

Proposal for National Standards for the Floristic Levels of Vegetation Classification in the United States: Associations and Alliances

PROJECT TITLE: Proposed National Standards for the Floristic Levels of Vegetation Classification in the United States: Associations and Alliances (Part II of the Federal Geographic Data Committee Vegetation Classification Standards, FGDC-STD-005, October 1997)

DATE OF PROPOSAL:

TYPE OF STANDARD: The Proposed National Standards for the Floristic Levels of Vegetation Classification in the United States: Associations and Alliances will incorporate Data Classification Standards (Data Standards), as well as Classification Methodology Standards and Data Collection Standards (Process Standards), as defined in the FGDC Standards Reference Model.

SUBMITTING ORGANIZATIONS: The Federal Geographic Data Committee (FGDC) Vegetation Subcommittee and the Ecological Society of America (ESA) Vegetation Classification Panel

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OBJECTIVES: The objective of this project is to develop floristic-level standards for the classification of vegetation in the United States using associations and alliances as defined in the FGDC Vegetation Classification Standards (FGDC-STD-005, October 1997). While the existing approved standard defines association and alliance, it does not provide standards for naming and classifying vegetation at these levels. This project will develop standards for doing so as Part II of the FGDC Vegetation Classification Standards: Floristic Levels of Vegetation Classification in the United States: Associations and Alliances.

SCOPE: The floristic-level standards of a national vegetation classification will be FGDC data content standards. The standards will include:

- **Inventory and plot standards:** to establish criteria for the collection of vegetation plot data, the purpose of field sampling, and the standards for vegetation plot data.
- **Standards for the documentation and characterization of vegetation units:** to formalize a standard format for documentation, characterization, and review in support of recognized units in the classification system.

- **Nomenclature standards:** based on the scientific names of the diagnostic (dominant, differential, indicator, or character) species and follow FGDC nomenclature standards;
- **Standards for data management (dissemination and archiving):** to establish an overall system for data management, archiving, and dissemination.

These standards will be used to classify and catalog plant communities, and will be important for predicting ecological processes such as productivity, successional patterns, or other complex properties of natural phenomena. The classification will provide a consistent conceptual matrix for integrating, understanding and communicating the ecological context for management decisions concerning biodiversity. We expect that such a classification system will play a prominent role in guiding research and extrapolation of findings, in ecosystem management and planning, in resource conservation, and in predicting outcomes from environmental change.

The standards are for classification of existing, not potential, vegetation and are based upon vegetation condition at the optimal time during the growing season. The vegetation types are defined on the basis of species composition within types. The standards are for vegetation classification, not landscape, ecosystem, or site classification. The classification will include the full range of plant communities, i.e., natural as well as anthropogenic.

The standards for the lower levels of the National Vegetation Classification are based on actual floristic(vegetation) composition. The data used to describe alliance and association types must be collected in the field using standard and documented sampling methods. The alliance and association units are derived from these field data. These floristically-based classes will be nested under the physiognomic classes of the hierarchy presented in the FGDC Vegetation Classification Standards (FGDC-STD-005, October 1997). All floristic-level standards will be a subset of the existing FGDC Vegetation Classification Standards.

The standards described here relate to classification and are not standards for mapping units of vegetation. This classification is intended to be based on units of vegetation occurring at the habitat level. The criteria used to group these plant communities into mapping units will depend on the purpose of any given mapping project. This problem is by no means unique to vegetation surveys, it applies to mapping of all natural phenomena, for example it is well-recognized in soil surveys.

JUSTIFICATION/BENEFITS: The vegetation of the United States is changing dramatically as a result of intensity and extent of human influences on the land. Desire to sustain the integrity of our natural resources and a need for more information have stimulated vegetation classification and mapping in state and federal agencies, academic institutions, and non-governmental organizations.

Today, with the coordinated activities of the major institutions involved in vegetation classification and mapping, the United States is moving toward having its first fully functional, widely applied vegetation classification system. Still lacking, however, are important functions such as peer-reviewed publication of standards for terminology, documentation of vegetation types, field data acquisition, and classification units. In addition, a framework for ongoing

review of the system's structure and the described types is needed, both initially and as changes are proposed.

A standardized, refereed, and widely used vegetation classification for the United States is urgently needed for effective planning, management, and research of the nation's ecological systems. The existing Vegetation Classification Standards are hierarchical, using physiognomy and broad ecological modifiers at the higher levels and floristics at the finest levels of detail. Although the Vegetation Classification Standards conceptualizes the floristic levels, it does not include an actual classification of floristically-defined vegetation types. Section Four states that the floristically defined units of the classification standard, along with the field methods and data management and analysis standards, will be presented in subsequent documents. These floristic levels of the classification standard are the keystones to making the existing standard useful for multiple local-level and site-specific planning and management applications. To identify, describe, and document thousands of floristically based types nationwide will require analysis of regional vegetation and establishment of standards for plot data, nomenclature, and review of proposals for named units.

The goal of this project is to draft such standards, which can only be realized through the collaboration of government, academic, and private sectors. The floristic-level classification must be based on standardized nomenclature, terminology, methods, descriptions, and data management. Without a nationwide system, large amounts of vegetation plot data from different sources cannot be integrated, compared, or evaluated.

DEVELOPMENT APPROACH: The ESA Panel on Vegetation Classification, in support of the FGDC Vegetation Subcommittee, proposes a process for establishing standards that will lead to a scientifically rigorous system for database development, analysis, and adoption of taxonomic units at the two floristic levels of the National Vegetation Classification. The ESA Panel recognizes The Nature Conservancy association and alliance classification system as a baseline classification system (now managed by the Association for Biodiversity Information), and proposes modification and introduces standards for terminology, nomenclature, plot data, and documentation and description of classification units. Provision is also made for the management, dissemination and archiving of data, for peer review of the classification system, and for the establishment of a long-term institutional framework.

In August 1997, the ESA Panel produced its first draft of "An Initiative for a Standardized Classification of Vegetation in the United States," which included inventory and plot standards, terminology standards, nomenclature standards, standards for the documentation and characterization of vegetation units, and standards for data management (dissemination and archiving). This document was presented to the vegetation science community at the 1997 ESA Annual Meeting and distributed to the FGDC Vegetation Subcommittee, as well as other federal and state agencies involved in vegetation classification, for review and comment. Using the draft "Initiative" and comments received on it as a basis, the Panel will draft proposed national vegetation classification standards for floristic levels. The ESA Panel on Vegetation Classification will work with the FGDC Vegetation Subcommittee to incorporate federal agencies responsible for vegetation classification in the development of the proposed standards.

DEVELOPMENT AND COMPLETION SCHEDULE: Once this proposal is approved by the FGDC Standards Working Group (SWG), the FGDC Vegetation Subcommittee and the ESA Panel on Vegetation Classification will form a project team and begin work on the development of floristic-level standards for vegetation classification in the United States. The revision of the ESA Panel's draft "Initiative" to conform to FGDC format and incorporate revisions by the FGDC Vegetation Subcommittee is expected to take approximately six to nine months. Once the Vegetation Subcommittee is satisfied with the content of the standards, they will be forwarded to the SWG for consideration for public review.

RESOURCES REQUIRED: The ESA Panel on Vegetation Classification has received a 1998 National Spatial Data Infrastructure Cooperative Agreement to begin the development of these standards. While additional sources of funding have been acquired, further resources will be sought as needed to complete the Approval Process.

POTENTIAL PARTICIPANTS: Participants will include members of the FGDC Vegetation Subcommittee, the ESA Panel on Vegetation Classification, The Nature Conservancy (TNC)/Association for Biodiversity Information (ABI), and the USGS National Biological Information Infrastructure (NBII). The FGDC Vegetation Subcommittee includes representatives from federal agencies, the non-profit sector, and professional associations. The ESA Panel on Vegetation Classification is a collaborative effort of vegetation scientists from academia, the federal government (USGS Biological Resources Division, US Fish and Wildlife Service, U.S. Forest Service, Environmental Protection Agency, and the Bureau of Land Management), and the non-profit sector. The standards development agency should be led by the FGDC Vegetation Subcommittee with support from the ESA Panel on Vegetation Classification, and input from other organizations such as TNC/ABI and the USGS NBII.

RELATED STANDARDS: This standard will build on, and be consistent with, the existing FGDC Vegetation Classification Standards. Related standards, such as the UNESCO International Classification and Mapping of Vegetation Standards (1973) and the FGDC Biological Data Profile of the Content Standard for Digital Geospatial Metadata and Biological Nomenclature and Taxonomy Data Standards, will be identified and reviewed. Many systems exist for classifying existing and potential vegetation, but none of these are national in scope. However, they will be reviewed and serve as input to this effort.

OTHER TARGETED AUTHORIZATION BODIES: At this time there are not other appropriate authorization bodies to target in developing these standards. We, therefore, propose pursuing the development of these floristic-level standards for the classification of vegetation in the United States solely as an FGDC standard. We also have established a Memorandum of Understanding among the FGDC, TNC/ABI, ESA, and USGS NBII regarding future activities relating to the development and maintenance of the classification's content.