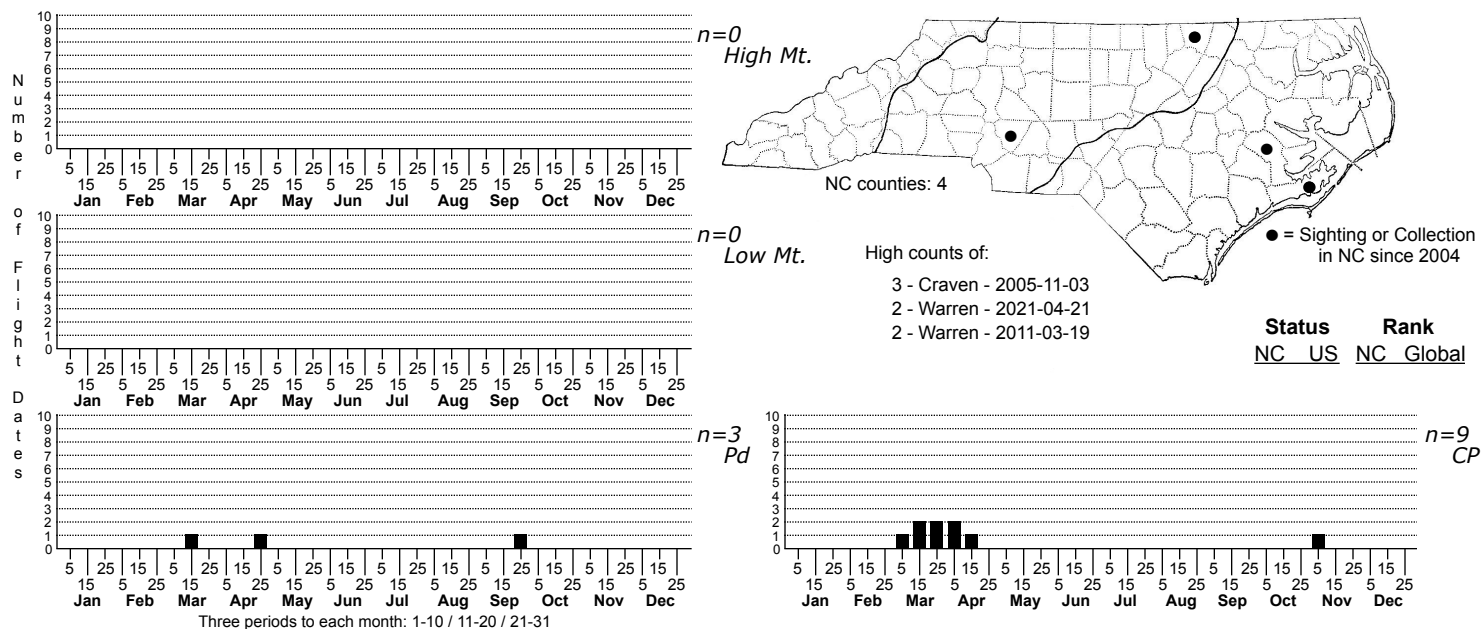


## *Zale lunifera* Barrens Zale



FAMILY: Erebidae SUBFAMILY: Erebinae TRIBE: Ophiuini

TAXONOMIC COMMENTS: One of 39 species in this genus that occur north of Mexico, 23 of which have been recorded in North Carolina. *Zale lunifera* was recently separated from *Z. intenta*, a close sibling species, by Schmidt (2010).

### FIELD GUIDE DESCRIPTIONS:

ONLINE PHOTOS: BOLD The identity of the specimens shown in other websites is unclear.

TECHNICAL DESCRIPTION, ADULTS: Schmidt (2010)

TECHNICAL DESCRIPTION, IMMATURE STAGES: Wagner et al. (2011)

ID COMMENTS: *Zale lunifera* and *intenta* are most clearly distinguished using DNA analysis (including DNA bar-coding). Other characters that Schmidt used to distinguish the two species are variable, including size, degree of elongation of the wing, prominence of the orbicular, intensity of striation on the forewing, and degree of sinuosity of the antemedian. Genitalic differences -- the last resort for identifying other *Zales* -- are only slight, especially in the males. Several of these characters, moreover, appear to be more clearly distinct in the Northeast; in North Carolina, specimens that have been bar-coded as *intenta* appear to be smaller than those bar-coded as *lunifera* (opposite of what Schmidt found), with the other characters also not consistently different. In the Northeast, *intenta* is widespread and believed to feed primarily on Cherry, whereas *lunifera* is confined to sandy pine barrens where it feeds on Scrub Oak (*Q. ilicifolia*). Those patterns have not, however, been clearly established in the Southeast, including North Carolina. Virtually all of our older records were assigned to *lunifera* and will take an effort to go back through existing specimens to re-determine their identities. In the meantime, we assume that the majority of records actually refer to *intenta*, presumably the more common, widespread species. We restrict records for *lunifera* primarily to specimens that have been confirmed by bar-coding.

DISTRIBUTION: Uncertain

FLIGHT COMMENT: Probably univoltine with adults flying two-three weeks later than *intenta* (Wagner et al., 2011); the July records may all represent *lunifera*

HABITAT: In the Northeast, *Zale lunifera* is believed to be highly confined to sandy barrens located close to the coast, where they are associated with populations of Scrub Oak; all other records are assumed to represent *intenta*. In North Carolina, however, several species that feed on Scrub Oak up north feed on other xeric oaks, including Turkey Oak (*Quercus laevis*) and Blackjack Oak (*Q. marilandica*). Those that feed on Blackjack in particular often occur outside the Coastal Plain, including well up into the Mountains (e.g., *Hemileuca maia*, *Hyparpax aurora*, and *Morrisonia mucens*). It seems unsafe to simply assume, therefore, that the same pattern observed for *lunifera* in the Northeast will be the same down here. Conversely, since Black Cherry can occur in even some of the driest habitats in the state, it is also not safe to assume that all records for this complex coming from xeric sandhills represent *lunifera*. We are currently waiting to see how well bar-coded specimens sort out by habitat.

FOOD: Stenophagous, reported to feed on Scrub Oak (*Quercus ilicifolia*) in the Northeast and on Blackjack and other scrub oaks in the South (Wagner et al., 2011).

OBSERVATION\_METHODS: Uncertain

NATURAL HERITAGE PROGRAM RANKS: G3G4 S2S4

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

COMMENTS: Too little is currently known about the distribution, population sizes and trends, and habitat associations to estimate the conservation status of this species.