Reports and Short notes

The BIOPAK software system for calculating plant components

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BIOPAK is a software package for the PC that provides flexibility for linking plant measurements to a library of documented equations, that estimate plant components, e.g. leaf mass, leaf area, stem wood mass, bark mass, fuel size classes. It can be used, for example, to estimate browse or leaf area for wildlife, live fuels for fuels appraisal, biomass components for studies of plant resource allocation, and leaf area for plant process studies. It is menu-driven and includes on-line help.

BIOPAK requires a library of equations that can be used to predict the desired plant components and a vegetation data set containing the plant measurements required by the equations. The user must supply the vegetation dataset of interest. BIOPAK includes a library of over 1100 prediction equations and an editor for updating it. Most of the equations in the library were developed in the Pacific Northwest of North America, including Southeast Alaska, northern Rocky Mountains and the Sierra Nevada Mountains. This library includes equations from biomes ranging from temperate rainforest to desert. The Equation Library Editor can be used to build equation libraries for other biomes and regions of the world using existing equations for those areas.

For a given species and plant component, the program can choose equations from those contained in an equation library using built-in assumptions based primarily on comparisons of plant dimensions, geographic area sampled and seral stage sampled for input data and prediction equations. Alternatively, a user can direct the program to search a specific subset of the equation library or use a particular equation for particular input data. In this way, equations from other species may be used for species for which equations are unavailable.

BIOPAK produces reports formatted for people and machine-readable files for use in graphics, statistics and database programs. Other reports document the design of a computation run and the equations used.

Estimating fuel size classes for live shrubs and herbs

Means & Krankina (in press) describe the use of BIOPAK to calculate size classes of live fuels for shrubs and herbs. A library of equations to estimate such fuels in the Pacific Northwest of North America is described and used in an example. These methods can be used in other regions if the user first enters fuel size class equations for a given region into a new library using the library editor supplied with BIOPAK. Fuel size classes can be estimated in three ways. 1. When appropriate plant measurements are available, fuel classes can be estimated directly for species that have equations in the library or species with similar growth forms. 2. When appropriate plant measurements are not available, fuel classes can be estimated in two steps, by first estimating total above-ground biomass for individual plants and then estimating biomass in fuel classes from total aboveground biomass. 3. Users can use the equations provided to develop new equations that estimate fuels from plot-level estimates of species cover (and possibly other measures).

Obtaining BIOPAK with technical support

BIOPAK software and manuals are distributed by the Forest Resources Systems Institute (FORS), a nonprofit organization that searches out and distributes software for forest-related applications. A fee of U.S. \$50 is charged to cover costs of disks, duplication, distribution, and telephone support to answer user questions. For people in countries with currency exchange problems, the fee is reduced to U.S. \$25. FORS can be contacted at: The Forest Resource Systems Institute, 122 Helton Court, Florence, AL 35630; Fax +1 205 767-3768; E-mail: DAVEFORS@AOL.COM.

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Obtaining BIOPAK software without technical support

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The software can also be obtained without technical support. All BIOPAK software and libraries are available for free by anonymous FTP from the Forestry Sciences Laoratory in Corvallis, Oregon, at domain "FTP.FSL.ORST.EDU" in Directory "LOCAL/FTP/ PUB/MEANS/BIOPAK/". They can also be accessed on the World Wide Web using a web browser such as Netscape at URL: HTTP://WWW.FSL.ORST.EDU/ NOVELL/TSUGA.SHARE/ROGUES/MEANSJ/ BIOPAK.HTM

The two BIOPAK publications can be ordered free of charge from: Publications Pacific Northwest Forest Research Station P.O. Box 3890, Portland, OR 97208-3890; Tel. +1 503 326 7128; Fax +1 503 326 2455; Email: SWA/S=RIS/OU=R06C@MHS.ATTMAIL. COM

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Please let me know of your experiences with BIOPAK. I have limited resources for fixing bugs and making improvements. I am interested to know how it works for you, or if it does not, and the problems you encounter.

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References

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- Means, J.E. & Krankina, O.N. In press. Estimating live fuels for shrubs and herbs using BIOPAK. Gen. Tech. Rep. PNW-GTR. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.

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