Invasive Plant Species

Vegetation Sampling Design Checkilst

Refer to *Invasive Plant Species – Vegetation Sampling* for a complete description of these sampling design elements.

A good ***sample site*** has easy access during the entire growing season, is close to the school and is representative of local conditions. The selected site(s) should be covered with relatively uniform vegetation. It is recommended that, where possible, sites should be relatively flat or gently sloping, and not be either excessively dry or wet for your area. Avoid locations where plants are given supplemental water or fertilizer. In forested areas, the site should reflect the overall canopy composition and stature/size of the trees.

A good ***sampling design*** accommodates: replication, independence, randomness, representative-ness, and interspersion.

Vegetation Attributes	*Vegetation attributes are quantitative features or characteristics of vegetation that describe how many, how much, or what kind of plant species are present.*		
	❒ Occurrence (Species Composition)	Presence/absence of a particular plant species Creates a list of species May also include number of plants in each species per sampling plot	
	❒ Frequency	Probability of finding a species in a sampling plot – depends on having a large number of plots being evaluated	
	❒ Cover	% of sampling plot obscured by leaves, stems and flowers of each species present	
Sampling Design	*Sampling design is determined by the distribution of plants in the site and the topography of the site.*		
	❒ Random	Used in a homogeneous site/relatively flat	
	❒ Stratified Random	Used in a site with obviously different plant communities/ relatively flat	
	❒ Gradient-Transects	Site has an obvious gradient (slope) – transect oriented along the gradient	
Study Site Size	*This depends on the kind of land cover being studied. The larger the dominant plants the larger the study area should be.*		
	Land Cover	***Area, m²***	***Dimensions, m***
	❒ Forest	100 - 1,000	10x10 - 20x50
	❒ Woodland	100 - 1,000	10x10 - 20x50
	❒ Sparse Woodland	25 - 1,000	5x5 - 20x50
	❒ Shrubland	25 - 400	5x5 - 20x20
	❒ Sparse Shrubland	25 - 400	5x5 - 20x20
	❒ Dwarf shrubland	25 - 400	5x5 -20x20
	❒ Sparse dwarf shrubland	25 - 400	5x5 - 20x20
	❒ Herbaceous	25 - 400	5x5 - 20x20
	❒ Nonvascular	1 - 25	1x1 - 5x5

Sampling Plot Size	*The larger the dominant plants the larger the sampling plot. Plot size should be 1 to 2 times as large as mean area of most common species and larger than the average space between plants.*	
	Dominant Plants	***Approximate Area (m^2)***
	❒ Trees	100
	❒ Tall shrubs and low trees	16
	❒ Tall herbs and low shrubs	4
	❒ Herb layer	1 - 2
	❒ Moss layer	0.01 – 0.1
Sampling Plot Shape/ Configuration	*Depends on dominant plant size and topography (relatively flat vs prominant slope (gradient)). It is generally easier to determine % of area covered in square and rectangular plots than in circular plots.*	
	❒ Quadrats – Rectangular	Small frames easy to make Larger quadrats need to be "surveyed"/generally flat sites
	❒ Quadrats – Circular	Easily determined by stake-string method/generally flat sites
	❒ Quadrates – Nested	Needed for complex vegetation communities/generally flat site
	❒ Transects – Line-intercept	Best for plants with distinct crowns/sloped topography
	❒ Transects – Point-intercept	Best for continuous, relatively homogeneous vegetation/sloped topography
	❒ Transects - Belts	Can be used in a stratified random samlping design or shorter transects/sloping topography
Sampling Plot Location Method	*This depends on the size of the plot, its topogaphy and the equipment availabe to use in the field. All methods incorporate* ***randomness****.*	
	❒ Coordiante system	GPS used to locate initial coordinates, large study area or non-rectangular sites
	❒ Grid system	Can be used on smaller study areas
	❒ Line-intercept	Sites with a gradient