Research focus: perform the initial literature assessment for a systematic review of

PLANT FUNCTIONAL TRAITS

in Hawai'i

'ilima (*Sida fallax*) leaf diversity

plant functional traits are measured quantitatively at the individual level

MORPHOLOGICAL

- leaf area
- leaf thickness
- leaf mass per area

PHYSIOLOGICAL

- water use efficiency
- net photosynthesis
- stomatal conductance
- chlorophyll content

PHENOLOGICAL

- total lifespan
- leaf longevity
- time to reproduction

these are just a few examples of functional traits . . . they affect performance

Performance

Performance can be measured by **growth, survival, and reproductive output.** These are *direct* metrics of plant fitness.

'ohi'a lehua (*Metrosideros polymorpha*) leaf diversity

Trait Variability

Traits can vary widely between individuals of the same species, especially across heterogeneous landscapes.

Measuring traits at the individual level is important to understand performance and fitness given a particular environmental stressors.

Tolerance

Plants achieve tolerance to stressors via synchronized responses that can involve multiple functional traits.

In this way, traits work together to maintain fitness.

Ecology & Restoration

Plant functional traits can be used to make predictions about how an ecosystem will respond to stressors such as drought. They can also help inform conservation strategies and restoration efforts.

CHANGE HAWAI'I

Justine R. Haltom, 2023

mentor: Dr. Kasey Barton

photos: Kim & Forest Starr