

NATURAL RESOURCES POLICY AND ADMINISTRATION IN THE U.S.
BALANCING PRESCRIPTION AND DISCRETION
CONSTRAINTS OF NFMA'S WILDLIFE PROVISION
SCIENCE AND THE ENDANGERED SPECIES ACT
COMPROMISE IN WILDERNESS DESIGNATION AND MANAGEMENT

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1) Striking a Balance between Prescription and Administrative Discretion

In natural resources policy, tension often exists between laws and regulations that are prescriptive and those that are more heavily based on administrative discretion. Prescriptive regulations can contain clear directions, leaving little doubt as to what should be done in an array of situations. However, more discretionary laws can leave important details up to agencies and allow for high levels of flexibility. Striking a balance between prescription and discretion can be tricky and tough (Nie 2012a). Some laws should be rewritten to provide federal land agencies with more direction. Clearer, more prescriptive directions could allow for reduced conflict and increased precision, decisiveness, and efficiency with land management. Thus, the issue of “prescription vs. discretion” is worth substantive pondering. Before continuing, I present the caveat that while rewriting some federal regulations would help, one should consider what currently elected Congress would do such rewrites; some legislators are keener on science than others.

In this analysis, three laws will be examined to illustrate an exploration of the “prescription vs. discretion” topic. These laws are the National Forest Management Act (NFMA), the Endangered Species Act (ESA), and the 1916 Park Service Organic Act. For each law, I will present expository background material and propositions for how a balance could be struck between prescription and discretion.

The Monongahela and Bitterroot controversies (incidents of ugly U.S. Forest Service [USFS] management lacking public participation) led to NFMA’s debut in 1976 (Nie 2012a). Since the 1897 Organic Act, the USFS had been losing discretion with the passage of various Congressional acts. With NFMA, Congress wrote prescriptive and discretionary law as they decided how to further constrain the USFS (Nie 2012b). NFMA generated both substantive and procedural changes in forest policy. Among other provisions, NFMA included the requirement that forest planning happen. It also contained two elements that are key components of forest planning: public participation and protection of wildlife diversity (Nie 2012a).

NFMA’s planning requirement is one of its most significant. NFMA says the USFS must write plans for its individual forests. Such plans must give due consideration to multiple uses and be in accordance with the National Environmental Policy Act (NEPA). NFMA plans are basically zoning

documents, but they apply to wildlands instead of urban areas. NFMA forest planning limits certain uses to certain zones of particular national forests (Nie 2012b).

NFMA plans are subject to numerous requirements. Many of these requirements involve prescription (NEPA accordant mandate, requirement that Multiple-Use, Sustained Yield Act principles be followed, specific timber harvest directions, etc.) and discretion (plan amendment language, economic/environmental aspect consideration language, etc.) (Nie 2012a). Striking a balance between the prescriptive and discretionary nature of these requirements can be complicated. Below is an analysis of how one piece of NFMA language could be modified.

Among NFMA's planning requirements, it mandates that plans "be prepared by an interdisciplinary team. Each team shall prepare its plan based on inventories of the applicable resources of the forest" (Nie 2012a, 82). This language is vague. It provides prescription by saying that teams should be interdisciplinary. However, it encourages discretion by not defining team formation and inventory action details. Depending on the forest and who manages it, the language could lead to the formation of excellent scientific teams and sound inventorying of ecologically relevant data. Nonetheless, it could also lead to incompetent teams or puppet teams controlled by some group or person's special interests. Arbitrary and capricious team formation and inventorying might result.

NFMA's interdisciplinary team language should be more prescriptive. It should say what people should be on the team (wildlife biologists, rangeland managers, foresters, etc.), and it should have an easy-to-understand formula/process for choosing team representation and quantities based on certain characteristics of a particular forest.

Questionnaires or flowcharts could aid with appropriate team formation and deciding proper inventory logistics. For example, a questionnaire could read something like this: "How many endangered bird species are on the Forest? If ≥ 2 , place an ornithologist on your team. How many acres of coniferous old growth exist on the forest? If ≥ 800 acres, procure two foresters." These hypothetical "If this, then that" questions are arbitrary and do not come from a biologist or forest expert. However, their intention is to show how NFMA could be more prescriptive. A similar questionnaire/flowchart device could be used

in deciding what forest resources get inventoried and how such inventories are carried out. Forest managers would have discretion in choosing some specifics, but other details would be clearly mandated by more definitive language.

Not everybody thinks NFMA needs to be rewritten for better prescription/discretion balance. In fact, some people do not think NFMA does much good and consider the act a “solution to a nonexistent problem” (Nie 2012a, 52). However, others think NFMA is “broad-textured and flexible and that this can be a good thing” (Nie 2012a, 52).

Like NFMA, the ESA of 1973 is another important law where the issue of “prescription vs. discretion” has been prominent. The purpose of the ESA is: “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved” (Nie 2012a, 42). The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration’s Fisheries Service (NOAA Fisheries) are the main agencies with responsibility for ESA implementation (Rasband, Salzman, and Squillace 2009). According to Rasband, Salzman, and Squillace: “All actors, including federal and state governments and private parties, are prohibited from killing, harming, or otherwise ‘taking’ listed species” (2009, 349).

In the majority decision for the landmark 1978 case of *Tennessee Valley Authority v. Hill*, regarding the ESA, Chief Justice Burger wrote ““one would be hard-pressed to find a statutory provision whose terms were any plainer than those in [Section 7] . . . ‘plain intent’ is found in literally every section of the statute’ to ‘halt and reverse the trend toward species extinction, whatever the cost’” (Nie 2008, 66). The ESA is powerful and has been described as the “pitbull of environmental laws” (Nie 2012a, 42).

Nie notes: “Although the ESA is full of ‘plain language,’ it also has its share of ambiguity. Because of its original language and subsequent amendments to the act, the FWS and NOAA Fisheries have significant managerial discretion in some areas” (2008, 66). The ESA is full of examples where new balances could be struck between prescription and discretion (e.g., definition of “in danger of extinction,” discretion provided by Section 10(j), HCP monitoring requirements, the Act’s reactive nature, etc.). Nevertheless, for this analysis, I will only hit on a couple of topics.

One topic is the issue of endangered species range. The ESA defines an endangered species as “any species which is in danger of extinction throughout all or a significant portion of its range” (Nie 2012a, 42). However, the phrase “significant portion of its range” is not precisely defined. This leaves the door open for agency discretion. Agencies get to decide just what a significant portion of species range is. For example, grizzly bears (*Ursus arctos horribilis*) and gray wolves (*Canis lupus*) are already extinct from significant portions of their ranges if you consider “significant portion of its range” to include historic habitats. Nonetheless, attempts have been made to delist Yellowstone grizzlies and wolves have been delisted in the Northern Rockies, despite the fact that both species have still not recovered in significant portions of historic habitat (Nie 2012b).

The phrase “significant portion of its range” should be more clearly defined with prescriptive language based on the best available *science* and *politics* of what recovery is actually feasible in various areas. For example, wolves could eke out an existence in portions of the Colorado Rockies, but they would probably not fare well in California’s San Joaquin Valley. Also, if species will be delisted without recovery in big chunks of historic range, that factor should be clearly addressed with appropriate prescriptive guidelines allowing more limited recovery. However, that issue has been somewhat addressed with the ESA’s subpopulation language (Nie 2012a).

Designation of critical habitat is another important topic illustrating the ESA’s prescription/discretion problems. Nie explains:

According to wildlife law experts Michael Bean and Melanie Rowland, “It remains one of the Act’s most contentious, ambiguous, and confusing concepts [with] no clear, consistent, and shared understanding of what it means. . . .” Moreover, Congress has obscured, rather than clarified, the concept, and the courts . . . have never given more than superficial attention to the duties that arise from the designation of critical habitat.” (2008, 66-67)

Thus, critical habitat should be more clearly defined with plain prescriptive language as a way to better balance the confusing discretion encouraged by existing language. As part of defining critical habitat, prescriptive language could be added that makes clear what activities are prohibited in critical habitat of listed species.

Attempts to modify balance between prescription and discretion and to reform the ESA in general have led to weakening of the act. Nie doggedly illustrates this point:

Though it can still pack a punch, the ESA is hardly the rabid pit bull characterized by its opponents, who continually try to eviscerate the act's most substantive provisions. Through various measures, including . . . special rules allowing for all sorts of managerial flexibility, and habitat conservation plans, among other provisions granting increased discretion, the ESA is more like a pit bull on tranquilizers. It is usually starved of funding and chained to a tree. (2008, 68)

In addition to NFMA and the ESA, the 1916 Park Service Organic Act is also worth examining in an effort to explore the "prescription vs. discretion" issue. The 1916 Park Service Organic Act established the National Park Service (NPS) and laid out its mission for NPS lands (NPS 2012a). According to Rasband, Salzman, and Squillace, this mission was "to conserve the scenery and the natural and historic objects and the wildlife therein, and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (2009, 601).

The balance between preservation and recreation is an important part of examining prescription/discretion issues involved with the 1916 Park Service Organic Act. Rasband, Salzman, and Squillace ask: "Is there a correct balance between recreation and preservation, between protection and land use? Or is park management purely a matter of Park Service discretion under which the agency effectively decides park purposes" (2009, 601)? The non-impairment standard in the 1916 Organic Act's language provides some agency discretion (Nie 2012a).

The NPS's definition of the impairment mentioned in the Act is: "An impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of the Park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values" (Nie 2012a, 58). This is still fairly vague language. What exactly is the integrity? What constitutes harm? What if opportunities for enjoyment that are lost are harmful? The 1916 Park Service Organic Act should be rewritten with language that better defines impairment and what is prohibited. In my view, this language should clearly prohibit off-road use of loud, ecologically harmful, and condemnable recreation vehicles (e.g., snowmobiles, ATVs, dirt bikes, etc.). I think the Bush

Administration used improperly balanced administrative discretion when it removed snowmobiling restrictions from Yellowstone National Park. In any rewrite of the 1916 Park Service Organic Act, I believe there should be adherence to the principles of the Leopold Report, which states:

As a primary goal, we would recommend that the biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the condition that prevailed when the area was first visited by the white man. A national park should represent a vignette of primitive America. (Nie 2012a, 60)

Of course, broad language like that above opens even more barrels of snakes. Nonetheless, while still allowing reasonable accommodations for tourism (e.g., keeping existing roads in parks, keeping some visitor services in place, etc.), I think national parks should be kept fairly natural and ecologically healthy. We often never know just what landscapes *should* be, so striving for the “vignette of primitive America” described above seems a fitting purpose for our national parks.

2) NFMA’s Wildlife Diversity/Viability Provision and Constraints on the USFS

The wildlife diversity/viability provision of NFMA (1976/1982) has been one of its most important mandates. In fact, the diversity language is NFMA’s sharpest tooth because biodiversity is quantifiable. NFMA’s diversity/viability provision has been the most potent weapon environmental groups have wielded against the USFS in their efforts to stop projects. Thus, the provision has significantly hindered the USFS (Nie 2012b).

In this analysis, I will first provide background on NFMA’s wildlife provision. Then an explanation will be presented for how it has constrained the USFS. I will also explain why I am in favor of retaining NFMA’s 1982 version of the wildlife provision. Furthermore, I will discuss alternate avenues to the diversity/viability provision that could be employed to hold the USFS accountable for its wildlife-impacting activities.

The 1976 version of NFMA provided language that required the USFS (during the planning process) to “provide for diversity of plant and animal communities based upon the suitability and capability of the specific land area in order to meet overall multiple use objectives” (Rasband, Salzman, and Squillace 2009, 1241). However, as part of the NFMA formulation process, Congress ordered the

USFS to appointment a committee of non-USFS scientists to aid the agency in implementing NFMA's regulations via an "effective interdisciplinary approach" (Rasband, Salzman, and Squillace 2009, 1242). This committee made recommendations that the USFS largely adopted in 1982. Among them was a strengthening modification of the diversity language (Rasband, Salzman, and Squillace 2009).

The 1982 NFMA rules require that: "Fish and wildlife habitat shall be managed to maintain *viable populations* of existing native and desired non-native vertebrate species in the planning areas" (Rasband, Salzman, and Squillace 2009, 1243). NFMA also notes that "habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area" (Rasband, Salzman, and Squillace 2009, 1255).

To gauge species viability, NFMA includes a *management indicator species* provision, which requires the USFS to choose species that it can monitor to estimate the effects of proposed forest activities. Chosen species are supposed to have population changes that indicate management activity impacts (Rasband, Salzman, and Squillace 2009). Professor Houck provides commentary on the efficacy of both the management indicator species (MIS) and viability approaches to forest management.

The MIS approach is as excellent or as abysmal as the species selected. The Endangered Species Act is effective because it flatly requires the selection of its listed species for MIS-like analyses. The diversity regulations fail when they allow the selection of common species or species of convenience, obviously selected to continue a high level of locally popular "outputs." (Rasband, Salzman, and Squillace 2009, 1255).

Since the inception of NFMA's wildlife diversity/viability provision, it has been used to constrain the USFS. Litigious environmental groups have repeatedly used it to stop activities on USFS lands that would threaten species viability. Regarding the diversity provision, Nie notes: "This requirement has proven critical to environmentalists' litigation strategy to stop logging in old-growth forests in the Pacific Northwest to preserve the northern spotted owl and other vulnerable species" (2012a, 52). The use of NFMA's diversity language is not limited to the Pacific Northwest.

For example, the requirement that the USFS maintain viable wildlife populations has been used in litigation to limit domestic sheep (*Ovis aries*) grazing in the Payette National Forest in the Idaho Rockies

for the sake of bighorns (*Ovis canadensis*) vulnerable to domestic sheep disease (Hoffman 2007).

Hoffman explains: “[In April 2007] . . . The Wilderness Society, an Idaho-based anti-grazing group called the Western Watersheds Project, and the Hells Canyon Preservation Council sued the Forest Service for failing to protect a viable population of bighorn sheep” (2007). Hoffman adds: “Faced with the lawsuit, the Payette National Forest quickly turned around and agreed to a bighorn-protection plan drawn up by the Nez Perce Tribe” (2007). According to Barker, in 2007, “District Judge B. Lynn Winmill ordered ranchers to move their sheep off of five allotments on the Payette National Forest in Hells Canyon [because of bighorn protection concerns]” (2010).

Another example of the NFMA wildlife diversity language being used to constrain activity on national forest land can be found in the case of *Idaho Sporting Congress v. Rittenhouse* (2002). In this case, wildlife advocates sued the USFS because it wanted to allow two timber sales in the Boise National Forest that plaintiffs claimed violated both NEPA and NFMA. Based on the Boise National Forest’s 1990 Land and Resource Management Plan, the pileated woodpecker (*Dryocopus pileatus*) was selected as an indicator species, and monitoring of its habitat was deemed sufficient to monitor its viability. Managers determined pileated woodpeckers on the Forest needed a certain amount of old growth to ensure their viability (Rasband, Salzman, and Squillace 2009). The decision for *Idaho Sporting Congress v.*

Rittenhouse states:

In the case before use, the Monitoring Report shows that the Forest Service’s methodology does not reasonably ensure viable populations of the species at issue. In addition to the conclusions of the Monitoring Report, the record demonstrates that the Forest Service’s methodology for dedicating old growth is so inaccurate that it turns out there is no old growth at all in management area 35, where the Forest Service has purported to dedicate 1,280 acres of old growth.

We therefore remand to the district court with instructions to enjoin the Lightning Ridge and Long Prong timber sales until such time as the Forest Service complies with the Forest Act [NFMA] and NEPA. (Rasband, Salzman, and Squillace 2009, 1259)

As the cases above illustrate, NFMA’s wildlife diversity/viability provision can be used to constrain the USFS because it can clearly show that some of their activities violate the law. Professor Houck provides an analysis of the diversity/viability provision’s efficacy:

The viable population concept is demanding, time-consuming, expensive, never certain and often inconclusive—but it works. It produces defensible conclusions on what habitat is needed and how

much and where. No other approach provides that level of objectivity and specificity. For decisions that are going to run a gauntlet of fire from every side, an objective, scientific basis is indispensable. (Rasband, Salzman, and Squillace 2009, 1261)

I am in favor of keeping the 1982 NFMA wildlife provision, partly because it can help effectively maintain ecological health and biodiversity on national forests. This is important because, as Aldo Leopold states in *A Sand County Almanac*: “To save every cog and wheel is the first precaution of the intelligent tinkerer” (NPS 2012b). However, on a more pragmatic note, I like the 1982 wildlife provision because it is easier to understand and write about than more convoluted natural resource regulations. Additionally, from a more selfish perspective, I am in favor of retention of the provision because it has been used to protect bighorn sheep, which are one of my favorite species.

While NFMA’s wildlife diversity/viability provision has proven effective in some situations, there are alternate avenues for how the USFS could be held accountable for its wildlife-impacting activities. For example, in the new 2012 forest regulations issued by the Obama Administration, the USFS only has to manage for the viability of *species of conservation concern* with such species being chosen by local forest managers. While this regulatory scheme could serve as an alternative to the diversity/viability provision, it also makes the USFS less accountable for wildlife management and provides regulation evasion flexibility by giving local forest managers notable discretion (Nie 2012b). Nonetheless, some managers could use discretion in an ecologically responsible manner and keep their forest accountable for its wildlife-impacting actions. Efficacy of the new 2012 wildlife provision will depend on particular forests and their managers.

While the 1982 diversity/viability provision has been weakened, another alternative would be to strengthen it. National forests often choose convenient critters as indicator species (e.g., species that do well in clear-cuts: elk, white-tailed deer, etc.) (Nie 2012b). A stronger wildlife diversity/viability provision could preclude selection of indicator species that are especially abundant and would distort perceptions of an individual forest’s overall health. Fining or demoting individual high-level USFS employees for poor decision-making that harms wildlife is another alternative for keeping the agency

accountable. However, it seems an unrealistic proposal that would never be implemented and could have serious fairness issues and litigation challenges if it were attempted.

3) Science and the Endangered Species Act

Science plays important roles in administration of the ESA. The ESA is a sweeping piece of legislation that allows science to seep into numerous facets of natural resources management across the country. As Rasband, Salzman, and Squillace remark:

The most powerful federal law, and perhaps the most powerful law in the whole field of natural resource management, is the 1973 Endangered Species act (ESA) The ESA embodies America's commitment to protect wildlife by mandating the dedication of resources and the tempering of development. The ESA intersects with (and trumps) many other natural resource management regimes. Its impacts are felt literally across the country—whether through red cockaded woodpeckers in Southeastern pine forests, salmon in Pacific Northwest rivers, desert tortoises in Southwest land developments, or gray wolves in the Intermountain West. (2009, 348)

According to Nie: “The ESA asks scientists to answer questions that they are often not comfortable answering” (2012a, 45). These questions often involve scientific disagreement, uncertainty, and risk analysis. Some environmental advocacy groups also use the ESA as a surrogate to force scientific scrutiny onto topics like private land development, energy consumption, climate change, agency missions, etc. (Nie 2012a, b). The ESA is a high stakes piece of legislation in which science plays a high stakes role. Just the economic ramifications of the ESA can be startling. For example, when the USFWS issued guidelines for prohibiting logging in circles of trees in an effort to protect endangered spotted owls (*Strix occidentalis*), a single owl protection circle examined in Washington could cost timber producers about \$40 to \$160 million based on 1994 market values (Rasband, Salzman, and Squillace 2009).

Science and scientific uncertainty is central to understanding the politics, conflicts, and case law surrounding the ESA because science and scientific uncertainty often help determine the outcome of various important ESA-related decisions. Essentially, if one understands the science behind an ESA issue, they understand important bases of conflict, which can be wielded with force by some interest groups or denied and combated by others. In this analysis, I will discuss science's role in the ESA elements listed in the following sentence. Science determines whether or not species get listed, it contributes to decisions on subpopulation listings, it can help designate critical habitat, it is an important component of the jeopardy

and consultation process, it can determine taking and harm, and it can aid in the formation of habitat conservation plans.

Before things can even really get going with the ESA, species must be listed “solely on the basis of the best scientific and commercial data available. . .” (Nie 2012a, 43). Rasband, Salzman, and Squillace add: “Importantly, the agency may not consider economic costs or benefits in its listing decision. Only scientific data relating to the species status as endangered or threatened may enter into the decision” (2009, 350). Thus, in the case of listing, science might determine whether or not a species goes extinct and whether or not massive amounts of economic activities will be stifled. So, listing controversies can involve plenty of politics, conflicts, and case law.

The best available science mandate precludes using uncertainty as an excuse to not list a species. The best available science in “warranted or precluded” decisions can also help determine whether or not listing is warranted. Politics can determine if listing is precluded (Nie 2012b). Science can even allow private citizens to initiate species listing and use litigation to supersede the discretionary whims of federal agencies. For example, the spotted owl listing was proposed by a small environmental group in Massachusetts. As Rasband, Salzman, and Squillace explain: “In the *Northern Spotted Owl v. Hodel* case . . . despite strong scientific evidence in favor of listing the spotted owl, with little explanation the FWS decided not to list the owl. The court remanded the decision as arbitrary and capricious” (2009, 350).

There have been significant amounts of science-based litigation related to listing. USFWS and NOAA Fisheries have pleaded with environmental groups to stop instigating listing petitions. These agencies have less time and resources to actually protect species when they are constantly bombarded with demanding litigation (Nie 2012b). Regarding listing and case law, science played a significant role in a recent huge settlement between the Center for Biological Diversity (CBD) and USFWS (CBD 2011). According to the CBD, they had “written scientific petitions and/or filed lawsuits to win federal protection for . . . 757 species” (2011). In July 2011, CBD and USFWS reached an agreement “requiring the agency to make initial or final decisions on whether to add hundreds of imperiled plants and animals

to the endangered species list by 2018” (CBD 2011). It is doubtful such a settlement could have been made without the push of science.

In line with the theme of science’s role in ESA listing is that science can be especially important in the listing of special subpopulations: subspecies, distinct population segments (DPSs), and evolutionarily significant units (ESUs). Through biological reasoning, science can determine what classification a particular group of animals receives. Science and scientific uncertainty regarding species classification can also involve precautionary the principle and the preservation of genetic variability. Is a population genetically distinct? Is it actually important for the survival of the species? What amounts of habitat and population connectivity are necessary for viability? Science can attempt to answer these questions (Nie 2012b).

A subspecies is a taxonomic rank below species but distinct from other subspecies (Nie 2012a). For example, the Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*) is a subspecies of bighorn and federally endangered (USFWS 2007; DOI 2008). Science has determined that Sierra bighorns are a unique subspecies and that domestic sheep can transmit deadly pneumonia to bighorns (USFWS 2007; Wehausen, Kelley, and Ramey II). So, science caused USFWS to locally restrict domestic sheep grazing to protect Sierra bighorns (Reiterman 2005). Reiterman elaborates on this science-based ESA conflict by remarking: “Since the 19th century, bighorn sheep and Sierra sheep ranchers have been symbols of the wild and free-ranging Western frontier. But today they are at odds, their fate intertwined in a costly, highly politicized battle over grazing rights on public lands” (Reiterman 2005, A6).

A DPS must satisfy certain agency standards and be “separable from the reminder of and significant to the species to which it belongs” (Nie 2012a, 80). The Greater Yellowstone area grizzly population is listed as a threatened DPS (USFWS 2011). The listing of these grizzlies has caused conflict and stopped many public land projects because of habitat protections determined by the best available science (Nie 2012b). The gray wolves reintroduced to the Northern Rockies also form a DPS (USFWS 2012). As is common knowledge in U.S. natural resources policy, this wolf population has been a lightning rod for intense ESA conflict, case law, and politics.

ESUs refer to special stocks of Pacific salmonids that are genetically important and reproductively isolated (Nie 2012a). ESUs have spawned some fishy case law. For example: “In 1995, the National Marine Fisheries Service (NMFS) proposed listing the “Oregon Coast Evolutionarily Significant Unit coho salmon” as threatened. . .” (Rasband, Salzman, and Squillace 2009, 356). This proposal triggered *Alsea Valley Alliance v. Evans* (2001), in which plaintiffs challenged the NMFS’s decision to not include hatchery coho salmon in its listing consideration. In this case, the NMFS’s listing action was ruled as arbitrary and capricious because the population proposed for listing included both wild and hatchery salmon (Rasband, Salzman, and Squillace).

Science can help determine the Secretary of Interior’s designation of critical habitat for endangered species. Critical habitat can include regions that are important to the persistence and recovery of a listed species. Such regions might require special management (Nie 2012a). Critical habitat designations can lead to litigation, conflict, and apprehension. According to Rasband, Salzman, and Squillace: “However sensible from a budget allocation perspective, failure to designate critical habitat made FWS and NMFS an easy target for litigation, with environmental groups regularly winning in the courtroom” (2009, 364). In contrast, private property owners commonly fear critical habitat designation. However, such designation often does not impact private property owners, unless they want federal money or federal permission to do something. Regardless of critical habitat, property owners are still typically not allowed to take listed species (Nie 2012b). Interestingly, while science can play a role in critical habitat designation (mapping, species tracking, etc.), “the ESA explicitly requires the consideration of economic factors in designating critical habitat” (Nie 2012a, 43).

Science is an important component of the jeopardy and consultation process. Nie explains how this process works:

Section 7 [of the ESA] directs federal agencies to consult with the Secretary to “insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species.” This gives the FWS and Fisheries regulatory authority over other resource agencies like the USFS and BLM. (2012a, 44)

The outcome of *Tennessee Valley Authority v. Hill* (1978) solidified the teeth of ESA's Section 7. In this case, the court halted the construction of a huge dam, partly (pork barrel politics were another factor) to protect the snail darter (*Percina tanasi*): an endangered perch (Rasband, Salzman, and Squillace 2009). Action agencies (those wanting to carry out some project) must consult with USFWS and NOAA Fisheries and inquire about listed species presence and critical habitat before they start a project. If listed species are present, a biological assessment may be prepared to determine the potential impact of proposed projects (Nie 2012a). If a listed species is determined to be affected by proposed actions, a biological opinion must be drafted "to decided if [a proposed] action will jeopardize the continued existence of [a] species or result in adverse modification of critical habitat" (Nie 2012a, 44). If a proposal is deemed harmful to a protected species, it can be stopped. USFWS and NOAA fisheries can actually veto projects proposed by other federal agencies. Thus, through formation and use of biological assessments and opinions, science can influence the jeopardy and consultation process and determine whether or not certain projects proceed (Nie 2012b).

Science can also help determine what constitutes the taking or harm of an endangered species by indicating species presence and how much damage it may have sustained directly or through habitat modification. For example, scientific biological models can predict which species might use a particular habitat, and the results of these models can be used to equate habitat modification with species harm as part of enforcement actions (Rasband, Salzman, and Squillace 2009). According to Nie: "The ESA prohibits the 'taking' of endangered species, defined as 'to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct' (2012a, 45). The term "harm" in this language includes "environmental modification or degradation" (Nie 2012a, 45). This broad meaning of the taking/harm language has provided federal agencies with the controversial power to regulate private property activities and has brought up the issue of government takings (Nie 2012a). I will now examine a couple of examples where the science-related take/harm language has contributed to case law.

Conflict over the definition of "harm" arose in the case of *Palila v. Hawaii Department of Land and Natural Resources* (1988) (Rasband, Salzman, and Squillace 2009). Part of the case states: "The

scope of the definition of harm is important because it in part sets the limits on what acts or omissions violate the Act's prohibitions against 'taking' an endangered species" (Rasband, Salzman, and Squillace 2009, 387). The decision of this case concluded that in the context of the ESA, the definition of "take" includes habitat modification that could harm a species (Rasband, Salzman, and Squillace 2009).

In the case of *Babbitt v. Sweet Home Chapter of Communities for a Greater Oregon* (1995), private property owners (including logging companies) challenged the notion that Congress intended the word "take" in the ESA to include habitat modification. These plaintiffs alleged that the application of the "harm" regulation to red-cockaded woodpeckers (*Picoides borealis*) and spotted owls had caused economic injury (Rasband, Salzman, and Squillace 2009). The final decision of the case states:

However, it seems to me clear that the [harm] regulation does not on its terms exceed the agency's mandate, and that the regulation has innumerable valid habitat-related applications. Congress may, of course, see fit to revisit this issue. And nothing the Court says today prevents the agency itself from narrowing the scope of its regulation at a later date. (Rasband, Salzman, and Squillace 2009, 398)

So, the controversial take/harm language of the ESA has survived litigious attacks. However, that does not mean Congress or USFWS will not try to weaken the language in the future. If such attempts happen, science and scientific uncertainty will likely play a key role in ensuing debate.

Science can aid in the formation and maintenance of habitat conservation plans (HCPs). The ESA got very close to being gutted by Congress during the Clinton years, so Secretary Babbitt introduced HCPs to make the Act more user-friendly. Everybody wants certainty, and HCPs facilitate more certainty (Nie 2012b). HCPs are voluntary deals between private landowners and the USFWS or NOAA Fisheries. These deals give private landowners certainty about what activities are permitted/prohibited on their land while the USFWS gets assurances that landowners will go out of their way to accommodate endangered species. HCPs are highly individualized contracts. Private landowners can get incidental take permits (ITPs) as part of the HCP process. ITPs allow landowners to modify listed species habitat (Nie 2012a). HCPs may also involve an agency promising "no surprises" (e.g., no further regulations) if "unforeseen circumstances arise" (Nie 2012a, 46).

The vast majority of listed species depend on private land, so working with private landowners is important. The biological opinions in HCPs can lead to lots of conflict. The science behind HCPs has been litigated, and groups have claimed some HCP biological opinions are arbitrary and capricious. Landowners often pay for their own scientific assessments, which critics find sketchy. However, the USFWS is supposed to check landowners' assessments for scientific validity (Nie 2012b). While HCPs have generated notable science-based controversy, science also plays a role in similar ESA amendments, like safe harbor agreements and candidate conservation agreements with assurances (Nie 2012a).

4) Compromise in Wilderness Designation and Management

According to Rasband, Salzman, and Squillace: "The Wilderness Act stands as an important symbol of Americans' increasing preference for preservation of the public lands and, to some extent, of the idea that preservation is valuable for its own sake and not only for recreation, enjoyment, or other forms of use" (2009, 637). The Wilderness Act of 1964 was a landmark piece of legislation that promulgated protecting America's wildlands in notably natural, wild states (Rasband, Salzman, and Squillace 2009). The Wilderness Act declares that wilderness is "recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain" (Rasband, Salzman, and Squillace 2009, 638). The Wilderness Act provides significant protection for American wildlands. However, such preservation came at the price of compromise. Regarding official Wilderness in the U.S., compromise has played and continues to play roles in facilitating wilderness designation and management. Thanks to compromise, we have wilderness. Thus, compromise has been prominent in the areas of wilderness designation and management. In this analysis, I will discuss compromise in these areas (Rasband, Salzman, and Squillace 2009).

"A complex and contentious process" led to the designation of 107.4 million acres of wilderness in the U.S." (Rasband, Salzman, and Squillace 2009, 639). Much of the controversy and compromise associated with wilderness designation relates to establishment of wilderness on USFS and BLM lands where such designation limits resource extraction opportunities (mining, logging, grazing, etc.) and high-impact uses, such as off-road vehicles. One compromise associated with wilderness designation is the

criterion of how much human presence is acceptable in a wilderness area. For example, according to the Wilderness Act, a wilderness should not have human habitation or permanent improvements. However, the USFS has compromised with this language and recognized wilderness areas with notable amounts of human impact, including abandoned mines and airstrips (Rasband, Salzman, and Squillace 2009).

In the 1960s, in an effort to follow the Wilderness Act and find regions worthy of wilderness designation, the USFS reviewed areas that had previously been classified as “primitive.” This led to the first Roadless Area Review and Evaluation (RARE I), which identified 56 million acres with wilderness potential. RARE I led to some court-initiated compromise attempts when (during the RARE I process) the USFS proposed to allow timber harvest in a region immediately adjacent to a primitive area (Rasband, Salzman, and Squillace 2009).

The courts forced the USFS to compromise with the Wilderness Act language and prohibited their logging proposal because the Act states: “[n]othing herein contained shall limit the President of the United States in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive area or recommending the addition of any contiguous area of national forest lands predominately of wilderness value” (Rasband, Salzman, and Squillace 2009, 640-641). The court figured that allowing logging too close to potential wilderness would limit the president’s wilderness designation discretion. The USFS tried to compromise by proposing a logging-free buffer area between the primitive area in question and the region they wanted to harvest. The court did not approve of this proposal. After a RARE II inventory and more restrictions on logging in potential wilderness, the USFS under the Reagan Administration threatened to do a RARE III, which may have opened more forest to logging (Rasband, Salzman, and Squillace 2009). In 1984, Congress compromised by passing twenty wilderness bills “that designated wilderness and released unchosen RARE II lands from wilderness management for at least one forest planning cycle” (Rasband, Salzman, and Squillace 2009, 642).

While USFS situations have been prominent, compromise has also been involved with the designation of wilderness areas on BLM lands. However, BLM wilderness became an issue later than USFS wilderness. According to Rasband, Salzman, and Squillace: “Hewing to the old adage that public

lands managed by the BLM were the lands no one wanted, the Wilderness Act completely ignored BLM lands” (2009, 642). Nonetheless, Congress addressed the issue of wilderness on BLM lands with the passage of the Federal Land and Policy Management Act (FLMPA) of 1976. FLPMA required a review of roadless BLM lands in an effort to inventory areas with wilderness potential. These regions are known as Wilderness Study Areas (WSAs) (Rasband, Salzman, and Squillace 2009). A key element of FLPMA was that WSAs were “to be managed for nonimpairment of their wilderness characteristics until Congress decides to designate the WSAs as part of the wilderness preservation system or release them for multiple use management” (Rasband, Salzman, and Squillace 2009, 643).

Environmental groups thought the BLM was too conservative with its designations of WSAs. This led to controversy, conflict, and litigation initiated by those who wanted more wilderness. At one point, Interior Secretary Watt ordered the BLM not to designate any lands as WSAs that contained fewer than 5,000 acres. Wilderness advocates litigated, and the courts invalidated Watt’s order. This forced the Department of Interior to compromise with what environmental groups wanted. However, wilderness advocates still found themselves lacking. While they got the chance to have smaller wilderness areas (<5,000 acres), they lost out on getting WSA status for roadless BLM lands that had substantial potential for mineral development. They also believed that far more lands with wilderness potential existed than what the BLM designated as WSAs. Additionally, the BLM did not allow wilderness designation for all of its WSAs (Rasband, Salzman, and Squillace 2009).

Since the Wilderness Act, FLPMA, and the wilderness bills of 1984, other important pieces of wilderness legislation have been passed, including the Arizona Desert Wilderness Act (1990) and the California Desert Protection Act (1994) (Rasband, Salzman, and Squillace 2009). However, one of the most sweeping pieces of wilderness-related legislation was the Alaska National Interest Lands Conservation Act (ANILCA) of 1980. Among other substantial land protections, this legislation protected 56.5 million acres as wilderness. Nonetheless, a big compromise was involved with its passage. ANILCA includes what is known as the “no more clause.” It basically says that ANILCA achieves a sufficient

balance between preservation and land use, so no more huge land protections will occur in Alaska (Nie 2008). Nie adds:

Often cited along with this provision is language prohibiting future executive branch action that withdraws more than 5,000 acres of public lands in the state unless approved by a joint resolution of Congress. It also states that “[n]o further studies of Federal lands in the State of Alaska for the single purpose of considering the establishment of a conservation system unit, national recreation area, national conservation area, or for related or similar purposes shall be conducted unless authorized by this Act or further Act of Congress. (2008, 135)

So, with ANILCA, conservationists had to settle for not getting as much future wilderness designation flexibility as they may have liked. However, without the “no more clause” compromise, we might not have ANILCA’s sprawling conservation legacy.

In addition to facilitating wilderness designation, compromise is key to wilderness management. The “Special Provisions” section of the Wilderness Act provides details on wilderness management compromises where some wilderness advocates did not get everything they wanted (Nie 2012a). The Act allows some activities that are incompatible with traditional perceptions of wilderness. For example, the Act states: “Within wilderness areas designated by this chapter the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable” (Nie 2012a, 66). Additionally, the Act allows motorized action in wilderness that may be necessary for controlling fire, insects, and diseases (Nie 2012a).

The Wilderness Act also involves important special provisions related to mining. According to Rasband, Salzman, and Squillace: “The ‘special provision’ which made perhaps the greatest compromise with the notion of pristine wilderness was the exception for mining” (2009, 660). Essentially:

Under this exception, miners and prospective lessees were given 20 years [1964-1984] to locate mining claims and pursue leases. It seemed like a potentially gaping hole in the statute’s protective cover. As it turned out, however, few hardrock claims were located and a succession of Interior Department secretaries declined to issue leases within wilderness, as was within their discretion under the Mineral Leasing Act. (Rasband, Salzman, and Squillace 2009, 660)

The Wilderness Act also allows the federal government to perform mineral surveys in wilderness areas (Nie 2012a).

In addition to motorized vehicles and mining, compromise-related special provisions of the Wilderness Act also involve water projects and livestock grazing (Nie 2012a). The Act allows the president to authorize “the establishment and maintenance of reservoirs, water-conservation projects, power projects, transmission lines, and other facilities needed in the public interest, including . . . road construction [necessary for such developments]” (Nie 2012a, 67). Additionally, the Wilderness Act states that “the grazing of livestock, where established prior to September 3, 1964, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture” (Nie 2012a, 67). These special provision compromises affect wilderness management and designation in the present. For example, in the case of the creation of the Owyhee Wilderness as part of the Omnibus Public Land Management Act of 2009, much collaboration and compromise were involved, and livestock grazing was allowed in the new Wilderness (Idaho Conservation League 2010).

Future wilderness designation and management will depend on compromise. Since 1994, proponents and opponents of new wilderness in the U.S. have been largely locked in a stalemate. To break this stalemate and facilitate the designation and management of more wilderness, future compromise will be needed over release language, which mandates which areas can be retained or blocked off from future wilderness designation (Rasband, Salzman, and Squillace 2009).

Senator Tester’s proposed Forest Jobs and Recreation Act is an example of a current wilderness initiative. This bill involves compromise, and in addition to creating more wilderness, it includes provisions about stewardship logging and guaranteed snowmobile access (Montanaforests.org 2012). Tester’s bill could foreshadow future wilderness compromise efforts, especially considering the fact that its passage has repeatedly failed. Will compromise cause substantive, definitive changes in wilderness designation and management for the future? Maybe not. According to Nie: “Laws based on compromise are the result of divided government and the hyperpluralistic nature of U.S. politics, ambiguous language, legal loopholes, horse-trading, and the like are used regularly to build majorities and pass laws. But the result is often legal uncertainty and continuation of politics in a different venue” (2008, 198).

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