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**Ecosystem Management and the Evolution of Ideas at the United States Forest Service**

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**Abstract**

In the early 1990s, ecosystem management was touted as an emerging new paradigm for the United States (US) national forest planning, but by the end of the decade, the phrase had virtually disappeared from public discussion of the subject. The purpose of this article is to understand what legacy, if any, that ecosystem management left on national forest management. While Klyza (1996) has arguably offered the leading viewpoint on how policy ideas influence change in national forest management, this article relies more heavily on insights from the work of Carstensen (2011) and other scholars who view policy idea change as an evolutionary process. Ultimately, it is concluded that ecosystem management was one component of a longer-term evolution in ideas that culminated most recently in the promulgation of the 2012 forest planning rules.

**Introduction**

In the 1990s, ecosystem management emerged as a widely discussed policy idea in US national forest management. In the early part of that decade, ecosystem management principles guided the development of the controversial Northwest Forest Plan, which temporarily eased political tensions related to the harvesting of timber on public lands in the Northwest Forest Region. By the middle of the decade, ecosystem management was touted as a new paradigm that had the potential to revolutionize national forest planning. By the end of the decade the phrase “ecosystem management” largely disappeared from public discussions of national forest planning, though many of its core elements continue to live on under the moniker of “sustainability,” which today serves as the guiding philosophy in national forest management.

Previous studies of the politics surrounding ecosystem management have largely focused on the actors and processes that shaped the idea’s rise to prominence within the Forest Service. Hoberg (2004), for instance, asserts that ecosystem management was the inevitable outcome of a court decision that temporarily gave environmental groups the upper hand in their ongoing and contentious battle with timber interests for control of the national forests. Freeman (2002), by contrast, contends that ecosystem management was mainly an ill-defined concept that high-ranking Forest Service officials embraced as part of a political strategy to regain some of the public trust the agency had lost over the previous two decades. Finally, Wellock (2010) provides evidence that

ecosystem management originated from a decades-long effort by Forest Service scientists to make species protection a larger component of the agency's mission. In reality, each of these factors likely played an important role in helping to bring ecosystem management to prominence.

Without disputing any of these earlier findings, the present study fulfills a different purpose: to better understand the evolution of ecosystem management as a policy idea. This involves not only identifying the core ideational elements of ecosystem management, but also understanding how they were shaped by competing ideas that existed within the national forest policy domain. In undertaking this task, Klyza's (1996) study of how competing policy ideas influence the development of US public lands policy provides a good theoretical starting point. However, for reasons discussed in the next section, I supplement Klyza's perspective with ideas gleaned from the works of Carstensen (2011) and Schmidt (2011), both of whom provide a more detailed account of how ideas evolve over time. After outlining the theoretical concepts that guide the analysis, I proceed to an exposition of how ecosystem management concepts became part of the fabric of ideas surrounding national forest planning. In the concluding section, I reflect on the findings and suggest some potential avenues for additional research.

### **Public Lands and the Politics of Ideas**

Klyza (1996) argues that public land politics in the US is heavily shaped by privileged ideas that dominate a particular public land policy domain over an extended period of time. In the case of the US national forest policy regime, the privileged idea is technocratic utilitarianism: a Progressive Era land management philosophy that emphasizes professional, scientific management of the national forests. Klyza contends that technocratic utilitarianism became embedded within Forest Service practice early on and continued to influence national forest management, even as its validity was challenged by the ecological movement of the 1960s and 1970s. At best, the new ideas preferred by the ecological movement came to coexist with technocratic utilitarianism, but never really supplanted those earlier ideas.

Klyza's framework is based on the neo-institutionalist assumption that ideas are a stabilizing force within policy domains. According to this view, policy ideas are treated more or less as monoliths—cohesive intellectual frameworks that, once embedded in laws and bureaucratic routines, exert a stable influence over decision-making within a policy domain. As such, ideational change occurs episodically, usually when societal crises or redistributions of political power create windows of opportunity for the consideration of new ideas. These relatively rare events may sometimes lead to one set of ideas being supplanted by another (Hall, 1993), but more often the new ideas are simply layered on top of old ones through new institutional arrangements that create a stable, if uneasy coexistence between the two frameworks (Klyza and Souza, 2008).

Although Klyza's theoretical perspective provides a good starting point for understanding how ideas function within US public land management, it underappreciates the micro-dynamics of how policy ideas change over time. More

recently, Carstensen (2011) has challenged the conventional wisdom by asserting that ideas evolve and change in a much more incremental manner than previously believed. Rather than being monolithic, policy ideas contain a series of “interrelated elements of meaning” that must be decoupled and examined in order for the idea to be fully understood (p. 600). This is so because over time the individual elements of an idea may take on new meanings, become more or less important, or simply disappear altogether, even as the overall idea continues to exist. In other instances, the overall idea may seemingly cease to exist, but some of its elements may survive under a new name. For instance, in subsequent sections of this paper we will see how the idea of ecosystem management had four main elements that varied in relative importance over a period of roughly twenty years. As that time period wore on, the phrase “ecosystem management” became less prominent, but many of its elements continued to exist under the heading of “sustainability.” This is all part of the evolution that policy ideas go through over time.

The development and evolution of policy ideas occurs in response to three main forces. One force that shapes ideas is the knowledge and beliefs held by members of a particular field of expertise or “epistemic community” (Haas, 1992). For instance, in the case of ecosystem management, members of the forest policy domain trained in Conservation Biology contributed a foundational element: the belief that ecosystem health is fundamental to achieving other forest management goals. A second force that shapes ideas is practical experience (Argyris and Schon, 1996). The various elements of a policy idea may not all materialize at one moment in time as cohesive components of a coherent ideational package, but instead come along at different points in time in response to practical problems that persist within a particular organization or policy domain. As will be discussed in subsequent sections, other elements of ecosystem management developed largely in response to practical issues that consistently plagued US national forest management throughout the 1980s.

The third and arguably most important force shaping the evolution of policy ideas is the need to gain support among powerful political actors with competing ideational beliefs (Schmidt, 2011). This is most likely to occur if key elements of the idea are vague enough that they can be connected to other competing ideas. For instance, one way that advocates of ecosystem management attempted to gain support for their perspective was by claiming that the idea’s main elements were not a huge departure from the earlier Progressive approach to forest management. Over a period of years, advocates of the ecosystem-based approach also connected their perspective to other prominent policy ideas such as sustainability and efficiency. When the advocates of an idea successfully make these kinds of connections, they do more than simply layer new ideas on top of old—they alter both sets of ideas in the process (Carstensen, 2011).

Finally, it is important to recognize that advocates of a new idea may find themselves making connections to ideas that differ in scope. Ideas like ecosystem management or the Progressive philosophy of land management are what we will call “programmatically” ideas—ideas that are structured around guiding routine policy decision-making within a single policy domain. To be successful, however, programmatic ideas may need to be

consistent with broader sets of ideas, such as a nation's dominant political culture or philosophy of the appropriate relationship between the state and the economy (Schmidt, 2011).

There may also be intermediate-level ideas that simultaneously influence policy decision-making in multiple nations or policy domains. Scholars of both international and domestic policy have found the concept of a "regime" to be useful in describing such ideas (Jochim and May, 2010; Krasner, 1983). Humphreys (1999), for example, contends that an international forest policy regime organized around sustainability and other principles has become a driving force in the forest management choices made by numerous nations. Within US domestic politics, Harris and Milkis (1996) demonstrated that changes to multiple environmental laws in the 1970s were driven by a common set of ideas that highlighted the interconnectedness of life on earth, and the need for grassroots activism. Ultimately, the ideational environment within which any single policy domain resides may be quite complex, and to be influential new ideas may need to make connections to multiple sets of ideas, both old and contemporary.

### **The Case in Brief**

The following four sections of the study utilize the theoretical concepts outlined in the preceding section as a basis for analyzing the place that ecosystem management occupies in the historical evolution of ideas surrounding US national forest planning. The next section outlines the ideas that guided national forest planning prior to the emergence of ecosystem management. Next, the development of ecosystem management is reviewed, followed by a discussion of its evolution in the 1990s when it was seemingly replaced by the concept of "sustainability." The final body section explores how ideas such as ecosystem management and sustainability were connected to ideas related to what Eisner (2000) calls the "efficiency regime" during the 1990s and early 2000s.

Along the way, I deliberately remain focused on the ideas themselves rather than the political actors and events that influenced their development. Like most of the authors cited in the preceding section, I accept the basic assumption that ideas are strategically used by political actors to advance their own preferences and interests. With respect to ecosystem management, however, the political circumstances surrounding its development have been more than adequately explored by other authors (Freeman, 2002; Hoberg, 2004; Wellock, 2010). Furthermore, As George and Bennett (2005) note, social scientists who employ case study analysis would do well to focus on the main issues of theoretical interest rather than attempting to describe a case in its entirety. In the concluding section, however, I briefly detail some of the key political circumstances in an effort to better explain why the evolution of ecosystem management played out the way it did in the particular context of US national forest management.

### **Forest Management: From Progressivism to Environmentalism**

US national forest management took shape during the first two decades of the twentieth century and was heavily influenced by Progressive Era ideas concerning state-society relations. Amid the upheaval caused by the industrial revolution, Progressives held faith

that government bureaucrats could use scientific and social scientific knowledge to manage markets and resources in ways that restored order and stability (Wiebe, 1967). Within the context of forest management, Progressive ideas were evident in the philosophy of Gifford Pinchot, Chief of the Division of Forestry (1898-1905) and later the US Forest Service (1905-1910). A hero of the Conservation Movement, Pinchot believed that forests needed to be scientifically managed to ensure that they provided society with a perpetual supply of timber (Dana and Fairfax, 1980). To this end, Pinchot advocated the creation of a Forest Service staffed by trained forestry professionals who could ensure the long-term vitality of the national forests by systematically limiting the harvesting of timber—a process that became known as sustained yield management (Wilkinson and Anderson, 1987).

Under the sustained yield management philosophy early national forest management was singularly focused on timber harvesting, but by the 1920s the Forest Service was gradually forced to broaden its mission. During that decade, millions of Americans began visiting the national forests for recreation purposes, forcing the Forest Service to institute new types of land management practices. Also, during the 1920s Forest Service scientist Aldo Leopold successfully lobbied for a portion of the Gila National Forest to become a permanent roadless area, essentially creating the first federal wilderness area. The Forest Service subsequently enacted regulations that created a standard process for designating similar wilderness areas in the future (Dana and Fairfax, 1980).

Initially, the Forest Service had no trouble balancing traditional sustained yield management against these new demands, but after World War II the agency's political environment gradually became more complicated. Post-war economic and population growth led to a boom in new construction and an inevitable demand for increased timber harvesting in national forests. At the same time, the burgeoning middle class demanded increased use of national forests for recreation purposes (Hirt, 1994). Amid these growing demands, the Forest Service asked Congress to formally broaden its land management mission by passing the Multiple Use and Sustained Yield Act (MUSYA) of 1960.

On paper, MUSYA inaugurated a new era of “multiple use” management at the Forest service. In the future, national forests would be divided into management districts that would be specifically designated for timber harvesting, recreation, or other purposes (Fedkiw, 1998). In reality, however, MUSYA mainly ratified the status quo in forest management. Timber harvesting remained the main concern of Forest Service officials, and decisions about forest management remained the province of trained experts. Environmental protection was not a major concern, and dialogue with the mass public concerning matters related to forest management remained unheard of—two realities that irked leaders of the ecological movement that was gaining steam by the end of the 1960s.

The ecological movement had two main goals. First, like the earlier preservation movement, the ecological movement sought to advance a more holistic view of the

relationship between humans and nature (Caldwell, 1970). In this respect, the ecological approach was a direct challenge to the Conservationist philosophy, which viewed humans as stewards of natural resources rather than one element in a complex web of life. As such, the ecological approach called for new types of scientific knowledge, such as Conservation Biology, to be included in land management decision-making. Second, the ecological movement took its cues from the “New Left” philosophy of the 1960s by calling for greater public participation in land management planning (Harris and Milkis, 1996; Eisner, 2000). By the mid-1970s, the efforts of the ecological movement had led to important changes in federal law that substantially altered the national forest management process.

Among these legal changes, three stand out as particularly important. First, the National Environmental Policy Act (NEPA) of 1969 required all proposed major federal actions to be accompanied by an Environmental Impact Statement (or EIS)—a systematic assessment of the environmental impacts said project would have. Second, the Endangered Species Act (ESA) Amendments of 1973 required all federal land and resource managers to work together to identify “critical habitats” and execute recovery plans that would restore endangered species to viability. Most importantly, the National Forest Management Act (NFMA) of 1976 made elements of the aforementioned laws key components in a new forest planning process.

The NFMA mandated that all national forests develop a new land management plan every 10-15 years. While “multiple use” remained the basic forest management philosophy, the NFMA further elaborated this philosophy by making the preservation of species diversity an important component. In addition, forest management plans needed to be developed by an interdisciplinary team of experts, include multiple opportunities for public participation, and be prepared in a manner that complied with NEPA. To effectuate all of these requirements, the Forest Service was required to issue regulations detailing a standardized process for developing forest management plans and encouraged to assemble and consult a Committee of Scientists concerning how it should formulate these regulations (National Forest Management Act [NFMA], 1976).

### **Ecosystem Management Emerges**

During the 1970s and 1980s, the ecosystem management paradigm gradually gained currency within the Forest Service as a way to reconcile past management practices with new legal requirements. Cortner and Moote (1998) state that ecosystem management as a policy idea consists of four main elements: 1) socially defined goals 2) holistic, integrated science 3) adaptive institutions, and 4) collaborative decision-making. Although this definition of ecosystem management was widely agreed upon by the early 1990s, it did not spring fully formed from any single academic treatise or government report. Rather, the various elements of ecosystem management were gradually joined together as Forest Service officials and other land managers applied the lessons of scientific research and practical experience to their efforts to more effectively implement a complex statutory mandate. In this section, we discuss some of the factors that made each of the four elements of ecosystem management relevant to the Forest Service.

The notion that goals must be socially defined reflects the simple reality that existing forest management statutes treated forests as a human commodity. As such, any new forest management paradigm could not reject the multiple use mandate on which the Forest Service had operated for decades. Nor, for that matter, did advocates of ecosystem management try to do so. One of the earliest descriptions of ecosystem management by the Forest Service appears in a 1990 report completed in conjunction with a major review of the forest planning process. In that document, the Forest Service described ecosystem management as nothing more than a new approach to multiple use management that could be contrasted with the earlier "resource" approach (US Forest Service [USFS], 1990). Under the resource approach, the Forest Service made estimates of human demand for forest resources with inadequate attention to what forest ecosystems could actually sustain. An ecosystem approach still required the Forest Service to be responsive to human needs but would base its resource allocation decisions on sound interdisciplinary research.

While sound forest management decisions might require some amount of economic and social analysis, Conservation Biology occupied a privileged place in the minds of Forest Service officials who advocated ecosystem management principles. As Wellock (2010) points out, conservation biologists gained influence at the Forest Service during the 1970s and 1980s as agency leaders grappled with how best to implement the ESA and the species diversity provisions of the NFMA. However, advocates of ecosystem management argued that the importance of ecosystems extended well beyond the need to protect endangered species. Human demands for forest goods and services, whatever form they took, could only be fulfilled if forest ecosystems remained healthy (Salwasser, Thomas, and Samson, 1984). In this respect, ecosystem health was fundamental and inseparable from any human consideration.

Furthermore, ecosystem management advocates believed that the right balance between protecting ecosystems and meeting human needs could only be discovered through collaborative decision-making processes. This was so for two reasons. First, ecosystems do not conform neatly to the jurisdictional boundaries that traditionally serve as the basis for forest planning (Bailey, 1980). An ecosystem might overlap with national forest land, public lands managed by other state and federal agencies, and private lands. Therefore, true ecosystem protection would require a collaborative process in which a variety of stakeholders reached a consensus on appropriate land management strategies.

Second, collaborative decision-making models were viewed by forest service officials as a better way to engage the public in forest service decision-making. The NFMA and the initial forest planning regulations adopted in 1982 offered interest groups multiple opportunities to appeal forest planning decisions, both through internal agency appeals and litigation. As a result, forest planning became a lengthy and expensive process in which timber interests and environmental groups had little incentive to compromise on important planning issues. By the early 1990s, some Forest Service officials believed that these problems might be alleviated if interest groups were actively involved in

decision-making at all stages in the planning process rather than simply being given the opportunity to comment on, and likely reject, proposed plans after they had been drafted (USFS, 1990).

Finally, advocates of ecosystem management believed that their management paradigm could only be carried out through adaptive management strategies that gave managers the flexibility to adjust plans as new information became available. Adaptive management was particularly important because ecosystem management was a somewhat vague paradigm that could only truly be elaborated through practice. The Forest Service was well prepared for this, having long maintained experimental forests for testing new management practices (Forest Ecosystem Management Assessment Team [FEMAT], 1993). These kinds of experiments would take on new importance in the age of ecosystem management.

### **From Ecosystem Management to Sustainable Forests**

Ecosystem management entered the broader public discussion of national forest management in the early 1990s as the Forest Service worked to develop the Northwest Forest Plan. In 1989, the federal courts halted timber harvesting in parts of the Northwest Forest Region (principally Washington and Oregon) until the federal government came up with a better plan for protecting the habitat of the Northern Spotted Owl (Hoberg, 2004). Subsequently, a federal Interagency Scientific Committee determined that habitat conservation in the Northwest Forest Region could only be carried out through an ecosystem-based approach involving more holistic management strategies across multiple agency jurisdictions (Thomas, Franklin, Gordon, and Johnson, 2006). In 1993, the Clinton Administration assembled a Federal Ecosystem Management Assessment Team (or FEMAT) to develop and evaluate policy options for using ecosystem principles (FEMAT, 1993). Building on FEMAT's work, a range of stakeholders negotiated a land management plan for the Northwest Forest region that employed ecosystem principles to conserve species in the region while also achieving other economic and social goals long recognized under federal forest management laws.

Although a somewhat unique achievement at the time, the Northwest Forest Plan was held up as a model for how ecosystem management might work in practice. In 1994, Senator Mark Hatfield (R-OR) introduced legislation designed to make ecosystem management a guiding principle in US federal land management (Thomson, 1995). These efforts, however, were quickly met with practical and political obstacles. A General Accounting Office report noted that ecosystem management remained an ill-defined policy idea that had yet to be translated into specific, measurable indicators of success (US General Accounting Office [GAO], 1994). Furthermore, even if such measures could be devised, they would be difficult to implement under existing land management laws, which recognized established land jurisdictions (forest units, range districts, national parks), not ecosystems, as the geographical basis for instituting land management strategies (Cortner, Shannon, Wallace, Burke, and Moote, 1996). A subsequent GAO (1997) report indicated that measurable goals were particularly important given that the Forest Service had yet to devise a long-term strategy for

resolving the intense conflicts over competing land uses that caused the delays and cost overruns that had plagued forest planning for more than a decade.

These realities gave forest service officials much to think about in the late 1990s as they considered revising their planning regulations to include ecosystem management principles. As the Forest Service charted a course out of these difficulties, the concept of “sustainability” proved to be a useful guide. By that time, sustainability had been an important concept in international environmental policy discussions for more than a decade and, as Humphreys (1999) notes, was gradually becoming a key component of an emerging international forest policy regime. Furthermore, the concept of sustainable forest management was associated with measurable results. In 1995, the US joined with eleven other nations to draft the Santiago Declaration: a non-binding set of seven criteria and some sixty-seven indicators for measuring forest sustainability (Wang, 2001). Sustainable forestry was also embraced by the private sector as evinced by the creation of the Sustainable Forests Initiative (SFI), which sets rigorous voluntary environmental accountability standards available to any organization that manages, extracts, or uses forest resources (Eisner, 2007).

By the end of the 1990s, sustainability was replacing ecosystem management as the preferred way to describe the Forest Service’s new vision for national forest management. A report by the Committee of Scientists (1999) assembled to consider new forest planning regulations even suggested that sustainability had been the guiding principle in forest management all along. Sustainability, according to the Committee, was the guiding principle underlying Gifford Pinchot’s sustained yield philosophy, MUSYA, and the NFMA. This was so because all of these approaches to forest management shared the same basic goal: to make sure that forest resources, whatever form they took, remained abundant and available for generations to come.

While sustainability may have provided a widely accepted way to talk about forest management goals, the concept was also broad enough that it easily encompassed the ecosystem management goals that the Forest Service intended to pursue. The Committee of Scientists’ report broke down sustainability into three broad, interrelated categories: ecological, economic, and social sustainability. These categories broadly coincided with the range of resources and services that forests were expected to provide. However, the Committee made clear that these three categories were not on equal footing. Ecological sustainability—healthy forests in which a diverse array of species thrived—was fundamental. Only when basic ecological conditions were met could forest officials assess viability of the land for other purposes including timber harvesting, recreation, and other human uses (Committee of Scientists, 1999). This conception of sustainability, of course, was built on a fundamental premise underlying ecosystem management.

### **Sustainability Meets the “Efficiency Regime”**

Building on the Committee of Scientists’ vision, the Forest Service adopted a set of planning regulations that incorporated the four elements of ecosystem management under the new moniker of sustainability. The new regulations sidestepped the issue of

how to establish and measure results, indicating only that results would need to be determined at the forest unit level as a part of each individual forest plan (National Forest System, 2000). Furthermore, the new regulations seemingly exacerbated a long-standing set of concerns with national forest planning procedures: duplicative scientific analysis, excessive costs, and delays. As will be demonstrated in this section, these concerns caused national forest planning regulations to run up against another prominent set of policy ideas that Eisner (2000) broadly refers to as the “efficiency regime.”

Efficiency regime is shorthand for a series of ideas and reforms that sought to exalt the virtues of free markets and more efficient government in the US beginning in the 1970s. One manifestation of the drive for greater efficiency was the movement to deregulate the airlines and telecommunications industries during the 1970s (Derthick and Quirk, 1985). Efficiency concerns also drove the “regulatory reform” movement, which called for regulatory agencies to only impose regulations when economic analysis revealed that the social benefits associated with the regulation outweighed the costs (Harris and Milkis, 1996). In the 1990s, the desire for a more efficient, cost-effective government led to passage of the Government Performance and Results Act, which required federal agencies to establish strategic plans and report annually on their progress toward meeting established goals (Eisner, 2000).

These broader concerns about inefficiencies in government performance animated efforts to reform the national forest planning process at various times between 1990 and 2005. Following the 1990 review of the national forest planning rules, the Forest Service largely eschewed recommendations that an ecosystem-based approach be adopted and focused more on efficiency concerns. In 1991 the Forest Service proposed revisions to the forest planning rules aimed at departing from the existing “zero-based” approach to planning in favor of a “need for change” approach (National Forest System 1991, p. 6521). Essentially, the forest service contended that the existing approach to planning was inefficient because it treated each forest plan as an entirely new entity, and inadequate attention was paid to what had and had not worked under the preceding plan. Under a “need for change” approach, new forest plans would not be comprehensive, but would instead focus on a limited set of issues that had been identified as problems during the preceding fifteen years. The hope was that such an approach would allow forest managers to set better priorities, avoid delays, and focus limited resources on issues that truly required study and analysis.

The need for change approach was abandoned later in the 1990s as the Forest Service fully embraced an ecosystem-based approach to the planning rule revisions. While the 2000 revisions acknowledged ongoing inefficiencies in the planning process, they largely relied on collaborative decision-making mechanisms and adaptive management as antidotes to the problem. The Forest service held out hope that by fostering dialogue between political adversaries and creating flexible plans that could be adjusted over time, inefficiencies in the planning process would disappear. At the same time, however, new requirements contained in the 2000 rules seemed to create new inefficiencies. In particular, the rules created an elaborate system of advisory committees and new analytical requirements that were potentially burdensome. This problem was not lost on

Jack Ward Thomas, a former Forest Service Chief (1993-1996) and a strong advocate of the ecosystem-based approach during his time within the agency. Testifying before Congress in 2001, Thomas characterized the new rules as “either technically impossible to achieve or so expensive that they would never be funded” (Conflicting Laws 2001, p. 16). Such criticisms certainly gave advocates of increased efficiency the political ammunition to propose new planning rule revisions.

Following yet another extensive review of the forest planning process, the Forest Service essentially withdrew the 2000 rules and proposed new rules in 2002. The new proposal contained several major changes. First, while the Forest Service continued to embrace sustainability as the underlying philosophy of forest management, the agency proposed a new definition of the concept. Essentially, Forest Service officials now claimed that the authors of the 2000 rules erred when they defined sustainability in a way that made ecological sustainability a precursor to economic and social sustainability. As the 2002 proposed rules stated, ecological, economic, and social sustainability were interrelated factors and the latter two could not be treated as “secondary considerations” (National Forest System, 2002, p. 72783). This change is significant because while the agency appeared to be reaffirming its commitment to sustainability, it was also abandoning one of the core tenets of ecosystem management.

Second, the new rules reaffirmed a commitment to adaptive management practices but sought to effectuate them in new ways. Every forest unit would now be required to create an Environmental Management System (EMS) in accordance with protocols established by the International Organization for Standardization (ISO). The EMS protocols were created to help organizations of all kinds set measurable environmental quality objectives and track their performance over time through appropriate data collection (Eisner, 2007). Within the context of a business enterprise, such a protocol would help the organization plan its production processes in an efficient way while also complying with environmental laws. Within the context of forest management, the Forest Service believed that EMS protocols would help managers collect the data needed to adjust and change plans over time in accordance with principles of adaptive management (National Forest System, 2005).

Finally, while concepts like sustainability and adaptive management were embraced under the new rules, collaborative decision-making and integrated scientific analysis were minimized. The new proposal eliminated the complicated system of advisory committees and replaced them only with general instructions that forest managers institute quality opportunities for public participation throughout the planning process. The final version of the rules also repealed the requirement contained in the 1982 rules that each forest plan be accompanied by an EIS under the terms of NEPA. The Forest Service reasoned that conducting an EIS for a forest plan was a wasteful, duplicative procedure. Projects undertaken to implement the plans—rather than the plans themselves—had a direct impact on the environment, so the EIS process would simply need to be duplicated further down the road (National Forest System, 2005). While there is some truth to this, it is also true that the EIS process is designed to holistically assess the ecological, economic, and social impacts of human actions on the

environment—a central stated goal of the proposed regulations. Nevertheless, the focus of the proposed regulations seemed to be creating more efficient, rather than more complete, analytical requirements.

After being finalized in 2005, the planning rules were almost immediately subject to a court challenge over procedural violations that occurred during the rulemaking process. The court challenges ultimately resulted in renewed efforts to revise the rules that were finally completed in 2012. The 2012 rules attempted to strike a compromise between the 2000 and 2005 rules by balancing sustainability and efficiency considerations. As the Forest Service noted upon promulgating the rules, its intent was to provide “a process for planning that is adaptive and science-based, engages the public, and is designed to be efficient, effective, and within the Agency’s ability to implement” (National Forest System, 2012, p. 21173). The Forest Service characterized the rules fundamentally as an “adaptive framework,” that required forest managers to engage in ongoing monitoring and plan revisions but did not retain the requirement that national forests develop an EMS. The new rules appeared to retain the definition of sustainability contained in the 2005 rules, characterizing ecological, economic, and social sustainability as “equal and interdependent factors” (p. 21177). Although the new rules highlighted the importance of ecological health, this goal would now be carried out through specific “ecological restoration” initiatives—projects in which the forest service worked collaboratively with private land owners and other land management agencies to both “produce jobs and income” and “sustain multiple uses over time” (p. 21177). In addition, the 2012 regulations restored the emphasis on collaborative public participation contained in the 2000 rules but did not reinstate the complicated system of advisory groups. Instead, forest managers would need to actively and regularly consult a range of specific stakeholders throughout the planning process. Finally, the 2012 rules reinstated the requirement that all forest plans be accompanied by an EIS but did not restore all of the complicated analytical requirements contained in the 2000 rules.

### **Conclusion**

The preceding analysis provided evidence that the introduction of ecosystem management into national forest planning was neither a radical paradigm shift, nor simply the layering of new ideas and institutions on top of old. Rather, ecosystem management was one (albeit important) step in a more incremental evolution of the ideas guiding national forest management. This argument becomes more apparent if we view ecosystem management not as a single, monolithic policy idea, but as a series of broad ideational elements capable of varying in meaning and importance over time. Ecosystem management could only endure as a policy idea if it included elements that spoke to the Forest Service’s statutory mandate while appealing to the beliefs, preferences, and experiences of a range of political actors. Fortunately, ecosystem management turned out to be just such an idea. Over a period of roughly two decades, elements of ecosystem management were redefined and blended with other ideas such as sustainability and efficiency in an evolutionary process that, at least for the time being, culminated in the 2012 national forest planning rules.

Although it was not emphasized earlier in the analysis, it is important to point out that the evolution in ideas discussed in this article was shaped by the political context within which the Forest Service resided. It would not be surprising to learn, for instance, that concerns about efficiency were strongest during Republican administrations, given that party's desire to reduce the size of government and the fact that environmental interests are not part of their core constituency (Klyza and Souza, 2008). During the George H.W. Bush administration (1989-1993), efficiency concerns manifested themselves in the form of the proposed "need for change" approach to forest management intended to reduce the time and resources necessary to complete a forest plan.

By contrast, the Democratic administration of Bill Clinton (1993-2001) did not emphasize efficiency in forest management, which is somewhat surprising given that administration's support for the Government Performance and Results Act and related efficiency in government initiatives (Eisner 2000). It is important to keep in mind, however, that environmental interests are an important element of the Democratic Party's constituency, and both of Clinton's Forest Service Chiefs—Jack Ward Thomas (1993-1996) and Mike Dombeck (1997-2001)—were biologists by training and strong advocates of ecosystem management (Williams, 2005). Furthermore, the Committee of Scientists assembled to advise the Forest Service on new planning rules recommended a sustainability framework that included virtually all of the core elements of ecosystem management. Perhaps feeling the need to honor the Committee's report, the Forest Service ended up adopting a planning rule in 2000 that had the potential to exacerbate inefficiencies in national forest planning.

During the George W. Bush administration (2001-2009) the Forest Service sought to elevate the concept of adaptive management while retaining a commitment to sustainability, albeit in a highly amended form. There are several likely reasons why the second Bush administration did not completely retrench from sustainability. First, it was a broad concept that spoke to many of the legal mandates contained in the NFMA. Second, Dale Bosworth, President Bush's first Forest Service Chief was a career agency official who presided at a time when rank-and-file agency personnel were embracing an ecosystems approach to resource management (Williams, 2005; Brown and Harris, 2000). Finally, sustainability was an integral component of the 1999 Committee of Scientists report and embracing those recommendations may have been viewed as a way to lend legitimacy to the agency's 2002 proposal. At the same time, the decision to reduce public participation opportunities and analytical requirements was part of a strategy to make the process more efficient by saving time and money, and possibly by disempowering environmental groups from filing numerous appeals (Hoberg, 2004).

The Obama-era planning rule contained a conception of sustainability that was nominally the same as the one embraced during the second Bush administration, suggesting that a key element of ecosystem management—that ecological sustainability is fundamental to other forest management goals—was permanently gone from the planning rules. At the same time, however, the Obama-era Forest Service continued to emphasize adaptive management, and partially restored the emphasis on collaborative

decision-making and interdisciplinary analysis that was lost during the Bush years. Although the political reasons behind these choices are not known, it seems likely that after more than twenty years of court challenges and political disruption, the Forest Service sought a *détente* that would satisfy all interested parties enough to allow forest managers to proceed with the business of forest planning.

In conclusion, while the data presented in earlier sections seems to confirm many of Carstensen's (2011) predictions concerning the evolutionary nature of ideas, the discussion contained in this section should serve as a reminder that the political and institutional context surrounding a particular issue will determine the interaction between ideas and policy change (Coleman, Skogstadt, and Atkinson, 1997). It may be true that the forest planning rules are something of a special case that is not typical of all types of natural resource policy disputes. For instance, the forest planning rules were made through an administrative rulemaking process that, at least when compared to traditional legislative processes, allows for relatively easy reassessment and revision of regulations over time. Second, forest planning by its nature is a highly routine process that is repeated frequently over time. Such a process naturally lends itself to the creation of a feedback loop that allows new information and ideas to be gradually introduced into the planning process. On the other hand, as research in other areas of policy has demonstrated, even when idea change appears on the surface to be episodic, detailed analysis of a longer timespan may reveal that it is actually more evolutionary than previously believed (Oliver, 1997).

These considerations indicate that more research is needed to explore the variations in how ideas influence natural resource planning. Additional studies are needed to explore how the ecosystem management idea was used in other US natural resource agencies, both federal and state. Research is also needed to determine how the 2012 rules and ecosystem management concepts more generally have impacted the planning process at the forest level, as it is entirely possible that some evolution in ideas is taking place at that level as land managers gain practical experience. Through these types of research programs, we can gain a more complete picture of how ideas influence land management politics over time.

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