**3.1. Butterfly perspective**

**Main result:** interactions plant phenology x ants and neighbor density x neighbor phenology influence oviposition patterns / host plant use

**Title:** Oviposition patterns / host plant use + host plant phenology + host ants + resources? + neighborhood.

**Hypotheses:**

1. The relationship among oviposition and host plant phenology depends on host ant abundance

2. Oviposition depends on the neighborhood and the effect of host plant density depends on neighbors’ phenology

**Introduction:**

* Butterflies take decisions at two levels: 1) At the “area” level – evaluation of the neighborhood – how many plants? quality (phenology)?, and 2) At the “plant” level – evaluation of second resource (ants) and focal plant quality (phenology).
* Talk about two resources?
* From a butterfly perspective, good areas are those with many early-flowering plants, but these are also good areas (neighborhoods) to live in from a plant perspective because that would mean lower probabilities of being attacked (dilution of predation). This means that good areas for butterfly oviposition are also good areas for plants to live in.
* At the plant level, butterflies prefer plants flowering early and living near ants, so these conditions are bad for the plant because there are higher chances of being eaten.
* Oviposition depends on how good the plant is (quality – phenology), where it is (ants) and what it has around (how many neighbors and their quality)

**3.2. Plant perspective**

**Main result:** Environmental variables affect predation directly and indirectly (by affecting plant phenology, ants and neighborhood suitability), and plant fitness only indirectly

**Title:** Direct / indirect (multiple-level) effects + micro-environment / local / small-scale environment

**Hypotheses:**

1. Temperature and moisture affect predation both directly and indirectly, by affecting both resources used (plant phenology and ants) as well as the suitability of the neighbors

2. Effects on fitness – direct and indirect?