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Standard Guide for Sampling Terrestrial and Wetlands Vegetation[1]

This standard is issued under the fixed designation E 1923; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide covers environmental studies such as risk assessments, planning projects, or research typically including characterization of ecological resources. Compliance with federal statutes (for example, National Environmental Policy Act 1970, (NEPA); Comprehensive Environmental Response, Compensation and Liability Act 1981, (CERCLA: with its Remedial Investigation/Feasibility (RI/FS) and Natural Resource Damage Assessment (NRDA) components); Resource Conservation Recovery Act (RCRA), and Federal Insecticide, Fungicide, and Rodenticide Act, (FIFRA)) as well as state regulations addressing projects such as hazardous waste site assessments and environmental impact analysis often requires characterization of vegetation. This guide presents a framework for selection of terrestrial vegetation sampling methods based on project-specific objectives. Method-specific practices are associated with this basic guide as annexes.

1.2 As with any data gathering activity, the value of information is affected by the strategy and sampling design. Determining the number of sample points, temporal and spatial location of sample points, relationships among sampling points, and the correspondence of other sampling activities are important considerations. Strengths and limitations of various methods are described in general terms in this guide. However, the key issues linked to data quality relate to the specific question being addressed and the adequacy of the field sampling plan.

1.3 The values stated in SI units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 No related ASTM standards on field sampling are available.

2.2 This guide is intended only as a framework for vegetation sampling, not as an in-depth discussion of methodology. Greig-Smith **(1)**[2] provided a detailed theoretical treatment of vegetation sampling. Other excellent treatments of vegetation sampling, typically with fewer theoretical considerations, are also available. The user of this guide is referred to general literature on field sampling methods and designs **(2-8)**.

3. Terminology

3.1 The words "must," "should," "may," "can," and "might" have specific meanings in this guide. "Must" is used to express an absolute requirement, that is, to state that the test ought to be designed to satisfy the specified condition, unless the purpose of the test requires a different design. "Should" is used to state that the specified condition is recommended and ought to be met if possible. Although violation of one "should" is rarely a serious matter, violation of several will often render the results questionable. "May" is used to mean "is (are) allowed to," "can" is used to mean "is (are) able to," and "might" is used to mean "could be possible." Thus, the distinction between "may" and "can" is preserved, and "might" is never used as a synonym for either "may" or "can."

3.2 *Definitions of Terms Specific to This Standard:* Consistent use of terminology is essential for any vegetation sampling effort. Below is a list of terms that are used in this guide, as well as others that may be encountered commonly during the course of vegetation sampling. This list is not exhaustive, and it includes terms that do not apply to every project or method. Definitions are from Barbour et al. **(9)** and Hanson **(10)**, or the author of this guide.

3.2.1 *abundance*—the number of individuals of one taxon in an area; equivalent to the term *density* as used in botanical literature (relative abundance = density).

3.2.2 *association*—a particular type of community with relatively consistent floristic composition, a uniform physiognomy, and a distribution characteristic of a particular habitat.

3.2.3 *basal area*—the cross-sectional area of a tree trunk at 1.4 m (4.5 ft) above ground (see *diameter at breast height*).

3.2.4 *basal area factor (BAF)*—in variable radius sampling, the number that is multiplied by the number of tallies to obtain basal area in m^2/ha or ft^2/ac.

[1] This guide is under the jurisdiction of ASTM Committee E47 on Biological Effects and Environmental Fate and is the direct responsibility of Subcommittee E47.02 on Terrestrial Assessment and Toxicology.

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[2] The boldface numbers given in parentheses refer to a list of references at the end of the text.

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