



Community Spotlight

Each Community Spotlight features an outstanding group, partner, resource, or member of our community.

How Many More Thymes & Herbivore Defense

By Sheryl Konrad and Angela Dassow



Module Description:

This week's featured resource is an adaptation of:

J. Phil Gibson. July 2015, posting date. [How many more thymes? A case of phytochemical defense. National Center for Case Study Teaching in Science.](#)

This adaptation uses the videos and case study slides associated with the original resource to teach students the evolutionary ecology behind herbivore defenses in plants. Due to the extended course time that was available, the authors of this adaptation were able to make several exciting additions to the original material:

1. In-class discussion of videos - Students watch "Don't Eat the Plants" and "Mediterranean Vegetation - How Plants Survive" outside of class to prepare for the discussion.
2. Thyme plant observations - Students use detailed observations of six different thyme phenotypes to predict chemotype in thyme plant varieties.
3. Small group work - Students read a [phys.org](#) news article summary of peer-reviewed research demonstrating ecological pleiotropy in *Nicotiana* plants, which are pollinated by *Manduca sexta* moths that also lay their eggs on the plant's leaves, thereby challenging the plant with herbivory. Research shows that terpenes are differentially regulated in *Nicotiana* flowers and leaves based on environmental cues, and students are asked to consider how and why this happens. Students also have the opportunity to practice developing hypotheses, posing potential experiments, and planning realistic data collection procedures.

Teaching Setting:

This adaptation was used in a lower-level biology majors course. The course had a studio format - combining lab and lecture - and had students meeting three times a week for 2 hours and 20 minutes. Over the course of one week, each class session devoted ~35-45 minutes to these activities.

Citation:

Konrad, S., Dassow, A. (2019). [How Many More Thymes & Herbivore Defense. Making the Case](#), QUBES Educational Resources. [doi:10.25334/Q4FN0X](#)

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Related Materials and Opportunities:

This adaptation was developed during the [Making the Case Faculty Mentoring Network \(FMN\)](#). In the FMN, participants modified and implemented [selected modules](#) from the [National Center for Case Study Teaching in Science](#) to provide students with a platform to learn and practice data literacy skills. Throughout the FMN process, participants were mentored, supported, and provided with the infrastructure to find, customize, and share high quality teaching resources and strategies. The FMN produced several interesting adaptations of well-known case studies, including:

- [The Polar Bear of the Salt Marsh? Warming Tolerance Limits of Local Species](#)
- [Exaggerated Traits and Breeding Success in Widowbirds](#)
- [The Evolution of Human Skin Color](#)

You can [learn more about FMNs](#) and [subscribe to the QUBES newsletter](#) to receive updates later this summer about applications for Fall 2019 FMNs.

If you are interested in learning more about science case studies or presenting a case study that you designed, the [National Center for Case Study Teaching in Science](#) is sponsoring the 20th annual conference on case study teaching in science on September 27-28, 2019 in Buffalo, NY at Buffalo Marriott Niagara. The conference offers sessions for both the beginner and advanced case study teacher and is formatted for college and high school teachers. Workshop sessions this year will cover teaching cases using backward design, multimedia learning principals, developing cases using biointeractive videos, high school methods of engaging students, and more! Check the website for a [full listing of workshop sessions](#) and [session speakers](#). [Register](#) and [submit your poster session proposals](#) by September 10, 2019. Included in this year's registration fee is a one-year subscription to the National Center for Case Study Teaching case study collection teaching notes and answer keys.

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P.O. Box 1452, Raymond, NH 03077

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