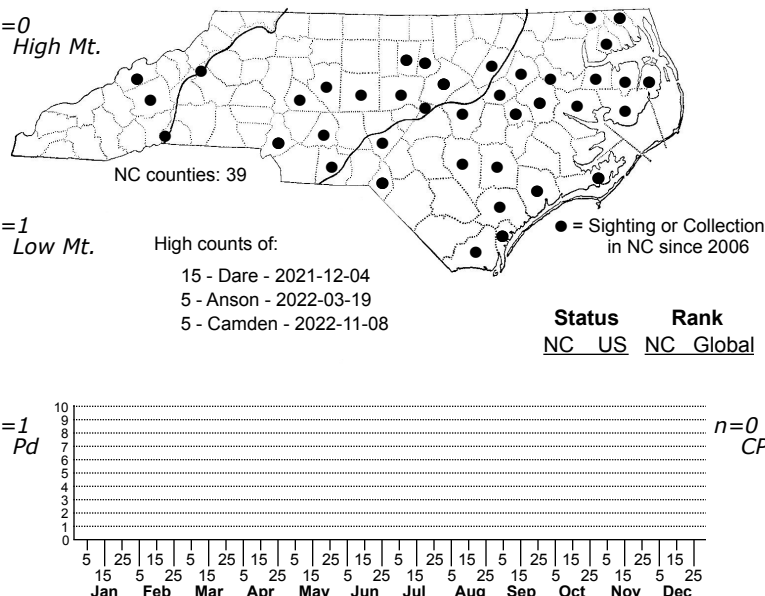
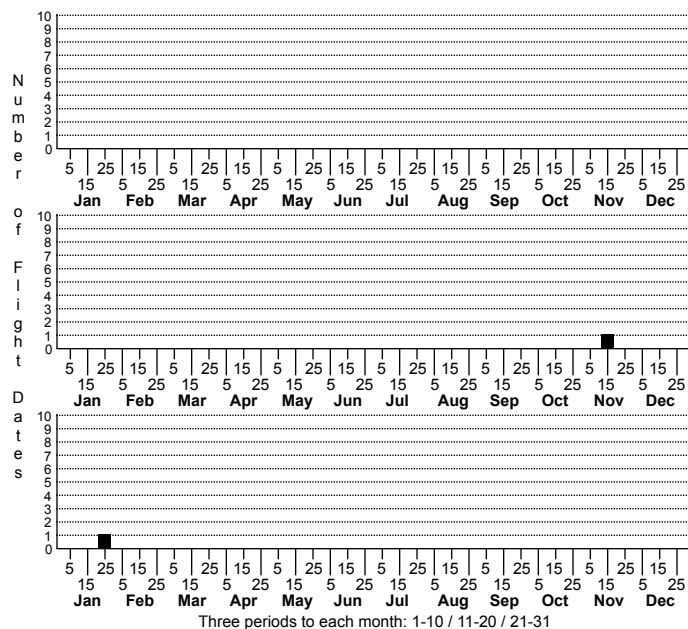


# *Marmara smilacisella* None



FAMILY: Gracillariidae SUBFAMILY: Gracillariinae TRIBE: [Gracillariini]

TAXONOMIC\_COMMENTS: The genus *Marmara* contains 19 described species from North America and numerous undescribed species. Most species are monophagous, and the mines have been found on over 80 North American plant genera that belong to 40 families (Eiseman et al., 2017). Given the small number of described species relative to the large number of hosts, there appear to be dozens of undescribed species in the US. Many of the species are difficult to rear and are only known from leaf or stem mines. North Carolina appears to have numerous undescribed species based on host preferences and mine characteristics. We have included forms that we believe are probably undescribed species (ca. 30) and have listed these by their host plants. We encourage individual to submit any leaf or stem mines that they find based on the plant hosts in order to better document the distribution and relative abundance of these forms in North Carolina.

## FIELD GUIDE DESCRIPTIONS:

### ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Braun, 1909

TECHNICAL DESCRIPTION, IMMATURE STAGES: Braun, 1909

ID COMMENTS: The following is primarily based on the description in Braun (1909) from specimens in Ohio. The head and face are silvery gray, except the vertex which has a few fuscous scales. The antenna is shining brownish gray. The labial palp is silvery white, with the apex of the second joint beneath somewhat roughened with dark brown scales, and the terminal joint with a dark brown annulation near the tip. The maxillary palp is dark blackish brown. The thorax is dark brown, and the ground color of the forewings dark brown and somewhat mottled with whitish scales. The markings are silvery white and somewhat variable. A silvery white basal fascia occurs at about one-third the wing length that is slightly broader on the dorsal margin. This is sometimes reduced to either a single dorsal spot, or two small costal and dorsal spots. A second fascia occurs near the middle of the wing that is narrowest in the middle and slightly bowed posteriorly. It is often interrupted in the middle to form a pair of triangular streaks, with the costal one slightly more anterior. This is followed by a pair of dorsal and costal streaks at about three-fourths that are roughly triangular, with the costal being the larger of the two. A final costal streak or spot is often evident near the apex, and there are often one or two curved whitish bars with black margins on the posterior edge at the wing tip. The fringe is white, and the hindwing grayish fuscous to dark brown. The legs are black with silvery annulations of varying widths. Specimens in the southern part of the range tend to be more mottled and to have the fascia and streaks reduced in size, often to only small dorsal and costal spots. BOLD specimens show two BINS, indicating significant genetic variation in this species.

DISTRIBUTION: *Marmara smilacisella* is found in the eastern US from Indiana, Ohio, and Maryland southward to Texas, Alabama, and Florida. This species occurs statewide in North Carolina.

FLIGHT COMMENT: There are very few adult records other than reared adults, so the flight season is rather poorly documented. Local populations appear to be bivoltine. Braun (1909) collected mines in Ohio in late August and the adults emerged in late September. A second generation occurs later and the adults overwinters as larvae (Eiseman, 2019). As of 2020, all of our records are based on leaf mines.

HABITAT: This species feeds on several species of Greenbrier (*Smilax*). *Smilax* is common throughout the state in habitats ranging from bottomlands to dry ridges. Species are commonly encountered in pine, hardwood, and mixed-hardwood forests, in thickets and along woodland borders, and even in dune systems along the coast.

FOOD: The larvae are stenophagous on *Smilax* species. The documented hosts include Saw Greenbrier (*S. bona-nox*), Cat Greenbrier (*S. glauca*), Laurel Greenbrier (*S. laurifolia*), Common Greenbrier (*S. rotundifolia*), Lanceleaf Greenbrier (*S. smallii*), and Bristly Greenbrier (*S. hispida*). We have mine records for all of these species in North Carolina.

OBSERVATION\_METHODS: The adults appear to rarely visit lights and the great majority of records are based on leaf mines.

NATURAL HERITAGE PROGRAM RANKS: GNR S4S5

STATE PROTECTION: Has no legal protection, although permits are required to collect it on state parks and other public lands.

COMMENTS: This species is widespread in the state and presumably more common than our limited records suggest due to a lack of effort to systematically survey leafminers throughout the state.