

## FOOD WEBS AND DISTURBANCE

### FOOD WEBS:

1. What is a food web? – A conceptual model of feeding relationships between organisms in an ecosystem.

Two primary types: Energetic and Interaction

MOST FOOD WEBS ARE INCOMPLETE: But they are powerful heuristic tools

2. What are the key components of food webs?

Primary producers, primary consumers, secondary consumers, tertiary consumers.

3. How do you describe a food-web?

- 1) # of links
- 2) trophic levels
- 3) biomass at each level – proxy for energy transfer
- 4) direction of impacts of interactions
- 5) carbon sources

4. How do you construct a food web?

- 1) observations
- 2) gut contents
- 3) experiments (e.g. exclusions)
- 4) isotopes – in general a 3mil depletion/ trophic level; N tells you trophic level, C tells you from which autotroph you are deriving your carbon.

5. Where does fixed Carbon end up?

Two types of food webs: Brown and Green

6. How is biomass distributed across trophic levels?

- Elton – biomass
- Inverted Biomass food webs
  
- Lindeman - energetics

7. What controls amount of primary production?

Top-down vs. bottom-up.

8. What controls food web link?

- 1) Ecosystem size
- 2) Energetic hypothesis
- 3) Disturbance
- 4) Cross-ecosystem feeding
- 5) Dispersal limitation

**DISTURBANCE:**

1. What is Disturbance?

A physical event that kills or damages some organisms and thereby creates opportunity for others.

2. How does Disturbance impact communities?

- 1) restarts succession
- 2) promotes co-existence of competitors
- 3) promotes co-existence of predator and prey
- 4) generates trade-offs between stress tolerance or colonization and competitive dominance.
- 5) Can also intensify interactions
- 6) Can increase diversity

Example: IDH

**OLD AND NEW WAY OF THINKING ABOUT ECOSYSTEMS:**

Equilibrium vs. nonequilibrium