1986

An introduction to wilderness and natural area management

David Kulhavy
Arthur Temple College of Forestry and Agriculture, Stephen F. Austin State University, dkulhavy@sfasu.edu

D. B. Drummond

Follow this and additional works at: http://scholarworks.sfasu.edu/forestry

Part of the Forest Management Commons

Tell us how this article helped you.

Recommended Citation
http://scholarworks.sfasu.edu/forestry/297

This Article is brought to you for free and open access by the Forestry at SFA ScholarWorks. It has been accepted for inclusion in Faculty Publications by an authorized administrator of SFA ScholarWorks. For more information, please contact cdsscholarworks@sfasu.edu.
Management issues in wilderness and natural areas are many faceted. Managers must interact with and be aware of information from scientific disciplines, user groups, and agency policies. In addition to actual land management problems concerning vegetation, wildlife, and pest species, management must address the needs of and problems created by wilderness users. Water and air quality are important issues in wilderness management and will probably increase in importance as populations near wilderness areas and wilderness use increases. Complex problems related to oil and mineral rights that exist in some wilderness areas will inevitably conflict with other wilderness values.

How to manage the complex of resources and recreation values in wilderness areas is a basic question. Thus a philosophy of “no management” can lead to many user and environmental problems. Change is the rule in natural communities. How we manage vegetation will affect the type of wilderness we have, what wildlife is present, and what potential pest problems may arise. The wilderness areas we have today are not the pristine “natural” communities our forefathers encountered. They are a product of the alterations we have made on them combined with the effects of surrounding land use patterns. Land use patterns around wilderness areas may limit our ability to use certain management techniques such as fire to manage for “fire-climax” plant communities.

We must also deal with complex issues such as southern pine beetle control and endangered species. These two problems also create incredible challenges to the wilderness manager. All of our management solutions to problems must, however, be tempered by the initial intent of wilderness legislation and the concept of “minimal tool use.” We must learn to use the least management necessary to achieve our goals while still preserving the true wilderness character of each area.

WILDLIFE

Wildlife is an important part of wilderness and natural areas. Indeed it is often the wild beasts that give wilderness its true character. The bugling of an elk or call of a loon disturbing the silence of the evening more than anything else represents one of the greatest values of wilderness. The wildlife that lends its character to wilderness is dependent on the wilderness habitat. Eventually, without management, habitat in wilderness areas will be composed mainly of old-growth or climax vegetation. Such vegetational conditions are important to many species of wildlife, particularly those that need mature forests to meet their life requirements. In a time when human population centers, agriculture, and timber and mineral needs have dominated or claimed most of the eastern wild lands, it is of particular importance that large areas of roadless, old-growth habitat for species such as the gray wolf, mountain lion, black bear, and wolverine be preserved.

Also, choice of wilderness management strategies affects habitat. A strategy of no management may produce a plant community that is different from a strategy that favors active management to return a wilderness area to its primeval condition. A “no management” strategy will permit plant succession to occur if an area is not currently at climax vegetationally. Species diversity and composition of the wildlife community is tied directly to the type of plant community. Thus, what we permit to happen or actively manage for on wilderness and natural areas will determine wildlife species composition.

Vegetation management may also present legal conflicts if an endangered species inhabits a wilderness area. A “no management” policy or even a “minimum management” strategy may cause plant community changes that adversely affect an endangered species. Which law takes precedent, laws protecting wilderness, or laws protecting endangered species? A timely resolution to such conflicts is needed that protects both wilderness quality and endangered species.

FOREST PROTECTION

Biological organisms coexist in a dynamic ecological system. This system is subject to both subtle, slow changes and tumultuous wrenching perturbations. As a forest...
matures, trees within the system compete for resources, such as light, moisture, rooting space and nutrients. Competition leads to stress within each plant and within the system.

Stress may also arise due to physical changes in the system. One such example is a mature pine forest located on sites subject to alternating periods of flooding and drought. If these oscillations are coupled with disturbances (that is, lightning, tornadoes or hurricanes), the system generally responds in proportion to the disturbance. Small disturbances (a single lightning strike) usually lead to small changes; large disturbances (multiple lightning strikes) may lead to rapid changes. One organism central to the forest protection issue, and responding to these disturbances, is the southern pine beetle. Questions include its relationship to endangered species (for example the Red-cockaded Woodpecker), limits of the Wilderness Act and interpretation of the National Environmental Policy Act. Additional issues include the mosaic of ownership patterns in the forest community and the interaction of special interest and management groups.

In the context of the IPM (Integrated Pest Management) model (see Hertel, Mason and Thatcher, this volume), four items should be considered when deciding to take (or not take) management action against forest pests: 1) the resource manager must determine the potential effect on the resource; 2) the consequence of control (or no control) actions must be ascertained; 3) affects on the forest ecosystem must be included; and, if warranted, 4) further needs for research and development, impacts and benefits of management decisions, must be included. There are no easy answers to these management issues—the purpose of this volume is to consider potential solutions for these long term wilderness management issues.

**VEGETATION**

The forest, prairie and forest inclusions such as savannas, glades, barrens, bogs, marshes and others are dynamic entities that constantly vary in response to natural physical and biotic factors as well as man-made impacts. Disturbances due to periodic fires, climatic fluctuations, animal activities and other variables have interacted to produce, and are often necessary to maintain, the diverse communities of the region. Of course, many of these communities have been greatly altered or destroyed by man’s activities. Conversion to urban and agricultural use, clearcutting, introduction of exotic species, and cessation of naturally occurring fires, have permanently changed the structure, composition and integrity of many communities. Certainly those communities that occur in restricted, unique habitats suffer most from these impacts.

Braun in her classical 1950 treatment, Deciduous Forest of North America, divided the forest into 9 regions:

1. Mixed Mesophytic Forest: Southern Appalachian plateau and mountains, diverse composition, includes botanical elements found in nearly all other forest regions.
2. Western Mesophytic Forest: West of Mixed Mesophytic (Tennessee, Ohio) drier, less diverse version of Mixed Mesophytic.
3. Oak - Chestnut Forest: Eastern margin of Mixed Mesophytic chestnut largely eliminated by chestnut blight.
4. Oak - Pine Forest: Piedmont from Virginia to Texas, pines dominate secondary forests.
5. Southeastern Evergreen Forest: Coastal plain from New Jersey to Texas historical fires and current fires and logging perpetuate pine forests.
8. Maple - Basswood: Narrow belt between forest and grassland in Minnesota and Wisconsin.
9. Oak - Hickory: Western margin of deciduous forest, forming westward the transition to the central grasslands - western limits expressed as the Cross-Timbers from Kansas to Texas.

Grasslands to the west of the forest are characterized by wide-ranging species such as big and little bluestem, Indiangrass, switchgrass and other tall and midgrasses. Management is essential to maintain and, in many cases, to restore the natural communities of this region. Enlightened, multiple - resource management based upon sound ecological information is needed to allow for not only use of the resources of these communities, but also to conserve and preserve their natural diversity and productivity.

**VISITOR USE AND IMPACT**

Wilderness is made up of three parts: a natural land base, a potential recreational experience, and a national heirloom to be protected forever. Wilderness management is faced with the multiple challenges of protecting and preserving the physical resource while not reducing, or allowing the users to reduce, the quality of the recreation experience. In many cases, the greatest threat to the environmental quality of a wilderness is not the natural pests or disturbances that occur periodically, but the users themselves. They trample, pollute and erode the very resource they came to enjoy. The quality of the wilderness experience more than any other form of recreation is tied directly to the undisturbed environmental quality of the area.

The role of visitor management is to accomplish the maximum of resource protection with a minimum of intrusion upon the user. Maximum acceptable intrusion varies with the initial expectations of the visitor. Long lists of rules and regulations can infringe upon the wilderness experience that emphasizes the absence of restrictions and solitude from the limits of modern society. Attitudes, pre-
vious experiences, and level of knowledge about natural resources are all characteristics that determine the goals and benefits that recreationists expect to achieve with a wilderness recreation experience.

The challenge of management is to provide the information necessary to insure that visitors have realistic expectations of a wilderness experience. Information can be used to insure that the users are knowledgeable enough to either voluntarily protect the resource or to help them understand the need for regulations.
WILDERNESS AND NATURAL AREAS IN THE EASTERN UNITED STATES:
A MANAGEMENT CHALLENGE

Edited by:
David L. Kulhavy and Richard N. Conner