

Measuring Plant Dominance

- I. Definition = measure of the relative importance of a plant species with respect to the degree of influence that the species exerts on the other components (e.g., other plants, animal, soils) of the community.
 - A. Influence based on competition for resources (e.g., light, water, nutrients)
 - B. Difficult to measure influence below ground so dominance is usually estimated with above ground characteristics.
- II. Types of Dominance
 - A. Aspect dominance:
 1. Tallest layer is the dominant layer (reduces climatic extremes by intercepting light and precipitation, reducing wind velocity, and retaining heat).
 2. Limitation: Ignores an understory that may be changing while the dominant plant remains the same
 - B. Sociologic dominance
 1. Used when interested in understory dominance. (Often used when overstory is constant and unchanging).
 2. Limitation: doesn't work well in systems with diverse overstory species
 - C. Relative dominance
 1. Examines the dominant species in each layer of the plant community
 2. Useful for multiple use management (overcomes limitations of first two types)
- III. Why monitor dominance?
 - A. Dominant species are often used to identify or classify an ecological type (e.g., *Art. tri/Agr. spi.* habitat type).
 - B. If the dominant spp are identified, one can predict changes that may occur in response to long-term precipitation changes or disease.
 - C. If the dominant spp are identified, management options can be more clearly understood.
 - D. Can be used in long-term monitoring programs to determine if management or preservation regimes are positively affecting the ecosystem.

IV. Evaluating dominance:

- A. Can be a single species, a group of species, or an entire growth form
- B. Indexes = using several plant characteristics (i.e., biomass, density, cover and frequency) as ratios to arrive at ratings for species in a given area.
- C. Importance Values = adding relative characteristics (%'s) together (e.g. relative density + relative frequency) to arrive at the dominance ranking.)
- D. Evaluating dominance can be done in many ways, depending on priorities, time, or site specific limitations - just be sure to justify your reasoning and document how, then comparisons can be made from year-to-year.

Important References for Plant Dominance

Daubenmire, R., 1968. Plant communities: A textbook of plant synecology Harper and Row, New York pp. 41-42.

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