**Site level *Packera* Metadata**

*Packera obovata* (roundleaf ragwort) is believed to be the sole host plant of *Calephelis borealis* (northern metalmark). This document describes three datasheets used in analyses to understand *Packera obovata* (roundleaf ragwort) across 48 quadrats near Kent,

**TransectClean.csv**

This spreadsheet describes site vegetation and environmental factors across the 48 quadrats. Locality data has been removed to protect the location of *C. borealis* populations.

***Column headers and descriptions:***

**Site:** One of three areas with *C. borealis* populations, Kent-1, 2, or 3.

**TRANSECT:** One of 12 linear transects walked across the three sites

**QUADRAT:** One of four quadrats established along each transect that represented different densities of *Packera* coverage.

**PACK\_COV:** Percent cover of *Packera*.

**COMP\_COV:** Percent cover of native herbaceous competitors to *Packera*

**INVASIVE\_COV:** Percent cover of invasive species.

**NECTAR\_COV:** Percent cover of nectar plants, e.g., black-eyed susan (*Rudbeckia hirta*), New Jersey tea (*Ceanothus americanus*), sunflowers (*Helianthus decapetalus* and *H. divaricatus*), and orange milkweed (*Asclepias tuberosa*).

**OPENSOIL\_COV:** Percent cover of bare soil.

**ROCKS\_COV:** Percent cover of rocks.

**BRYO\_COV:** Percent cover of byrophytes.

**SLOPE\_DEG:** Slope measured in degrees.

**ASPECT:** Aspect of slopes (0 to 360)

**SOILDEPTH1:** One of four measurements where soil depth was measured in a quadrat.

**SOILDEPTH2:** One of four measurements where soil depth was measured in a quadrat.

**SOILDEPTH3:** One of four measurements where soil depth was measured in a quadrat.

**SOILDEPTH4:** One of four measurements where soil depth was measured in a quadrat.

**CANOPY\_OPENNESS%:** Percent to which the overhead canopy is open as measured by a fisheye lens.

**TRANS\_TOTALLIGHT:** Total amount of transmitted light through the canopy

**40S\_HYDROMETER:** Measure of water in soil. \*

**120M\_HYDROMETER:** Measure of water in soil. \*

**SAND%:** Percent sand in soil. \*

**SILT%:** Percent silt in soil. \*

**CLAY%:** Percent clay in soil. \*

**OM%:** Percent organic matter in soil. \*

**YELLOW\_OAK:** Presence (1)/absence (0) of yellow oak (*Quercus muehlenbergii*)

**OTHER\_OAK:** Presence (1)/absence (0) of other oak species (*Quercus* spp.)

**HICKORY:** Presence (1)/absence (0) of hickory species (*Carya* spp.)

**SUGAR\_MAPLE:** Presence (1)/absence (0) of sugar maple (*Acer saccharum*)

**DOGWOOD:** Presence (1)/absence (0) of dogwood (*Cornus* spp.)

**HOP\_HORNBEAM:** Presence (1)/absence (0) of hop hornbeam (*Ostrya virginiana*)

**WITCH\_HAZEL:** Presence (1)/absence (0) of witch hazel (*Hamamelis virginiana*)

**SHADBUSH:** Presence (1)/absence (0) of shadbush (*Amelanchier* spp.)

**BASSWOOD:** Presence (1)/absence (0) of basswood (*Tilia americana*)

**HEMLOCK:** Presence (1)/absence (0) of hemlock (*Tsuga canadensis*)

**CEDAR:** Presence (1)/absence (0) of easter redcedar (*Juniperus virginiana*)

**HONEYSUCKLE:** Presence (1)/absence (0) of honeysuckle (*Lonicera* spp.)

**ASH:** Presence (1)/absence (0) of ash (*Fraxinus* spp.*)*

**ASPEN:** Presence (1)/absence (0) of aspen (*Populus* spp.)

**TULIPTREE:** Presence (1)/absence (0) of tulip tree (*Lidriodendron tulipifera*)

**IRONWOOD:** Presence (1)/absence (0) of ironwood (*Carpinus caroliniana*)

**RED\_MAPLE:** Presence (1)/absence (0) of red maple (*Acer rubrum*)

**PAPER\_BIRCH:** Presence (1)/absence (0) of paper birch (*Betula papyrifera*)

**env.csv**

This is a subset of the TransectClean.csv containing the following variables: *Packera* percent cover, percent canopy openness, aspect, slope, total light transmitted through the canopy, bare soil, and which site (Kent-1, 2, or 3) each quadrat was at. This dataset is used for the vegetation ordination shown in Supplement S2.

**spe.csv**

This is a presence/absence species matrix that was a subset of the TransectClean.csv. Note that column headers are present by latin name.