Division of Environmental Biology (DEB)

The Leading Edge in DEB: Linking the Micro and Macro Scales in Ecology and Evolution

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Rules of Life

1. **Genetic variation** is the ultimate source of biological diversity.
2. **Environmental variation** is a selective force on genetic variation.
3. **Feedbacks** occur between genetic and environmental variation.

Investigations at 3 scales:

- Organismal Scale
- Spatial Scale
- Temporal Scale
Linking the Micro and Macro Scales in Ecology and Evolution

Understanding and predicting the spread of species across the landscape.

gypsy moth (invasive species)

Johnson, Dyer, Tobin, and Holland. NSF 1556767
Linking the Micro and Macro Scales in Ecology and Evolution

Predicting patterns of genetic diversity and adaptation across landscapes

Predicting mutation rate in relation to population size and structure

Yeast, cancer, other asexual populations

Weinreich. NSF 1556300
Division of Environmental Biology

DEB is the bridge between the Micro and Macro Scales
Division of Environmental Biology

Predicting G&P
in context of environmental feedbacks and evolutionary diversification

Environmental Variation
(in time and space)