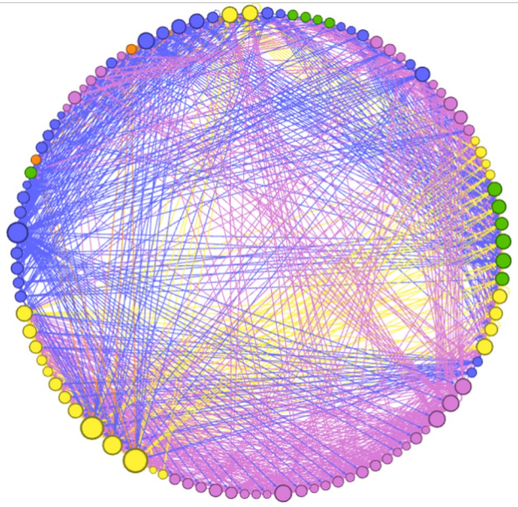


Metrics of Wildlife Community Resilience for Sierra Nevada Forests

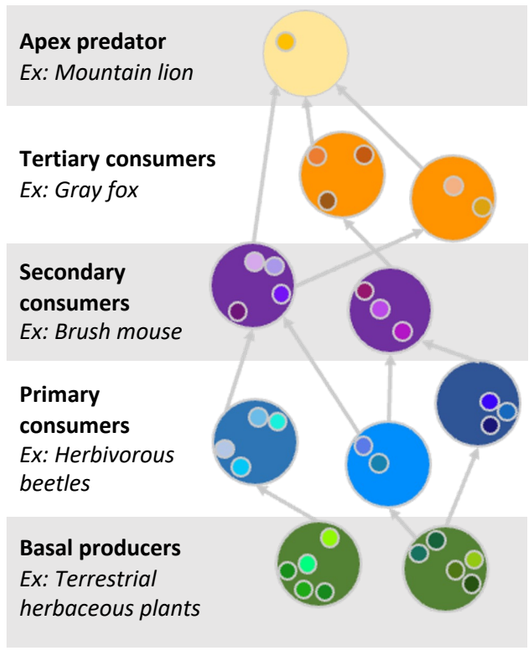
Overview: One goal of management is to enhance the resilience of habitats, however evaluating resilience can prove difficult. ***Food webs*** are a valuable way to represent the complexity of species interactions within a given local community. Food webs also present an opportunity to simultaneously evaluate habitat ***health*** and ***resilience***.

Objective: *to* create ***metrics to evaluate the resilience*** of forest wildlife communities to stressors associated with climate change that will help inform land managers how different management actions may influence wildlife community resilience.

How do we do meet this objective at a large scale? We use a meta-network approach, where species (small circles) are placed into trophic guilds (large circles – or functional groups) based on common predator, prey, body size, habits, and habitat. We then use this set of relationships to predict potential links in the food web and understand energy transfer between species.

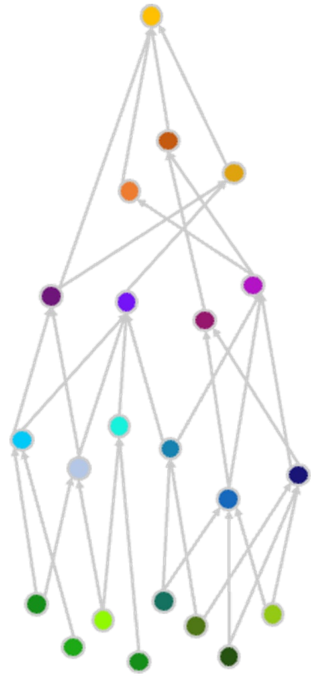
Tahoe Central Sierra Initiative (TCSI) Landscape
Wilson and Manley 2021

1. Create the global meta-network for the Tahoe Central Sierra Initiative Landscape



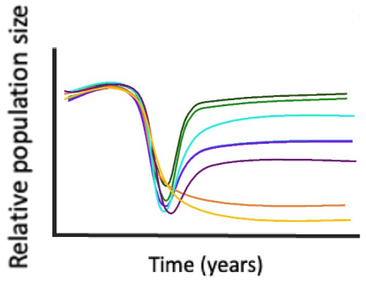
Habitat Filter

2. Subset and create forest habitat specific, species level food web
Ex: subalpine conifer

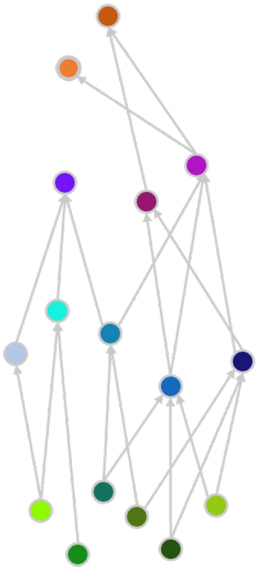


Run dynamic models

3. Simulate the impact of disturbances on food web
Ex: fire, climate change, forest management techniques



4. Examine resulting community



Resilience
Ability of a system to respond to disturbance and maintain its identity.
Metrics: under development

Health
Supportive of a variety of ecological processes
Metrics: species diversity, link diversity, functional redundancy

The team:
Jack Dumbacher[+], Becky Estes[*], Durrell Kapan[+], Linda Long[*], Patricia Manley[*], Peter Roopnarine[+], Angela White[*] & Rebecca Wilcox[+]
[+] California Academy of Sciences
[*] US Forest Service
Funded by:
CA Wildlife Conservation Board

Comments, questions, or suggestions contact:
Rebecca Wilcox
rwilcox@calacademy.org