Ecological Restoration Institute

Fact Sheet: Ecological Restoration as Economic Stimulus *March 2009*

Introduction

Our nation's history is a testament to the human ability to turn a time of crisis into an opportunity for positive change. As we prepare to implement the economic stimulus package in this time of economic crisis, we see many opportunities to provide **sustainable, green jobs to people who need them most, while restoring ecosystems and building social capital** through active restoration and stewardship.

Sustainable, green public works projects can include:

- **Forest thinning treatments** for fuel reduction to reduce unnatural fire risk and restore forests (e.g., Healthy Forests Restoration Act authorizes $760 million per year for hazardous fuel reduction projects).
- **Riparian restoration projects** including removing invasive species (e.g., Salt Cedar and Russian Olive Control Demonstration Act, P.L. 109-320 authorizes $15 million per year through 2010)) and replanting native vegetation.
- **Construction and improvement of forest road and trail**s (e.g., designated roads and trails under the Travel Management Rule) **and other recreational facilities** (e.g., developed campgrounds and picnic tables).

How Many Jobs?
If fully funded, the thinning projects authorized by Healthy Forests Restoration Act would generate on average at least $1.1 billion of output and 13,000 jobs in surrounding communities, even with no subsequent biomass utilization.*

* These estimates are made by extrapolating the multipliers from Hjerpe and Kim(2008)'s study.

These public works conservation projects would provide both ecological and economic benefits. Such projects can be planned in a way to **diversify rural economies and build the social capital** that would facilitate future collaborative planning. Carefully planned restoration and stewardship activities **establish stable and predictable supplies of raw materials** (biomass) that encourage local business start-ups, especially high-value wood products from small-diameter trees and biomass for bioenergy production.

Previous studies have documented **clear economic impacts** of forest thinning treatments. For example, the national forest fuels reduction programs in the five national forests in the Southwest treated 59,720 acres in 2005. The treatments alone accounted for more than $40 million of output and helped generate some 500 jobs (Hjerpe and Kim 2008). If we account for potential woody biomass utilization, the economic impacts would be much greater. For example, the construction of an oriented strand board (OSB) facility in Winslow, AZ would generate $244 million of economic output and more than 1,000 jobs. Its operation would create total output of $170 million and almost 600 jobs annually (Hjerpe and Gunderson, 2007). Keegan et al. (2004) estimated that treating 64,000 acres of high- to moderate-hazard ponderosa pine in Montana would generate 3,000 jobs and more than $90 million in labor income, assuming that the removed logs are used as sawtimber.

There is clear evidence that **woody biomass utilization**, especially biomass energy development, would create significant economic impacts. Kammen et al. (2004) reviewed 13 independent reports and studies that analyze the economic and employment effects of the clean energy industry, including biomass energy, in the United States and Europe. They concluded that investment in renewable energy generates **more jobs per dollar** invested (also more jobs per unit of energy delivered) than the fossil fuel energy sector.

Aside from the job creation and poverty reduction effects, the ecological and economic benefits of restoring ecosystem and avoiding catastrophic wildfire are compelling. Mason et al. (2006) found that the **overall benefits of government investments in fuel reductions are substantial** when they account for avoided fire suppression costs, avoided fatalities, and the economic values of protected ecological services (i.e., minimum net benefits ranging from $600/acre for moderate-risk forest and $1,400 per acre for high-risk forests).

The Ecological Restoration Institute is dedicated to reversing declines in the condition of forested communities throughout the Intermountain West, particularly those affected by severe wildfires and insect outbreaks. Our efforts focus on science-based research of ecological and socio-economic matters related to restoration as well as support for on-the-ground treatments, outreach, and education.
Ecological Restoration Institute, P.O. Box 15017, Flagstaff, AZ 86011, 928/523-7182, FAX 928/523-0296, www.eri.nau.edu

The costs of suppressing fire have risen significantly during the past two decades (see figure right) due to an increase in acres burned as well as an increase in suppression costs per acre (Prestemon et al. 2008). In 2008, the USDA Forest Service and the Department of Interior have spent $1.86 billion for fire suppression. Snider et al. (2007) calculated the present values of fire suppression costs for various treatment scenarios. Assuming one-third of the forests in Arizona and New Mexico require thinning treatments, treating 5% of the required acreage (163,000 acres) annually would **reduce fire suppression costs by $600 million** over time.

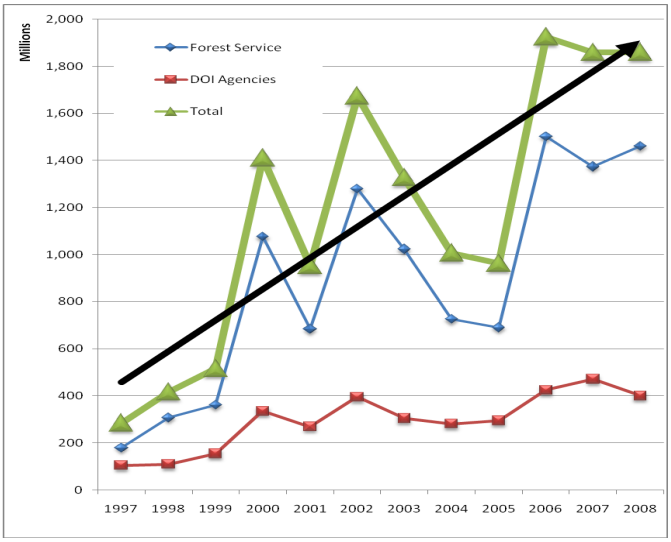


Photo Credit: Fred Phillips Consulting

Already millions of dollars each year ($987 million dollars in the 2005 US Department of Agriculture budget alone) have been spent on numerous **invasive plant control and restoration efforts**. For one example, a project to restore 1,400 acres of Yuma East Wetlands, located along the Lower Colorado River in Arizona, has brought more than $8 million into the area in the last eight years and has created more than 150 full-time and temporary jobs. The picture on the left shows the progression from dense salt cedar (top) to native vegetation (bottom) resulting from the restoration projects.

Conclusion

With careful planning, the conservation projects can create truly "green collar" jobs to people who need them most in the places where economic stimulus spending can make most significant differences. The following table summarizes ecological, economic and social benefits of the proposed conservation projects.

Project Types	Ecological Benefits	Economic Benefits	Social Benefits
Forest Thinning	Improved ecosystem health Reduced wildfire risk/fire suppression cost	Increased and more diverse employment /income opportunities Increased diversity of rural economies Increased tax revenues	Increased public familiarity with local resources and more participation and buy- in for collaborative ecosystem planning Increased social stability with economic security
Riparian Restoration	Removal of invasive plant species Increased water yield Restoring native ecosystems		
Forest Recreation	Infrastructure construction and improved conditions of designated roads,trails, and recreation facilities Minimized impacts on undesignated areas		

Footnotes

1. Evan E. Hjerpe and Yeon-Su Kim. 2008. Economic impacts of southwestern national forest fuels reductions. *Journal of Forestry* 106(6):311-316.
2. Evan E. Hjerpe and Ronald Gunderson. 2007. Impact analysis of Arizona Forest Restoration Products' Oriented Strand Board Facility. A Report from Northern Arizona W. A. Franke College of Business Center for Business Outreach.
3. Charles E. Keegan III, Carl E. Fiedler, and Todd A. Morgan. 2004. Wildfire in Montana: Potential hazard reduction and economic effects of a strategic treatment program. *Forest Products Journal* 54(7/8):26-28.
4. Daniel M. Kammen, Kamal Kapadia, and Matthias Fripp. 2004. Putting renewables to work: How many jobs can the clean energy industry generate? A Report of the Renewable and Appropriate Energy Laboratory. University of California, Berkley.
5. C. Larry Mason, Bruce R. Lippke, Kevin W. Zobrist, Thomas D. Bloxton, Kevin R. Ceder, Jeffrey M. Comnick, James B. McCarter, and Heather K. Rogers. 2006. Investments in fuel removals to avoid forest fires result in substantial benefits. *Journal of Forestry* 104(1):27-31.
   National Interagency Fire Center.
6. Jeffrey P. Prestemon, Karen Abt, and Krista Gebert. 2008. Supression cost forecasts in advance of wildfire seasons. *Forest Science* 54(4):381-396.