Integrative Biology 102: Lecture Outline

Pollination & Bee Colony Collapse

Lecture Objectives

At the end of this lecture, you should be able to:

1. describe variation in floral characteristics and explain how these variations contribute to reproductive success and genetic diversity.
2. compare the general characteristics of flowers pollinated in different ways: by insects, birds, mammals, and wind.
3. list five plants that rely on honey bees for pollination.
4. explain Colony Collapse Disorder (CCD) and its importance to crop production.
5. explain how native bees can substitute for honey bees and how to attract native bees.
6. describe how pollen deposition and analysis is used to determine past climatic conditions.

Reading: Ch. 5 in Leventin and HoneyBeeQuiet.com, KQED: Quest, Disappearing Bees Have Devastated Ribosomes and Is Life Too Hard for Honeybees? (Sci. Am. articles),

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TERMS

* perfect flower
* imperfect flower
* monoecious
* complete flower
* incomplete flower
* dioecious
* self-compatible
* self-incompatible
* pollen tube
* co-evolution
* self-pollination
* cross-pollination
* nectary
* nectar guide

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1. Pollination vs. fertilization

2. Variations on a theme -- Arrangement of flower parts

* Complete vs. Incomplete flowers

* Reproductive success and genetic diversity

* Perfect flowers

* Self-compatible

* Self-incompatible

* Reproductive success and genetic diversity

* Imperfect flowers

    o Monoecious

    * Dioecious

    * Reproductive success and genetic diversity

2. Pollen analysis

3. Pollination agents

* Wind

* Insects

* Colony Collapse Disorder

* Birds

* Bats and other small mammals

For the next lecture on Fruits& Dispersal, read Ch. 6 in Leventin. Be able to answer the following question:

* How would the extinction of a dispersal animal affect the continued existence of the plant the animal disperses?