Introduction

With wildfires igniting in several areas of the U.S. this year, there are always several unanswerable questions about why. Because of the dynamic nature of forests, those preconditions can involve a dynamic or changing baseline. A proper NRD study should consider the last 10 years or more of conditions before the fire to document the available evidence indicating the state of the environmental conditions and health of the forest system. The baseline condition for wildfire damage assessment must be based on the pre-fire condition in order to allow for a comparison with the post-fire condition and to determine the change triggered by the wildfire.

The Use of HEA for Wildfire NRD Damages

A particular replacement cost methodology called habitat equivalency analysis (HEA) has been used to calculate damages from ecological services lost due to wildfires. HEA is a method for determining the compensation required to offset the damage from an injury to ecological/habitat. HEA calculates and compares the present value (PV) of ecological services levels provided by both injured and restored habitats. The principle and practice of HEA were originally developed in the early 1990s to address wildfire disturbances and provide a method for assessing the trade-offs between wildfire disturbance and pre- and post-disturbance “compensatory” habitat. HEA follows a “compensatory restoration” approach and uses the cost of replacing services lost to wildfire as the basis for calculating replacement costs rather than damages.

Although often used, even in the case of a well-defined disturbance to a single habitat, HEA will generally involve the estimation of damages from injuries to natural resources. The principles for estimating damages resulting from introduction of potentially injurious actions differ significantly from those for estimating damages resulting from natural processes. HEA has been found to meet sound economic principles reliably under the following restrictive conditions:

• Accurate and complete baseline information about the injured habitat.
• Restoration projects can be conducted quickly and reliably.
• Similar restoration habitats available.
• Restoration projects can be conducted in a fairly short time period.

HEA performs poorly for indicating the value of lost services when:

• People uses such as aesthetic and wildlife values are ignored.
• Accurate and complete baseline information about the injured habitat is lacking.
• There are no historical benchmarks to ensure that the restoration costs do not far exceed the value of the lost services.
• Application of HEA in wildfire matters must also address the problem of replacing trees that were contributing to fire risk and diminishing the ecological services of the forest. The occurrence of some other highly likely fire in the same area (Figure 5).
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