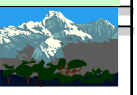
Monitoring Human Impacts



Impact is a neutral term.

- Change can be positive or negative.
  - (a better drug, disease-tolerant plant hybrid, game fish)
- How do impacts become "good" or "bad," "important" or "unimportant?"
- Only when humans make a value judgment.
- Impact is the effect, not the activity itself, not the stressor. (plant necropsy vs stack emissions vs acid rain)

Importance of Impacts--Magnitude

- Magnitude vs acceptability vs significance
- Magnitude is a measure of amount.
  (sq. m. bare ground, acres of exotic weed)
- Magnitude may not tell us much about the significance or acceptability of the impact.
- Does 500 sq. ft. exposed mineral soil really matter?
  (In a meadow? On a talus slope? On a gravel bar? On a glacier?)

Acceptability of Impacts

- Varies across the management zones (grass planted in a Wilderness vs a multiple use forest vs a city park).
- Varies with different perspectives
  (Sierra Club vs Cattleman's Assn.?)
  (Hikers vs horse packers?)
- Unacceptable to users if impacts decrease the *functionality* of the site or the *aesthetic quality* of the site.
- Public often does not notice ecological impacts.
- Manager/ecologist/anthropologist/scientists do

Social Significance of Impacts

- **Social significance** deals with how willing society is to tolerate the changes.
- Often judged socially significant if the change reduces the future utility and desirability of a site for recreation.
- Collateral impacts are often judged, also.
  (effects on local economy, life style, history, customs, traditions)

Ecological Significance of Impacts

Ecologically, impacts are more significant when they:

- Impair the function of the ecosystem
- Impair ecosystem processes (nutrient cycling)
- Destroy unique or rare features
  (stalactites/stalagmites)
- Cause irretrievable loss of ecosystem components.
  (e.g. soil, plants or animals, breeding grounds)

Ecological Significance of Impacts

Ecologists often evaluate importance of a change in terms of *how long it takes for recovery*.

- Ecologists evaluate the rate of change.
- Is the rate of change *greater* than the natural system can accommodate? HRV
- What is the spatial scale of the impact?

Socially or Ecologically Significant?

7

Socially or Ecologically Significant?

Context of Impacts

- How likely is the impact to spread or increase?
- Are there any likely barriers to spread or increase?
- What are characteristics of the source? (temporary, permanent, or continuous? near-by? increasing or decreasing?)

Context of Impacts

- What is the actual source of the impact?
- Is the impact anthropocentric in origin?
- Can you distinguish whether origin is anthropogenic or biogenic? (or both?)
- Can managers do anything about the impact?
- Does that matter???