

Administrative and Judicial Review of NEPA Decisions: Risk Factors and Risk Minimizing Strategies for the Forest Service Literature Review

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About the Northwest Fire Science Consortium

The Northwest Fire Science Consortium is part of a national network of consortia established by the Joint Fire Science Program to accelerate the awareness, understanding, and adoption of wildland fire science information by federal, tribal, state, local, and private stakeholders. The geographic region of the NW Consortium includes Oregon and Washington, except for the basin and range of southeastern Oregon.

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Changes in land use and management practices throughout the past century—in addition to drought and other stressors exacerbated by climate change—have degraded the nation’s forests and led to overgrowth and accumulation of hazardous fuels (GAO 2015). Because of these fuels, some forests now see high-severity fires that threaten communities as well as important natural and cultural resources. Restoring desired vegetation conditions, which can often be accomplished through mechanical thinning or prescribed burning, are central objectives of restoration and fuel reduction projects carried out by federal land management agencies. However, prior to implementing restoration projects or any other major action that may result in a significant impact on the environment, the National Environmental Policy Act (NEPA) of 1969 requires federal land management agencies to conduct an environmental analysis to consider and fully disclose potential impacts (42 USC § 4332(C)).

Rather than enforcing or prohibiting any specific action on the landscape, NEPA prescribes a general process designed to educate decision-makers, relevant agencies, and the general public about the environmental consequences of actions planned on federally-administered public lands. This decision-

making process of receiving, documenting, and evaluating public comment on potential impacts of proposed actions is commonly referred to as the NEPA process. Historically, NEPA compliance has posed numerous hurdles for public land managers. Since early 2013, administrative challenges to Forest Service land management decisions take the form of a pre-decisional administrative review process involving the filing of written “objections” to proposed agency decisions (Brown 2015). Prior to early 2013, administrative challenges generally took the form of a post-decisional administrative review process. The agency’s resolution of an administrative challenge can in turn be judicially challenged via a lawsuit in U.S. District Court (Jones and Taylor 1995; Keele et al. 2006; Portuese et al. 2009), and district court decisions can be challenged in the appropriate U.S. Court of Appeals (Jones and Taylor 1995; Malmsheimer et al. 2004). The Court of Appeals is usually the final level of review for Forest Service land management decisions because very few Court of Appeals cases are selected for discretionary review by the U.S. Supreme Court. Note that the term “legal challenge,” used throughout this synthesis, is an encompassing term that includes both primary types of legal challenges: administrative (agency-level) and judicial (in the courts).

Compliance with NEPA procedures can strain agency capacity. Limited agency funds and personnel time are often diverted to project planning associated with the NEPA process, leaving fewer resources for environmental monitoring and project management (Broussard and Whitaker 2009). Lynton Caldwell (the Act's principal architect) in 1973 observed that the effectiveness of NEPA was being threatened by an overemphasis on environmental impact statements (EISs) as ends unto themselves, when EISs were instead intended to be but one means of fulfilling NEPA's "broad national commitment to the human environment" (Caldwell 1995).

There is a long history of controversy surrounding Forest Service decisions; the agency is sued for NEPA violations more often than any other federal agency (Miner et al. 2014). Consequently, the Forest Service has spent a significant amount of time and resources addressing the requirements of the NEPA process, trying to identify and reduce risk factors associated with administrative and judicial challenges to NEPA decisions. The question remains: given fundamental differences in public values about federal lands, specifically national forests, can the Forest Service reduce its risk of likelihood of challenges to NEPA decisions by enhancing efforts in the NEPA process, or is the likelihood of a challenge simply outside the control of the agency?

In this synthesis and annotated bibliography, we seek to develop a more comprehensive understanding of the factors that influence NEPA challenge risks and successes in order to inform and guide resource managers within the Forest Service and other land management agencies, collaborators, practitioners, and contractors as they participate in the NEPA process. This working paper gathers existing scholarly literature on factors that influence NEPA challenge risks and successes, focusing primarily on the Forest Service. We provide an overview of the historical trends characterizing administrative and judicial challenges to NEPA decisions; summarize factors that support and/or detract from success in the NEPA process; and collect and synthesize the literature to date. This review only includes peer-reviewed published literature focusing on the factors that affect the like-

lihood that a NEPA decision will be challenged, and excludes law reviews. Annotated literature is summarized in Appendix 1 (see page 16) and included in full in Appendix 2 (see page 20). First, we summarize NEPA requirements and the Forest Service planning and review process.

NEPA requirements and the Forest Service planning and administrative review process

NEPA requires federal agencies to incorporate environmental analysis in their planning and decision making through a systematic interdisciplinary approach. This approach, commonly referred to as the NEPA process, includes several key components (summarized from Predmore et al. 2011, Stern et al. 2014):

1. Identifying a purpose and need for a project and an initial proposed action
2. The development of an interdisciplinary (ID) team to conduct analyses and manage the process
3. Public notice of agency action
4. Formal request for initial public input (scoping) to help determine issues to be addressed in analyses
5. The development of alternative courses of action to meet the purpose and need
6. Analyses of the likely environmental and social (including economic) impacts of each alternative
7. The drafting of an Environmental Assessment (EA), an Environmental Impact Statement (EIS), or the application of a Categorical Exclusion (CE)
8. Public comments and other forms of public involvement
9. A decision document signed by a responsible official expressing the rationale for the final agency decision

NEPA procedures do not force agency decision makers to select more environmentally friendly alternatives (MacGregor and Seesholtz 2008), but rather the statute and implementing regulations dictate a process that agencies must undertake to conduct land management activities. Importantly, NEPA

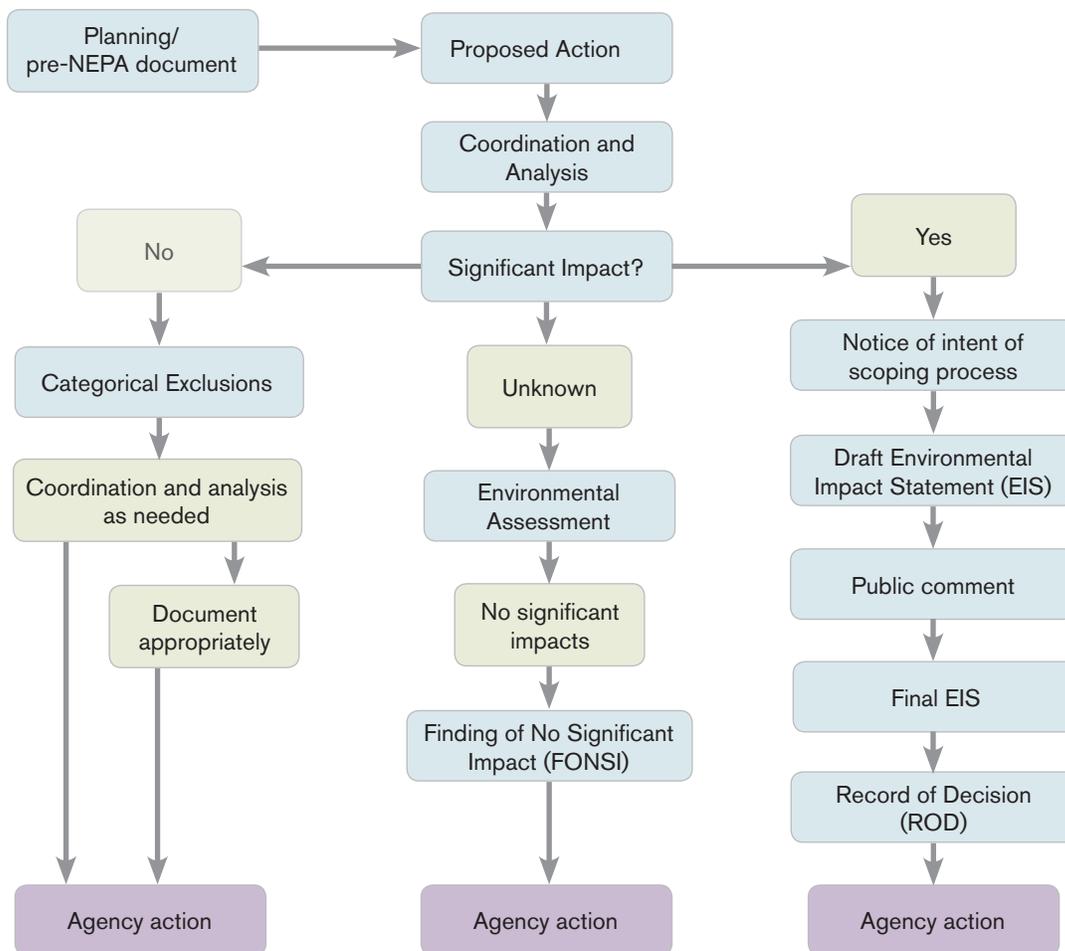
doesn't "define a singular task", meaning the social, political, and environmental factors (that vary from place to place) influence the specific challenges any given NEPA process may face. Research into NEPA challenge risk factors has primarily focused on two key, often interrelated, components: (1) the development of adequate plan documentation, and (2) the structure and function of effective ID teams and ID team leadership (the effectiveness of which is often critical for the development of adequate plan documentation). An overview of each of these two key components is provided below.

Plan documentation

The development of plan documentation is perhaps the most detailed task of the NEPA process. It is the substance (or lack thereof) of technical plan documents that is the subject of legal challenges.

The most elaborate of these documents, the EIS, is triggered when the agency expects there to be "significant effects on the human environment" (42 USC § 4332(C)). When the environmental impacts of a proposed action are unknown, EAs are used to determine if significant effects will result from a Federal action. If the answer is no, then the agency issues a finding of no significant impact (FONSI). If the answer is yes, an EIS is prepared to analyze and disclose the significant effects resulting from the proposed action. Categorical exclusions are used for Federal actions that do not individually or cumulatively have a significant effect on the human environment, and for which neither an EA nor an EIS is required (40 CFR 1508.4). CE's require the least amount of analyses and public involvement, followed by EAs and then EISs (see Figure 1, below).

Figure 1 NEPA process diagram





ID team formation and leadership

A key factor in developing adequate NEPA documentation is the formation and operation of an effective interdisciplinary team led by a competent team leader. Research suggests that effective team structure and the delivery of strong documentation can reduce the risk of NEPA challenges (Stern and Predmore 2012; Stern and Predmore 2011). Key Forest Service players in the NEPA process include: 1) the ID team leader (IDTL), who is tasked with leading the team through the process and often interacts most directly with the public, 2) the team members, who are typically resource specialists of various disciplines performing tasks associated with NEPA analyses, interagency collaboration, and disclosure through public participation efforts and report writing, and 3) the decision maker (DM), who

is tasked with making the final agency decision on a course of action and documenting his or her rationale. The decision maker, also referred to as line officer, is usually a district ranger or forest supervisor and is typically the team leader's superior officer. Although involved to varying degrees throughout the process, the DM serves as the ultimate gatekeeper of public influence by being vested with the authority to make the final planning decision (Hoover and Stern 2014). Agency leaders and coordinators commonly serve in advisory roles to those more directly engaged in NEPA processes (Stern et al. 2010a, Stern and Predmore 2012, Stern et al. 2014); and each ID team member makes decisions, whether incremental or final, that influence the course of the planning process (Stern et al. 2014).

Once the Forest Service makes a final decision to implement a project, only then can a decision be challenged in court. Substantive legal challenges to NEPA occur under the Administrative Procedure Act; thus the courts have held that a plaintiff must exhaust avenues of administrative review prior to challenging that NEPA decision in court. This means that an individual or party must have participated in the formal NEPA comment period and the Forest Service's pre-decisional administrative review process.

Forest Service administrative review process

Whereas NEPA requires the Forest Service to undertake an environmental analysis of the effects of its actions, different laws provide for administrative review of those actions. The National Forest Management Act (NFMA) provides for administrative review of most Forest Service decisions (16 U.S.C. § 1604(d)); the Healthy Forests Restoration Act (HFRA) provides for a similar pre-decisional administrative review process of hazardous fuels reduction projects undertaken pursuant to that law (16 U.S.C. § 6515).

The Forest Service administrative review process, in theory, opens decision making to public challenge, clarifies a record, applies a substantive standard of review in a way that the courts do not, and can manage conflict more cheaply and quickly than courts (Fischman and Bobertz 1993; Coulombe 2004; Brown 2015). In practice, this internal review process reflects the long history of conflicting values over the purpose and management of national forests (Coulombe 2004; Brown 2015). Since 1907, citizens have had the ability to seek administrative review of certain decisions by agency officials. This original process was designed for a model of resource management that is informal, discretionary, and technical (Fischman and Bobertz 1993).

Today, the Forest Service's administrative review process provides a pre-decisional opportunity for the public to seek administrative review of (or,

“challenge” or “protest”) a federal agency decision (Brown 2015). The Forest Service averaged over 400 administrative challenges per year from 2008-2012, relating to claims about insufficient analysis of impacts, incomplete or improper public involvement, compliance with regulations or policies, or substantive arguments about the rationale leading to the responsible official's decision or the appropriateness of the decision itself, among others (Stern et al. 2013). Administrative review occurs before the Forest Service makes a final decision to implement a project (i.e., issues a decision memo for CEs, a decision notice and finding of no significant impact for an EA, or a record of decision for an EIS) and takes the form of an “objection” to a proposed decision. An individual only has standing to file an administrative objection with the agency if the objection is based on issues previously raised before the agency during the NEPA comment process. Relatedly, involvement in the administrative review process is required in order to exhaust administrative remedies and establish “standing” to seek judicial review of a final agency decision (Brown 2015). In other words, an individual or organization must have been involved in the public comment process in order to have standing to object to a proposed decision, and must have been involved in an administrative review process in order to have standing to challenge a final decision in federal court.

The administrative review process can result in an affirmation of the Forest Service's proposed NEPA decision, a reversal of that proposed decision, or additional work for the agency that may reinitiates all or part of the NEPA process. As such, administrative review can identify problems or mistakes that might be resolved prior to implementation of a project. Administrative review can also provide an avenue for conflict resolution prior to litigation. Alternatively, administrative review can be viewed as merely another mechanism to challenge agency actions regardless of the quality of the process or proposed project in order to utilize another channel to register opposition or strengthen the support for the organization challenging the agency decision (Malmsheimer et al. 2004; Mortimer et al. 2004).

Approach

To provide an overview and annotated bibliography of the factors that influence the likelihood of legal challenges to NEPA decisions, we conducted a systematic review of empirical research on NEPA published as peer-reviewed literature in academic journals, books and book chapters, and Forest Service General Technical Reports (GTRs). We searched the following three databases: (1) University of Oregon library catalog, (2) Forest Service Treearch, and (3) Google Scholar. As we began to annotate the literature, we reviewed the publications that were cited throughout them to identify additional relevant sources that may not have been among the results of the initial search. In total, we annotated and synthesized 27 peer-reviewed articles and GTRs, which are arranged primarily by date and secondarily in alphabetical order in the annotated bibliography. Annotated literature is summarized in Appendix 1 (starting on page 16), with the full bibliography in Appendix 2 (starting on page 20). This review does not include grey literature, which encompasses all reports produced by government, academics, business and industry but not published in peer-reviewed academic journals. Law reviews were also excluded from the annotations. Even though law reviews provide an interesting view into the statutory evolution of NEPA and high-level agency guidance, we decided that such literature was outside the scope of this study. Citations for sources that are not peer-reviewed but are contextually related to NEPA legal challenge risks and success, the administrative review process, and historical trends in legal challenges of Forest Service NEPA decisions are not annotated but can be found in the references section at the end of the paper.

We limited our annotation to literature dating back to 1994. The decision to focus on literature from 1994 forward was made for two reasons. First, the passage of the Appeals Reform Act by Congress in December of 1992 (which amended the National Forest Management Act and subsequently incorporated into Forest Service regulations that took effect in January 1994) expanded the scope of NEPA decisions subject to administrative review (Vaughn and

Cortner 2005). Second, this time period marks an important turning point in the management of national forests, including the adoption of the Northwest Forest Plan and the beginning of the shift to ecosystem management (and subsequently restoration) nationwide. Although there were a significant number of legal challenges to agency NEPA decisions prior to 1994 (see Jones and Taylor (1995) for a summary of all published cases from 1971-1992), the mid-1990s marked a turning point in national forest management and the Forest Service's engagement with the public in NEPA planning.

Our primary focus in this synthesis is on literature involving the Forest Service. We focus on Forest Service literature for the following reasons: first, the agency manages 191 million acres of federal forests and rangelands, and each U.S. citizen has the right to participate in the administrative process that guides resource management decisions (Germain et al. 2001). Additionally, the Forest Service routinely produces more Environmental Impact Statements (EISs) than any other federal agency, on average completing more annually than all of the other major federal land management agencies (the Bureau of Land Management, the National Park Service, the Fish and Wildlife Service, and the Army Corps of Engineers) combined (Mortimer et al. 2011).

Findings

The published literature on forest management decision making and the NEPA process broadly falls into three main categories: 1) trends in legal challenges to Forest Service land management decisions, 2) the structure and function of ID teams and ID team leadership strategies in reducing risk of legal challenges to NEPA decisions, and 3) effective public involvement strategies in reducing risk of litigation in Forest Service NEPA decision making. From these three main categories of literature, we have synthesized the key factors that increase the risk of legal challenges to NEPA decisions, along with factors that decrease such risk, as well some prevailing myths (see Table 1, page 7).

Table 1 Risk of Legal Challenges to NEPA Decisions

	Increase Risk	Decrease Risk	Myths
Project characteristics	<ul style="list-style-type: none"> ▪ Timber harvesting and management plans (Jones and Taylor 1995, Laband et al. 2006, Broussard and Whitaker 2009, Miner et al. 2014) ▪ Projects that include more than one national forest (Malmshemer et al. 2004) ▪ Size of area affected (more area, more risk) (Laband et al. 2006; Stern et al. 2013; Stern et al. 2014) 	<ul style="list-style-type: none"> ▪ Rejection of high process risk projects (MacGregor and Seesholtz 2008) 	<ul style="list-style-type: none"> ▪ Endangered species as frequently litigated subject matter (Broussard and Whitaker 2009)
Documentation	<ul style="list-style-type: none"> ▪ Inadequate cumulative impact statement (Smith 2006) ▪ Inadequate or failure to conduct an EIS/EA (Broussard and Whitaker 2009) 	<ul style="list-style-type: none"> ▪ Dedicated team member, relieved of other duties, to focus on completion of NEPA documentation (Stern and Mortimer 2009) ▪ Increase depth and rigor of analysis (MacGregor and Seesholtz 2008) 	<ul style="list-style-type: none"> ▪ EISs are more defensible in courts (Mortimer 2011)
ID teams/ ID team leadership	<ul style="list-style-type: none"> ▪ Directive ID team leadership style (Stern and Predmore 2012) ▪ Lack of resources, i.e. financial and personnel (Stern et al. 2013; Stern et al. 2014) 	<ul style="list-style-type: none"> ▪ Working across disciplines, develop a common vision, communicate frequently (Freeman et al. 2012) ▪ Empowering ID team leadership style (enhance feelings of competence, authority, self-determination) (Stern and Predmore 2012) ▪ Availability of resources to complete the project, i.e. staff time, material, sufficient budget (Stern et al. 2013; Stern et al. 2014) ▪ Incorporating Fish and Wildlife Service staff as team member (Stern and Mortimer 2009) ▪ Assigning staff member in both advisory and implementer role, i.e. “bridger” (Stern et al. 2010a) 	<ul style="list-style-type: none"> ▪ True interdisciplinary collaboration is always preferred (Freeman et al. 2012)
Public participation process	<ul style="list-style-type: none"> ▪ Start NEPA scoping and public comment after proposed NEPA action (Germain et al. 2001) ▪ Application of “substantive sieve” to favor certain types of public comments (Predmore et al. 2011) 	<ul style="list-style-type: none"> ▪ Early and informal public involvement (Stern and Mortimer 2009; MacGregor and Seesholtz 2008) ▪ National Forest System and line officers support broader public participation (Leach 2006; Stern and Mortimer 2009) ▪ Effective facilitator (Leach 2006) ▪ Focused scope and realistic objectives (Leach 2006) ▪ Pre-NEPA public involvement to frame proposed actions (Germain et al. 2001) 	



Trends in Legal Challenges to NEPA Decisions

There is a long history of controversy surrounding Forest Service decisions. Between 2001 and 2007, the Forest Service was sued 342 times under NEPA, representing 38 percent of all NEPA lawsuits filed in federal court against all federal agencies in that time period (Mortimer et al. 2011). Timber harvesting and management plans have been the subject of most disputes in both U.S. District Courts and Courts of Appeals, and environmental groups, who have brought the majority of NEPA cases against the Forest Service, appear to be greatly dissatisfied with timber harvesting and management planning activities in national forests (Jones and Taylor 1995, Laband et al. 2006, Broussard and Whitaker 2009, Miner et al. 2014). Projects involving timber harvest/vegetative management appear more likely to be challenged regardless of other NEPA process characteristics (Teich et al. 2004, Keele et al. 2006, Broussard and Whitaker 2009, Miner et al. 2014). Vegetative management, timber sales, and timber salvage cases accounted for more than 40 percent of all challenged management activities in Forest

Service land management litigation from 1989-2008 (Miner et al. 2014). Research on trends in proposed fuels reduction projects found that the likelihood of legal challenge is most influenced by the size of area affected, the stated purpose being commodity production, and whether the project involves prescribed burning or mechanical thinning (Laband et al. 2006).

Other leading subjects of litigation at both the District Court and Court of Appeals levels are roads and trails, and disputes concerning species protected under the federal Endangered Species Act (although these lawsuits actually experienced a drop in the late 1990s) (Broussard and Whitaker 2009). Other management activities challenged by plaintiffs in at least 3 percent or more of the cases between 1998 and 2008 were forest planning; grazing; special use permits; recreation; roads; oil and gas development; and commercial development (Miner et al. 2014).

Of the approximately 1,162 federal court cases challenging a land management decision initiated against the Forest Service from 1989 to 2008, the

Forest Service won 53.8 percent of the completed cases; and 71.5 percent of cases involved NEPA (Miner et al. 2014). At the District Court level, the Forest Service won 60 percent, lost 20 percent, and had other outcomes in 20 percent of the cases brought against the agency. In 36 percent of these cases, the plaintiffs argued that the agency had developed an inadequate EA or EIS, while 55 percent of cases disputed the agency decision not to prepare an EA or EIS (Broussard and Whitaker 2009). In cases challenging an EA or EIS as deficient, the most common deficiency asserted was failure to consider an adequate range of alternatives (Broussard and Whitaker 2009).

At the Court of Appeals level, the Forest Service won 57 percent, lost 26 percent, and had other outcomes in 17 percent of the cases brought against the agency (Malmshiemer et al. 2004). In 48 percent of these cases, the plaintiffs argued that the agency had developed an inadequate EA or EIS, while 35 percent of cases challenged the agency decision not to prepare an EA or EIS (Broussard and Whitaker 2009). Malmshiemer et al. (2004) illustrate that certain types of cases have higher success rates for the Forest Service at the Court of Appeals level, including when the area affected by the decision is the entire National Forest System (63.7 percent success rate, versus 50 percent success rate when the case involves more than one national forest), and when the subject at issue is old growth forest resources (78.6 percent success rate) or planning-related (as opposed to specific on-the-ground activities) (61.1 percent success rate).

The amount of time spent by the agency preparing EISs instead of EAs increased significantly between 1998 and 2006. Time spent preparing NEPA documents can constrain the Forest Service's ability to address declining national forest and rangeland health (Mortimer et al. 2011). In 2006 alone, the nearly 6,000 actions required by NEPA cost the Forest Service nearly \$365 million (Mortimer et al. 2011). In addition to addressing and managing legal challenges themselves, significant resources are devoted to improving process efficiencies and increasing leadership effectiveness regarding NEPA implementation.

Legal challenges are of concern to the Forest Service and some stakeholders because they delay or prevent project implementation, as more time and resources spent in addressing legal challenges can mean less time and resources available for managing forests. Even though general sentiment within the Forest Service suggests that agency employees believe that legal challenges are often outside of their control (Stern et al. 2013), research has identified areas in which the Forest Service and other land management agencies can focus to reduce the risk of legal challenges. We discuss these next.



NEPA project risks and risk minimizing strategies

The literature defines project risk as the probability of the occurrence of an undesirable event, and the significance of that occurrence within the context of a specific project or process (Pritchard 1999, Stern et al. 2013, Stern et al. 2014). Legal challenges are framed in the literature as undesirable events due to the agency resources that must be devoted to addressing them. When the Forest Service can reduce the risk of legal challenges through increased NEPA compliance at the outset, there will be a corresponding increase in the amount of agency time available for resource management activities. The literature conceptualizes four kinds of project risk – resource, process, personal, and organizational (MacGregor and Seesholtz 2008, Mortimer et al. 2011, Stern et al. 2014). In this paper we focus only on those factors that affect the likelihood that a NEPA document will be legally challenged.

Stern et al. (2013) conceptualize likelihood of legal challenge as a form of project risk, which provides insight into the potential precursors to legal challenges that can be traced to sources both within and outside the control of the agency.

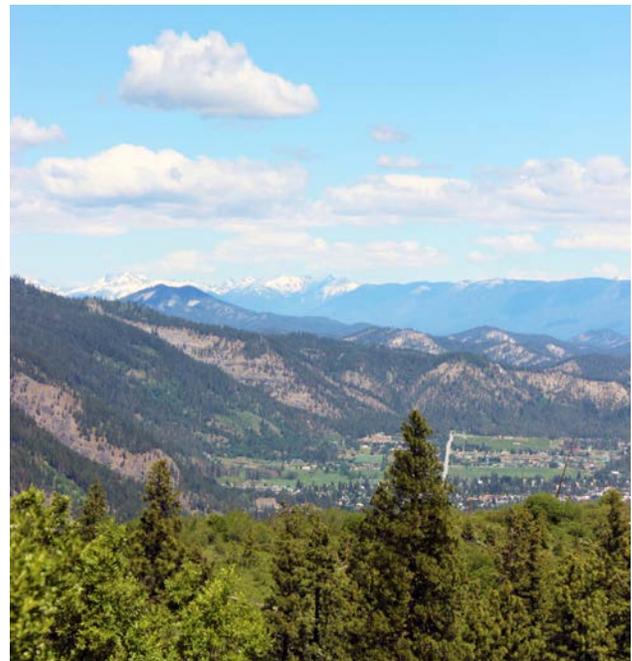
Although often not explicitly stated in the published research, we can infer the relationship between different risk sources and the likelihood that a NEPA document will be challenged in federal court. For example, a project takes on a “programmatic risk” of being legally challenged as a result of initial project design and location (Stern et al. 2013, 2014). Risks that fall into this category include the complexity and large scale of the project and the social and political environment in which the process takes place. Projects that are more complex given the nature of the resource, large scale of the project area, or more contentious social and political environment (for example, Forest Service Region 6 (Oregon and Washington) has given rise to 22.9 percent of all Court of Appeals cases, Malmshiemer et al. 2004) take on more programmatic risk and are more likely to be legally challenged. Ways to reduce programmatic risk and make processes more “simple” include: empowerment of the IDTL, team harmony, and the employment of best available science (Stern and Predmore 2012).

“Structural risk” encompasses the availability of necessary resources to successfully complete the process, including staff time, material, and sufficient budgets (Stern et al. 2013, Stern et al. 2014). Projects with fewer available resources take on more structural risk and are more likely to face legal challenge. Technical risk emerges from shortcomings related directly to competence and performance, and when projects are challenged on the basis of insufficient documentation it can often be attributed to exposure to technical risk. Relationship risk includes risk that can emerge from both internal and external relationships (Stern et al. 2013, Stern et al. 2014).

Attitudes toward risk differ across rangers and management situations, and line officers may differ in how they define and describe their decision making with respect to the NEPA process (MacGregor

and Seesholtz 2008). For example, some line officers may have a particular outcome in mind from the very beginning of project development and throughout the NEPA process; while for other line officers, the decision regarding which project alternative to select may emerge from the NEPA process and their interactions with project staff during the development of NEPA documentation (MacGregor and Seesholtz 2008). Enormous variability may exist in the district ranger population, and project risk may be an important factor that guides many of the decisions associated with selecting, conceptualizing, developing, and analyzing NEPA projects (MacGregor and Seesholtz 2008). Approaches and strategies for active management of project risk (and resulting reduction in risk of legal challenge) include decreased project scope and complexity; increased depth and rigor of environmental analyses; portfolio development; decomposed and staged plans of work that involve sequential projects; and early and extensive involvement of nonfederal stakeholders (MacGregor and Seesholtz 2008).

With an understanding of these sources of risk, NEPA project teams can refine the structure and function of their operations in order to minimize risk of legal challenges. Below we address some insights derived from current research.





Structure and function of ID teams for reducing NEPA litigation risk

Administrative challenges require considerable time and effort on behalf of the agency to conduct a thorough review and issue a ruling; thus it is often thought to be in the best interest of the Forest Service to reduce risks that lead to such challenges. Success factors are courses of actions, or incremental decisions, made throughout the NEPA process that reduce the likelihood of a legal challenge, as well as associated delays in project implementation, increased planning costs, and reactive management approaches that the agency finds undesirable.

Functioning and effective ID teams appear to be a crucial factor in minimizing risk of legal challenges because functioning ID teams create higher quality plans (Stern 2010a). Qualitative analysis of ID team dynamics suggests that teams characterized by more authentic efforts to work across disciplines, who develop a common vision, and who communicate frequently decrease risk of legal challenges (Freeman et al. 2012). Relieving ID team members of other tasks to focus on a particular NEPA process,

and using a dedicated staff writer to orchestrate the completion of NEPA documents reduces the risk of legal challenges. Moreover, one of the highest correlations of legal challenges was turnover of personnel (Stern et al. 2013). Additionally, incorporation of consulting agency (U.S. Fish and Wildlife or National Marine Fisheries Service) staff onto ID teams to allow for early and direct communication regarding threatened and endangered species issues, and early and informal public involvement (i.e., collaboration) were associated with lowered risk of legal challenge (Stern and Mortimer 2009). “Bridgers” (team members who regularly find themselves in both advisory and implementer roles) have also been associated with NEPA success (Stern et al. 2010a). Bridgers are most commonly forest and district level coordinators and planners as well as NEPA instructors who are in the position to link particular aspects of the NEPA process together.

Within the different categories of ID team members, different participants may view the process from a different perspective, and tension may exist between employees with different roles in NEPA compliance (Stern et al. 2010a). Members of ID

teams who carry out most day-to-day NEPA-related tasks placed greater emphasis on minimizing negative environmental and social impacts, satisfying multiple stakeholders, and avoiding legal challenges (Stern et al. 2010b). Line officers, who typically serve as the decision makers following NEPA processes, placed greatest emphasis on efficient implementation, and least emphasis on minimizing impacts. Advisory personnel placed greatest emphasis on effective disclosure of analyses and decision making (Stern et al. 2010b). The literature states that ID team leaders generally viewed decision making as closely integrated with the NEPA process, while decision makers (line officers) more commonly decoupled decision making from the NEPA process (Predmore et al. 2011). These findings suggest a philosophical difference between ID team leaders and decision makers. Reducing this difference may reduce the risk of legal challenges to NEPA decisions.

ID team leadership is an important variable in reducing risk of legal challenges to NEPA decisions (Cervený et al. 2011). The literature indicates that greater external pressure may lead teams to adopt a more internally collaborative approach, and that empowering leadership styles may enhance the success of more collaborative approaches in terms of perceived outcomes (Freeman et al. 2012). Empowerment can be enhanced through training and adjustments to organizational structure that enhance feelings of competence, authority, self-determination, and a sense that the work has a real impact on agency decisions and resource management (Stern and Predmore 2012). Similarly, elements of team harmony, intra-team collaboration, ID team leadership styles, and communication were each predictive of a successful NEPA process (Stern et al. 2013).

Another factor that can reduce the risk of legal challenges to NEPA decisions and that is within the control of ID teams is determining the appropriate form of documentation, i.e. EA vs. EIS. Although NEPA and the regulations adopted by the Council on Environmental Quality (CEQ) require that the decision to develop an EIS must be based on the possibility of significant environmental impacts, findings from agency personnel suggest

that the decision may more commonly be based on process-related risks, including the threat of litigation, perceived defensibility in court, and the level of public and political interest in the agency's proposed action (Mortimer et al. 2011). (The CEQ was established by NEPA in 1969 and is (among other things) tasked with ensuring that federal agencies meet their NEPA obligations.) Mortimer et al. (2011) suggest that a more detailed understanding of how ecological and social risks influence agency environmental analyses could further illustrate the extent to which project risk aversion influences the achievement of the goals of NEPA and agency objectives concerning land management.

Smith (2006) suggests that the assessment of cumulative impacts is one of the most difficult tasks agency personnel face when preparing an EA or EIS, and it may be the main reason challenges to various NEPA documents are successful. The CEQ defines cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." A cumulative effects analysis, conducted as part of an environmental impact assessment under NEPA, allows natural resource managers to understand the status of resources in a historical context, learn from past management actions, and adapt to future activities accordingly (Schultz 2012). Past research has found significant deficiencies in the practice of cumulative effects analysis, and Smith (2006) found that challengers were victorious on their claims of inadequate cumulative impact analysis in 60 percent of analyzed cases from 1995 to 2004. Four key lessons for practitioners emerge from the Smith (2006) results: (1) make sure to include a discussion of cumulative impacts for each resource and include all past, present, and reasonably foreseeable future actions; (2) do not make unsubstantiated claims about cumulative impacts; (3) assessments do not have to be perfect but should be thorough and based on data and explained rationales; and (4) do not tie assessments solely to programmatic or non-NEPA documents.

Public participation and NEPA risk reduction

Since the 1970s, the Forest Service has expended an enormous amount of effort into complying with the public participation requirements of NEPA, as well as the public participation requirements of the National Forest Management Act of 1976 (Coulombe 2004). The focus of agency efforts was to identify issues surrounding the project or plan and to identify resource and user conflicts before decisions were made. Although the success of these efforts has been debated over the intervening years, the fact remains that public participation significantly increased in both project planning and forest planning on all units of national forests (Coulombe 2004).

However, most Forest Service personnel reportedly engage in the public participation process as a consequence of statutory necessity rather than a desire to receive public input to improve the proposed project. A survey of over 3,000 Forest Service personnel involved in NEPA activities identified the two main reasons why they engaged in the public involvement process: (1) to inform and disclose as mandated by the Act (90 percent of respondents) and (2) to manage agency relationships with various, often adversarial, publics (50 percent of respondents) (Predmore et al. 2011).

Research suggests that agency planners and decision makers have a great deal of discretion regarding the extent of public influence on the NEPA planning process (Hoover and Stern 2014). In two meta-analyses on successful NEPA and public participation processes, key variables to a NEPA process that was not legally challenged were identified as early and informal public involvement, support and participation by Forest Service personnel, an effective facilitator or coordinator, and a focused scope and realistic objectives (Leach 2006, Stern and Mortimer 2009). Other research has suggested that public influence through political or judicial avenues can cost the agency time and money, delay or prevent project implementation, and damage employee morale (Germain et al. 2001; Mortimer

et al. 2011; Hoover and Stern 2014). Focusing on and strengthening public influence that improves land management decisions and agency-public relations is an important factor to minimize the risk of legal challenges to NEPA decisions. Developing trusting relationships between agency planning and management personnel and local communities has been crucial to public participation processes (Smith et al. 2013); high turnover in agency personnel is noted through the literature as a factor that undermines the development of such relationships.

Germain et al. (2001) identified that the public commonly perceived the agency as having its mind made up on proposed NEPA actions prior to soliciting public comment. This was due to the timing of the public involvement process, with the NEPA scoping process more often than not beginning after the agency proposed an action (e.g., a timber sale project). By incorporating more pre-NEPA public involvement to help shape proposed actions, managers may improve participant satisfaction levels (Germain et al. 2001). Scardina et al. (2007) emphasize the importance of increasing pre-decisional participation processes as a technique to reduce likelihood of legal challenges.

Although NEPA mandates no particular outcome other than the disclosure and analysis of the effects of proposed agency actions, substantive input from various sources can enhance these analyses and provide knowledge or information otherwise unavailable to the agency that may improve the quality of analyses and decisions (Creighton 2005, Hoover and Stern 2014). Similarly, although participants desire more collaborative approaches to public participation, they are not always willing to adequately engage in the process, often choosing to meet their objections through reactive, conflict-based means (Germain et al. 2001).



Summary and conclusions

In total, we focused on 27 articles that met our criteria and provided different perspectives on the factors that increase and/or decrease risk of legal challenges to NEPA decisions regardless of whether those challenges were administrative (at the agency level) or judicial (in federal court). As discussed, the literature falls into three main categories: (1) the characteristics and trends of legal challenges over time; (2) mechanisms for effective ID team functioning; and, (3) public participation processes under NEPA. Although very few articles cross over between these categories or draw direct connections to risk of legal challenges, when viewed together, patterns begin to emerge that can provide guidance for reducing the risk of legal challenges (either administrative or judicial).

We found that a full suite of risk has been identified in the literature around NEPA (Stern et al. 2014), but that project risk is the most relevant to the risk of a decision being challenged. Certain factors have been identified as increasing or decreasing the risk of legal challenges, and these relate to project characteristics, ID team formation and operation, documentation, and the public participation process.

Projects and processes that are “simple” decrease the risk of legal challenges. Those that are more complex – e.g., include multiple national forests, are larger in scale, or propose treatments to multiple resources – are more likely to be challenged.

There are, however, some key points of guidance that may help reduce the risk of legal challenges. For example, developing a robust cumulative impact analysis that includes a discussion for each resource as well as all past, present, and reasonably foreseeable future actions can reduce risk of challenge. Structural and functional characteristics of the ID team may help reduce the risk of legal challenges too, for example, working across disciplines, designating a single staff member to lead documentation efforts, reducing or eliminating

turnover of team personnel, and incorporating a consulting agency staff member responsible for ESA compliance are all factors that can lead to stronger documentation and reduce the risk of legal and administrative challenges. Finally, there are some key lessons with regard to public involvement that may reduce the risk of legal challenges, including early and informal public involvement, effective facilitation or coordination, and incorporation of pre-NEPA public involvement to help frame the project.

The failure to staff ID teams with the necessary expertise to conduct NEPA analyses, lack of engagement with multiple stakeholders and a diversity of interests, and failure to collaborate within and between federal agencies may all increase project risk and therefore the likelihood of legal challenges (Keele et al. 2006, Stern and Mortimer 2009, Stern et al. 2014). To reduce risk, the Forest Service should consider offering specific training, support, and incentive programs throughout an employee’s tenure to cultivate relevant skills early in an employee’s career, and also to reinforce those skills throughout that career (Hoover and Stern 2014).

Because the difficulty of balancing public involvement and science-based rational planning have not dissipated, controversy over Forest Service land management decisions will persist. However, a growing chorus of academics, practitioners, private citizens, land managers, and Forest Service leadership are advocating for a new approach to dealing with land management in the face of the significant and mounting restoration needs. As wildfire trends in recent years continue toward larger, more severe, and more expensive fires, increasing the efficiency and effectiveness of NEPA processes in order to implement restoration projects with fewer legal challenges will be a key objective of the Forest Service and other land management agencies. Increased compliance with NEPA and the resulting decrease in legal challenges is both a worthwhile and achievable goal.

Appendix 1: Summary of reviewed literature

Year	Title	Authors	Factor(s) investigated	Main findings
1995	"Litigating agency change: The impact of courts and administrative appeals process on the Forest Service."	Jones, Elise S. Taylor, Cameron P.	Characteristics of administrative appeals and Court of Appeals cases codes for date, location, litigant's characteristics, statutory basis, specific case characteristics, and the challenges's success	Environmentalists were by far the most prevalent litigants, participating in approximately 60 percent of all National Forest Management (NFMA) cases and 92 percent of NEPA cases.
2001	"Public perceptions of the USDA Forest Service public participation process."	Germain, Rene H. Floyd, Donald W. Stehman, Stephen V.	1) Participant perceptions of the public participation process. 2) The differences in satisfaction levels based on interest group and the degree to which participants were involved in the process.	Public participants who challenge agency decisions are dissatisfied with the equity of the public participation process, and making the transition from the consultative to the collaborative model is likely to improve the procedural equity.
2004	"Exercising the Right to Object: A brief history of the Forest Service appeals process."	Coulombe, Mary J.	The long association between the Forest Service and the public in regard to managing the national forests	The problem with focusing on planning, analysis, and the public participation processes is that it does not and probably cannot deal with fundamental differences in public values about federal lands.
2004	"National Forest Litigation in the U.S. Court of Appeals."	Malmsheimer, Robert W. Keele, Denise M. Floyd, Donald W.	Characteristics of Court of Appeals cases codes for date, location, litigant's characteristics, statutory basis, specific case characteristics, and the challenge's success	Environmental interests are involved in most cases, and NEPA is the basis for most litigation.
2004	"National Trends in the Use of Forest Service Administrative Appeals."	Teich, Gretchen M.R. Vaughn, Jacqueline Cortner, Hanna J.	Number of Forest Service administrative appeals decided per calendar year from 1997-2002, categorized by regional distribution, CFR section, disposition, appellants, and project type	The database provides a tool for informing the debate over administrative appeals of Forest Service decisions but also opens up new lines of inquiry.
2006	"Forest Service Land Management Litigation 1989-2002."	Keele, Denise M. Malmsheimer, Robert W. Floyd, Donald W. Perez, Jerome E.	Characteristics and final outcomes of 729 Forest Service management cases filed in federal court from 1989 to 2002.	Three out of four cases involve parties seeking less resource use; Region 6 experienced almost a quarter of all litigation; and NEPA was the statutory bases in nearly 7 of 10 cases.
2006	"Public Involvement in USDA Forest Service Policymaking: A Literature Review."	Leach, William D.	The history of public participation in the Forest Service from 1960-2005	The highest number of studies identified "support and participation by U.S. Forest Service staff" as a key to success, followed by "effective facilitator or coordinator," and "focused scope and realistic objectives."
2006	"Cumulative Impact Assessment under the National Environmental Policy Act: An Analysis of Recent Case Law."	Smith, Michael D.	Twenty-five judicial opinions involving challenges to various NEPA documents' cumulative impact analyses	Inadequate analysis of other past, present, and reasonably foreseeable future actions within the analysis area was the most common challenge to cumulative impact analyses.
2007	"Getting past the who and how many to the how and why in USDA Forest Service public involvement processes."	Scardina, Anthony B. Mortimer, Michael J. Dudley, Larkin	Project, participant, and review attributes that increase risk of litigation.	Implementation appeared affected to varying degrees by the attributes of forest management projects, the nature of the active public stakeholders, the timing of each participation stage, and a lack of procedural standardization.

Year	Title	Authors	Factor(s) investigated	Main findings
2008	"Factors Influencing Line Officers' Decisions About National Environmental Policy Act Project Design and Development."	MacGregor, Donald G. Seesholtz, David N.	Whether NEPA was being used purely as an environmental disclosure process or as a decision-making process for project design and development	Risk attitudes differ across rangers and management situations; and the concept of process risk may be an important assessment that guides many of the decisions associated with selecting, conceptualizing, developing, and analyzing NEPA projects.
2009	"The Magna Charta of Environmental Legislation: A historical look at 30 years of NEPA-Forest Service Litigation."	Broussard, Shorna R. Whitaker, Bianca D.	Litigants, success rates, and management activities disputed for NEPA litigation involving the Forest Service, as well as differences and patterns in cases among the U.S. federal court system	1) Timber harvesting and management plans were the subject of the most disputes in both the U.S. District and Circuit Courts. 2) Environmental groups, whom bring the majority of NEPA cases against the Forest Service, appear to be greatly dissatisfied with timber harvesting and management planning activities in national forests.
2009	"Litigants' Characteristics and Outcomes in US Forest Service Land-Management Cases 1989 to 2005."	Portuese, Beth Gambino Malmshemer, Robert W. Anderson, Amanda Floyd, Donald Keele, Denise	Frequency and type of litigant involvement in U.S. land-management cases from 1989-2005.	Environmental organizations were the most frequent type of parties opposing the Forest Service and almost 75 percent of the parties were only involved in one case.
2009	"Exploring National Environmental Policy Act Processes Across Federal Land Management Agencies."	Stern, Marc J. Mortimer, Michael J.	How successful NEPA processes are defined across four agencies and what strategies are perceived to be the most or least beneficial for positive NEPA outcomes	A lack of consistency is highlighted not only between but also within agencies with regard to how NEPA is perceived and implemented. Potential outcomes of interest identified: public perceptions of the agency, of the process, and of the action; administrative appeals and results of appeals; litigation and the results of the litigation; time spent; money spent; staff morale; staff views of degree of success.
2009	"Visions of success and achievement in recreation-related USDA Forest Service NEPA processes."	Stern, Mark J. Blahna, Dale J. Cerveney, Lee K. Mortimer, Michael J.	How the perceptions and internal interactions of Forest Service interdisciplinary teams engaged in NEPA processes influence process outcomes of recreation-related projects	1) The survey revealed tremendous diversity in definitions of success. 2) Best predictors of perception of an "excellent outcome" include: achievement of the agency mission, whether compromise had taken place between the interested parties, team satisfaction and harmony, timely process completion, and project implementation. 3) Perceptions of excellent outcomes did not always align with perceptions of achievement.
2010	"From the office to the field: Areas of tension and consensus in the implementation of the National Environmental Policy Act within the U.S. Forest Service."	Stern, Marc J. Predmore, S. Andrew Mortimer, Michael J. Seesholtz, David N.	Forest Service employee views of how NEPA should be implemented within the agency	1) Effective interdisciplinary teams are critical to achieving success but opinions about what constitutes an effective team vary. 2) There is a weak consensus among Forest Service NEPA practitioners that the purpose of NEPA is primarily to disclose environmental analyses. 3) Competing approaches to NEPA were indicative of contests within the agency for influence over NEPA processes and their outcomes.

Year	Title	Authors	Factor(s) investigated	Main findings
2010	"The meaning of the National Environmental Policy Act within the U.S. Forest Service."	Stern, Marc J. Predmore, S. Andrew Mortimer, Michael J. Seesholtz, David N.	Whether a singular critical task or common set of critical tasks might apply to NEPA processes across the Forest Service, and the potential implications and structural origins of agency perceptions about NEPA	1) The lack of a singular critical task for Forest Service NEPA processes may spur more problems than it solves. 2) Employees' functions relevant to the NEPA process influence their views of NEPA's meaning.
2011	"Forest service interdisciplinary teams: Size, composition, and leader characteristics."	Cervený, Lee Blahna, Dale J. Mortimer, Michael J. Freeman, James W.	Size, composition, and leader characteristics of NEPA ID teams	The compositions of NEPA ID teams may be changing from traditional natural resource management to more discipline-specific expertise. The role of social scientists and other human dimensions specialists remain modest.
2011	"Environmental and Social Risks: Defensive National Environmental Policy Act in the U.S. Forest Service."	Mortimer, Michael J. Stern, Marc J. Malmshemer, Robert W. Blahna, Dale J. Cervený, Lee K. Seesholtz, David N.	Reasons for agency personnel to develop an EIS versus an EA and the defensibility of EISs versus EAs in federal court	1) The decision to conduct an EIS may more commonly be based on process-related risks than on the likelihood of significant environmental impacts. 2) EISs do not appear to be more defensible than EAs in court.
2011	"Constructing the public: the 'substantive sieve' and personal norms in US Forest Service Planning."	Predmore, Andrew S. Stern, Marc J. Mortimer, Michael	Agency employee perceptions on addressing only substantive comments over value-based perspectives, therefore applying a "substantive sieve"	Agency employees create active and passive "publics" in NEPA participation processes by exhibiting favoritism of scientific, technical, or legally based input over value-based comments through what the authors refer to as a "substantive sieve."
2011	"Perceptions of Legally Mandated Public Involvement Processes in the U.S. Forest Service."	Predmore, Andrew S. Stern, Marc J. Mortimer, Michael Seesholtz, David N.	Forest Service views of NEPA public involvement, considering three main goal constructs: disclosure and improvement, relationship management, and avoidance and containment	Agency employees in the survey primarily perceived the goal of NEPA public participation to inform and disclose, as mandated by the Act. The emphasis on this strategy suggests a strong awareness of and perhaps commitment across the agency to completing those aspects of NEPA public involvement that are legally required.
2011	"Decision making, procedural compliance, and outcomes definition in U.S. Forest Service planning processes."	Stern, Marc J. Predmore, S. Andrew	1) How do interdisciplinary team leaders and decision makers conceptualize the outcomes of NEPA processes? And 2) How does NEPA relate to agency decision making	1) ID team leaders generally see decision making closely integrated with the NEPA process, while decision makers (line officers) more commonly decouple decision making from the NEPA process. 2) Detaching NEPA from decision making poses greater risks than integrating NEPA with decision making.
2012	"Interdisciplinary collaboration within project-level NEPA teams in the US Forest Service."	Freeman, James W. Stern, Marc J. Mortimer, Michael Blahna, Dale J. Cervený, Lee K.	Interdisciplinary teamwork approaches and leadership styles that lead to successful NEPA processes	1) Greater external pressure may lead teams to adopt a more internally collaborative approach. 2) Empowering leadership styles may enhance the success of more collaborative approaches in terms of perceived outcomes.
2012	"The importance of team functioning to natural resource planning outcomes."	Stern, Marc J. Predmore, S. Andrew	What factors contribute to declining efficiency in NEPA, difficulties in achieving agency goals, poor disclosure in NEPA documentation, and declining trust in the agency?	The most consistently important predictors of positive outcomes were team harmony and a clearly empowered team leader.

Year	Title	Authors	Factor(s) investigated	Main findings
2013	"Project risk and appeals in U.S. Forest Service planning."	Stern, Marc J. Predmore, S. Andrew Morse, Wayde C. Seesholtz, David N.	Examination of programmatic, structural, technical, and relationship risk sources to explore whether the Forest Service has the ability to influence the frequency and outcome of administrative appeals of NEPA decisions through its own efforts and process	Administrative appeals and their outcomes were most strongly related to programmatic, structural, and relationship risks within the Forest Service processes, suggesting the need for greater focus within the agency on cultivating positive relationships to manage the risk of administrative appeals.
2014	"Constraints to public influence in U.S. Forest Service NEPA processes."	Hoover, Katie Stern, Marc J.	The constraints to desirable forms of public influence in Forest Service NEPA processes	Key constraints to public influence include a lack of perceived self-efficacy and fear associated with conflict, a lack of leadership commitment to public influence, overwhelming workloads, and normative beliefs about the public that were informed by past and current negative interactions
2014	"Twenty Years of Forest Service Land Management Litigation."	Miner, Amanda M.A. Malmshemer, Robert W. Keele, Denise M.	Comprehensive analysis of Forest Service litigation filed from 1989 to 2008	1) More than 3/4 of all plaintiffs sought less resource use within the National Forest System; 2) The agency complied with its NEPA obligations in 69.2 percent of all cases involving the statute. 3) There is an increasing trend to resolve proceedings through mutual agreement than to have a judge decide the outcome of the controversy.
2014	"Risk Tradeoffs in Adaptive Ecosystem Management: The Case of the U.S. Forest Service."	Stern, Marc J. Martin, Caysie A. Predmore, S. Andrew Morse, Wayde C.	Incremental decisions made by Forest Service personnel directing the NEPA process	Risk, in particular external relationship risk, emerged as a dominant lens through which agency personnel weigh and make process-related incremental decisions.



Appendix 2: Annotated bibliography

1995

Jones, Elise S., and Cameron P. Taylor. 1995. "Litigating agency change: The impact of courts and administrative appeals process on the Forest Service." *Policy Studies Journal* 23(2): 310-336.

This article analyzes 271 published opinions in the U.S. Court of Appeals Circuit between 1971 and 1993. They categorize plaintiffs as (1) environmentalists, (2) commodity interests, (3) Native Americans, and (4) governments, and concluded that environmentalists were by far the most prevalent litigants, participating in approximately 60 percent of all National Forest Management (NFMA) cases and 92 percent of NEPA cases. They found that Native Americans and government litigants were most successful in NEPA cases. The analysis found that the agency wins the majority of the suits it is involved in, although litigants who initiated lawsuits to stop commodity production activities had higher success rates than litigants seeking to challenge additional environmental measures or to promote commodity production by the agency. **Factor(s) investigated:** Characteristics of administrative appeals and Court of Appeals cases codes for date, location, litigant's characteristics, statutory basis, specific case characteristics, and whether challenge was successful.

Methods: Historical analysis

Main finding(s): Environmentalists were by far the most prevalent litigants, participating in approximately 60 percent of all National Forest Management (NFMA) cases and 92 percent of NEPA cases.

2001

Germain, Rene H., Donald W. Floyd, and Stephen V. Stehman. 2001. "Public perceptions of the USDA Forest Service public participation process." *Forest Policy and Economics* 3(3-4): 113-124.

This article examines participant perceptions of the Forest Service public participation process. Based on a survey conducted of 178 appellants of Forest Service management decisions in 1996, Germain et al. found general dissatisfaction with the public participation process by those who challenged project deci-

sions. The survey was designed to inquire about satisfaction with the National Environmental Protection Act (NEPA) process and NEPA decision outcomes using the subcategories of equity, effectiveness, and efficiency. Respondents were asked a series of open-ended and likert-scale questions that used scores from one (strongly disagree) to six (strongly agree). The process and outcome satisfaction scores were summarized in total, as well as by pre-decision, post-decision, and interest group. Only 17 percent of respondents became involved in the public participation process of the project before the decision was published by the agency (pre-decision), while 82 percent of respondents became involved in the process in reaction to the decision (post-decision). The authors found that differences in interest groups did exist. For example, environmental interests strongly perceived that both the process and final outcome were biased to the agency's viewpoint (whereas commodity and recreation/user interests were less convinced of this bias). Those involved in pre-agency decisions were more likely to show more agreement to the statement "the process was fair to me" (3.30 mean score) than those that weren't (2.49 mean score). The authors suggest that NEPA processes could be more successful and participant satisfaction could be improved by incorporating more 'pre-NEPA' public involvement to help frame the proposed actions. Rather than engaging in an authentic participation process, the authors' analysis indicates that the agency uses a consultative model of public input as indicated by an average 5.41 score to the statement "once a project is conceived by the agency, it will use whatever means necessary to reach the point of implementation." Open-ended qualitative answers also support these findings. Nevertheless, although participants desire more collaborative approaches to public participation, the authors found they are not always willing to adequately engage in the process, often choosing to meet their objections through reactive, conflict-based means.

Factor(s) investigated: 1) Participant perceptions of the public participation process. 2) The differences in satisfaction levels based on interest group and the degree to which participants were involved in the process.

Methods: Survey; statistical analysis: t-tests and analysis of variance (ANOVA)

Main finding(s): Public participants who challenge agency decisions are dissatisfied with the equity of the public participation process, and making the transition from the consultative to the collaborative model is likely to improve the equity of the process.

2004

Coulombe, Mary J. 2004. "Exercising the Right to Object: A brief history of the Forest Service appeals process." *Journal of Forestry* 102(2): 10-13.

This article provides a historical overview of the Forest Service administrative appeals process, suggesting that the process has reflected the history of conflicting values over the purposes and management of national forests. Since 1907, citizens have had the ability to appeal certain decisions by local agency officials, to compensate for the fact that Forest Service decisions sometimes conflict with the needs of national forests users. However, there were no specific legal or regulatory requirements to involve the general public in decisions until 1969 and the passage of NEPA. During the 1970s and 1980s, the Forest Service put an enormous amount of effort into complying with the requirements of NEPA, as well as the National Forest Management Act of 1976, for public participation. Coulombe states that although the success of these efforts has been debated over the intervening years, the fact remains that public participation significantly increased in both project planning and forest planning on all units of national forests. The focus of these efforts was to identify issues surrounding the project or plan and reveal conflicts before decisions were made. The author notes that the problem with this focus on planning, analysis, and participation processes is that it did not and probably could not deal with fundamental differences in public values about federal lands and, specifically, national forests; and as more appeals headed to the courts for adjudication, future appeals became pre-litigation documents. In 1994, with the passage of the Appeals

Reform Act (ARA), the Forest Service was required to provide public notice and opportunities for public comment for projects with environmental assessments. The Forest Service amended its administrative appeal regulations in 2003 ((36 Code of Federal Regulations (CFR) Part 215)(repealed in 2014)) to encourage early and meaningful public participation in project planning, to better align the appeal procedure with the ARA, and to reduce unnecessary processes. Coulombe concludes that while no one argues with the need for the public to know about, review, and comment on Forest Service projects and plans, division and debate surround exactly how, when, and by what means this public participation should occur. She states that the values debate reflected in the Forest Service appeals process cannot be resolved within the context of individual project plans, forest plans, or even appeals, and that it must be addressed in the political arena where public value choices are debated and decided by elected officials.

Factor(s) investigated: The long association between the Forest Service and the public in regard to managing the national forests

Methods: Historical analysis

Main finding(s): The issue with focusing on planning, analysis, and the public participation processes is that it does not and probably cannot deal with fundamental differences in public values about federal lands, specifically national forests.

Malmsheimer, Robert W., Denise M. Keele, and Donald W. Floyd. 2004. "National Forest Litigation in the U.S. Court of Appeals." *Journal of Forestry* 102(2): 20-25.

This article examines 119 published U.S. Court of Appeals opinions decided between 1970 and 2001 involving the management of one or more national forests. They classified plaintiffs into two major groups: environmental interests and commodity interests. Their results show a steady increase in Court of Appeals cases since 1970. They found that environmental interests made up 86.6 percent of the plaintiffs and 71.4 percent of the appellants, while commodity interests made up 13.4 percent of the total plaintiffs and 21.8 percent of appellants. They found that environmental interests won 48.2 percent of the opinions they appealed, whereas commodity interests won only 12.5 percent of the opinions they appealed. This article illustrates that certain types of cases have higher success rates for the Forest Service, including: when the area affected by the decision is the entire National Forest System (63.7 percent success rate, versus 50 percent success rate when the case involves more than one national forest), and when the subject at issue is old-growth (78.6 percent success rate) or planning (61.1 percent success rate). The study also highlighted that 57.2 percent of all cases were in the Court of Appeals for the Ninth Circuit, the only circuit where the Forest Service lost half of its cases.

Factor(s) investigated: Characteristics of Court of Appeals cases codes for date, location, litigant's characteristics, statutory basis, specific case characteristics, and whether challenge was successful.

Methods: Historical analysis

Main finding(s): Environmental interests are involved in most cases, and NEPA is the basis for most litigation.

Teich, Gretchen M.R., Jacqueline Vaughn, and Hanna J. Cortner. 2004. "National Trends in the Use of Forest Service Administrative Appeals." *Journal of Forestry* 102(2): 14-19.

This article details the development and use of a database that can be used to describe and compare administrative appeals of Forest Service projects. Using publicly available electronic records, the authors compiled 3,736 appeals decided nationwide from 1997-2002. Teich et al. suggest that the database provides critical information to inform the appeals debate, especially (1) who files appeals, (2) where appeals are filed, (3) what types of projects are appealed, and (4) how the Forest Service decided the appeals. The Forest Service had not previously compiled this data. The authors sorted the data along several dimensions to provide an overview of administrative appeals nationwide, including the number of appeals decided per calendar year, regional distributions, types of appeal (by CFR section), disposition, appellants, and

types of projects appealed. Nationwide, 77.5 percent of all appeals challenged NEPA project decisions, filed under 36 CFR 215. Considering all appeals filed under 36 CFR 215, private citizens filed independently or joined with an organization or business in 30 percent of appeals. With the exception of private citizens, the most active appellants were environmental organizations. The authors state that limiting input from individuals, environmental groups, tribes, companies, and other government agencies could have unanticipated consequences. In terms of project type, the majority (nearly 33 percent) of the appeals in the data set related to a timber project, followed by grazing allotments (13 percent) and permits (10 percent), with fuels reduction relating to 4 percent of appeals. Regarding decisions made by the Forest Service, 55 percent of all filed appeals were denied in full, 8 percent were granted, 27 percent were dismissed, with a variety of decisions in between. The authors indicate that whether the appeals process achieves either undesirable or desirable outcomes is highly subjective, requiring evaluation from several perspectives and in the context of the goals of each stakeholder affected by the appeal. Teich et al. acknowledge that the construction of the database alone does not yield definitive conclusions about the impacts of appeals—ecologically, economically, socially, or politically—but opens up new lines of inquiry, such as how the Forest Service designates and defines activities within a project, why decisions were withdrawn, and how best to characterize the amount of delay and changes in initial proposals associated with project appeals.

Factor(s) investigated: The number of Forest Service administrative appeals decided per calendar year from 1997-2002, categorized by regional distribution, CFR section, disposition, appellants, and project type.

Methods: Database development; historical analysis

Main finding(s): The database provides a tool for informing the debate over administrative appeals of Forest Service decisions but also opens up new lines of inquiry.

2006

Keele, Denise M., Robert W. Malmshemer, Donald. W. Floyd, and Jerome E. Perez. 2006. “Forest Service Land Management Litigation 1989-2002.” *Journal of Forestry* 104 (4): 196-202.

This article provides a foundation for Forest Service land management litigation discussion by providing policymakers, land managers, and stakeholders with an account of litigation from 1989-2002. Land management cases included those in which the plaintiff argued that a Forest Service decision affecting the use, classification, or allocation of resources violated the law, and sought a court order directing the Forest Service to change its management decision. The authors document the characteristics and final outcomes of 729 Forest Service management cases filed in federal courts and found that the Forest Service won 57.6 percent of cases, lost 21.3 percent of cases, and settled 17.6 percent of cases. The Forest Service won 73 percent of the 575 cases decided by federal judges. The authors also classified each case’s purpose as either less resource use or greater resource use and found that plaintiffs seeking less resource use lost more than half of the cases they initiated, and plaintiffs seeking greater resource use lost more than two of every three cases they initiated. Three out of four cases involved parties seeking less resource use, based on NEPA, and challenged logging projects. The study found that Forest Service Region 6 experienced the most litigation, accounting for 22.8 percent of all cases. This was followed by Region 9, with 12.1 percent of all cases. The Forest Service was most successful in litigation involving the 1995 Salvage Rider (84.2 percent) and the National Historic Preservation Act (77.8 percent).

Factor(s) investigated: Characteristics and final outcomes of 729 Forest Service management cases filed in federal court from 1989 to 2002.

Methods: Historical analysis

Main finding(s): Three out of four cases involve parties seeking less resource use; Region 6, the Pacific Northwest, experienced almost a quarter of all litigation; and NEPA was the statutory bases in nearly 7 of 10 cases.

Leach, William D. 2006. "Public Involvement in USDA Forest Service Policymaking: A Literature Review." *Journal of Forestry* 104 (1): 43-49.

This article provides a history of public participation in Forest Service policymaking from 1960-2005. Leach (2006) found that primary keys to success included: "support and participation by U.S. Forest Service staff" as a key to success (mentioned in 15 studies), followed by "effective facilitator or coordinator" (in 14 studies), and "focused scope and realistic objectives" (13 studies). The author describes this history as "tumultuous," and reviews 25 empirical studies on the topic. The author began with 100 publications on the participation process published from 1960-2005, selected the 25 most significant empirical studies since 1990, and developed a database to include a list of the main conclusions. After contextualizing the statutory and regulatory environment in which the Forest Service must operate (perhaps the most explicit public involvement mandate among federal agencies), Leach reports on the factors that govern success in public participation processes. In total, 351 conclusions were identified from the 25 studies and grouped into 21 themes of key factors for success. The author organized the 21 themes into three broad categories: process design traits (traits that a facilitator can directly control), participant traits (key attitudes, behaviors, and relationships that participants bring to the table), and contextual traits (those factors beyond the control of people). Some key process design traits include: the presence of an effective facilitator (cited 14 times); focused scope and realistic objectives (13); comprehensive and sustained process (12); funding (12); broad or inclusive participation (10) – although this theme also had 6 articles that detracted; and adequate scientific and technical information (9). Some key participant traits included: support and participation by Forest Service staff (15), cooperative, enthusiastic, committed participants (12), and trust and social capital among participants (12). Key contextual themes identified were support from Line Officers and Forest Service policy (9) and community resources (6). The author states that given the importance of the facilitator, a key question left unanswered was whether the facilitator should be in-house or an outside consultant. Either way, the author suggests that the facilitator should be conversant in the process design. This article makes an important contribution by creating a rigorous list of factors that influence successful participation processes.

Factor(s) investigated: The history of public participation in the Forest Service from 1960-2005.

Methods: Historical analysis

Main finding(s): The highest number of studies identified "support and participation by U.S. Forest Service staff" as a key to success, followed by "effective facilitator or coordinator," and "focused scope and realistic objectives."



Smith, Michael D. 2006. “Cumulative Impact Assessment under the National Environmental Policy Act: An Analysis of Recent Case Law.” *Environmental Practice* 8(4): 228-240.

This article reports on research that examined 25 judicial opinions involving challenges to various NEPA documents’ cumulative impact analyses, heard by the U.S. Court of Appeals for the Ninth Circuit from 1995 to 2004. The defendants were various federal agencies, including the Forest Service (13 cases), Bureau of Land Management (3 cases), U.S. Army Corps of Engineers (3 cases), and the Bonneville Power Administration (2 cases). Although the requirement to consider cumulative impacts did not appear in the original 1969 NEPA statute, the Council on Environmental Quality’s (CEQ) NEPA Regulations issued in 1979 state a requirement to consider cumulative impacts for all projects undergoing NEPA analysis. The CEQ definition of cumulative impacts, in Section 1508.7, is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” The author suggests that the assessment of cumulative impacts is one of the most difficult tasks a NEPA practitioner faces when preparing an environmental assessment (EA) or environmental impact statement (EIS), and it may be the main reason challenges to various NEPA documents are successful. Challengers were victorious on their claims of inadequate analysis in 60 percent of the cases decided in the 10-year analysis period from 1995 to 2004, and the author states that the success rate for challengers has risen even higher in recent years. Court of Appeals cases provide a valuable unit of analysis because they usually end up being the final word on most NEPA issues. The author uses a discussion of six specific cases where the cumulative impact analysis was found to be inadequate in agency NEPA documents. The most common challenge to the cumulative impact analyses was that the document contained an inadequate analysis of other past, present, and reasonably foreseeable future actions. Agencies lost 87 percent of the cases that included this challenge. The next most common challenge was that the cumulative impact analysis lacked data and/or a convincing rationale for selection of data and a conclusion that cumulative impacts were insignificant. This was a factor in 47 percent of the losses; however, agencies won four cases involving this challenge. Four key lessons for practitioners emerge from the results: (1) make sure to include a discussion of cumulative impacts for each resource and include all past, present, and reasonably foreseeable future actions; (2) do not make unsubstantiated claims about cumulative impacts; (3) assessments do not have to be perfect but should be thorough and based on data and explained rationales; and (4) do not tie assessments solely to programmatic or non-NEPA documents. **Factor(s) investigated:** 25 judicial opinions involving challenges to various NEPA documents’ cumulative impact analyses .

Methods: Historical analysis

Main finding(s): Inadequate analysis of other past, present, and reasonably foreseeable future actions within the analysis area was the most common challenge to cumulative impact analyses.

2007

Scardina, Anthony B., Michael J. Mortimer, Larkin Dudley. 2007. “Getting past the who and how many to the how and why in USDA Forest Service public involvement processes.” *Forest Policy and Economics* 9(8): 883-902.

This study was designed to investigate the interactions between participants and the agency in situations where conflict peaked—specifically, litigation against the agency. It employed a qualitative case study approach to “follow the paper trail” of the George Washington and Jefferson National Forests in Virginia and West Virginia. Six main observations emerged from the qualitative analysis: first, that project attributes matter. For example, timber harvesting (especially with even-aged methods), road construction, prescribed burning, herbicide use, old growth, and threatened and endangered species tend to be provocative issues for

public participants and are likely to prompt administrative appeals or litigation. Second, public participant attributes matter. The study found that more individuals filed public comments and administrative appeals than interest groups, and individuals and interest groups filed an equal number of lawsuits. Observation three is that pre-decisional and post-decisional reviews are not sufficient to “fix all errors” and that even after a redo, litigation is likely to occur. Observation four emphasizes the important of implementation timing. This observation suggests that litigation has the potential to undermine the purposes of categorical exclusions, and could have serious impacts, for example, in cases outside of this project that involve newly enacted categorical exclusions designed to reduce fuel loads for preventing catastrophic wildland fires. Observation five notes the difficulties posed by the lack of procedural standardization. Observation six noted the lack of two-way public participation in the cases at pre-decisional stages. This study generally raises an uncertainty whether post-decisional public participation is a desirable method for resolving disputes and suggests that the public and the Forest Service would instead benefit from increasing public participation events at pre-decisional stages. Future areas of research inquiry on a larger scale might be warranted in how the terms of forest management plans are translated to project actions; the nature of pre-decisional and post-decisional review of agency actions; project delays stemming from the participation process; and the effects of a lack of uniformity in participation processes at the forest-wide scale.

Factor(s) investigated: Project, participant, and review attributes that increase risk of litigation.

Methods: Historical analysis

Main finding(s): Implementation appeared affected to varying degrees by the attributes of forest management projects, the nature of the active public stakeholders, the timing of each participation stage, and a lack of procedural standardization.

2008

MacGregor, Donald G. and David N. Seesholtz. 2008. “Factors Influencing Line Officers’ Decisions About National Environmental Policy Act Project Design and Development.” USDA-Forest Service, General Technical Report: PNW-GTR-766.

This report details an exploratory study undertaken by MacGregor and Seesholtz to better understand how resource management projects in Forest Service ranger districts evolve from an initial idea or concept, to project development, and through the NEPA process. The authors were interested in gaining a better understanding as to whether NEPA was being used purely as an environmental disclosure process or as a decision-making process for project design and development. Twelve district rangers were interviewed from ranger districts in Western, Southwestern, Intermountain, Pacific Southwest, and Pacific Northwest Regions (Regions 1, 3, 4, 5, and 6). The questions focused on the following four themes: 1) How projects are initially identified and selected. 2) How a selected project concept is developed prior to any NEPA-related analyses. 3) How projects are influenced by various aspects of NEPA; and 4) When during the process the management decision is made and how it is influenced by the role of environmental analysis. In summary, risk attitudes differ across rangers and management situations and line officers may differ in how they define and describe their decision making with respect to the NEPA process. For example, some line officers may have a particular (and focused) management action in mind from the very beginning of project development and through the NEPA process; while for other line officers, the decision regarding which project alternative to propose may emerge from the NEPA process and their interactions with project staff during the development of NEPA documentation. The authors found that enormous variability may exist in the district ranger population and identified a number of concepts that offer potential value for further research. The concept of process risk may be an important assessment that guides many of the decisions associated with selecting, conceptualizing, developing, and analyzing NEPA projects. Unlike risks to the natural resource base, which is referred to as resource risk, process risk is the potential for a project to fail



owing to one or more of the process elements associated with NEPA. The authors identified approaches and strategies for active management of process risk, including: rejection of high process risk projects; decreased project scope and complexity; increasing the depth and rigor of environmental analyses; portfolio development; decomposed and staged plans of work that involve sequential projects; categorical exclusion bundling; and early and extensive involvement of nonfederal stakeholders. A consequence of the distributional change in the amount of work needed to support process-related activities, such as meetings, written communications, documentation, and stakeholder outreach, today's ranger population may be more oriented to the planning and analysis aspects of project development than yesterday's rangers, who were more inclined toward action and faster paced outcome cycles. The authors suggest that ideally, these two concepts can be merged into an efficient amalgam of process sensitivity, collaborative project development, and adaptive management that emphasizes the need for focused action and response cycles. **Factor(s) investigated:** Whether NEPA was being used purely as an environmental disclosure process or as a decision-making process for project design and development.

Methods: Qualitative interviews

Main finding(s): Risk attitudes differ across rangers and management situations; and the concept of process risk may be an important assessment that guides many of the decisions associated with selecting, conceptualizing, developing, and analyzing NEPA projects.

2009

Broussard, Shorna R. and Bianca D. Whitaker. 2009. "The Magna Charta of Environmental Legislation: A historical look at 30 years of NEPA-Forest Service Litigation." *Journal of Forest Policy and Economics* 11(2): 134-40.

The overall objectives of this study were to (1) determine the litigants, success rates, and management activities disputed for NEPA litigation involving the Forest Service from 1970 to 2011 and (2) examine differences and patterns in cases among the U.S. District, Circuit, and Supreme Courts. The article draws a distinction between administrative appeals and post-administrative appeals. Rather than focusing on the Forest Service's administrative appeals process, which provides an opportunity for the public to appeal an agency decision prior to formal litigation, the article focuses on post-administrative appeals that are legal cases in the U.S. federal court system. Methods include a historical analysis of published court cases. The authors identified 291 published cases involving NEPA and the Forest Service between 1970 and 2001, and the Forest Service was the defendant in 95 percent of those cases. Results show an increasing trend in the number of NEPA-Forest Service cases in the federal courts. The most litigious groups were Environmental Groups (those dedicated to preserving and protecting the environment, such as the Sierra Club), Individual Citizens, and User Groups (those interested in utilizing the area for recreational purposes, such as the Montana Snowmobile Association). At the U.S. Court of Appeals level, Environmental Groups were plaintiffs in 66 percent of the cases, Individuals in 13 percent, and User Groups in 7 percent. The Forest Service won 57 percent of the appellate court cases, lost 26 percent, and had other judgments in 17 percent of cases. Appellate court cases were centered in the Pacific Northwest and Inter-mountain West. The authors coded management activities into 10 categories: Timber Harvesting, Management Plans, Endangered Species, Roads/Trails, Recreation, Wetlands/Water/Rivers, Wildlife Management, Mining/Oil and Gas, Pesticides/Herbicides, and Native American Lands. Of the management activities disputed, the majority of cases were brought to court due to a perceived inadequacy of an environmental assessment (EA) or environmental impact statement (EIS) that the Forest Service prepared, which usually questioned the consideration of alternative plans of action, or because an EA or EIS was not prepared by the agency. Timber harvesting and management plans were the subject of most disputes in both the U.S. District and Circuit Courts, and the authors conclude that environmental groups, who bring the majority of NEPA cases against the Forest Service, appear to be greatly dissatisfied with management planning and timber harvesting activities in national forests. Broussard and Whitaker acknowledge that while the federal government enjoys high success rates in litigation brought against it by environmental and commodity-production oriented interests, the effects of the litigation cannot be discounted.

Factor(s) investigated: Litigants, success rates, and management activities disputed for NEPA litigation involving the Forest Service, as well as differences and patterns in cases among the U.S. federal court system.

Methods: Historical analysis

Main finding(s): 1) Timber harvesting and management plans were the subject of the most disputes in both the U.S. District and Circuit Courts. 2) Environmental groups, who bring the majority of NEPA cases against the Forest Service, appear to be greatly dissatisfied with timber harvesting and management planning activities in national forests.

Portuese, Beth Gambino, Robert W. Malmshemer, Amanda Anderson, Donald Floyd, and Denise Keele. 2009. "Litigants' Characteristics and Outcomes in US Forest Service Land-Management Cases 1989 to 2005." *Journal of Forestry* 107(1): 16-22.

This article identified and analyzed all parties involved in 949 Forest Service land-management court cases initiated between 1989 and 2005. In total, they identified 2,501 parties, the frequency and type of their involvement and their success rates. Environmental organizations were the most frequent type of parties opposing the Forest Service. The Wilderness Society and the Sierra Club were the most frequent litigants in the cases examined. Interestingly, they were also frequent co-defendants (supporters) highlighting the

point that support for the agency changes based on the type of land-management activity and the circumstances of each controversy. Almost 75 percent of the parties were only involved in one case. Frequent litigants (those that file lawsuits repeatedly) fare better in litigation than infrequent and one-time parties.

Factor(s) investigated: Frequency and type of litigant involvement in U.S. land-management cases from 1989-2005.

Methods: Historical analysis

Main finding(s): Environmental organizations were the most frequent type of parties opposing the Forest Service and almost 75 percent of the parties were only involved in one case.

Stern, Marc J. and Michael J. Mortimer. 2009. "Exploring National Environmental Policy Act Processes Across Federal Land Management Agencies." USDA-Forest Service, General Technical Report: PNW-GTR-799.

This report focuses on how successful NEPA processes are defined across four agencies (Forest Service, National Park Service, Bureau of Land Management, and U.S. Army Corps of Engineers) and what strategies are perceived to be the most or least beneficial for positive NEPA outcomes. The report is based on data collected from a review of agency documents, a literature review, nine case studies that included two interviews for each case study, and interviews with chief compliance officers in each of the four agencies. NEPA-related literature in books, peer-reviewed articles, and grey literature sources were used to uncover major themes of interest and any apparent gaps in NEPA literature regarding federal land management agencies. A total of 25 interviews were conducted, focusing on 10 NEPA processes. The authors explored the diversity of procedures employed in NEPA processes across the four agencies, explicitly addressing ten aspects of NEPA processes that emerged as key issues: (1) defining the purpose of NEPA; (2) defining success in NEPA; (3) determining the appropriate form of documentation, i.e. environmental assessments (EAs) vs. environmental impact statements (EISs); (4) the division of labor within interdisciplinary (ID) teams; (5) interagency collaboration; (6) alternatives development; (7) analysis; (8) public involvement; (9) writing the NEPA document (all EISs in this study); and, (10) decision making. The authors highlight that each NEPA analysis is unique and highly situational occurring in different social, political and ecological contexts across wide ranging subject matters. Nonetheless, the interviews did uncover some positively viewed practices that include: relieving ID team members of other tasks to focus on a particular NEPA process, using a dedicated staff writer to orchestrate the completion of NEPA documents, more direct incorporation of U.S. Fish and Wildlife staff onto ID teams, and early and informal public involvement. Drawing upon central offices for specific subject matter expertise and employing contractors to complete discrete analytical tasks were also viewed as useful. While some differences between the agencies emerged, the sample was not a representative sample of the agencies and therefore the primary focus remained on more general themes that emerged from analysis. The authors note a "surprising dearth of empirical research of the factors influencing different NEPA outcomes" and proposed a three phase study that includes: (1) identification of key themes of interest; (2) a quantitative, large sample exploration of trends in relationship between key themes; and (3) qualitative investigation of underlying reasons for observed trends. Given the broad discretion that is granted at all levels throughout the federal land management agencies regarding compliance with NEPA, guidance on the strategies that are perceived to be the most beneficial to positive NEPA outcomes is warranted.

Factor(s) investigated: How successful NEPA processes are defined across four agencies and what strategies are perceived to be the most or least beneficial for positive NEPA outcomes.

Methods: Qualitative interviews; document review

Main finding(s): A lack of consistency is highlighted not only between but also within agencies with regard to how NEPA is perceived and implemented. Potential outcomes of interest include: public perceptions of the agency, of the process, and of the action; administrative appeals and results of appeals; litigation and the results of the litigation; time spent; money spent; staff morale; staff views of degree of success.



Stern, Marc J., Dale J. Blahna, Lee K. Cerveney, and Michael J. Mortimer. 2009. "Visions of success and achievement in recreation-related USDA Forest Service NEPA processes." *Environmental Impact Assessment Review* 29(4): 220-228.

This article focuses on NEPA processes for projects dealing with recreation and travel management on national forests. A renewed focus on recreation management in the agency has sparked a surge in NEPA activities related to recreation, making this a timely and useful study. Regression analysis was used to predict interdisciplinary (ID) team leaders' perceptions of an "excellent outcome." The study sampled 106 ID team leaders using an online survey, 39 of which reported participating in an environmental impact statement (EIS) process, while 67 reported having been involved in an environmental assessment (EA) process. Although the survey revealed a tremendous diversity in definitions of success, several factors emerged as good predictors of a successful outcome: achievement of the agency mission, whether compromise had taken place between the interested parties, team satisfaction and harmony, timely process completion, and project implementation. Interestingly, the best perceived predictors of "excellent outcomes" only partially aligned with ID team leaders' perceptions of success. The authors suggest that this can, in part, be explained by the fact that only some of the potential success factors are actually required by NEPA. There is a wide diversity of beliefs regarding what NEPA processes are supposed to accomplish. This article reports a disconnect between certain beliefs (that can be passed down from generation to generation and are often reflective of different context and values) and perceptions of achievement. If a clear consensus could be reached on the most important aspects of the NEPA process, then trainings could be designed to focus on these "definitions of success." Few respondents felt that administrative appeals and litigation made appropriate indicators of success in NEPA processes, and administrative appeals were not significantly related to any other process-related variables. Although the results are based specifically on projects related to recreation and travel management, the results reveal tremendous diversity in the viewpoints of ID team leaders regarding what Forest Service NEPA processes should accomplish and how success should be measured. Additional research that includes the viewpoints of other team members, decision makers, and other stakeholders, as well as direct observation and archival analysis on a larger sample of projects could test the theories developed in this article.

Factor(s) investigated: How the perceptions and internal interactions of Forest Service interdisciplinary teams engaged in NEPA processes influence process outcomes of recreation-related projects.

Methods: Interviews; online survey; spearman rank correlation; regression analysis

Main finding(s): 1) The survey revealed tremendous diversity in definitions of success. 2) Best predictors of perception of an "excellent outcome" include: achievement of the agency mission, whether compromise had taken place between the interested parties, team satisfaction and harmony, timely process completion, and project implementation. 3) Perceptions of excellent outcomes did not always align with perceptions of achievement.

2010

Stern, Marc J., S. Andrew Predmore, Michael J. Mortimer, and David N. Seesholtz. 2010a. "From the office to the field: Areas of tension and consensus in the implementation of the National Environmental Policy Act within the U.S. Forest Service." *Journal of Environmental Management* 91(6): 1350-1356.

This article focuses on Forest Service employees' views of how NEPA should be implemented within the agency, given the NEPA process' lack of a singular purpose or critical task, which often leads to discretion at the agency's operational levels. Based on an online survey of 3,321 Forest Service employees, the author's had three main findings: 1) Effective interdisciplinary teams are critical to achieving success but opinions about what constitutes an effective team vary. 2) There is a weak consensus among Forest Service NEPA practitioners that the purpose of NEPA is primarily to disclose environmental analyses. 3) Competing approaches to NEPA were indicative of contests within the agency for influence over NEPA

processes and their outcomes. Employee perceptions were filtered through the lenses of different functional groups, each with its own role in agency NEPA compliance and its own suite of perceived accountabilities. This article reports on two specific portions of the survey: respondents' perceptions of what contributes to greater success in NEPA processes and of options for improving NEPA processes. Respondents were divided into four categories for analysis: implementers, line officers, advisory, and bridgers. Implementers' role in agency NEPA compliance was to serve on interdisciplinary (ID) teams as disciplinary specialists or as ID team leaders. Line officers include Forest Supervisors and District Rangers who often serve as the decision makers following NEPA processes. Advisory personnel serve primarily in an advisory or policy-influencing role and include regional coordinators and most respondents from the Washington, D.C. office. Bridgers regularly find themselves in both advisory and implementer roles and are most commonly forest and district-level coordinators and planners as well as NEPA instructors who serve on ID teams. The authors applied exploratory factor analysis to identify seven latent constructs underlying the data. The analysis uncovered areas of consensus regarding valued practices as well as tension between employees with different roles in NEPA compliance. General consensus exists regarding the importance of the effective functioning of ID teams, but opinions about what constitutes an effective team vary. On the one hand, the authors suggest the results present some good news from an agency perspective since the elements most commonly believed by practitioners to lead to greater success in NEPA processes, in particular ID team factors, are internal to the agency. As such, the authors identified an area that may be realistically addressed through agency training. Moreover, the diversity of strategies selected by individuals as valuable reflects an acute understanding amongst agency employees that no one-size-fits-all solution exists for agency planning processes. On the other hand, findings suggest that NEPA serves as a playing field for competing accountabilities felt by line officers, disciplinary specialists, and advisory personnel within the agency, as each attempts to exert influence over NEPA processes and their outcomes.

Factor(s) investigated: Forest Service employee views of how NEPA should be implemented within the agency.

Methods: Online survey; exploratory factor analysis

Main finding(s): 1) Effective interdisciplinary teams are critical to achieving success but opinions about what constitutes an effective team vary. 2) There is a weak consensus among Forest Service NEPA practitioners that the purpose of NEPA is primarily to disclose environmental analyses. 3) Competing approaches to NEPA were indicative of contests within the agency for influence over NEPA processes and their outcomes.

Stern, Marc J., S. Andrew Predmore, Michael J. Mortimer, and David N. Seesholtz. 2010b. "The meaning of the National Environmental Policy Act within the U.S. Forest Service." *Journal of Environmental Management* 91(6): 1371-1379.

This article examines whether a singular critical task or common set of critical tasks (translated to clearly defined purpose) might apply to NEPA processes across the agency, or to groups of agency personnel who function similarly in agency NEPA processes. No systematic inquiry has yet explored perceptions about NEPA from within the Forest Service, the land management agency that performs more NEPA compliance than any other. This research also examines the potential implications and structural origins of agency perceptions about NEPA. In 2008, the authors conducted an online survey of 3,321 Forest Service employees involved in compliance with NEPA, followed by five focus groups to investigate agency views of the purpose of agency NEPA processes and their appropriate measures of success. The authors ran one-way ANOVAs with post-hoc tests for each battery of survey questions. They also ran exploratory factor analysis to assess whether certain perceptions of NEPA's purpose and definitions of success were indicative of underlying latent perceptions. Results suggest the lack of a unified task for Forest Service NEPA processes and that employees' functions relevant to NEPA influence their views of its meaning. Compared to other agency personnel, members of interdisciplinary teams who carry out most day-to-day NEPA-related tasks placed greater emphasis on minimizing negative environmental and social impacts, satisfying multiple

stakeholders, and avoiding litigation and administrative appeals. Line officers, who typically serve as the decision makers following NEPA processes, placed greatest emphasis on efficient implementation and least emphasis on minimizing impacts. Advisory personnel placed greatest emphasis on effective disclosure of analyses and decision making. Stern et al. conclude that while the tremendous variability in project-types speaks to the need for context-specific strategies and planning goals, the lack of a singular critical task for Forest Service NEPA processes may spur more problems than it solves. The authors suggest that some consequences of the absence of a singular critical task may include: (1) the inability to intelligently address revisions to agency-wide guidance; (2) a tendency for centralized advisory staff tasked with troubleshooting to be regularly blind-sided by unexpected complications in forest and district-level processes; and (3) serious communications difficulties between different functional groups and those from different geographic locations who have each developed their own solutions to NEPA-related challenges.

Factor(s) investigated: Whether a singular critical task or common set of critical tasks might apply to NEPA processes across the Forest Service, and the potential implications and structural origins of agency perceptions about NEPA.

Methods: Online survey; regression analysis (ANOVA); exploratory factor analysis

Main finding(s): 1) The lack of a singular critical task for Forest Service NEPA processes may spur more problems than it solves. 2) Employees' functions relevant to the NEPA process influence their views of NEPA's meaning.



2011

Cervený, Lee, Dale J. Blahna, Marc J. Stern, Michael J. Mortimer, and James W. Freeman. 2011. "Forest service interdisciplinary teams: Size, composition, and leader characteristics." *Journal of Forestry* 109(4): 201-207.

This article is based on research that surveyed the ID team leaders of 106 recreation-related NEPA analysis projects between 2005 and 2008. Results were compared with current workforce data and previous studies of ID team leadership and composition for NEPA assessments. The results indicate that the average number of team members for an EIS was 15.2, nearly double that for an EA project (average 8.7). EIS teams averaged 10.6 disciplines compared to 8.6 for EA teams. The main job titles of team leaders include: planning (26%), disciplinary specialists (25%), and recreational and public service professionals (21%). The reported broad range of leadership and composition of ID teams seems to reflect broader changes in hiring practices in response to federal legislation, shifts in agency values, and the adoption of ecosystem management. However, twenty-five percent of the survey respondents reported that social science expertise was missing from the team despite the importance of social science questions and conflict potential related to recreation and travel management projects.

Factor(s) investigated: Size, composition, and leader characteristics of NEPA ID teams.

Methods: Online survey

Main finding(s): The compositions of NEPA ID teams may be changing from traditional natural resource management to more discipline-specific expertise. The role of social scientists and other human dimensions specialists remain modest.

Mortimer, Michael J., Marc J. Stern, Robert W. Malmshamer, Dale J. Blahna, Lee K. Cervený, and David N. Seesholtz. 2011. "Environmental and Social Risks: Defensive National Environmental Policy Act in the U.S. Forest Service." *Journal of Forestry* 109(1): 27-33.

This article explores the prevailing perception that environmental impact statements (EISs) are more defensible in court because they require more thorough analysis of a broader scope of potential impacts. The article originated from three related research efforts, each with its own methodological approach. The first research goal was to ascertain what factors were perceived to influence decisions to prepare an EIS rather than an environmental assessment (EA). It consisted of a qualitative pilot study, relying on secondary document analysis and in-depth personal interviews with respondents in major federal land management agencies from 2006-2007. The sample of projects was selected to include traditional active management or resource extraction and development projects, recreation-related projects, and restoration/fire management projects. The second research effort involved a 2008 online survey. The authors asked Forest Service interdisciplinary team leaders of recreation-related NEPA processes involving the issuance of an EA or EIS between 2005-2008 to choose the most important reasons for selecting the level of NEPA documentation for their particular projects. The third research effort analyzed federal court cases in which the Forest Service was a defendant in a lawsuit challenging a land management decision, limiting the analysis to cases where: (1) plaintiff(s) alleged the Forest Service violated NEPA; and (2) the case ended between 1998-2008 with either a Forest Service loss or a Forest Service win. Although guidance from the President's Council on Environmental Quality suggests the decision to develop an EIS should be based on the likelihood of significant environmental impacts, findings from agency personnel suggest that the decision may more commonly be based on process-related risks, including the threat of litigation, perceived defensibility in court, and the level of public and political interest in the agency's proposed action. The authors found that EISs do not appear to be more defensible than EAs in the courts, suggesting that current decision making about NEPA documentation may be misguided, leading to unnecessary project expenditures and delays. Mortimer et al. conclude that a more detailed understanding of how ecological and social risks influence the agency's environmental analyses could further illustrate the extent to which process risk aversion influences the achievement of the intents of NEPA and agency objectives concerning land management.

Factor(s) investigated: Reasons for agency personnel to develop an EIS versus an EA and the defensibility of EISs versus EAs in federal court.

Methods: Interviews; online survey; qualitative analysis; exploratory factor analysis

Main finding(s): 1) The decision to conduct an EIS may more commonly be based on process-related risks than on the likelihood of significant environmental impacts. 2) EISs do not appear to be more defensible than EAs in court.

Predmore, Andrew S., Marc J. Stern, and Michael Mortimer. 2011a. "Constructing the public: the 'substantive sieve' and personal norms in US Forest Service Planning." *Journal of Environmental Planning and Management* 54 (3): 403-419.

This article explores the tendency of the Forest Service to favor certain types of public input to fulfill the public involvement requirements under NEPA. The authors use a term to refer to favoritism of scientific, technical, or legally based input over value-based comments: the "substantive sieve." Employing a stated perspective of social construction, the authors carried out a discourse analysis on 33 interviews conducted in two national forests; one located in Region 8 (Southeast) and one in Region 9 (Northeast). Throughout their analysis, the authors found that the agency "operators" (interview participants that work at the district or forest level) filtered out overtly value-based comments. By doing so, the authors suggest, they are actively shaping the participating public into two main categories: the active public and the passive public. The passive public is the "average citizen" who is unable to meet the legal and scientific standards of the substantive sieve. This includes the "silent majority." The active publics are rarely "middle of the road people," but rather the "interested extremes" that are able to influence the NEPA process. The authors suggest future research should examine how often, to what extent, and/or under what conditions the substantive sieve is employed. From an interpretive analysis perspective, it is unclear why agency operators apply the substantive sieve; however, the authors suggest that the tendency may have its roots in guidance that direct agency employees to address only 'substantive' or 'significant' comments. In addition to making a contribution to the literature on the persistent dilemma of balancing public involvement and science-based rational planning, this article provides interesting insights into the ways that the agency discursively shapes the success or failure of the NEPA process.

Factor(s) investigated: Agency employee perceptions on addressing only substantive comments over value-based perspectives, therefore applying a "substantive sieve."

Methods: Qualitative interviews; discourse analysis

Main finding(s): Agency employees create active and passive "publics" in NEPA participation processes by exhibiting favoritism of scientific, technical, or legally based input over value-based comments through what the authors refer to as a "substantive sieve."

Predmore, Andrew S., Marc J. Stern, Michael Mortimer, and David N. Seesholtz. 2011b. "Perceptions of Legally Mandated Public Involvement Processes in the U.S. Forest Service." *Society and Natural Resources* 24 (12): 1286-1303.

This article explores and describes agency views of NEPA public involvement, considering three main goal constructs: disclosure and improvement, relationship management, and avoidance and containment. The article makes a timely contribution by addressing which factors - beliefs of those conducting public involvement, or the strategies of public involvement employed - most powerfully impact the outcomes of the public involvement process and have an important impact on the success or failure of the NEPA process. The authors report on a study that employed an extensive survey (N= 3,321) of Forest Service personnel involved in NEPA activities and highlights two main reasons employees engage in the public involvement process: (1) to inform and disclose as mandated by the Act (90 percent of respondents believed this was an important goal) and (2) to manage agency relationships with various, often adversarial, publics (a less widely accepted goal, but with 50 percent of respondents showing support). Results from the qualitative

sections of the survey highlight the appropriate balance of power in planning between public and agency experts, as well as how bureaucratic administrative structures shape views on planning in general. The authors also note that the strategy of avoidance and containment (which either reduces the frequency of agency-public encounters or reconfigures encounters to narrow scope of discussion), while not statistically strong in this study as indicated by a low Cronbach's alpha score, may warrant further research attention. This strategy may lead to long-term problems with agency credibility, loss of public trust, and deteriorating agency effectiveness.

Factor(s) investigated: Forest Service views of NEPA public involvement, considering three main goal constructs: disclosure and improvement, relationship management, and avoidance and containment.

Methods: Online survey; exploratory factor analysis

Main finding(s): Agency employees in the survey primarily perceived the goal of NEPA public participation to inform and disclose, as mandated by the Act. The emphasis on this strategy suggests a strong awareness of and perhaps commitment across the agency to completing those aspects of NEPA public involvement that are legally required.

Stern, Marc J. and S. Andrew Predmore. 2011. "Decision making, procedural compliance, and outcomes definition in U.S. Forest Service planning processes." *Environmental Impact Assessment Review* 31(3): 271-278.

This article builds on previous studies to advance the understanding of Forest Service NEPA processes by focusing on agency perceptions of specific NEPA processes, providing insight on the relationship between NEPA and agency decision making. This article addresses two key questions related to NEPA implementation in the Forest Service: (1) how do interdisciplinary (ID) team leaders and decision makers conceptualize the outcomes of NEPA processes? And (2) how does NEPA relate to agency decision making? Data was collected through two separate online surveys that posed questions about recently completed NEPA processes – the first with the ID team leaders tasked with carrying out the processes, and the second with the line officers responsible for making the processes' final decisions (referred to as decision makers). The authors received valid responses from decision makers on 164 out of the 489 NEPA processes for which they received ID team leader responses. Although both ID team leaders and decision makers tended to



view public relations outcomes as important, decision makers' perceptions of favorable outcomes were more closely linked to the achievement of agency goals and process efficiency than was the case for ID team leaders. The authors found that ID team leaders generally see decision making closely integrated with the NEPA process, while decision makers (line officers) more commonly decoupled decision making from the NEPA process. These findings suggest a philosophical difference between ID team leaders and decision makers that may pose hurdles for both the implementation and evaluation of agency NEPA. The authors conclude that detaching NEPA from decision making poses greater risks than integrating NEPA with decision making. The authors suggest that their findings can function as a starting point for creating an agreed upon framework for assessing NEPA success, which could be used to further evaluate and monitor agency success.

Factor(s) investigated: 1) How interdisciplinary team leaders and decisionmakers conceptualize the outcomes of NEPA processes; and 2) How NEPA relates to agency decisionmaking.

Methods: Online survey; exploratory factor analysis; multiple regression analysis

Main finding(s): 1) ID team leaders generally see decision making closely integrated with the NEPA process, while decision makers (line officers) more commonly decouple decision making from the NEPA process. 2) Detaching NEPA from decision making poses greater risks than integrating NEPA with decision making.

2012

Freeman, James W., Marc J. Stern, Michael Mortimer, Dale J. Blahna, and Lee K. Cerveny. 2012. "Interdisciplinary collaboration within project-level NEPA teams in the US Forest Service." *Environmental Planning and Management* 54(5): 597-615.

This article provides a qualitative inquiry into interdisciplinary collaboration of natural resource planning teams and discovers wide variation in interdisciplinary teamwork approaches. Freeman et al. conducted 10 case studies of Forest Service NEPA teams working on projects related to the 2005 Travel Management Rule (36 CFR Parts 212, 251, 261 and 295) to provide a consistent context for comparison of NEPA projects that include the input of multiple disciplines. Team leaders' leadership styles were uncovered through both team members' and team leader's descriptions of shared experiences, as well as through team leaders' descriptions of their leadership strategies and philosophies associated with the process. The narratives produced were analyzed qualitatively in concert with the authors' literature review on leadership styles. To characterize the nature of collaboration throughout a NEPA process and distinguish between different teamwork styles, the authors made use of the conceptual notion of "ideal types." Two ideal types were constructed from the literature for comparative purposes: ideal-type interdisciplinary (ITID) teams and ideal-type multidisciplinary (ITMD) teams. ITMD were characterized by an emphasis on individual work typified by team members working in parallel rather than together, and team members interacting with team leaders from the same discipline. ITID had seven distinct characteristics that include: (1) an effort to integrate different themes from different disciplines; (2) a shared vision of common goals and common decision-making process; (3) collegial inter-member relationships with open and honest communication; (4) mutual dependence on output; (5) empowerment of members based on experience; (6) group oriented work process; and (7) frequent communication among team members. Based on the data analysis, the authors found three primary patterns of teamwork that exhibited traits of either ITID or ITMD teams: primarily-collaborative work teams (who met together as whole units more often than other teams), periodically-collaborative work teams (functioned in an individual or homogenous group manner connected by a team leader), and primarily-disciplinary work teams (that used a non-collaborative or single-discipline group approach during problem solving). In addition to teamwork patterns, team leadership was an important variable and was found to be either empowering or directive. The authors suggest that greater external pressure may lead teams to adopt a more internally collaborative approach and that empowering leadership styles may enhance the success of more collaborative approaches in terms of perceived outcomes.

The authors also question whether true interdisciplinary collaboration is always a necessary component to produce successful Forest Service NEPA processes. Based on team members' views alone, processes with greater amounts of interdisciplinary collaboration tended to have better outcomes than less collaborative processes; however, the authors state the results are inconclusive based on limited and nebulous measures of success, small sample size, and mixed perceptions of outcomes of the same processes. The authors recommend future research be conducted on the relationships between extra-team context, team collaboration, and leadership styles to provide additional insight into the drivers of outcomes in natural resource planning teams.

Factor(s) investigated: Interdisciplinary teamwork approaches and leadership styles that lead to successful NEPA processes.

Methods: Interviews; qualitative analysis; comparative analysis

Main finding(s): 1) Greater external pressure may lead teams to adopt a more internally collaborative approach. 2) Empowering leadership styles may enhance the success of more collaborative approaches in terms of perceived outcomes.

Stern, Marc J. and S. Andrew Predmore. 2012. "The importance of team functioning to natural resource planning outcomes." *Journal of Environmental Management* 106: 30-39.

This article identifies and discusses key elements linked to outcomes of NEPA planning processes in the Forest Service. The authors preface their work by stating that the Forest Service is among many federal land management agencies struggling with questions concerning why its planning procedures are sometimes inefficient, perform poorly in the eyes of the public, and fail to deliver outputs that advance agency mission. Specifically, the authors sought to find out what factors contribute to declining efficiency in NEPA (longer and more costly processes), difficulties in achieving agency goals, poor disclosure in NEPA documentation, and declining trust in the agency. The authors derived answers to these questions from an online survey of 489 different Interdisciplinary Team Leaders (IDTLs) of 489 different NEPA projects from 2007-2009. The sample distribution across administrative regions, project type, and environmental impact statements versus environmental assessments reflects the diversity of the overall population of 1,724 NEPA processes completed during the time period of the study. The outcome (dependent) variables of the study were: (1) comparative efficiency; (2) integrated agency and NEPA goals; (3) public relations; and (4) team outcomes. Comparative efficiency was based on a time and cost comparison to other NEPA projects. Integrated agency and NEPA goals captured team leaders' perceptions about the degree to which the project's final decision reflected the mission of the agency, met the original purpose and need, and accomplished tasks associated with NEPA. Public relations reflected the extent to which respondents felt the public was satisfied with the process and its outcome, and whether the process had impacts on agency-public relations. Team outcomes include perceptions of the impacts of the process on team morale and willingness to work together in the future. Multiple predictors emerged for different outcomes in the regression analyses. Results suggested, first and foremost, that projects that lack uncertainty, controversy, and complexity may be inherently different than projects the authors deemed as "challenging." The best predictors of the more "simple" processes included the empowerment of the IDTL, team harmony, and the employment of best available science. These variables comprised a subset of the most important variables found in more challenging contexts, so the authors inferred that these particular variables appear to matter regardless of context. The most consistently important predictors of positive outcomes were team harmony and a clearly empowered team leader. Other factors, such as perceptions of the use of best science, a clear and unambiguous purpose and need, team turnover (personnel changes during the process), extra-agency engagement, and intra-agency relations, were also important, but played a less consistent role. The authors conclude that their findings, coupled with the literature, suggest that empowerment can be enhanced through training and adjustments to organizational structure that enhance feelings of competence, authority, self-determination, and a sense that the work has a real impact on agency decisions

and resource management.

Factor(s) investigated: The factors that contribute to declining efficiency in NEPA, difficulties in achieving agency goals, poor disclosure in NEPA documentation, and declining trust in the agency.

Methods: Online survey; exploratory factor analysis; regression analysis

Main finding(s): The most consistently important predictors of positive outcomes were team harmony and a clearly empowered team leader.

2013

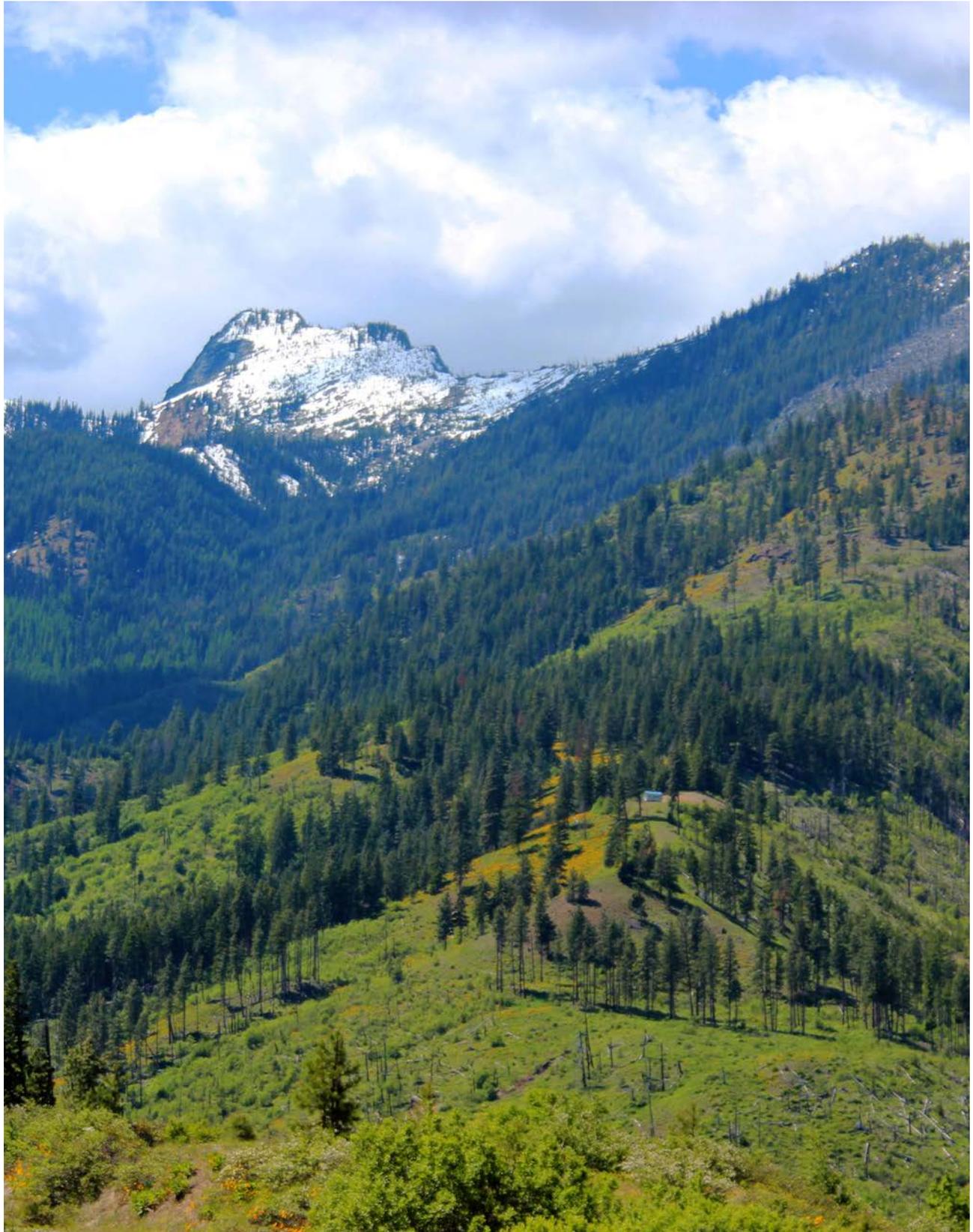
Stern, Marc J., S. Andrew Predmore, Wayde C. Morse, and David N. Seesholtz. 2013. "Project risk and appeals in U.S. Forest Service planning." *Environmental Impact Assessment Review* 42: 95-104.

This article addresses the question as to whether the Forest Service has the ability to influence the frequency with which projects are administratively appealed and the outcomes of the appeals through its own efforts within its NEPA process. The authors conceptualize appeals as a form of project risk, which provides a framework to analyze the potential precursors to appeals, including risk sources both within and outside the control of the agency. The study explores programmatic, structural, technical, and relationship risk sources. Programmatic risk refers to sources of risk that emerge as a result of the initial project design and location. These risk sources include the complexity and scale of the project and the social and political environment in which the process is to take place. The availability of necessary resources to successfully complete the process, including staff time, materials, and sufficient budgets, is referred to as structural risk sources. Technical risk emerges from issues related directly to competence and performance, and relationship risk includes risk that can emerge from both internal and external relationships. Stern et al. highlight the importance of relationships internal to the agency in the Forest Service NEPA processes, including those within the interdisciplinary team and between the interdisciplinary team (ID) and the decision maker (DM). The authors found that elements of team harmony, intra-team collaboration, ID team leadership styles, and communications with the DM were each predictive of process outcomes. The study did not directly address risk identification and analysis but rather focused on actions that might be considered potential responses to emergent risks. As such, they examined some of the ways ID teams appeared to respond to perceptions of increased risk of appeals and then examined the contextual variables and process characteristics that best predict the occurrence of appeals and their outcomes. In 2010, the authors conducted an online survey of 489 unique ID team leaders of 489 unique NEPA processes that were completed between 2007-2009. They applied logistic regression analysis to determine the best predictors of appeals and their outcomes. The authors concluded that while certain factors associated with pre-existing social contexts (such as a history of controversy) or pre-determined elements of a proposed action (such as the extraction of forest products) predispose certain processes to a higher risk of appeals, other practices and process-related strategies within the control of the agency also appeared to bear meaningful influence on the occurrence of appeals and their outcomes. Appeals and their outcomes were most strongly related to programmatic, structural (turnover of personnel in particular), and relationship risks (both internal and external) within the processes, suggesting the need for greater focus within the agency on cultivating positive internal and external relationships to manage the risk of appeals.

Factor(s) investigated: Examination of programmatic, structural, technical, and relationship risk sources to explore whether the Forest Service has the ability to influence the frequency and outcome of administrative appeals of NEPA decisions through its own efforts and process.

Methods: Online survey; logistic regression analysis

Main finding(s): Administrative appeals and their outcomes were most strongly related to programmatic, structural, and relationship risks within the Forest Service processes, suggesting the need for greater focus within the agency on cultivating positive internal and external relationships to manage the risk of administrative appeals.



2014

Hoover, Katie and Marc J. Stern. 2014. "Constraints to public influence in U.S. Forest Service NEPA processes." *Journal of Environmental Planning and Management* 57(2): 173-189.

This article examines why Forest Service planning team leaders feel they are not experiencing enough desirable forms of public influence in the NEPA planning process. Building off of previous research by Hoover and Stern (2013), Predmore et al. 2011, and Stern and Predmore 2011 (also annotated in this bibliography), the authors state that substantive comments are those that provide information that can improve management decisions, in contrast to those that are based on opinions or conjecture. While public involvement can refer to forms of communication such as education and information-sharing, influence implies that the participating public actually makes an impact upon the land management decision or decision-making process through their engagement in the process. Public influence may be viewed as positive and desirable in some cases/perspectives and risky and less desirable in other cases/perspectives. The authors state that understanding how public influence occurs in NEPA planning processes could potentially help diminish the less desirable types of public influence, shifting towards public influence that improves land management decisions and agency-public relations. To explore the constraints preventing public influence from occurring at the levels desired by agency personnel, the lead author interviewed 16 Forest Service employees who served as the NEPA interdisciplinary team leader on 16 different NEPA processes completed between 2007 and 2009. Participants were selected using a purposive sampling strategy to explore perceptions of public influence in-depth, rather than to statistically represent a larger population. The authors found that agency personnel, through their decisions and actions during the NEPA process, serve as key gatekeepers to public influence. For example, the interviews revealed that agency personnel have a choice to make public comments more substantive by pursuing dialogue with interested and commenting publics. Efforts beyond required procedures appear to often be necessary to translate normative public comments, which might otherwise be dismissed, into substantive public influence on analyses and subsequent agency decision making. The authors conclude that key constraints to public influence include a lack of perceived self-efficacy and fear associated with conflict, a lack of leadership commitment to public influence, overwhelming workloads, and normative beliefs about the public that were informed by past and current negative interactions. Conversely, key catalysts include perceptions of self-efficacy in effective communications, strong normative commitments to the value of public influence at multiple levels within the agency, manageable workloads, and recognition of discretion in addressing public comments by NEPA process leaders.

Factor(s) investigated: The constraints to desirable forms of public influence in Forest Service NEPA processes.

Methods: Interviews; qualitative case study analysis

Main finding(s): Key constraints to public influence include a lack of perceived self-efficacy and fear associated with conflict, a lack of leadership commitment to public influence, overwhelming workloads, and normative beliefs about the public that were informed by past and current negative interactions.

Miner, Amanda M.A., Robert W. Malsheimer, and Denise M. Keele. 2014. "Twenty Years of Forest Service Land Management Litigation." *Journal of Forestry* 112(1): 32-40.

This article provides a summary of a comprehensive analysis of Forest Service litigation filed from 1989 to 2008, and completed by 2010. The authors analyzed all federal court cases in which the Forest Service was a defendant in a lawsuit challenging a land management decision. Land management cases were categorized to include all cases in which the plaintiff 1) argued that a Forest Service decision affecting the use, classification, or allocation of a resource violated the law, and 2) sought a court order directing the Forest Service to change its management decision. The authors coded the cases' final outcomes into three mutually exclusive categories: 1) Forest Service Win – 1a) Forest Service Win by Judicial Decision,

1b) Forest Service Win by Other Disposition; 2) Forest Service Loss – 2a) Forest Service Loss by Judicial Decision, 2b) Forest Service Loss by Other Disposition, and 3) Settlement. The analysis identified 1,162 cases filed against the Forest Service from 1989 to 2008, of which 71.5 percent involved the NEPA statute. Although Region 6 (Oregon and Washington) contains only 12.8 percent of the National Forest System, more than one-fifth (21.9 percent) of all litigation occurred there. Building off of the methods used in Keele et al. 2006, the authors classified each case's purpose as either less resource use or greater resource use. For example, if a recreation outfitter brought a lawsuit to prevent the Forest Service from conducting a timber sale in an area used by the outfitter, the authors classified the purpose as "less resource use." Alternatively, if a recreation outfitter brought a lawsuit to prevent the Forest Service from decreasing the number of special-use permits available to outfitters, the authors classified the purpose as "greater resource use." More than three-quarters (78.9 percent) of all plaintiffs sought less resource use within the National Forest System. Vegetative management (i.e. logging) accounted for the majority of management activities challenged, followed by salvage management, forest planning, grazing, special use permit, recreation, road, oil and gas development, wildfire, and commercial development. Of the 719 cases where plaintiffs alleged that the agency violated NEPA, 445 cases (61.9 percent) involved a judicial decision on the merits of the alleged NEPA violation and 274 cases (38.1 percent) did not involve a judicial decision (disposition or settlement). Judges found the agency complied with NEPA in 272 cases (61.1 percent), violated NEPA in 137 cases (30.8 percent), and complied with NEPA but violated another statute involved in the lawsuit in 36 cases (8.1 percent). In total, judges found that the agency complied with its NEPA obligations in 69.2 percent of all cases involving the statute. The authors' overall findings indicate that the Forest Service wins nearly two of every three cases decided by judges. In the majority of these cases, judges usually decide that plaintiffs have not carried their burden of demonstrating that the agency failed to comply with its legal mandates or that the plaintiffs are entitled to the relief they requested. The increasing number of settlement outcomes, however, suggests that agencies and the U.S. Department of Justice often decide that it is more advantageous to resolve proceedings through mutual agreement than to have a judge decide the outcome of the controversy. The long-term census of cases revealed that controversy over the management of the National Forest System persists, regardless of the Presidential Administration; and that the legal environment continues to be an important factor in deciding how forests are managed.

Factor(s) investigated: Comprehensive analysis of Forest Service litigation filed from 1989 to 2008.

Methods: Census; database compilation and analysis

Main finding(s): 1) More than three-quarters of all plaintiffs sought less resource use within the National Forest System; 2) The agency complied with its NEPA obligations in 69.2 percent of all cases involving the statute. 3) There is an increasing trend to resolve proceedings through mutual agreement than to have a judge decide the outcome of the controversy.

Stern, Marc J., Caysie A. Martin, S. Andrew Predmore, and Wayde C. Morse. 2014. "Risk Tradeoffs in Adaptive Ecosystem Management: The Case of the U.S. Forest Service." *Environmental Management* 53(6): 1095-1108.

This article examines incremental decisions made by Forest Service decision makers (DMs), team leaders, and team members that the authors feel aggregate to drive the outcome of the NEPA process. The authors view the NEPA process as a series of incremental decisions that direct how planning activities proceed; and given the broad agency discretion afforded to individuals at each level of the NEPA process, previous literature (by Stern and Mortimer 2009, Stern et al. 2009 – also annotated in this bibliography) suggests that the outcomes, whether social, organizational, economic, political, or environmental, may be largely dependent on incremental decisions. This article focuses on how pressures felt by agency individuals to satisfy or comply with professional standards, agency-wide mandates, overarching Forest Plans, public stakeholders, supervisory officials, internal norms, co-workers, or other peer groups influence the decisions and ultimately impact the outcomes of NEPA processes. The authors began their inquiry with a docu-

ment review of NEPA processes conducted in the Forest Service between 2007 and 2009, which revealed a number of apparent influences upon and justifications for incremental decisions throughout the processes. The authors categorized decisions that were most commonly discussed across all of the processes and then conducted interviews to examine how decisions were actually made in each process. Interviewees were questioned regarding their experience with five case studies: pest salvage environmental assessment (EA), vegetation management EA, national forest motorized travel environmental impact statement (EIS), forest resiliency plan EIS, and fire recovery EIS. To facilitate the interpretation of their findings, the authors described the theoretical concept of project risk, which is conceptualized according to its likely outcomes or sources. Within the context of natural resource management, they distinguished four types of risk outcomes: 1) resource, 2) process, 3) personal, and 4) organizational. Resource risk and process risk are defined in the MacGregor and Seesholtz 2008 annotated bibliography. Personal risk characterizes risks that an individual feels to his or her own position or well-being. Process, resource, or personal outcomes all affect organizational risk outcomes, including future public relations issues, cost escalation, fluctuating agency morale, and additional risk aversion on future projects. The authors also identified four main risk sources, defined above in the annotated bibliography for Stern et al. 2013: 1) programmatic, 2) structural, 3) technical, and 4) relationship. The results found that external relationship risk dominated interviewees' explanations of their incremental decision-making processes throughout the case studies. External relationship risk management strategies included narrowing project scope or scale (programmatic), changes in analytical techniques (technical), the addition of extra mitigations (technical), changes to the nature of public involvement and disclosure (external relationship), and the massaging of internal relationships (internal relationship). Some case studies managed external relationship risk through substantial public engagement, which contributed directly to meaningful social learning. The authors conclude by urging resource managers to consider the full suite of risk sources in their project planning and deliberately weigh the potential consequences of different forms of risk management or avoidance. This research effort involved understanding how incremental decision making within the Forest Service might influence the broader performance of the agency in terms of adaptive ecosystem management. The authors expect the results to be applicable to multiple federal agencies tasked with natural resource management.

Factor(s) investigated: Incremental decisions made by Forest Service personnel directing the NEPA process.

Methods: Interviews; document review

Main finding(s): Risk, in particular external relationship risk, emerged as a dominant lens through which agency personnel weigh and make process-related incremental decisions.



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