

## *Internet Plant Databases*

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Specific plant information is often needed in response to land management-related issues. Primary needs include wildlife habitat restoration, fire rehabilitation, and weed management. Other uses include environmental assessments, impact statements, and allotment or fire management planning. In most instances, local subject matter experts are asked or the literature is checked for such information, when easily accessible and inclusive information is at hand from Internet accessible databases. Consequently, the needed information is available to most Bureau of Land Management (BLM) personnel through the computers at their desks. Plant information is often synthesized or developed into databases by the Natural Resources Conservation Service (NRCS) or the U.S. Forest Service (USFS). Two such Internet databases are the U.S. Department of Agriculture (USDA) PLANTS Database and the USFS Fire Effects Information System (FEIS).

These systems and some of their attributes are discussed here. First, each is easily accessible, and although not encompassing all plants or situations in the United States, these databases can probably address most questions that one might have about a plant or vegetation situation. Both systems are open to the public and are growing, as funding permits. Finally, both systems use information or data that can be tracked and verified if their applicability or vintage is in doubt. In general,

the PLANTS Database provides references to where a plant is listed or states where it is located, whereas the FEIS cites literature used in the text of its synthesis that can be researched for further information. As revealed by a survey of 21 selected grasses, shrubs, and trees, the number of references listed in the PLANTS Database (average, 17) is less than that of the FEIS (average, 187), although the PLANTS Database format is very user friendly. A fairly common forb, Lewis flax (*Linum lewisii*), was not listed in the FEIS, although it was listed in the PLANTS Database. Other forbs, including some weeds, were checked and found to be listed in both databases.

The USDA Web site indicates that the PLANTS Database provides standardized information about the vascular plants, mosses, liverworts, hornworts, and lichens of the United States and its territories. It includes names, plant symbols, checklists, distributional data, species abstracts, characteristics, images, plant links, references, crop information, and automated tools. The PLANTS Database reduces costs by minimizing duplication and making information exchange possible across agencies and disciplines. The information is accessible by common name, scientific name, or symbol. Additionally, the PLANTS Database links to many other USDA NRCS sites under PLANTS Topics and PLANTS Tools. These sections further divide the plant information or provide more information and utility in their sections. Under the Topics section, information can be found on such subjects as distribution updates, culturally significant plants, plant materials publications, wetland indicator

status, and threatened and endangered status. The Tools section provides useful sites, such as the Ecological Site Information System (ESIS), VegSpec, plant materials information, and others.

A few sites under the Tools section are so useful that they warrant elaboration. The ESIS is the repository for data associated with the collection of forestland and rangeland plot data and the development of ecological site descriptions. The ESIS is organized into two applications and associated databases:

The first application and associated database in ESIS is the Ecological Site Description (ESD) application, which enables the production of automated ecological site descriptions from the data stored in its database. The ESD is the official repository for all data associated with the development of forestland and rangeland ecological site descriptions by the NRCS. An ecological site may be defined as “a distinctive kind of land with specific characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.” Any land inventory, analysis, and resulting management decisions require knowledge of these individual sites and their interrelations with one another. The ecological site description is the document that contains information about the individual ecological site.

The second application and associated database in ESIS is the Ecological Site Inventory (ESI). The ESI application enables one to enter, edit, and retrieve rangeland, forestry, and agroforestry plot data. Although this database has, as one of its applications,



the data entry of information on rangeland and forest sites by NRCS personnel, the application that has the most utility to BLM is the accessibility to available data. The ESI contains inventory data collected on thousands of plots over the past 40 years. These data are made available to the public through the ESI application. The data may be viewed in a variety of standard report formats or through the use of custom queries tailored to an individual's needs. The data may also be downloaded for use in other applications. Inventory data collected on rangeland plots include the total annual production of all plant species of a plant community, as well as the production (by weight) and composition of individual plant species in the plant community. The inventory data collected on forestland plots include composition and relative abundance of the overstory and understory plant species, stand densities (basal area), and site productivity, as measured by site index. The other tool accessible through the PLANTS Database is VegSpec. VegSpec is a Web-based decision support system that assists land managers in the planning and design of vegetative establishment practices. It utilizes soil, plant, and climate data to select plant species that are site-specifically adapted, suitable for the selected practice, and appropriate for the purposes and objectives for which the planting is intended. The VegSpec application can determine the site-specific adaptability of plant species and has the potential to be useful in planning fire, habitat, or rangeland rehabilitation and restoration projects. The user can define

the constraints or desires for the project and VegSpec will select the species that are appropriate.

The FEIS database provides up-to-date information about fire effects on plants and animals. It was developed at the U.S. Forest Service Rocky Mountain Research Station, Fire Sciences Laboratory, in Missoula, Montana. The FEIS database contains reviews from English-language literature of almost 900 plant species, about 100 animal species, and 16 Kuchler plant communities found on the North American continent. The emphasis of each review is on fire and how it affects each species. Background information on the taxonomy, distribution, basic biology, and ecology of each species is also included. Reviews are thoroughly documented, and each contains a complete bibliography. Managers from several land management agencies (U.S. Forest Service and U.S. Department of the Interior—Bureau of Indian Affairs, Bureau Land Management, Fish and Wildlife Service, and National Park Service) identified the species to be included in the database. Those agencies funded the original work and continue to support maintenance and updating of the database.

As noted previously, the reference list of species used by the FEIS is generally long. It does, however permit one to see where the information is drawn from in a full citation. However, in neither database is the original information readily available; it must be accessed by other means. With the FEIS, some references are available through

other Web sites—for example, the Society for Range Management's Web site. The FEIS database also has a number of links, including the University of Montana INVADERS Database System, the USDA PLANTS Database, and The Nature Conservancy.

In conclusion, two readily available Internet-based plant databases give the user access to a large amount of easily understood and utilized information on many plant species and their properties. They offer access to programs and information to BLM personnel or others that can be extremely helpful in land management. The Internet addresses of these databases follow:

<http://www.fs.fed.us/database/feis/>  
<http://plants.usda.gov/>

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