

# Using hyperdocuments to manage scientific knowledge: the prototype Encyclopedia of Southern Appalachian Forest Ecosystems

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Available online 15 December 2004.

## Abstract

Despite the overwhelming body of research available on the ecology and management of Southern Appalachian forests, a gap exists between what scientists know and what the management community is able to apply on the ground. Most research knowledge still resides in highly technical, narrowly focused research publications housed in **libraries**. The internet, combined with increasingly sophisticated hyperdocument authoring systems, makes web-based hyperdocuments a practical and affordable way to manage this scientific knowledge. The USDA Forest Service developed the Encyclopedia of Southern Appalachian Forest Ecosystems (ESAFE; [http://www.sciencedirect.com/science?\\_ob=RedirectURL&\\_method=externObjLink&\\_locatort=url&\\_cdi=5042&\\_plusSign=%2B&\\_targetURL=http%253A%252F%252Fwww.forestencyclopedia.net%252F](http://www.sciencedirect.com/science?_ob=RedirectURL&_method=externObjLink&_locatort=url&_cdi=5042&_plusSign=%2B&_targetURL=http%253A%252F%252Fwww.forestencyclopedia.net%252F)), a hyperdocument-based encyclopedia system available on the internet, to address this need for more accessible, understandable, condensed, and synthesized research knowledge. This project aims to synthesize what we know scientifically about the management and ecology of Southern Appalachian forest ecosystems, organize it logically, and make it universally available at no cost to users. ESAFE is composed of original summaries of hundreds of topic areas compiled from over 5000 literature sources by over 15 authors specifically for this purpose. Presently, ESAFE has over 1100 pages of content that includes over 150 tables, 150 figures, 3000 internal hyperlinks, and 1800 external hyperlinks. Unlike most internet-based hyperdocuments, quality control of the encyclopedia is ensured through a complete peer-review process similar to traditional scientific journals. The encyclopedia is built upon a dynamic content management system (CMS), developed using Zope software, that provides a platform for authoring, editing, reviewing, publishing, and updating content directly through the internet. This CMS creates a mechanism for updating the site with peer-review content directly through the internet, so that the knowledge base can be continually updated, expanded, and improved. Using tools like ESAFE, busy forest managers can more easily find answers to questions from their own desks. It has been favorably evaluated by a diverse group of land managers, the general public, and ecosystem

scientists. It is also currently being used as a prototype for several other forestry-related hypertext encyclopedias.

**Keywords:** [Knowledge management](#); Hyperdocuments; Southern Appalachians; Content management systems; Peer-review

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