MANAGEMENT OF RIPARIAN AND AQUATIC ECOSYSTEMS USING VARIABLE-WIDTH BUFFERS

Brian Pickard, Gordon H. Reeves, K. Norman Johnson[1]

Management of aquatic and riparian ecosystems is constrained because of the reliance on "off-the-shelf" and one-size-fits-all concepts and designs, rather than considering specific features and capabilities of the location of interest. As a result, use of fixed- width buffers that generally depend on stream size is the most common approach. This is easy to administer and apply, and along with lack of guidance for developing buffers and uncertainty about results of using variable-width buffers, development and application of a variable approach to management of riparian and aquatic ecosystems has been limited. However, new analysis tools, such as NetMap, and practices, such as tree tipping, and a growing understanding of how key ecological processes occur within a watershed allows for development of viable and practical alternative approaches to the fixed-width approach that are ecologically beneficial and cost-effective while providing potential opportunities for other management objectives. We developed an approach that recognizes the inherent variation in where ecological processes occur within a watershed as well as the capacity to provide productive habitat to establish the size of riparian buffers and the type, extent, and objectives of management activities at a particular location. More productive and ecologically important locations receive the largest buffer in which management is directed to solely achieving ecological goals. Locations that are less productive and more immune to management impacts have less area devoted to solely achieving ecological goals and more area for managing for ecological and other goals. We provide an example of the application of this approach on federally managed lands in western Oregon.

[1]Brian Pickard, Research Assistant, College of Forestry, Oregon State University, Corvallis, OR 97331
Gordon H. Reeves, Research Fish Biologist, USDA Forest Service, Pacific Northwest Research Station, Corvallis, OR 97331
K. Norman Johnson, University Distinguished Professor, College of Forestry, Oregon State University, Corvallis, OR 97331

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