

# Primary Conceptual Themes:

- 1) Integrative Inventories: Exploring Complex Biotic Associations Across Space and Time (MSB)
- 2) Decoding Diversity: Making Sense of Geographic Variation (UAM)
- 3) Generating Genotypes: Evolutionary Dynamics of Genomes (MCZ)
- 4) Fast Forward: Biotic Response to Climate Change (MVZ)
- 5) Coevolving Communities (MSB)

# More Questions

- How do we engage the Community in the RCN?
  - Museums
  - Institutions w/o museums
  - Public Outreach
- What existing on-line examples of teaching materials would be worth reviewing?

# ***Integrat(iv)ed Inventories: Exploring Complex Biotic Associations Across Space and Time***

- ***(MSB lead)***- to explore the dynamic nature of biotic associations across space and time.
- MVZ's Grinnell Resurvey Project.
- Ackerly (2009) used museum specimens to demonstrate that space, time and climate largely influenced the assembly of the Californian and Mediterranean floras.
- These patterns provide the foundation for models aimed at predicting future responses to climatic or other change and hence museum collections are central to nearly all efforts to understand and to protect biodiversity. Activities related to this theme will demonstrate the value of holistic research strategies that link specimens, associated geographic and ecologic information, and biodiversity informatics to address how biotic communities vary through space and time.

# Integrated Inventories

- What are we integrating?
  - History (Evolution and Environment)
  - Ecology
  - Biogeography
  - Genes
  - Hosts and Pathogens
  - other
- What are the key concepts?
  - Dynamic Planet and Biota
- Observations or Data—specimens and informatics
- Students learn to go back to fundamental resource
- Establishes what we know and what we don't know

# ***Coevolving Communities: Pathogens, Hosts, and Emerging Diseases***

- ***(MSB lead)***- Specimen-based collections provide the baselines for recognizing and solving major problems in parasite invasion and disease.

Introduction and movement of invasive species and exotic parasites pose a major threat to humans and non-humans. By drawing upon the historical relationships among diverse organisms captured in museum collections, it should be possible to develop better predictive models regarding the impacts of new interactions among diverse taxa.

Host specimens are tied directly to parasite specimens, students will be able to explore how host-parasite communities are assembled through time and space. Activities related to this theme will use an integrated, museum-based approach to characterize co-evolutionary relationships among parasites, pathogens and their hosts with the intent of being better able to predict the impacts of new contacts among organisms across the changing globe.