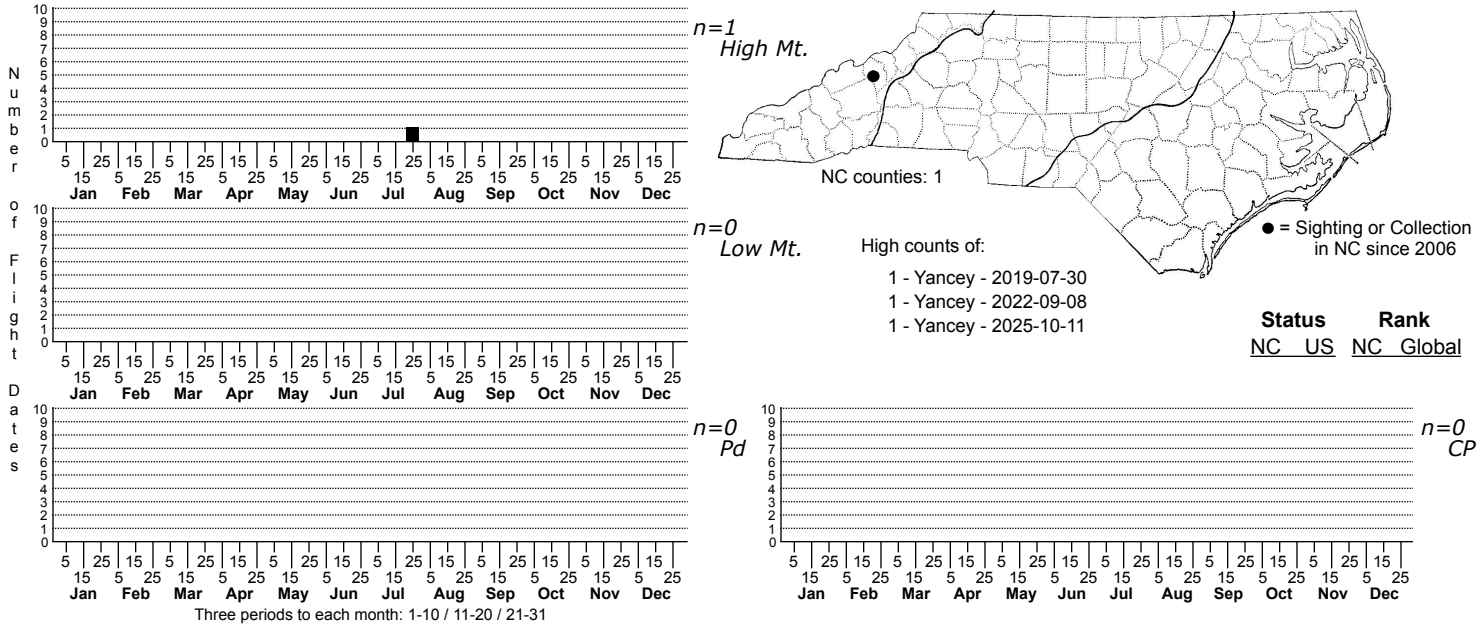
Coleotechnites piceaella Orange Spruce Needleminer Moth



FAMILY: Gelechiidae SUBFAMILY: Gelechiinae TRIBE:
TAXONOMIC_COMMENTS: The genus Coleotechnites includes 49 very small species that occur in North America. Most species are specialists on conifers and tend to feed on a single genus of host plant. Many of the Coleotechnites species have almost identical genitalia that are not very useful in delineating closely related forms (Freeman, 1960; 1965). Freeman (1960) noted that host plants and the mining characteristics often provide the most reliable way to identify closely related species.

FIELD GUIDE DESCRIPTIONS:
ONLINE PHOTOS:
TECHNICAL DESCRIPTION, ADULTS: Forbes (1923)
TECHNICAL DESCRIPTION, IMMATURE STAGES: McLeod (1966)

ID COMMENTS: This species has both light and dark forms. The following description of the light morph is mostly based on that of Forbes (1923). The head, thorax and ground color of the forewing are all straw-yellow, and the thorax has three black dots near the posterior tip. The second segment of the labial palp is straw-colored with a black streak or black dusting below, while the third segment is more whitish with two black bars on the apical half. The forewing has three dark fasciae or bands that are margined with pale white scales apically. The first is at around one-fifth the wing length from the base and extends about two-thirds inward from the costa to the fold. The second begins on the costa at around one-half and progressively tapers and curves apically before ending near the middle of the wing. The third is at around three-fourths, is outwardly angled at around 90 degrees, and is sharply margined with whitish scales that extend to the inner margin. A black dash is often present in the terminal area that extends to the apex, along with a series of five or six dark terminal spots below the fringe. Other marks include a series of equally-spaced, black dots of raised scales below the inner margin at around one-fourth, one-half and three-fourths. Matching dots are present inward from these and towards the middle of the wing. The hindwing varies from light straw-yellow to dark-brown. The dark morph is similar, but is heavily dusted with dark-brown to blackish scales that tend to obscure the overall patterning.

The description above is based on northern populations and may not be fully applicable to those in the southern Appalachians. Populations in North Carolina appear to be restricted to the highest elevations in the Blue Ridge where they feed on Red Spruce and Fraser Fir.

DISTRIBUTION: Coleotechnites piceaella is mostly found in northern latitudes where it feeds of spruce and fir trees. It occurs across most of southern Canada from Nova Scotia and Prince Edward Island westward to British Columbia and the Northwest Territories, and southward in the West to Oregon and Northern California. There are also records from Colorado. In the eastern US the range spans from Maine and other New England states westward to Ontario and Ohio, and southwestward to the higher peaks of the southern Appalachians. As of 2025, all of our records are from Mt. Mitchell and vicinity. This species is native to North America, but has been introduced to Europe where it is now widespread.

FLIGHT COMMENT: The adults have been documented from April through August, with a seasonal peak from June through August. As of 2025, our very limited records are from July.

HABITAT: Our records come from stands of Spruce-fir Forests on Mt. Mitchell and adjoining areas of the Black Mountains.

FOOD: The larvae are needle-miners on both fir and spruce trees (Prentice, 1966; Rose and Lindquist, 1994). The reported hosts include Norway Spruce (Picea abies), White Spruce (P. glauca), Black Spruce (P. mariana), Colorado Spruce (P. pungens) and Red Spruce (P. rubens). In North Carolina, the mines and larvae have been found on Red Spruce and Fraser Fir (Abies fraseri).

OBSERVATION_METHODS: The adults are attracted to lights; we recommend searching the foliage of Red Spruce and Fraser Fir for the larvae and mines.

NATURAL HERITAGE PROGRAM RANKS: GNR SNR [S1S2]

STATE PROTECTION:

COMMENTS: This species appears to be restricted to Mt. Mitchell and vicinity, where the population there is disjunct from the main range farther north. It primarily relies of Red Spruce as a host plant and may undergo long-term declines as the host plant declines in association with climate change.