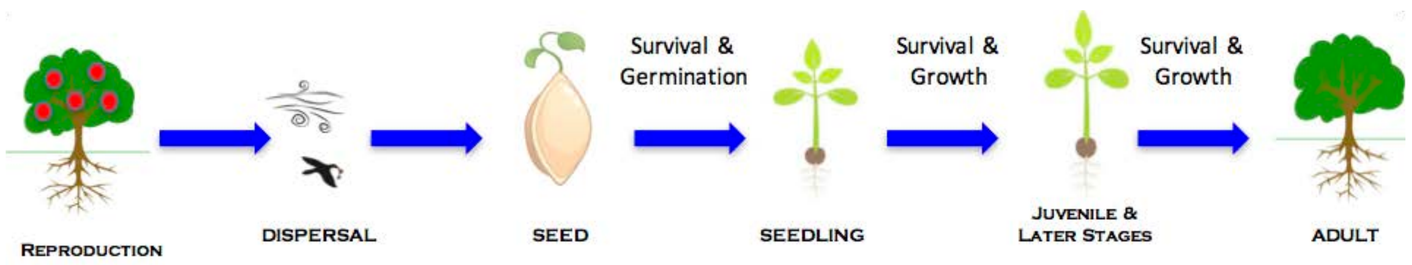
SEEDSCAPE ECOLOGY

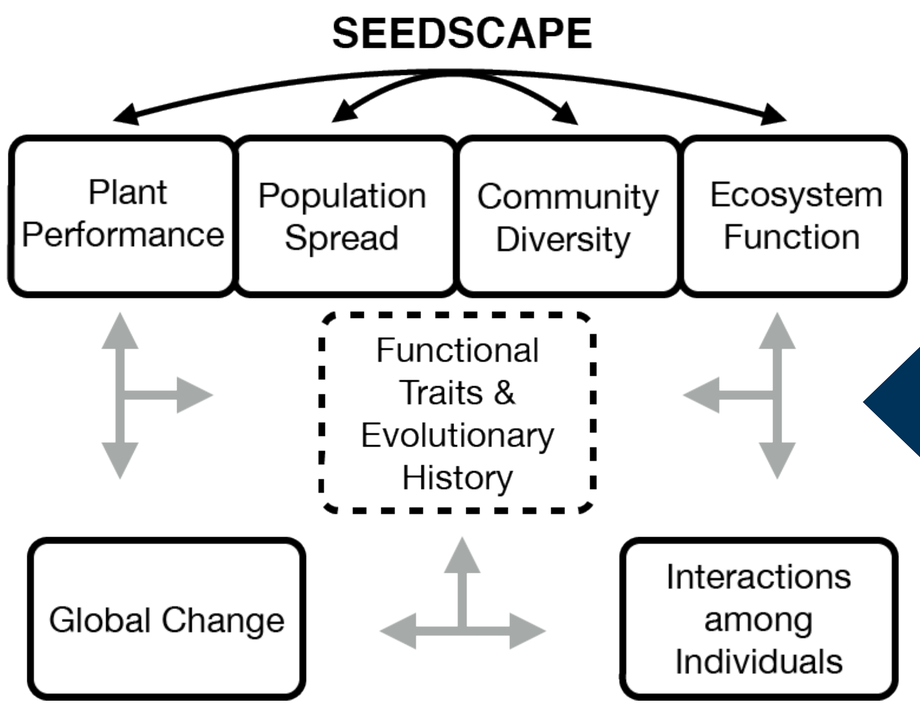
Beckman Research Group: Seedscape Ecology

UtahStateUniversity
DEPARTMENT OF BIOLOGY

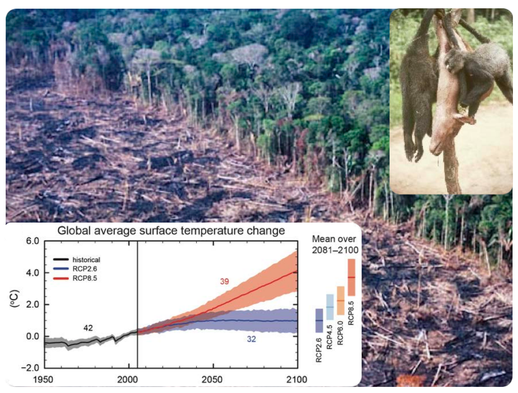


*The **seedscape** is the biotic and abiotic environment surrounding seeds that affect later stages of plant recruitment.*

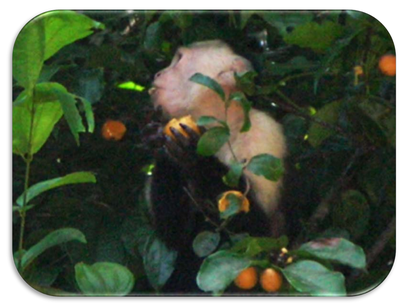
Plant Performance within the Seedscape.
We examine how variation in plant performance is explained by the abiotic and biotic environment, functional traits, and shared evolutionary history among plants.



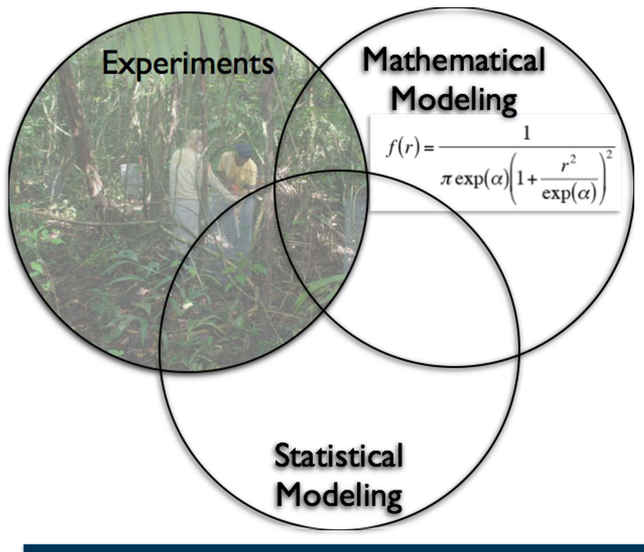
Scaling from Seedscapes to Ecosystems.
We are interested in how local interactions of plants with seed dispersers, natural enemies, and neighboring plants competing for limiting resources influence species distributions and diversity.



Seed dispersal Under Global Change.
We examine the consequences of dispersal disruption on plant performance, spatial patterns, population spread, and coexistence.



We use a combination of field, laboratory, and quantitative approaches to address our research questions.



STATISTICAL MODELING

Synthesizing Large Datasets

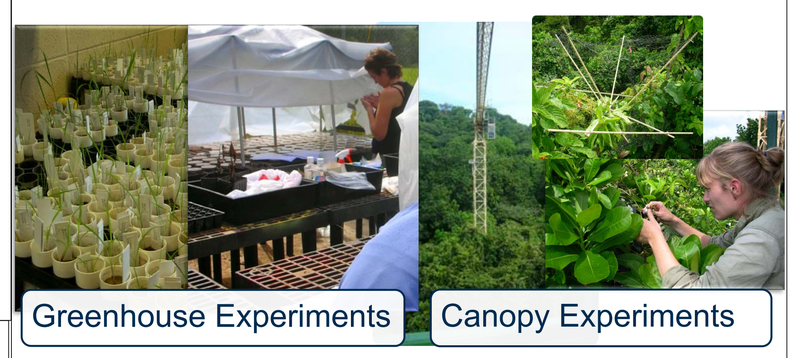
$$\begin{bmatrix} \beta \\ \mathbf{u} \\ \mathbf{e} \end{bmatrix} \sim N\left(\begin{bmatrix} \beta_0 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} \mathbf{B} & 0 & 0 \\ 0 & \mathbf{G} & 0 \\ 0 & 0 & \mathbf{R} \end{bmatrix}\right)$$

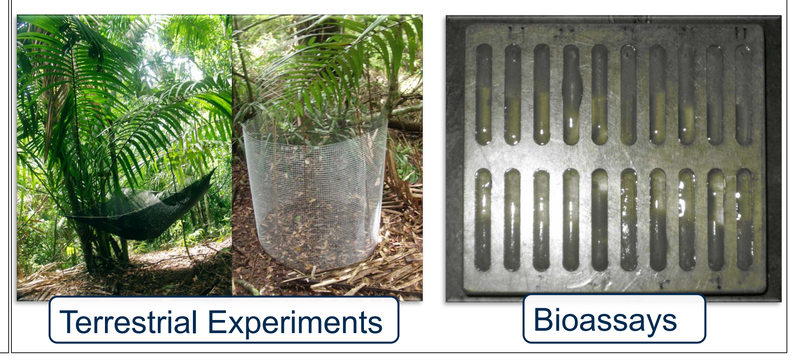
MATHEMATICAL MODELING

$$\mathbf{u}^{t+1}(x) = \int_{-\infty}^{\infty} [\mathbf{K}(x-y,y) \circ \mathbf{B}(\mathbf{u}^t(y),y)]\mathbf{u}^t(y)\,dy$$

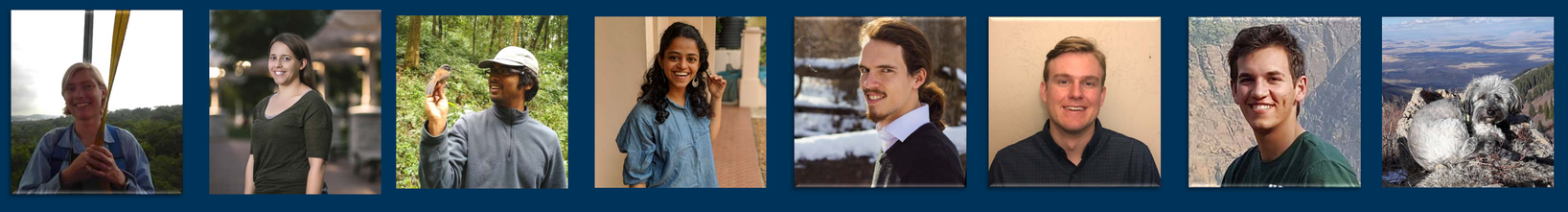
$$\Pr(\text{survival}) = \left(\frac{\delta(N_i)}{\delta(N_i) + \frac{\lambda}{1+\lambda N_i t_h}}\right)^{B_i}$$

EXPERIMENTATION





Seedscape Ecology Research Team



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BECKMAN RESEARCH GROUP
SEEDSCAPE ECOLOGY

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