# Seeing the Forest and the Trees: The Natural Capital Approach to Forest Service Reform

by

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# Seeing the Forest and the Trees: The Natural Capital Approach to Forest Service Reform

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*The United States Forest Service operates under a funding structure that encourages forest managers to sacrifice the long-term sustainability of federal forest ecosystems and infrastructure. This Comment identifies some of the most counterproductive federal statutes and proposes a remedy in the form of a market-based decision-making framework. This framework incorporates both traditional environmental economics principles, as well as a funding mechanism based on more theoretical ecosystem services. This framework would resolve many of the Forest Service's environmental and financial difficulties by encouraging Forest Service managers to balance more accurately present and future user interests by allowing forest managers to reap the benefits of sound management. Finally, this Comment evaluates the economic and environmental benefits and shortcomings of the proposed model, noting the political, social, scientific, and economic difficulties surrounding Forest Service reform.*



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## I. INTRODUCTION

> So far our government has done nothing effective with its forests, though the best in the world, but is like a rich and foolish spendthrift who has inherited a magnificent estate in perfect order, and then has left his fields and meadows, forests and parks, to be sold and plundered and wasted at will . . . .[1]

Like many government agencies, the United States Department of Agriculture (USDA) Forest Service (Forest Service) operates under conflicting principles.[2] On the one hand, the Forest Service should manage forests for resource extraction to produce short-term benefits to industry and local communities. On the other hand, the Forest Service strives to enhance the forests' economic, recreational, and aesthetic value to provide benefits to future users. Conflicts arise when managing a forest to produce short-term benefits reduces that forest's potential to produce benefits in the future, or, conversely, where the desire to preserve resources for future generations prevents efficient resource extraction.

This Comment will briefly identify statutes and policies that encourage the Forest Service to manage national forests in ways that sacrifice long-term sustainability, often to the detriment of taxpayers. It will then outline a market-based decision-making framework that would encourage Forest Service managers to more accurately balance present and future user interests. Finally, this Comment will evaluate the economic and environmental benefits and shortcomings of the proposed model.

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1. JOHN MUIR, OUR NATIONAL PARKS 340 (1901).

2. "The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations." USDA Forest Serv., Mission, Motto, Vision, and Guiding Principles, http://www.fs.fed.us/aboutus/mission.shtml (last visited Dec. 25, 2005).

## II. BACKGROUND

"A bureaucracy is sure to think that its duty is to augment official power, official business, or official members . . . ; it overdoes the quantity of government, as well as impairs its quality."[3]

### *A. The Budget-Maximizing Agency*

The budget-maximizing theory posits that an agency will tend to make decisions that lead to larger annual budgets, because individuals' incentives at all levels of management are directly tied to the size of the agency's budget.[4] While no theoretical framework of agency action is likely to be sufficiently complex to accurately describe all Forest Service actions, studies have shown that "budget maximization explains [Forest Service] actions better than other explanations of its activities."[5] That is not to say that all Forest Service decisions can be attributed to mercenary motives.[6] Indeed, it is likely that Forest Service employees' commitment to sustainable management principles

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3. WALTER BAGEHOT, THE ENGLISH CONSTITUTION 196 (photo. reprint 1978) (1872).

4. *See* Daniel H. Cole, *Clearing the Air: Four Propositions About Property Rights and Environmental Protection*, 10 DUKE ENVTL. L. & POL'Y F. 103, 120 (1999) ("[Bureaucrats] seek . . . to maximize budget allocations and administrative turf, while minimizing congressional oversight and interference."); *see also* WILLIAM A. NISKANEN, JR., BUREAUCRACY AND REPRESENTATIVE GOVERNMENT 48 (1971) ("[The] bureau has no incentive to be efficient . . . [but] should be expected to seek out expenditures . . . to exhaust the approved budget. A careful cost-effectiveness analysis would indicate that the same output could be achieved at a lower budget, but the analyst should expect no cooperation from the bureau, as it has no incentive either to know or to reveal its minimum cost function."); RANDAL O'TOOLE, REFORMING THE FOREST SERVICE 104 (1988) (discussing the close relationship between bureaucrats' career incentives and their agency's budget and noting that "[f]or top managers, larger budgets mean greater prestige. For middle managers, larger budgets mean more people on their staff, and this generally provides them with higher salaries. For lower managers, larger budgets mean greater opportunities for advancement").

5. O'TOOLE, *supra* note 4, at 104 (noting a study by economist Ronald Johnson suggesting that budget-maximization explains Forest Service actions better than the competing theories of agency capture, conservation ethics, and economic efficiency); *see also* Federico Cheever, *Four Failed Forest Standards: What We Can Learn from the History of the National Forest Management Act's Substantive Timber Management Provisions*, 77 OR. L. REV. 601, 704 (1998) ("Budgetary incentives play an enormous role in determining what the Forest Service . . . decides to do. Changing budgetary incentives can change agency conduct."). *But see* Michael C. Soules, *An Analysis of Northwest Forest Plan Land Use Allocations*, 42 NAT. RESOURCES J. 353, 354-55 (2002) (suggesting that budget-maximization has less of an impact on Forest Service planning decisions than the tendency to favor the status quo and the influence of environmental organizations) (citing Paul A. Sabatier et al., *Hierarchical Controls, Professional Norms, Local Constituencies, and Budget Maximization: An Analysis of U.S. Forest Service Planning Decisions*, 39 AM. J. POL. SCI. 204 (1995)).

6. *See* O'TOOLE, *supra* note 4, at 107 ("Most, if not all, Forest Service employees are honest, well-intentioned people who . . . . strongly believe in their version of a conservation ethic and base many of their decisions on this ethic.").

and environmental ethics has shielded national forests from the obliteration that would have resulted under a myopic budget-maximizing agency's control.[7] Nevertheless, this Comment's suggestions and conclusions are premised on the idea that decisions made by Forest Service employees are influenced, at least in part, by the institutional desire for greater flexibility and larger budgets.

### *B. Incentives*

In order to fashion a budgetary system for the Forest Service that provides a balanced incentive structure, it is first necessary to understand imbalances in the existing incentive structure. The current system is comprised of three basic types of statutory incentives: (1) those that measure agency success and efficiency in terms of timber production, (2) those that allow the agency to keep a portion of timber sales receipts, and (3) those that streamline or waive the environmental and procedural requirements for certain types of timber sales. This Part will briefly identify a number of statutes that perform these functions, and evaluate their impact on timber sales within a budget-maximizing decision-making framework.[8]

#### 1. Forest & Rangeland Renewable Resources Planning Act (RPA)

The Rangeland Renewable Resources Planning Act of 1974 requires the Forest Service to prepare a management program every five years, identifying the expected output of timber and other forest resources corresponding with expected budgetary allocations.[9] By tying forest budgets to expected timber production, Congress encourages budget-maximizing forest managers to overestimate practicable harvests, and ignore market realities to increase appropriations.[10] Thus, timber targets identified in RPA programs tend to be overly optimistic.[11]

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7. *See* Oliver A. Houck, *On the Law of Biodiversity and Ecosystem Management*, 81 MINN. L. REV. 869, 891-92 & n.88 (1997) (suggesting that some of the motivation to undertake more biocentric forest management practices has come from within the Forest Service's ranks).

8. This list is by no means meant to be exhaustive, but merely illustrative. For a more thorough evaluation of Forest Service harvesting incentives, see generally O'TOOLE, *supra* note 4.

9. 16 U.S.C. § 1602 (2000). Congress created the RPA to "promote a sound technical and ecological base for effective management, use, and protection of the Nation's renewable resources." *Id.* § 1600(4).

10. *See* O'TOOLE, *supra* note 4, at 56-57 (noting that Forest Service harvesting targets for the 1980 RPA were based on foresters' expectations that technology and intensive

While the Forest Service is not bound by the timber targets identified in their RPA programs,[12] these targets have served as de facto timber sale quotas.[13] With their intra-agency success framed in terms of timber quotas met, forest managers often propose below-cost timber sales or combine high value and low value timber stands within a single sale to meet unreasonably high RPA objectives.[14] Thus, the RPA ensures that timber sales do not reflect true market value, or, as one commentator notes, "the [RPA] seem[s] to prescribe a set of resource output goals and targets that more closely resemble[s] an old-style socialist planning regime than the market workings of the U.S. economy."[15]

2. Knutson-Vandenburg and Brush Disposal Acts

The Knutson-Vandenburg Act (K-V) allows the Forest Service to charge timber premiums for every timber sale contract to cover the cost of reforesting the land following a cut.[16] Similarly, the Brush Disposal Act enables the Forest Service to collect deposits from timber companies to cover the "estimated cost . . . of disposing of brush and other debris resulting from their cutting operations."[17] Once collected, these deposits "constitute a special fund, which . . . shall remain available [to the Forest Service] until expended" unless the agency

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management practices would lead to increased yields, but ignored the corresponding drop in marginal demand associated with increased production).

11. *See* Pete Morton, *The Economic Benefits of Wilderness: Theory and Practice*, 76 DENV. U. L. REV. 465, 498 n.171 (1999) ("[T]he resource goals do not always reflect the productive capability of individual national forests. Timber targets . . . force a significant amount of land into timber production that will require a public subsidy to bring the wood to market." (citation omitted)).

12. *See* O'TOOLE, *supra* note 4, at 56 ("The Forest Service insists that RPA objectives are not firm targets forest planners must meet. Instead, forest supervisors are free to 'negotiate' the objectives . . . .").

13. *See id.* at 23 (noting that regional managers who failed to meet RPA targets in one forest were required to increase harvest targets for another forest within their region to make up the difference).

14. *Id.* at 127-30 (noting the Forest Service's tendency to "cross-subsidize" unmarketable timber by combining it in sales with high-value timber, thus increasing the total volume of timber produced and decreasing marginal revenues).

15. Robert H. Nelson, *Government as Theater: Toward a New Paradigm for the Public Lands*, 65 U. COLO. L. REV. 335, 336 (1994). O'Toole also noted this striking similarity: "The Soviet system bears an uncanny resemblance to the Forest Service, which sets targets regardless of market prices or consumer demand. . . . [This method] lead[s] to the inefficient production of timber . . . on low-productivity lands." O'TOOLE, *supra* note 4, at 196.

16. Knutson-Vandenburg Act, 16 U.S.C. §§ 576-576b (2000).

17. Brush Disposal Act of 1916, 16 U.S.C. § 490 (2000).

fails to spend the entirety.[18] In 1957, the Forest Service altered its administrative procedures by incorporating these premiums into lump-sum contract payments without identifying the portion of the contract price attributable to reforestation or brush disposal activities.[19] Several decades later, The National Forest Management Act (NFMA) gave the Forest Service flexibility to use K-V funds for a wider variety of management purposes.[20] As a result, the "Forest Service now treats all but $0.50 per thousand board feet ... of timber sale receipts as available for K-V expenditure,"[21] and has "a significant economic incentive to increase timber harvests at the expense of other resource uses."[22]

From a budget-maximization standpoint, K-V and Brush Disposal funds provide the Forest Service with a double-incentive to over-harvest timber. By harvesting more timber and collecting more receipts, the Forest Service increases its budget without having to invest time and political capital in the appropriations process. Additionally, unlike funds appropriated by Congress, the Forest Service has the ability to allocate K-V and Brush Disposal funds without significant interference from Congress or other outside entities.[23]

3. Healthy Forests Restoration Act

The Bush Administration introduced the Healthy Forests Initiative and the Healthy Forests Restoration Act (HFRA) to better equip the Forest Service in its efforts to prevent catastrophic forest fires.[24] HFRA allows the Forest Service to bypass environmental

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18. *Id.*

19. Forest Service Employees for Environmental Ethics, *Who Says Money Doesn't Grow On Trees?*, http://www.fseee.org/index.html?page=http%3A//www.fseee.org/projects/on-kv.shtml (last visited Dec. 26, 2005) [hereinafter FSEEE].

20. Charles Davis, *American Federal Lands and Environmental Politics: Politics as Usual or a New Ball Game?*, 19 PUB. LAND & RESOURCES L. REV. 5, 9 (1998) (citing National Forest Management Act of 1976, Pub. L. No. 94-588, 90 Stat. 2949 (1976) (codified as amended in scattered sections of 16 U.S.C.)).

21. FSEEE, *supra* note 19, at 1.

22. Davis, *supra* note 20, at 9.

23. *See* FSEEE, *supra* note 19, at n.4 (noting that in 1997 the Forest Service spent almost $4 million of its K-V reforestation funds on Washington D.C.-based overhead); O'TOOLE, *supra* note 4, at 132, tbl. 8.4 (identifying the portion of Brush Disposal funds spent by the Forest Service on administrative and other indirect costs).

24. Healthy Forests Restoration Act, 16 U.S.C.A. §§ 6501-6591 (West Supp. 2005); Gordon R. Alphonso et al., *Fire, Wood, and Water: Trends in Forest Management Requirements*, 18 NAT. RESOURCES & ENV'T 18, 18 (2003). For the sake of simplicity, and to reduce the number of acronyms, textual references to HFRA include references to the Act,

assessments for timber sales required by the National Environmental Policy Act (NEPA) by expanding the number of federal acts categorically excluded from the review process.[25]

In theory, HFRA enables the Forest Service to respond more quickly and effectively to fire hazards because managers will not be required to perform time-consuming and costly environmental reviews before acting.[26] Some commentators note, however, that HFRA "is both unwise and unwarranted, and . . . seems calculated not to produce healthier forests, but greater timber harvests from public lands."[27] From a budget-maximization perspective, by expanding categorical exclusions to include timber harvests, HFRA gives Forest Service managers incentive to choose timber-harvesting projects over other comparably priced projects because harvesting projects entail fewer procedural requirements.[28]

### *C. Consequences*

Operating within this incentive framework, the Forest Service has consciously and systematically over-harvested national forests since World War II. Consequently, many national forests require expensive maintenance and restoration work that competes with timber

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the Healthy Forests Initiative, and the Forest Service's subsequent regulatory changes. Footnotes indicate more specific sources of law.

25. *See* National Environmental Policy Act Documentation Needed for Fire Management Activities; Categorical Exclusions, 68 Fed. Reg. 33,814, 33,814, 33,819 (June 5, 2003) (identifying 1000-acre "fuels reduction" activities as categorical exclusions).

Categorical exclusions apply only to government actions with insignificant environmental consequences. 40 C.F.R. § 1508.4 (2005). "The purpose of categorical exclusions was to help agencies avoid spending unnecessary time documenting routine activities and, instead, address issues with potential environmental consequences." Kevin H. Moriarty, *Circumventing the National Environmental Policy Act: Agency Abuse of the Categorical Exclusion*, 79 N.Y.U. L. REV. 2312, 2313-14 (2004). Other examples of harvesting activities that the Bush-era Forest Service considers as having an "insignificant" impact on the environment include all timber sales smaller than seventy acres and all salvage logging operations smaller than 250 acres. National Environmental Policy Act Documentation Needed for Limited Timber Harvest, 68 Fed. Reg. 44,598, 44,598 (July 29, 2003).

26. Alphonso et al., *supra* note 24, at 19.

27. Jesse B. Davis, Comment, *The Healthy Forests Initiative: Unhealthy Policy Choices in Forest and Fire Management*, 34 ENVTL. L. 1209, 1209 (2004). Davis further notes that the HFRA's policies are based on "the dubious—if not false—premise[s]" that: (1) public participation in forest management issues has only limited value, (2) NEPA is the "enemy of forest health and public safety," and (3) the Forest Service did not already have authority to bypass environmental assessment requirements in emergencies. *Id.* at 1242-45.

28. *But see* Moriarty, *supra* note 25, at 2315-16 (noting that the threat of litigation with environmental activist groups often forces the Forest Service to complete environmental review processes even where categorical exclusions would otherwise apply).

harvesting for Forest Service money and attention. This Subpart will briefly describe the ecological, economic, and political consequences of the Forest Service's management practices, and will lay the groundwork for this Comment's forest management paradigm proposal.

1. Ecology

In her book, *Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West*, Nancy Langston chronicles the century-long ruin of national forest lands in the Blue Mountains as timber stands succumbed to disease, infestation, and fire, and notes that many of the problems were directly caused by the Forest Service's attempts at intense stand management.[29] The problems were not restricted to forests in the Blue Mountains, but were encountered throughout the Forest Service as foresters clear-cut valuable old-growth stands only to see them replaced by fire-prone, disease-ridden, and, usually, uneconomic second-growth stands.[30]

Most national forests are in poor or declining health.[31] Due to decades of fire suppression, forest fuels in many national forests are now ten to twenty times their pre-European settlement densities, drastically increasing risks of catastrophic fires.[32] Even-aged management practices contribute to this fire risk by creating dense stands of small and mid-sized, fire-prone trees.[33] Furthermore, virtually all national forests have problems with invasive and opportunistic species, which can disturb ecological balances, threaten endangered species, and increase fire and disease risks.[34] Add to these

29. NANCY LANGSTON, FOREST DREAMS, FOREST NIGHTMARES: THE PARADOX OF OLD GROWTH IN THE INLAND WEST 265, 268-69 (1995).

30. *See, e.g.*, *id.* at 7 ("One day [Forest Service managers] woke up and noticed in a panic that their . . . lovely open pine stands had suddenly changed to tangled forests full of fire and bugs and dead firs.").

31. *See* Lynn Scarlett, *An Address to the Natural Resources Under the Bush Administration Symposium*, 14 DUKE ENVTL. L. & POL'Y F. 281, 283-84 (2004) (noting that approximately 190 million acres of national forest are in "poor condition").

32. *Id.* at 283.

33. Valerie Rapp, *Reducing Fire Hazard: Balancing Costs and Outcomes*, PNW SCI. UPDATE, June 2004, at 1, 3, *available at* http://www.fs.fed.us/pnw/pubs/science-update-7.pdf (noting that "crowded midsize trees . . . affect fire hazard by creating a canopy with high crown bulk density").

34. *See* USDA Forest Serv., *Forest Service Noxious Weed Strategy* 1 (1996), http://www.fs.fed.us/r6/rogue/resources_noxious_noxious_fs.html (noting that invasive species infect six to seven million acres of national forest, and that the area of infected land expands at a rate of eight percent to twelve percent a year). Many consider the invasive species problem to be a "biological disaster." *Id.*

problems the ecological degradation caused by cattle grazing,[35] off-road vehicles and other recreational use,[36] air pollution and acid rain,[37] soil erosion,[38] and declining or absent stream and river flows,[39] and it becomes clear that managing the forests back to health will require both conscientious planning and a substantial budget.

2. Economics

The Forest Service has a long history of selling below-cost timber. In the early twentieth century, many in the Forest Service believed below-cost sales of old growth were justified because they allowed forest managers to convert decadent, nonproductive stands quickly into fast-growing, profitable second-growth.[40] After World War II, the Forest Service increased its annual cut tenfold and suggested that the increased timber sales—ironically, many of them below-cost—were necessary to offset declining private harvest levels and maintain the integrity of small timber-reliant communities.[41]

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35. *See* Karl N. Arruda & Christopher Watson, *The Rise and Fall of Grazing Reform*, 32 LAND & WATER L. REV. 413, 424 (1997) (identifying Government Accounting Office reports indicating that grazing practices on public lands leads to riparian damage, desertification, and other environmental damage).

36. *See* Jan G. Laitos & Rachael B. Reiss, *Recreation Wars for Our Natural Resources*, 34 ENVTL. L. 1091, 1100-01 (2004). For example, the article notes: "The use of [off-road vehicles] on federal land has negative environmental consequences, including soil disruption and compaction, harassment of animals, and annoyance of wilderness lovers." *Id.* at 1101 (quoting Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 60 (2004)).

37. *See* Cassie N. Aw-yang, *EPA'S Changes to the Routine Maintenance, Repair and Replacement Rule of the New Source Review Program: An Unlawful Threat to Public Health and Welfare?*, 27 ENVIRONS ENVTL. L. & POL'Y J. 321, 326 (2004) ("Acid rain compromises forest health by releasing toxins in the soils, depleting the soil's minerals and nutrients, and damaging foliage.").

38. *See* Nathalie Chalifour, *Global Trade Rules and the World's Forests: Taking Stock of the World Trade Organization's Implications for Forests*, 12 GEO. INT'L ENVTL. L. REV. 575, 580 n.23 (2000) (noting soil erosion may prevent regeneration of forests after logging).

39. *See* Brett Olsen, *The Forest Service, Water Yield and Community Stability: Defining the Contours of an Agency Commitment To Include Land Grant Communities in the Timber Management Process*, 39 NAT. RESOURCES J. 819, 825-26 (1999) (noting the effect of stream flow on forest health).

40. *See* LANGSTON, *supra* note 29, at 112 ("Losing money [on timber sales] was the necessary cost of improving the forest."). Langston goes on to note one early forest manager's justification: "It is more important that we should bring the Forests into a condition of maximum production than that the timber now on them should be managed to bring greatest financial return." *Id.* (internal quotation omitted). There is at least some irony in the idea that the poor management practices that led to the forests' current poor health and forced the Forest Service to sell thinned second-growth timber below cost were themselves below-cost timber sales.

41. *Id.* at 264-65.

Today, the Forest Service hides many of its below-cost sales behind a veil of questionable accounting practices, forcing taxpayers to foot the bill for many hidden costs.[42] Other below-cost timber sales are not a result of accounting chicanery, but a lagniappe[43] of forest restoration and fire protection efforts.[44]

Today, environmental legislation and litigation protect much of the remaining old growth from harvest, effectively preventing the Forest Service from harvesting some of its most valuable timber.[45]

Outside of the coastal west and southern coastal plain, few forests profit from their timber sales when management and reforestation costs are taken into consideration.[46] In sum, and despite the fact that the Forest Service has neglected a significant amount of maintenance and repair work, the majority of national forests cost more money to operate than they collect in timber receipts.[47]

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42. *See* O'TOOLE, *supra* note 4, at 9-171; *see also* Shi-Ling Hsu, *Fairness Versus Efficiency in Environmental Law*, 31 ECOLOGY L.Q. 303, 326 n.85 (2004) ("[A]ccording to the [General Accounting Office], the below-cost timber sales program cost taxpayers at least $1.5 billion from 1992 to 1997, while providing only four percent of the nation's timber supply. The poor construction of logging roads has led to numerous environmental problems such as soil erosion, fragmentation of intact forest ecosystems, the spread of noxious weeds and invasive species, reduction of forest habitat for wildlife, stream siltation, lower water quality and degraded fish habitat.").

43. A Louisiana colloquialism used to describe an extra or unexpected gift or benefit. *See* MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 697 (11th ed. 2003).

44. *See* Cecil D. Andrus & John C. Freemuth, *Policy After Politics: How Should the New Administration Approach Public Land Management in the Western States?*, 21 J. LAND RESOURCES & ENVTL. L. 1, 6 (2001) (describing commercial thinning as "restoration treatment," and suggesting that the wood removed and sold to local mills is only a "by-product" (quoting John Kitzhaber, former Governor of Oregon, Keynote Address at the Policy After Politics Convention in Boise, Idaho (June 1, 2000) (copy of transcript on file with the Andrus Center for Public Policy))); Marc Fink, *Logging After Wildfire: Salvaging Economic Value or Mugging a Burn Victim?*, 19 J. ENVTL. L. & LITIG. 193, 194 (2004) ("Instead of logging national forests to provide a steady supply of timber for local mills, much of the Forest Service's current emphasis is on logging trees in order to save forests from catastrophic wildfires . . . [through] pre-fire 'thinning' and post-fire logging projects."); Hsu, *supra* note 42, at 326 n.85.

45. *See* GEORGE CAMERON COGGINS & ROBERT L. GLICKSMAN, 3 PUBLIC NATURAL RESOURCES LAW § 20:64 (2005) (noting environmentalists' numerous successful attempts to protect old growth forests from Forest Service plans to harvest).

46. O'TOOLE, *supra* note 4, at 37, fig. 2.2 ("Forests with positive cash flows are almost exclusively located in the Pacific Northwest and the southern coastal plain.").

47. *See* TAXPAYERS FOR COMMON SENSE, ROAD WRECKED: WHY THE $10 BILLION FOREST SERVICE ROAD MAINTENANCE BACKLOG IS BAD FOR TAXPAYERS 3 (Erich W. Zimmerman & Shannon Collier eds., Mar. 2004), *available at* http://www.taxpayer.net/forest/roadwrecked/RoadWreckedFINAL.pdf (last visited Jan. 1, 2006) (noting that the maintenance backlog on the 436,032 miles of Forest Service logging roads has surpassed $10 billion).

3. Politics

In its heyday, the Forest Service enjoyed unparalleled public support.[48] After Earth Day in 1970, that support began to wane as the public's consciousness of and support for environmental issues waxed.[49] Today, Smokey Bear receives death threats from disgruntled timber workers,[50] and environmental organizations regularly sue the Forest Service for failing to protect the environment adequately.[51] "The Forest Service is attacked from both ends of the political spectrum and pleases almost no one."[52]

Perhaps as a result of these ideological conflicts, Congress and the Forest Service have developed an increasingly complex and burdensome decision-making and documentation process.[53] While this burdensome process curtails the Forest Service's timber-harvesting proclivities, it also ensures that the agency will be less effective at combating the environmental problems affecting forest health.[54] Furthermore, the problem also contributes to low morale within the agency, because "[p]eople cannot be expected to remain enthusiastic about their work when its results often disappear into a procedural quagmire."[55]

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48. *See* Cheever, *supra* note 5, at 703 n.423 ("[In the 1950s and 1960s,] [t]he image of the ranger in the green uniform, there to protect the woods and rescue stray kids, dominated the national psyche. The Forest Service was trusted as the paternal land manager, its rangers as true as Smokey Bear. . . ." (quoting Peter D. Sleeth, *Even in Washington, D.C., Thomas Keeps Forest Close*, OREGONIAN, July 14, 1996, at A1)).

49. *Id.*

50. *Id.* at 703 & n.426.

51. *See* Michael J. Mortimer, *The Delegation of Law-Making Authority to the United States Forest Service: Implications in the Struggle for National Forest Management*, 54 ADMIN L. REV. 907, 934 (2002) (noting that environmentalists brought sixty percent to seventy percent of the NEPA and NFMA lawsuits against the Forest Service between 1971-2000).

52. Cheever, *supra* note 5, at 703.

53. *See* Daniel Kemmis, *Re-Examining the Governing Framework of the Public Lands*, 75 U. COLO. L. REV. 1127, 1127 (2004) (describing the land-use regulatory framework as "a decision-making apparatus . . . on the verge of collapsing under its own weight" (quoting *Conflicting Laws and Regulations—Gridlock on the National Forests: Oversight Hearing Before the Subcommittee on Forests and Forest Health of the House Comm. on Res.*, 107th Cong. (2001) (statement of Rep. McInnis, Chairman, Subcomm. on Forests and Forest Health), *available at* http://purl.access.gpo.gov/GPO/LPS30820)).

54. *See id.*

55. *Id.* at 1128; *see also* Andrus & Freemuth, *supra* note 44, at 5 (stating that Forest Service employees are "demoralized because they no longer have the ability to be professionals and to make discretionary decisions" (quoting Marc Racicot, former Governor of Montana, Keynote Address at the Policy After Politics Conference in Boise, Idaho (June 1, 2000) (copy of transcript on file with the Andrus Center for Public Policy))).

## III. PROPOSAL

> Humanity has passed through a long history of one-sidedness . . . that has always contained the potential of destruction. . . . The great project of our time must be to open the other eye: to see all-sidedly and wholly, to heal and transcend the cleavage between humanity and nature that came with early wisdom.[56]

The Forest Service's current statutory and regulatory system has been responsible for five decades of unsustainable harvests and a century of methodical habitat destruction, creating the disease, pest, and fire risks that have come to dominate forest policy discourse. Today the Forest Service enjoys little public support, loses money hand-over-fist, and labors within a web of planning and decision-making restraints that makes all management unduly expensive and virtually ineffective. Thus, fundamental changes are necessary if the Forest Service is to battle effectively looming environmental and budgetary threats.

The myriad problems facing the Forest Service can be condensed into three broad categories: (1) burdensome planning and decision-making procedures, (2) unbalanced budgetary incentives, and (3) the underrepresentation of noneconomic values in the decision-making process. This Part will propose changes to the Forest Service budgetary processes and evaluate the effectiveness of those changes in resolving all three types of problems.

### *A. The Three Keys*

#### 1. Decentralization

The Forest Service operates under a framework of wearisome and often tedious procedural requirements designed to produce sound management decisions.[57] Numerous commentators have noted that the top-down style of management renders the Forest Service a less effective agency than would a more decentralized system.[58] Decentralization promotes more effective management by allowing decisions to be made by those with the greatest understanding of the

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56. MURRAY BOOKCHIN, THE ECOLOGY OF FREEDOM: THE EMERGENCE AND DISSOLUTION OF HIERARCHY 41 (1982).

57. *See supra* Part II.B.1.

58. *See, e.g.*, Alphonso et al., *supra* note 24, at 19 (noting the trend towards easing regulatory hurdles, and expressing a belief that this trend will benefit forest health); Andrus & Freemuth, *supra* note 44, at 2 (noting that "little [is] going to change in the Washington-based, top-down decision-making process that has been the rule for so long").

costs and benefits involved.[59] It also allows agencies to respond more quickly to emergencies.[60]

However, even avid proponents of decentralizing agency decision-making believe that some centralized authority is required.[61] One reason for having centralized authority is that, as their decision-making processes become more "efficient," agencies become less likely to elicit or respond to input from the public.[62] The question, then, is one of finding equilibrium between the need for effective, well-tailored management practices and the need to restrain the agency from managing without regard for the public's interests.

2. Budget Neutrality

The Budget-Maximization theory postulates that agencies will pursue budget incentives despite the external consequences of doing so.[63] Thus, budget incentives, like those in the K-V act that promote timber harvesting, "theoretically lead to logging at faster-than-efficient rates, and where revenues do not cover costs, they also contribute to budget deficits."[64] Conversely, a budgetary system that taxed the Forest Service for every tree they harvested would likely discourage the agency from undertaking many environmentally beneficial thinning operations, and would thus be detrimental to both forest health and the public. An incentive-free budget policy would be very

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59. Scarlett, *supra* note 31, at 287-88 (noting the benefits of tapping "local insights and local ideas").

60. *See* Davis, *supra* note 27, at 1222-23 (noting that the ability to deal more effectively with emergencies was an important change in the streamlining provisions of the Healthy Forests Initiative).

61. *See, e.g.*, Andrus & Freemuth, *supra* note 44, at 4.

> It is not rational for someone in the seat of government, two thousand miles away, to decide on a daily basis who mows the lawns and turns on the sprinklers. Nor is it rational for the people who own the federal land, the American taxpayers, to subordinate the public interest to the greed of those who may live closest to a given chunk of federal real estate or run of water.

*Id.* (quoting Jay Shelledy, Editor, Salt Lake Tribune, Address at Policy After Politics Conference in Boise, Idaho (June 1, 2000) (copy of transcript on file with the Andrus Center for Public Policy)).

62. Loni Radmall, Comment, *President George W. Bush's Forest Policy: Healthy Forest Restoration Act of 2003*, 24 J. LAND RESOURCES & ENVTL. L. 511, 529 (2004) (noting environmentalists' concerns that the Bush Administration's attempts to streamline Forest Service procedural requirements "reduce the chance for the public to challenge or appeal some logging decisions . . . [allowing the agency to] make deals with the timber industry and face little public scrutiny").

63. *See supra* Part I.

64. Robert W. Hahn et al., *Environmental Regulation in the 1990s: A Retrospective Analysis*, 27 HARV. ENVTL. L. REV. 377, 386 (2003).

difficult, if not impossible, to create. Therefore, a system that encourages effective resource management must be cognizant of the incentives it does create, and attempt to provide balancing counterincentives.

3. Internalization

When performing a cost-benefit analysis of a Forest Service management action such as a timber sale, a traditional economist—or, perhaps more appropriately, a traditional forester—would likely exclude certain costs and benefits as external or irrelevant to the agency action.[65] This author rejects this traditional economic method for two reasons. First, it makes little sense to externalize costs from a cost-benefit analysis merely because those costs are inflicted upon outside entities or future budget years. The costs to society and the taxpayers are the same regardless of whether they are accounted for in the initial cost-benefit analysis.[66] Second, this economic method lends itself to developing linear, short-term-focused management models by shifting focus away from the efficient use and reuse of already extracted resources towards the technological capacity to extract from increasingly diluted resource stocks.[67] Thus, an effective planning and decision-making paradigm will require a method of internalizing these costs into cost-benefit analyses or otherwise incorporating them into the decision-making process.

*B. Preliminary Approaches*

1. The Pure Market Approach

In his book, *Reforming the Forest Service*, Randal O'Toole identified many of the problems with the Forest Service's management

65. Such externalities for an economist might include the ecological or aesthetic impacts or the water quality and quantity impacts on downstream water users. For a forester, they might include the cost of replanting the trees following harvest, the costs of building and maintaining an access road, or the cost of fire suppression and pesticide spraying required to keep the second-growth trees healthy and growing.

66. *See, e.g.*, James Stephen Carpenter, Note, *Farm Chemicals, Soil Erosion, and Sustainable Agriculture*, 13 STAN. ENVTL. L.J. 190, 213-16 (1994) (noting that the economic costs considered by farmers in using environmentally harmful pesticides represented only a small portion of the total societal costs, and concluding that farmers would likely reduce pesticide use if they took these external costs into consideration).

67. *See* PAUL HAWKEN, AMORY LOVINS & L. HUNTER LOVINS, NATURAL CAPITALISM: CREATING THE NEXT INDUSTRIAL REVOLUTION 5 (1999) ("[The traditional economic model is] a financially profitable, nonsustainable aberration in human development. What might be called 'industrial capitalism' does not fully conform to its own accounting principles. It liquidates its capital and calls it income.").

practices noted in Part II of this Comment.[68] His proposed solution was to cut off all national forests from congressional funding, and to allow each forest to keep its timber receipts, recreational fees, and any other funds they could collect through the wise management of the forest.[69] He further proposed decentralizing authority, and allowing decisions to be made at the forest level.[70] In effect, this model is a pure market model because it forces the Forest Service to react to market forces like a private company, with relatively few regulatory restraints.[71]

O'Toole's market model, while laying the groundwork for an effective solution to the Forest Service's planning and budgeting problems, embodies only half of a true solution. Two problems present themselves: one theoretical, one practical. Theoretically, the pure market model fails as an effective solution because it does not provide an internalization mechanism that would force the Forest Service to take into account nontraditional or unquantifiable values in its decision-making processes.[72] O'Toole recognized this limitation in his model with respect to wilderness and endangered species, and noted that "it may be necessary to provide some protection for wilderness and wild lands above that which would be provided by the market."[73]

As a practical matter, O'Toole's model no longer accurately reflects Forest Service cost structures.[74] A chain of catastrophic forest fires, advances in environmental science and conservation biology, and the steady degradation of forest health have changed forest landscapes and what we know about the costs of restoring them to health in the

68. *See* O'TOOLE, *supra* note 4, pts. 1-2.

69. *Id.* at 198.

70. *Id.*

71. *Id.* O'Toole identified the four basic principles of his market model: (1) all activities are funded out of a percent share of the net returns from user fees, (2) Forest Service appropriations from Congress are reduced to zero, (3) managers are allowed to charge fair market value for all resources, and (4) the National Forest System and other Forest Service programs are decentralized. *Id.*

72. For example, a forest manager under a pure market system would have little incentive to preserve habitat for an endangered species, preserve wilderness areas within forests, or manage watersheds to produce clean and abundant water unless they were able to find somebody willing to compensate them for these services.

73. O'TOOLE, *supra* note 4, at 210.

74. *See* USDA FOREST SERVICE & U.S. DEP'T OF THE INTERIOR & NAT'L ASS'N OF STATE FORESTERS, LARGE FIRE COST REDUCTION ACTION PLAN 5 (Jack Troyer et al. eds., Mar. 2003), *available at* http://www.fs.fed.us/fire/management/action_plan/Large_Fire_Cost_Reduction_Action_Plan.pdf (noting the "overwhelming" costs of fire management in today's national forests, and noting that the $500 million the Forest Service spent in 2002 on four major fires "could have financed the entire budgets of these affected national forests for more than five years").

twenty years since O'Toole created his model.[75] Some national forests, if left to their own devices, would likely go bankrupt.[76] In the words of one scientist employed by the Forest Service's research branch, "[s]ome forests would be big winners in this scenario, [but] some would lose so much money so fast it would make your head spin."[77]

2. Natural Capital Approach

The missing piece of O'Toole's paradigm is a method of internalizing otherwise external costs.[78] In their book *Natural Capitalism*, Hawken, Lovins, and Lovins created a useful paradigm that this author believes can fill the gap in O'Toole's pure market model. "Natural capital" includes the planet's mineral and biological resources and systems.[79] These systems provide economic value and services every day in the form of heat and light, air and water purification and recycling, waste decomposition, crop pollination, genetic warehousing, etc.[80] Unsustainable resource extraction and pollution interfere with natural capital, destroys the systems that provide these services, and forces us to replace them with expensive synthetic alternatives.[81]

One premise upon which the natural capital theory is based is that the goods and services produced by nature have quantifiable economic value.[82] Consequently, any degradation of the systems that produce

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75. *See id. But see* Randal O'Toole, *Incentives, Not Fuels, Are Endangering Forests*, ENV'T NEWS, Sept. 1, 2002, at 1, *available at* http://www.heartland.org/Article.cfm?artId=9893 (noting that, despite the press coverage, forest fires are no more of a problem today than they have been since the 1960s, and postulating that much of the recent interest in forest fires stems from the Forest Service's budget-maximizing practices).

76. *Cf.* Douglas T. Kendall & Eric Sorkin, *Nothing for Free: How Private Judicial Seminars Are Undermining Environmental Protections and Breaking the Public's Trust*, 25 HARV. ENVTL. L. REV. 405, 441-43 & n.223 (2001) (noting that O'Toole's approach to public lands management poorly applies where public lands could not be operated profitably).

77. E-mail from Steverson O. Moffat, Policy Analyst, USDA Forest Service Southern Research Station, to Alex Williamson, Student, Tulane University School of Law (Jan. 26, 2005, 08:32:00 CST) (on file with author).

78. *See* O'TOOLE, *supra* note 4, at 201 (noting that "marketization is not [a] perfect [fit]" because it fails to incorporate nonmarket values that do not fit easily within a traditional economic framework).

79. *See* HAWKEN ET AL., *supra* note 67, at 2.

80. *Id.*

81. For example, farmers that overuse pesticides often kill many of the soil microorganisms that create nutrients for the crops. As these organisms die and crop productivity declines, farmers are forced to replace those nutrients with chemical fertilizers.

82. *See id.* at 5 & n.5 (estimating the global annual value of these services at $36 trillion). Hawken notes, however, that "valuing natural capital is a difficult and imprecise exercise at best" and that many services provided by natural systems cannot be assigned

these benefits has a corresponding quantifiable economic cost.[83] Therefore, in order to make efficient and effective resource extraction or management decisions, a decisionmaker should undertake a cost-benefit analysis that includes the costs and benefits to natural capital.

### *C. Combining the Theories: The Modified Market Approach*

Integrating the pure market approach and the natural capital approach into a cohesive, but more importantly functional, management paradigm poses an unusual challenge. Top-down mandates that the Forest Service (1) not provide below-cost goods or services[84] and (2) take into account the impacts their actions will have on valuable natural systems when planning forest management activities[85] will have little effect on Forest Service behavior for two reasons. First, the Forest Service already has mandates very similar to these, and routinely ignores them.[86] Second, the Budget-Maximization theory suggests that, unless changes are made to its incentive structure, the Forest Service will continue in its current pattern of behavior.[87] This Part will outline a more unconventional "modified" market approach.

The modified market approach, like the pure market approach, would eliminate the traditional congressional appropriations process, decentralize authority, and allow each forest to manage its own operations with relatively little outside interference. Under the modified market approach, however, Congress would provide funds to unprofitable forests and to support restoration and maintenance activities. In place of traditional funding, all forests operating under

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accurate economic value because "many of the services we receive from living systems have no known substitutes at any price; for example, oxygen production by green plants." *Id.* at 5.

83. *See id.* at 3 ("Humankind has inherited a 3.8-billion-year store of natural capital. At present rates of use and degradation, there will be little left by the end of the next century.").

84. *See supra* Part III.B.1.

85. *See supra* Part III.B.2.

86. *See* 16 U.S.C. § 1608(a) (2000) (requiring the Forest Service to "meet anticipated needs on an economical and environmentally sound basis"); *Id.* § 1604(k) (requiring the Forest Service to identify lands unsuitable for timber production, and singling out economic factors as important to that analysis and identification); Morton, *supra* note 11, at 465-66 (noting that economists have come to realize an expanded definition of benefits to be gained from wilderness conservation under the Wilderness Act, 16 U.S.C. § 1333(b), yet, in practice, decisions by public land management agencies have ignored the benefits).

87. O'TOOLE, *supra* note 4, at 183 ("Forest management will remain inefficient, promoting artificial resource shortages, damaging the environment, and transferring wealth from taxpayers to special interests.... Reform of the Forest Service will require congressional legislation that creates new incentives for proper forest management....").

the modified market approach would receive an annual manager's fee, without congressionally determined earmarks or other strings attached, equal to a fixed percentage of the forest's total value. The forest's value would be calculated annually by its managers using the natural capital theoretical framework.

To illustrate, forest managers operating under this model would perform an audit at the end of each year to determine the aggregate value of their forest. Forest value would incorporate commodity values such as the value of standing timber and forage for cattle, taking into consideration the cost of all maintenance or restoration activities associated with extraction. A similar calculation would be performed for recreation values, taking into consideration the cost of building and maintaining trails, campgrounds, public restrooms, and the like. More importantly, forest audits would include the value of nontraditional economic services provided by the forest such as carbon sequestration, flood protection, and water and air purification.

This approach provides three key benefits absent in the pure market approach. First, it provides a source of funding for forest managers who might otherwise be unable to keep their forests in the black.[88] Second, for those forests that would otherwise operate profitably, it provides additional resources to catalyze optimal forest resource allocation.[89] Finally, and most importantly, it provides an incentive for forest managers to incorporate nonmarket values in their decision-making processes. This final benefit is most important because unless the Forest Service incorporates these values into its decision-making process "politicians and public land managers will

88. As noted in Part III.B.1, *supra*, many national forests are in poor health, require significant maintenance and repair, and would likely lose money. Additional congressional funding would allow some of these forests to break even as they restore forest health and adapt to more efficient resource allocations.

89. O'Toole noted that Forest Service management practices, spurred on by irrational budgetary incentives, have led to an inefficient allocation of resources in most national forests. O'TOOLE, *supra* note 4, at 199-201. The Forest Service devotes the majority of its resources to timber production despite the fact that recreation is the most valuable use of most national forest land. *See id.* at 201 ("According to the Forest Service, recreation is more valuable than timber and other commodities in every region except Region 6."). Under the modified market approach, this market failure would eventually be corrected because the budgetary incentives to harvest timber would disappear. *See id.* (noting that marketizing national forests would "put an end to below-cost timber sales . . . [and] allow forest managers to respond rapidly to changes in demand" for forest goods and services). However, converting the forests from timber to recreation primacy will be capital intensive, and the additional funds from Congress will speed the process along.

continue to make policy decisions that shortchange [the environment] in public land management decisions."[90]

Environmental economics, a field of study devoted to quantifying and internalizing environmental costs into cost-benefit analyses, provides a mechanism for forest managers to address these nonmarket values.[91] While no consensus exists regarding what nonmarket values should be considered, or how to measure the benefits they provide, most studies suggest that the nonmarket benefits provided by forests are substantial, and are often significantly greater than the commodity benefits for which the forests have traditionally been managed.[92]

## IV. ANALYSIS

"Every theory is a self-fulfilling prophecy that orders experience into the framework it provides."[93]

### *A. Environmental*

The nonmarket values the modified market approach attempts to address are primarily environmental in nature. Thus, it should come as no surprise that the environment would be the primary beneficiary of placing the Forest Service under a modified market system. Environmental benefits include reducing timber harvest incentives, improving knowledge of forest ecosystems through adaptive management, and augmenting forest managers' ability to respond to

90. Morton, *supra* note 11, at 465.

91. *See, e.g.*, David A. Dana, *Existence Value and Federal Preservation Regulation*, 28 HARV. ENVTL. L. REV. 343, 356-57 (2004) (describing the key distinctions between environmental and traditional economics, and identifying advantages to the former approach). *But see* Donald J. Boudreaux, Roger E. Meiners & Todd J. Zywicki, *Talk Is Cheap: The Existence Value Fallacy*, 29 ENVTL. L. 765, 801-02 (1999) (rejecting environmental economics' usefulness in government regulation).

92. *See, e.g.*, Morton, *supra* note 11, at 487 ("[N]onmarket benefits provided by ecological services are not priced, are only partially understood, and their value is just starting to be recognized, [but] [t]he economic benefits to human welfare of sustaining natural capital and ecological services in the aggregate are significant."); Jan G. Laitos & Thomas A. Carr, *The Transformation on Public Lands*, 26 ECOLOGY L.Q. 140, 237 (1999) ("[T]here is a large disparity between the receipts measure and the imputed market value measure. In the national forest system, the traditional commodity uses of timber, grazing, and mining account for 90% of the total receipts, while recreation amounts to only 9% and preservation 0% of total receipts.... [W]hen benefits are calculated by the imputed market-clearing price, which includes nonmarket benefits, the preservation benefit share rises sharply from 0% to 88%, the recreation benefit share increases slightly to 10%, and the commodity use share falls dramatically to only 2% of total benefits.").

93. Ruth Hubbard, *Have Only Men Evolved?*, *in* WOMEN LOOK AT BIOLOGY LOOKING AT WOMEN: A COLLECTION OF FEMINIST CRITIQUES 7, 9 (Ruth Hubbard et al. eds., 1979).

environmental problems. The modified market approach is not without environmental risks, particularly when a national forest is under the management of a short-sighted or unethical Forest Service employee. However, on the whole, the environmental benefits would likely outweigh the costs.

The primary environmental benefits of the modified market approach are a result of cutting off individual forests from the congressional umbilical cord. Because most national forests have relatively low-value timber, traditionally sold below cost, marketizing those forests would produce significantly diminished timber yields.[94] Furthermore, forest managers would be able to collect user fees from hikers, campers, birdwatchers, and other recreationists, so the modified market model would create incentives to manage forests to maximize recreationists' utility.[95] Because recreation is typically a less environmentally intrusive forest use, this shift from timber primacy to recreation primacy would likely produce substantial environmental benefits.[96]

Another important environmental benefit produced by the modified market approach results from the manager's fee-style congressional funding. The manager's fee would encourage forest managers to identify intangible values in their forests in order to increase their annual budget.[97] This, in turn, would promote better understanding of forest ecosystems and processes by providing incentives to undertake research projects enabling the identification and quantification of new internal and external nonmarket values.

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94. *See* O'TOOLE, *supra* note 4, at 225.

95. *See id.* at 230-31.

96. *See, e.g.*, Dean Lueck & Jeffrey A. Michael, *Preemptive Habitat Destruction Under the Endangered Species Act*, 46 J.L. & ECON. 27, 52 (2003) (noting the "environmental benefits to landowners of maintaining old-growth pine forests for recreation").

97. Managing for nonmarket values is not a new concept in forest management, because both the Multiple Use Sustained Yield Act (MUSY) and NFMA require it of Forest Service managers. *See* Multiple Use Sustained Yield Act, 16 U.S.C. § 531(a) (2000) (requiring Forest Service management that considers "relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return"); *id.* § 1601(a)(2) (requiring "an evaluation of opportunities for improving [the National Forests'] yield of tangible and intangible goods and services"). However, forest managers have not had a budgetary incentive to manage for nonmarket values, and consequently have considered nonmarket values only haphazardly. *See, e.g.*, Steven P. Anderson, Comment, *Below-Cost Timber Sales & Community Economic Subsidies: A Conflict of Values*, 5 MD. J. CONTEMP. LEGAL ISSUES 129, 133 n.22 (1993-94) ("The Forest Service has always wanted to calculate nonmarket costs, such as increased fire protection, into below-cost timber sales, but it does not want to add the cost of diminished habitat into the equation."). Unlike MUSY and NFMA, the modified market approach would encourage forest managers to incorporate known nonmarket values in their decision-making processes.

Thus, a significant environmental benefit of the modified market approach would be its impact on scientific understanding of forests' biological and chemical processes, and how those processes impact nonforest resources.

Wise forest management requires deliberate, long-term planning and does not mesh well with annual budget cycles.[98] Thus, one significant environmental risk of the modified market approach is that forest managers, facing a budget shortfall or community pressure, will take advantage of their newfound flexibility to harvest timber unsustainably. Without the procedural requirements that now force the Forest Service to act deliberately, such a manager could conceivably harvest more timber more quickly than they could under the present system. In the Douglas Fir-dominated forests of the Pacific Northwest, where timber value exceeds forest recreation value, forest managers would have even greater incentive to continue a timber primacy regime.[99]

A number of safeguards could be put in place to limit these risks. For example, neighboring forests could opt to combine resources, creating efficiencies of scale, reducing the influence of local communities in the decision-making process, and buffering each other's budgets during years with unusual expenditures. However, the more forests opt to combine resources, the less flexibility they will have to address problems and the less responsive they will be to the idiosyncrasies of their own forest.[100] Budget shortfalls during heavy fire years could also be remedied by allowing forests to take out protective insurance policies, however this would reduce available funds for restoration activities. As a last resort, environmental activists could sue the forest managers for violating their trust responsibilities.[101] Assuming that individual forests were required to foot their own legal bills, the potential for litigation would likely prevent the most obvious and egregious forms of environmental damage.

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98. *Cf.* David J. Colligan, *Forest Land Taxation in the New Millennium: Stewardship Incentivized*, 78 DENV. U. L. REV. 413, 414-15 (2001) (noting the disincentives to reasonable forest management created by an annual accounting system).

99. O'TOOLE, *supra* note 4, at 199, fig.13.1.

100. *See, e.g.*, Lynn Sylvester & Ira B. Lobel, *The Perfect Storm Anatomy of a Failed Regulatory Negotiation*, 59 DISP. RESOL. J. 44, 50 (2004) (noting an inverse relationship between agency effectiveness and the number of agency officials involved in a given decision).

101. Presumably, a statutory change that created a modified market system within the Forest Service would also impose upon forest managers a duty to manage their forests sustainably. Thus, citizens would have standing to sue forest managers for acting in ways that diminish long-term forest value.

Another risk of the modified market approach is that forest managers, in their desire to enhance recreational utility, will pattern national forests after the national park system, replete with giant parking lots, air pollution, tourist towns, concessionaires, and collectible knick-knacks.[102] Such a system, while certainly enjoyable for busloads of tourists, would promote static management and preservationism. This, in turn, would cripple dynamic forest ecosystems in much the same way as a century of fire suppression has.[103]

Finally, the manager's fee system could itself produce environmental risks. The Forest Service has a long history of creating forest management justifications for activities that produce larger budgets, regardless of the cost to forest health.[104] Under the modified market system this unfortunate tail-wagging-the-dog approach to forest management could allow forest managers to extract resources unsustainably, and collect a greater manager's fee as a result. For example, a forest manager could harvest a valuable timber stand unsustainably—and collect a hefty fee—and then claim that the timber sale actually increased the forest's total value by augmenting the forest's recreational value or increasing water flows to a nearby river.[105]

### *B. Economic*

The economic consequences of applying the modified market approach fall primarily on three groups of people: commodity industries, recreationists, and local communities. While costs would

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102. *See, e.g.*, Paul M. Bray, On the American Parks and Economic Forces (May 17, 2004) (unpublished manuscript), *available at* http://www.braypapers.com/parks704.html (last visited Jan. 1, 2005) (noting the spread of commercial interests in and around Yellowstone National Park).

Fortunately, if this problem were to occur, it would likely be limited in scope. The national forest system, although beautiful and sublime, contains relatively few of the concentrated spectacles upon which national parks thrive. The primary reason for this is that where national forests do contain these visual wonders, Congress typically turns their management over to the National Park Service. For example, in 1909, Congress carved Olympic National Park (then called Mt. Olympus National Monument) from the Olympic National Forest. 16 U.S.C. § 251 (2000).

103. *See* Davis, *supra* note 27, at 1210-12 (noting the Forest Service's success at battling forest fires and that "[t]he consequence of this success was a gradual buildup of forest fuel loads, which has since fueled more frequent severe and catastrophic fires").

104. *See supra* notes 5-6 and accompanying text; LANGSTON, *supra* note 29, at 268-69 (noting that in 1990, forest managers at the Umatilla National Forest were trying to drastically increase harvest rates in the Blue Mountains despite the input from agency and nonagency biologists who warned that existing harvest rates were unsustainable).

105. This problem would most likely be addressed by a nationwide forest service oversight commission described *infra* Part IV.C.

fall more heavily for some, each group would reap some advantages and suffer some disadvantages. In some respects, commodity industries would be the biggest losers under the modified market approach. Cattlemen, miners, and timber companies, in stark contrast with current policy, would all be expected to pay fair market rates for the resources they wish to extract.[106] Thus, the quantities of resources extracted from National Forests would likely drop significantly.[107] The rise in user fees would also likely put many marginally profitable extraction firms out of business.[108] On the other hand, the corresponding rise in commodity prices would likely be a boon to private landowners who are now unable to compete with federally subsidized operations.[109]

Currently, one can enjoy the majority of recreational opportunities on national forest land free of charge.[110] Under the modified market system, national forest managers would begin to charge user fees for these recreational opportunities.[111] Thus, the recreation industry would be, at least facially, a loser under the new system. However, a closer analysis of the modified market system reveals significant benefits for recreationists. Because forest managers would be able to charge recreation fees and keep the proceeds, they would have incentives to develop recreation opportunities in ways that would lead to more fee income.[112] Furthermore, it would reduce conflicts among recreation users because the Forest Service would

106. *See, e.g.*, 30 U.S.C. §§ 22, 28f, 29 (2000) (opening federal lands to free exploration and occupation, charging holders of unpatented claims a maintenance fee of only $100 per claim, and allowing purchase of lands with valuable mineral deposits for only $5 per acre); Harold J. Krent & Nicholas S. Zeppos, *Monitoring Governmental Disposition of Assets: Fashioning Regulatory Substitutes for Market Controls*, 52 VAND. L. REV. 1705, 1731-34 (1999) (describing the history and consequences of federal grazing subsidies and noting that federal grazing fees are often seventy-five percent less than their private equivalents).

107. O'TOOLE, *supra* note 4, at 225.

108. *Id.* at 226 (noting that a marketization model might displace 30,000 workers).

109. *See id.* at 233 ("Many private landowners should support the changes because they will provide new sources of income . . . .").

110. *See* Kira Dale Pfisterer, *Foes of Forest Fees: Criticism of the Recreation Fee Demonstration Project at the Forest Service*, 22 J. LAND RESOURCES & ENVTL. L. 309, 330-31 (2002) (noting that the Forest Service, prior to a recent and limited recreational fee demonstration project "did not exercise its limited authority to collect recreation fees").

111. *See* O'TOOLE, *supra* note 4, at 203-04 (refuting typical objections to charging recreational fees in a market model). The Forest Service is currently experimenting with allowing forest managers to charge recreation fees and retain eighty percent of the proceeds. *See* Pfisterer, *supra* note 110, at 332.

112. *See* O'TOOLE, *supra* note 4, at 204-05.

allocate resources to those users who were most willing to pay.[113] Thus, although recreationists would have to pay for the benefits they derive from national forests under the modified market approach, the national forests will ultimately be more responsive to recreationists than they are under the current management system, because the Forest Service will have incentives to use the money collected to enhance recreational utility.

Local communities whose economies primarily rely on resource extraction would likely suffer under the modified market approach as timber mills and other extraction-reliant businesses shut down.[114] Many resource extraction jobs would likely be replaced by jobs in the tourism and recreation industries. These new jobs, however, would likely be lower-paying than those they would replace.[115] Forest resource jobs would still be available, particularly in forests requiring heavy thinning and other restoration work.[116] These restoration activities and private land timber harvests would likely keep some mills operating near national forests, and as forest health improves, most forests would be able to regularly harvest timber. While harvests would almost certainly occur at lower than historical rates, they would have the distinct advantage—not enjoyed by most recent Forest Service harvests—of being sustainable.

### *C. Political*

The modified market approach to forest management provides distinct political advantages over the current model. It would reduce Congress's ability to interfere in forest management and promote community-based adaptive planning and management, allowing those with the most information to make the bulk of management decisions. It also creates better opportunities for the environmental movement to insert its values into public land policy.

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113. *Id.* at 205-06.

114. *See supra* note 102 and accompanying text.

115. *See* SIERRA BUS. COUNCIL, INVESTING FOR PROSPERITY: BUILDING SUCCESSFUL COMMUNITIES AND ECONOMIES IN THE SIERRA NEVADA 5-6 (2003), *available at* http://www.sbcouncil.org/ifpch1.pdf (last visited Jan. 1, 2005) ("In the northern and eastern Sierra, tourism jobs occupy the niche once held by high-paying mining and timber jobs. These jobs often pay less than the ones they replaced, and they continue a pattern of high seasonal unemployment.").

116. *See* Andrus & Freemuth, *supra* note 44, at 6 (quoting John Kitzhaber, former Governor of Oregon, Keynote Address at the Policy After Politics Conference in Boise, Idaho (June 1, 2000) (copy of transcript on file with the Andrus Center for Public Policy) (suggesting that restoration activities could help keep timber mills in business)).

However, these benefits do not come without corresponding costs and political uncertainties. Checks will likely need to be put in place to discourage congressional interference. Furthermore, a national Forest Service body would need to be preserved to establish and enforce standards and facilitate information sharing among forest managers. Finally, a variety of statutes would need to be changed or eliminated to make way for a modified market system.

One significant problem in the current forest management system is Washington's penchant for imposing unrelated political considerations into forest management decisions.[117] Congress often allocates funds for timber sales and restoration projects in pork barrel-fashion, basing decisions on political clout rather than sending money to the forests that need it most.[118] The modified market approach does send more money to forests with greater need, but it also rewards forest managers for wise management.[119] Assuming Congress can exercise self-restraint—a quality for which the institution is not well known—this system, in the long run, would produce better management decisions because the only way for a forest manager to increase congressional funding is to increase the value of their forest. Unfortunately, nothing short of a constitutional amendment could prevent an obstinate Congress from meddling with Forest Service funding.

The opposite case also presents a problem for the modified market approach. If Congress chose not to fully fund the manager's fee pool, the reduced rate of return on forest value would change management incentives and might force forest managers to alter their plans. One solution to this problem is to have Congress guarantee a certain level of funding for a fixed amount of time, enabling forest managers to plan accordingly. On the other hand, Congress's power to change the Forest Service's managers' fees gives it the ability to

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117. *See, e.g.*, O'TOOLE, *supra* note 4, at 174-80 (describing the numerous ways in which Congress and the President interfered with NFMA/RPA forest planning procedures in the late 1970s and early 1980s).

118. Dale A. Oesterle, *Public Land: How Much Is Enough?*, 23 ECOLOGY L.Q. 521, 537 (1996) ("The government allocates the use of federal lands to provide in-kind subsidies to interest groups with political clout. Often the purpose of a subsidy is simply to route federal largess to a congressperson's local district . . . .").

119. A funding system that did allocate money based on need would ultimately be counterproductive as well. It would encourage forest managers to maintain their forests on the brink of disaster so as to grab a larger share of the budget. Some commentators suggest that the Forest Service, faced with declining timber receipts and K-V funds, exaggerated recent forest fire problems to grab Congress's attention and get more funding. *See generally* O'Toole, *supra* note 75.

control incentive structures, and consequently, national forest policy. For example, if Congress believes that too few resources are being extracted from national forests, they can decrease annual funding. This would increase opportunity costs for long-term planning and would promote a more short-term management style.

By decentralizing authority and incentives, the modified market approach encourages local involvement and community-based decision-making. One advantage to this system is that the people making the decisions are the people who are most likely to understand—and, in any case, will be forced to live with—the consequences of those decisions.[120] Local decision-making is a particularly valuable tool in forest management because, as we have learned from decades of forest mismanagement, forest ecosystems do not lend themselves to cookie-cutter management.[121] Local decision-making also enjoys the political advantage of being peculiarly en vogue with the Bush administration.[122]

On the other hand, a purely decentralized national forest system with no significant federal oversight would likely end in disaster. Each forest manager would have an incentive to find ridiculously high value in their forest every year because they would likely be competing with every other forest manager for their share of a fixed amount of money. The end result would be a blatant disregard for the very values the modified market approach is designed to promote. Thus, some form of separately funded federal oversight is necessary to establish standards for calculating forest value, audit reports sent to Congress, and serve as a liaison between individual forest managers, Congress, and the President. At the same time, the federal office would act as a facilitator, enabling forest managers to share management strategies and discoveries, and otherwise improve understanding and management.

Environmentalists have long sought, often unsuccessfully, to incorporate their nonmarket values into public land-management

120. *See* Scarlett, *supra* note 31, at 287-88 (noting the benefits of tapping "local insight and local ideas").

121. *See generally* LANGSTON, *supra* note 29, at 272-74 (recounting the Forest Service's attempt to apply rigid German forestry techniques to American forests, and describing the negative ecological and economic consequences of making the attempt).

122. *See* Scarlett, *supra* note 31, at 287-88 (outlining the Bush Administration's "4 I's" policy which focuses primarily on community involvement in natural resource decision-making).

discourse.[123] The Forest Service has little reason to manage for environmental values because there are no budgetary incentives associated them. When faced with hostile or indifferent forest managers, environmental activists often turn to litigation to achieve their desired ends.[124] However, courts consistently defer to the Forest Service's expertise in substantive matters of land management, forcing plaintiffs to search for procedural missteps.[125] Environmental activists continue to sue the Forest Service, imposing lengthy and expensive litigation, and reinforcing the agency's pattern of procedural drudgery and post hoc rationalization.

The modified market approach avoids the environmental litigation quagmire by creating incentives for forest managers to incorporate environmental nonmarket values at all phases of planning and implementation. Rather than making initial budget-maximizing decisions, and producing paperwork to justify those decisions, forest managers have an incentive to elicit input from environmentalists about how to identify nonmarket values and better manage their growth because, as the value of the forest grows, so, too, will the annual manager's fee from Congress. Furthermore, environmentalists will be able to motivate forest managers with their wallets by paying for their forest recreation and ecotourism.[126] To the extent that the modified market approach still fails to address environmental values

123. *See, e.g.*, Sierra Club v. Morton, 405 U.S. 727, 743-56 (1972) (Douglas, J., dissenting) (arguing that inanimate objects should have standing to sue for their own environmental preservation). Justice Douglas devoted a lengthy footnote in his famous dissent to the "notorious" Forest Service's blithe disregard for environmental values. *Id.* at 748 n.7 (Douglas, J., dissenting) ("The Forest Service, influenced by powerful logging interests, has . . . paid only lip service to its multiple-use mandate and has auctioned away millions of timberland acres without considering environmental or conservational interests.").

124. *See* Richard Toshiyuki Drury, *Rousing the Restless Majority: The Need for a Blue-Green-Brown Alliance*, 19 J. ENVTL. L. & LITIG. 5, 20 (2004) (noting environmentalists' drift away from community activism towards lobbying and litigation).

125. *See, e.g.*, Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351 (1989) ("Other statutes may impose substantive environmental obligations on federal agencies, but NEPA merely prohibits uninformed—rather than unwise—agency action."); Inland Empire Pub. Lands Council v. U.S. Forest Serv., 88 F.3d 754, 760 (9th Cir. 1996) ("[W]e will uphold the Forest Service's interpretation 'unless it is plainly erroneous or inconsistent with the regulation.'" (quoting Nev. Land Action Ass'n v. U.S. Forest Serv., 8 F.3d 713, 717 (9th Cir. 1993))).

126. A system that would allow environmentalists to pay the Forest Service to reserve timber stands from harvesting for a set period of time is also feasible. This system would enable environmentalists to assign economic value to an otherwise unquantifiable value, and would allow environmental organizations to "put their money where their mouth is."

(endangered species protection is a good example), prescriptive legislation may be necessary.[127]

Finally, the modified market approach would require Congress to dispense with or alter a handful of important statutes. For example, the General Mining Act of 1872, which allows a prospector to enter public lands, explore for minerals, and claim any valuable mineral deposits they find, would have to be altered so as not to apply to national forests.[128] A forest manager would be less likely to invest in recreation opportunities or habitat improvements if they know that their efforts can be destroyed by a prospecting mining company without notice or approval. The planning provisions in the RPA,[129] NFMA,[130] and the Federal Land Policy and Management Act of 1976 (FLPMA)[131] would need to be modified to allow more flexible management plans, eliminate de facto timber quotas, and better incorporate nonmarket values. Furthermore, FLPMA would need to be modified to allow forest managers the right to grant grazing rights to any party they desire and to charge whatever fees they deem reasonable.

NEPA presents the most difficult challenge to the modified market approach. NEPA requires federal agencies to prepare reports for all "major Federal actions significantly affecting the quality of the human environment" detailing adverse environmental affects of and alternatives to the proposed action.[132] On its face, nothing in NEPA conflicts with the modified market approach because NEPA would merely require forest managers to write down each step of a decision-making process they would likely already undertake. The question, then, becomes whether the benefits of having the decision-making process written down—tempered by the fact that the promises contained therein are often unenforceable[133]—outweighs the

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127. *See* O'TOOLE, *supra* note 4, at 210-11 (noting the possible need for additional nonmarket protections for certain environmental interests).

128. 30 U.S.C. §§ 22-24, 26-30, 33-35, 37, 39-43, 47 (2000).

129. 16 U.S.C. §§ 1600-1614 (2000).

130. Pub. L. No. 94-588, 90 Stat. 2949, 2962 (1976) (codified as amended in scattered sections of 16 U.S.C.).

131. 16 U.S.C. §§ 1600-1614; 43 U.S.C. §§ 1701-1785 (2000).

132. 42 U.S.C. § 4332(c) (2000).

133. The modified market system operates on a system of incentives for better management. Although Congress originally intended NEPA to promote better decision-making, the Environmental Impact Statement (EIS) process is often merely the documentation of tenuous post hoc rationalizations for poor decision-making. David A. Koplow, *How Do We Get Rid of These Things?: Dismantling Excess Weapons While Protecting the Environment*, 89 NW. U. L. REV. 445, 485 n.202 (1995) (suggesting that the EIS process is merely a "paper exercise" and is "not treated as an important component of an agency's real planning process"). Regardless of whether an agency makes good or bad

opportunity costs associated with the expense of forcing procedural drudgery.[134] It is a close call, but the scale tips towards excluding Forest Service actions from NEPA's requirements.

## V. CONCLUSION

Our national forests are in bad shape, and the Forest Service, despite what may be its best intentions, is ill-equipped to nurse them back to health. It suffers from an unsound incentive structure, burdensome procedural requirements, poor morale, and declining public support. An unusual, but tenable solution would drastically change the Forest Service's hierarchical structure and budgeting processes so as to produce better incentives for wise and balanced forest management. Furthermore, such a change would allow Forest Service management practices to reflect public sentiment and enhance public utility. While bringing about such a policy change would require significant political capital and congressional interest, there are certain aspects of the proposed solution that would appeal to the current political leaders in Washington. There are certainly risks associated with this proposal, but in light of current trends in forest health, the risk of standing idle seems far greater.

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decisions, NEPA often does nothing more than increase the cost of decision-making, and increasing decision-making costs without producing better decisions is antithetical to a market-based management paradigm.

134. *See* Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 72 (2004) (holding that mere "'will do' projections of agency action set forth in land use plans—are not a legally binding commitment").