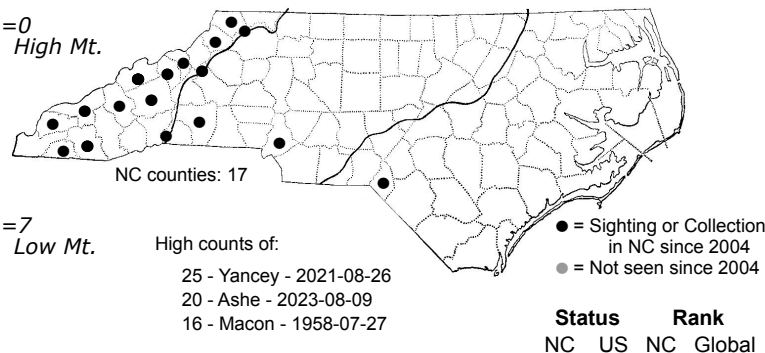
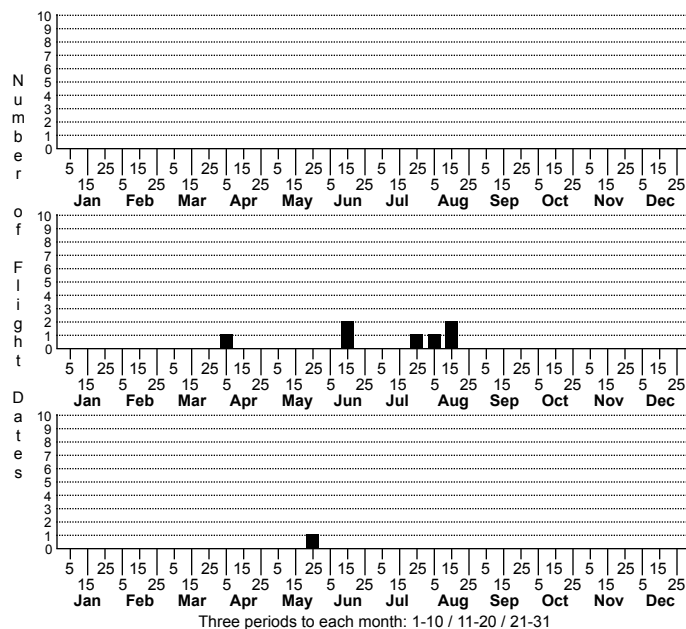


Macrosaccus robinella No common name



FAMILY: Gracillariidae SUBFAMILY: Lithocolletinae TRIBE: [Lithocolletini]

TAXONOMIC COMMENTS: Three *Phyllonorycter* species that occur in North Carolina were placed in a new genus, *Macrosaccus*, by Davis and De Prins (2011) based on differences in wing venation, genitalia, and life history traits. All are leafminers and have species-specific host plants.

FIELD GUIDE DESCRIPTIONS: Beadle and Leckie, 2012 (as *Phyllonorycter robinella*).

ONLINE PHOTOS: MPG, BugGuide, BAMONA

TECHNICAL DESCRIPTION, ADULTS: Davis and DePrins (2011)

TECHNICAL DESCRIPTION, IMMATURE STAGES: Davis and DePrins (2011)

ID COMMENTS: The following is based on detailed descriptions by Braun (1908) and Davis and De Prins (2011). The frons is smooth and shiny white, and the vertex is extremely rough. The vestiture consists of a tuft of elongate, piliform, mostly dark brown scales that are intermixed with white scales. The labial palps are white. The antenna is mostly dark fuscous dorsally for most of its length except the whitish tips, with the dark area narrowing to a more slender dark streak toward the basal 1/4–1/3 of its length. The thorax is dark brown dorsally, and the forewing pattern is complex. The ground color of the costal half is mostly light orange brown, while the basal third and dorsal half of the forewing are usually darker, mostly black to sometimes pale golden gray between the white streaks. There are four silvery costal streaks, the first two oblique. The first begins at about one-fourth the wing length. It is dark-margined on both sides and projects towards the middle of the first dorsal streak, which is dark margined on the anterior side. The second costal streak is at about the middle, is also dark margined on both sides, and nearly unites at an angle with an opposing first dorsal streak. The third costal streak at three-quarters nearly unites with the opposing second dorsal streak; both are dark-margined on the anterior side. A fourth white costal streak occurs just before the apex and is also dark margined on the anterior side. It projects towards the apex of the second dorsal streak. Between the first and second dorsal streaks there are one or two small black streaks. A black apical spot is present near the wing tip and the grayish fringe has a dark margin. The hindwing and fringe are uniformly gray. The legs are mostly dark fuscous dorsally with two or three dark annuli or bands on the tibia and tarsal region. *Macrosaccus robinella* is morphologically similar to our other two *Macrosaccus* species. It has paired streaks at mid-wing rather than a complete fascia, as is typically the case with the other two species. As described at microleps.org, the basal part of the forewing of *M. robinella* is solid gray, while in *M. uhlerella* and *M. morrisella* there is a small but distinct whitish patch near the dorsal margin at the outer limit of the basal gray area. In addition, *M. morrisella* also has a narrow white line that runs medially from the base of the forewing almost to the anterior edge of the white patch, thus creating a white marking that nearly encloses the basal gray area of the wing. Davis and De Prins (2011) noted that the forewing pattern of *M. uhlerella* is most similar to that of *M. morrisella* in having the basal strigulae less oblique than those present in *M. robinella*. It differs from *M. morrisella* in lacking the distinct basal white streak typical of the latter. Braun (1908) noted that *M. morrisella* generally has a more shiny appearance than the other two species. All three species can be easily identified in the larval stages by their host plants and mine characteristics.

DISTRIBUTION: Black Locust is native to the eastern US, but has been widely planted across much of the US, eastern Canada, Europe, and other regions of the world. *Macrosaccus robinella* has expanded its range accordingly, and is now found in southern Canada (Ontario; New Brunswick), British Columbia, and throughout much of the northeastern and east-central states. Populations range as far south as North Carolina. As of 2021, our records are mostly from the Blue Ridge and Piedmont, with one record from the Sandhills. This species was introduced to Europe where it has become a pest on Black Locust. Records from British Columbia may also reflect possible introductions out west.

FLIGHT COMMENT: Local populations probably have two or more broods per year, with the first beginning after the spring leaf-out, and the final brood occurring in late summer or very early fall. As of 2021, our very limited records are from June in the Sandhills, and from August-September elsewhere.

HABITAT: Local populations are strongly dependent on Black Locust for successful reproduction. This species is common in edge habitats such as along roadways or fencerows, but also occurs in mesic hardwood forests in the mountains, particularly where past disturbance has allowed seedlings to become established.

FOOD: Larvae feed primarily on Black Locust (*Robinia pseudoacacia*), but make occasionally use other species of *Robinia*, including Bristly Locust (*R. hispida*) and Clammy Locust (*R. viscosa*; Robinson et al. 2010, Eiseman 2019). This species was recently found using Dwarf Locust (*R. nana*) in the Sandhills. With this one exception, all of our North Carolina records as of 2021 are from Black Locust.

OBSERVATION METHODS: Local populations are most easily documented by searching for the silvery white mines on Black Locust leaflets. Be sure to photograph both sides of the leaflet in order to eliminate species such as *Odontota dorsalis* (a beetle) that make full-depth mines. We encourage individuals to rear and photograph the adults whenever feasible.

NATURAL HERITAGE PROGRAM RANKS: GNR SU

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

COMMENTS: The mines of this species are occasionally encountered along forested roadsides and open forests, but they far less abundant than those of the Locust Digitate Leafminer Moth (*Parectopa robinella*).