Introduction

Wednesday, January 30th

What is trait-based ecology? And why does it matter?

Source: https://www.economist.com/finance-and-economics/2018/04/12/economists-understand-little-about-the-causes-of-growth

Course Introduction: Introduction_Jan30th.pdf

Wednesday, February 6th

Topic 1. The Rise of Trait-Based Ecology: Leaf Economics

This week will examine the emergence of the trait-based ecology discipline from physiological ecology and the subsequent development of key concepts such trait definitions and trait economics.

Source: http://moowanchai.blogspot.com/

Primary Reading*:

- Reich_etal_1997_global_convergence.pdf

Secondary Readings*:

- Reich_Walters_1994.pdf
- Wright_04_leaf_economics.pdf
- Garnier_etal_2015_Trait-Based_ecology.pdf

* Everyone: please read the primary reading in-depth. Then read the abstracts of secondary readings and choose one of them to read in greater detail. Note there may be concepts and details that are unfamiliar to you. Don't worry! This is to be expected because these readings are from the primary literature: its completely fine to come with unresolved questions. Regardless, seek to understand the key concepts and messages of each of the studies.

Wednesday, February 13th

Leaf Economics cont.d

The first part of today's seminar will be a in-class exercise using the GLOPNET plant trait database that was analyzed by Wright et al. in the 2004 paper that we discussed on February 6th. For a copy of the paper, see above. Below are copies of the dataset (an excel spreadsheet) and the accompanying background information on the studies that comprise the dataset:

GLOPNET Database: nature02403-s2.xls

Background information: nature02403-s1.doc

Before class on Feb. 13th:

(1) Download and open the dataset, and decide upon an interesting pairwise comparison that you would like to investigate in class. The "pair" here could be a pair of contrasting species living in the same environment, pair of related species found in different climates , or a single species that is found substantially different climates. Information on climate can be found in the background information document.

(2) Do some background research to learn more about he ecology and natural history of species you will be studying. This will be important for interpreting the results of the analyses we conduct in class.

(3) Read the Baraloto (2010) paper on stem economics (baraloto_etal_2010_stem_economics.pdf)

Wednesday, February 13th

Topic 2. Stem Economics

Source: https://www.alamy.com/stock-photo-cotton-gossypium-spec-cross-section-of-a-stem-of-a-cotton-plant-40-76068676.html

Reading: baraloto_etal_2010_stem_economics.pdf

Slides related to today's reading: stem_economics_images.pdf

Before class on Feb. 27th:

(1) Complete the Week 3 data analysis assignment: OEB 206 Week 3_Assignment.pdf

(2) Read the Wright and Westoby (2006) paper listed below

Wednesday, February 27th

Topic 3: Plant Traits and Ecological Strategies

Source: http://raesidecartoon.com/vault/house-plants-dead/

Reading: Westoby_Wright_06_TREE_review.pdf

Wednesday, March 6th

Topic 4. Stem Economics Reloaded: Plant Size and Allometry

Source: https://www.pinterest.com/pin/147915168988728604/

Before class on March 6th:

(1) Complete the Week 4 data analysis assignment: OEB 206 Week 4_Assignment.pdf

BAAD database to analyze in the assignment:

data:baad_data.csv

dictionary: baad_dictionary.csv

(2) Read the Wright etal (2007) paper listed below:

Wright et al. - 2007 - Plant Trait Variation in Seven Neotropical Forests.pdf

(3) Course Slides on plant allometry:

Plant Size and Allometry.pdf

Wednesday, March 13th

Topic 5. Plant Traits and the Maintenance of Functional Diversity

Source: https://www.cartoonstock.com/directory/p/plant-life.asp

Before class on March 13th: please read the following article:

kunstler_etal_2016.pdf

Wednesday, March 27th

Topic 6: The global spectrum of plant form and function

In class on March 27th, I will lead a discussion of the following article:

Diaz_etal_2016_trait-space.pdf

Please bring a copy of the article to class. If you have time, please review the article before coming class.

Wednesday, April 3rd

Topic 7. Reproductive Traits

Source: https://www.amoebasisters.com/parameciumparlorcomics/category/reproduction

Before class on April 3rd: please read the following article:

Moles_Westoby_2006_seed_size.pdf

Wednesday, April 10th

Guidance on what to present to the group about your research project:

Topic: what is the general topic that you're investigating?
Motivating Question(s): What question(s) are driving your analysis?
Plan for Analysis: What trait analyses are you planning to conduct in order to answer the questions you're asking?

Documentation on the 'PlantEcoPhys' R package

Paper: Duursma_etal_2015_PLOSOne_plantecophys.pdf

Package manual: plantecophys.pdf

Companion paper: Walker_etal_2014.pdf

Wednesday, April 17th

-- class project updates

Wednesday, April 24th

-- class project updates

Topic 8. Plant Hydraulics

Source: http://francis.thecomicstrip.org/comics/10/

Topic 9. Going Underground: Root Economics

Source: https://www.sarahdbailey.com/2317/is-money-the-root-of-all-evil/

Topic 10: Intra-specific Trait Variation

Source: https://www.researchgate.net/figure/Phenotypic-variation-within-S-viridis-accessions-A-Plant-height-and-flowering-time_fig1_50988718

Topic 11. Trait-Based Animal Ecology

Source: https://sayostudio.com/animal-diversity-and-comparisons

Conclusions and Future Directions

Wednesday, May 1st

Source: https://imgflip.com/i/1t0k20