

**LEGAL IMPLICATIONS OF FOREST MANAGEMENT
SCIENCE IN NATIONAL ENVIRONMENTAL POLICY
ACT ANALYSES**

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ABSTRACT

Science is having an increasingly influential role in shaping federal forest management policies and, consequently, forest management litigation in the United States. The National Environmental Policy Act (NEPA) requires integration of the natural and social sciences with the environmental design arts in planning and decision making, while NEPA's implementing regulations mandate accurate scientific analysis and

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scientific integrity. Insofar as forest management decisions and the impacts of those decisions are based on science, the scientific methodologies used and the accuracy of analyses in NEPA documents are targets for legal challenge. Scientific analysis has primarily fallen within the “issues of fact” realm of disputes, where the courts grant substantial deference to the informed discretion of the responsible agencies. But more recently the courts have made it clear that agency deference in technical and factual matters is not limitless. A series of recent Federal Ninth Circuit Court of Appeals rulings appeared to shift the level of deference afforded federal agencies in matters of science as applied to NEPA analyses and subsequent forest management decisions. A rare en banc review by the Ninth Circuit dramatically reversed this trend. This paper describes these past and current trends in agency deference for scientific matters and discusses the implications of courts wading ever further into the realm of scientific debate in evaluating the adequacy of NEPA analyses supporting forest management decisions.

INTRODUCTION

Science, particularly with respect to “accurate scientific analysis,” is having an increasingly influential role in shaping federal forest management policies and, consequently, forest management litigation in the United States. The primary vehicle for disclosure of scientific information used in forest management decision making is the analysis developed in compliance with the National Environmental Policy Act (NEPA).¹ NEPA requires federal agencies to “[u]tilize a systematic, interdisciplinary approach which will insure the integrated use of the *natural and social sciences* and the environmental design arts in planning and in decision-making which may have an impact on man’s environment.”² NEPA further requires federal agencies to “[i]nitiate and utilize ecological information in the planning and development of resource-oriented projects.”³

The Council on Environmental Quality (CEQ) first formulated regulations implementing NEPA in 1978.⁴ Two sections speak specifically to NEPA’s scientific analysis requirements. Section 1500.1(b) states that

1. National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321–4370 (2000).

2. *Id.* § 4332(2)(A) (emphasis added).

3. *Id.* § 4332(2)(H).

4. 40 C.F.R. §§ 1500–1508 (2007); Holly Doremus, *Scientific and Political Integrity in Environmental Policy*, 86 TEX. L. REV. 1601, 1625 (2008).

“[a]ccurate scientific analysis . . . [is] essential to implementing NEPA.”⁵ Section 1502.24, entitled “Methodology and scientific accuracy,” elaborates: “Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement.”⁶

NEPA requires preparation of a “detailed statement” (now referred to as an Environmental Impact Statement or EIS) for “major Federal actions significantly affecting the quality of the human environment.”⁷ The CEQ regulations added direction for preparation of an Environmental Assessment (EA) to, among other things, determine if impacts are significant and would therefore require preparation of an EIS.⁸ Both documents carry public notification and comment requirements and have thus become the primary vehicles for the use and public disclosure of scientific information used in analyses supporting agency decision making.⁹ Insofar as forest management decisions and the impacts of those decisions are based on science, the scientific methodologies used and the accuracy of analyses in NEPA documents are targets for legal challenge.

I. STANDARD OF REVIEW FOR NEPA CHALLENGES

Most forest management decisions fall into the realm of “informal adjudications.” While not specifically addressed in the Administrative Procedure Act (APA), such decisions were determined by the Supreme Court in *Citizens to Preserve Overton Park v. Volpe* to be reviewable under APA § 701 (Application; Definitions) and § 702 (Right of Review) and to at least warrant the minimum “safety net” standard of review of “arbitrary and capricious.”¹⁰

5. 40 C.F.R. § 1500.1(b).

6. *Id.* § 1502.24.

7. 42 U.S.C. § 4332(2)(C).

8. 40 C.F.R. 1501.4(b)–(c).

9. *See* 40 C.F.R. § 1500.1(b) (“NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.”); *see also* 40 C.F.R. § 1506.6 (regarding public involvement and notification of interested persons and agencies of the availability of environmental documents).

10. Administrative Procedure Act, 5 U.S.C. §§ 500–596 (2000); *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 410 (1971); *see also* 5 U.S.C. § 706(2)(A) (“The reviewing court shall . . . hold unlawful and set aside agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.”).

NEPA claims challenging agency decisions have primarily been held to this “arbitrary and capricious” standard.¹¹ The Federal Ninth Circuit Court of Appeals, in *Native Ecosystems Council v. U.S. Forest Service*, similarly held that “[a]gency decisions allegedly violating . . . NEPA are reviewed under the Administrative Procedure Act Under the APA, we may set aside an agency decision if it is ‘arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.’”¹² The arbitrary and capricious standard permits relatively narrow review by the courts, even though the procedural mandates of NEPA are subject to “a strict standard of compliance” that “must be rigorously enforced by the reviewing courts.”¹³ For “questions of law,” the Ninth Circuit has applied the less deferential standard of “reasonableness”¹⁴ where “[a]n agency’s decision . . . is to be upheld unless it is unreasonable.”¹⁵ In *Neighbors of Cuddy Mountain v. Alexander*, however, the Ninth Circuit stated that the “rule of reason . . . does not materially differ from an ‘arbitrary and capricious’ review.”¹⁶ For disputes primarily involving “issues of fact,” the courts often grant substantial deference to “the informed discretion of the responsible federal agencies.”¹⁷

II. FOREST MANAGEMENT SCIENCE IN NEPA ANALYSES

Since the earliest days of the U.S. Forest Service under the leadership of its first Chief, Gifford Pinchot, scientifically based forest management has been increasingly applied to public and private forest lands in the United States.¹⁸ The focus of forest management science has evolved in

11. See, e.g., *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 375–76 (1989) (“We conclude that review of the narrow question before us whether the Corps’ determination that the FEIS need not be supplemented should be set aside is controlled by the ‘arbitrary and capricious’ standard of § 706(2)(A).”).

12. *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1238 (9th Cir. 2005) (citations omitted).

13. *Calvert Cliffs Coordinating Comm. v. Atomic Energy Comm’n*, 449 F.2d 1109, 1112, 1114 (D.C. Cir. 1971).

14. *Idaho Sporting Cong., Inc. v. Rittenhouse*, 305 F.3d 957, 964 (9th Cir. 2002).

15. *Northcoast Env’tl. Ctr. v. Glickman*, 136 F.3d 660, 666 (9th Cir. 1998) (quoting *Friends of the Earth v. Hintz*, 800 F.2d 822, 836 (9th Cir. 1986)).

16. *Neighbors of Cuddy Mountain v. Alexander*, 303 F.3d 1059, 1071 (9th Cir. 2002) (citing *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998)).

17. *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 377 (1989) (citing *Kleppe v. Sierra Club*, 427 U.S. 390, 412 (1976)).

18. Scott W. Hardt, *Federal Land Management in the Twenty-First Century: From Wise Use to Wise Stewardship*, 18 HARV. ENVTL. L. REV. 345, 358 (1994) (citing HAROLD T. PINKETT, GIFFORD PINCHOT: PRIVATE AND PUBLIC FORESTER 89–95 (1970)).

concert with changing public attitudes and demands. In the construction boom following World War II, forest management science focused on increased timber productivity through intensive plantation-style planting, fertilizing, thinning, and harvest techniques.¹⁹ As this type of forest management, aided by increasing mechanization, resulted in harvests seen by many as far exceeding sustainable levels, some research attention turned to the consequences of this management approach on forest-dependent species and on forest productivity itself.²⁰

Such science has played a strong role in shaping federal agency forest management policies in the Pacific Northwest, where two regional planning efforts were conducted based on broad-scale scientific assessments aimed at understanding cumulative forest management effects. The Forest Ecosystem Management Assessment Team developed a scientifically-based model for managing northern spotted owl viability that became the core of the interagency preferred alternative (Alternative 9) in the Northwest Forest Plan.²¹ Shortly thereafter, an interagency scientific committee completed a host of scientific reports assessing the extent and possible causes of broad-scale forest health problems across the Interior Columbia Basin. Those reports, jointly referred to as the Interior Columbia Basin Scientific Assessment, formed the basis for the range of alternatives analyzed in the Interior Columbia Basin Ecosystem Management Plan/EIS.²²

19. *Id.* at 362–63 (citing PAUL J. CULHANE, PUBLIC LANDS POLITICS: INTEREST GROUP INFLUENCE ON THE FOREST SERVICE AND THE BUREAU OF LAND MANAGEMENT 41 (1981); PAUL W. GATES, HISTORY OF PUBLIC LAND LAW DEVELOPMENT 121–434, 575 (1968); ROY M. ROBBINS, OUR LANDED HERITAGE: THE PUBLIC DOMAIN, 1776–1970 (1976)).

20. A primary concern was the plantation model's reliance on harvesting at peak mean annual increment, where rapid growth in wood fiber reaches its peak and then slows as tree growth shifts from volume to density, thus eliminating the old growth component of federal forest lands. *See, e.g.*, CREATING A FORESTRY FOR THE 21ST CENTURY: THE SCIENCE OF ECOSYSTEM MANAGEMENT 1–3, 113, 167 (Kathryn A. Kohm and Jerry F. Franklin, eds. 1997) (questioning the long-term viability of the purely economic model).

21. FOREST ECOSYSTEM MGMT. ASSESSMENT TEAM, FOREST ECOSYSTEM MANAGEMENT: AN ECOLOGICAL, ECONOMIC, AND SOCIAL ASSESSMENT IV-148–IV-151 (1993); U.S. FOREST SERVICE ET AL., RECORD OF DECISION FOR AMENDMENTS TO FOREST SERVICE AND BUREAU OF LAND MANAGEMENT PLANNING DOCUMENTS WITHIN THE RANGE OF THE NORTHERN SPOTTED OWL (1994).

22. U.S. FOREST SERVICE PACIFIC NORTHWEST RESEARCH STATION, REPORT NO. PNW-GTR-382, INTEGRATED SCIENTIFIC ASSESSMENT FOR ECOSYSTEM MANAGEMENT IN THE INTERIOR COLUMBIA BASIN AND PORTIONS OF THE KLAMATH AND GREAT BASINS (Thomas M. Quigley, Richard W. Haynes & Russell T. Graham technical eds., 1996). The Interior Columbia Basin Ecosystem Management Project never reached publication of a final Record of Decision, however, since the incoming administration opted for individually incorporating the science information into the sixty-four land use plans within the project area. U.S. FOREST SERVICE ET AL., FINAL ENVIRONMENTAL IMPACT STATEMENT, PROPOSED DECISION: INTERIOR COLUMBIA BASIN ECOSYSTEM MANAGEMENT PROJECT (2000).

Since those two efforts, forest management science has been continuously updated and extended. As with any field, forest management research and studies may produce conflicting results, giving rise to scientific disagreement and uncertainty. These science-related issues, as well as concerns over the accuracy or credibility of agency-sponsored research and studies or the agency's interpretation of those studies, have led to challenges to forest management decisions purporting to rely on current science or on understanding of forest ecosystem responses to management actions.

III. SCIENCE AND AGENCY DEFERENCE UNDER NEPA

In the legal arena, scientific information and analysis have primarily fallen within the "issues of fact" realm of disputes, where courts grant substantial deference to "the informed discretion of the responsible agencies."²³ Such deference finds basis in the separation of powers doctrine, where Congress has empowered a particular agency to use its technical expertise to achieve certain statutory obligations.²⁴ The Ninth Circuit articulated the standard of review for such matters in *Alaska Wilderness Recreation and Tourism Ass'n v. Morrison*: "We affirmed in *Greenpeace Action v. Franklin* that questions involving 'resolution of factual disputes between the [agency's] scientific conclusions and those of [petitioner's] experts,' fall within the reasoning of *Marsh* and are subject to the arbitrary and capricious standard of review."²⁵ The court went on to distinguish the level of deference accorded to factual matters versus matters of law: "We find that it makes sense to distinguish the strong level of deference we accord an agency in deciding factual or technical matters from that to be accorded in disputes involving predominantly legal questions."²⁶

23. *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 377 (1989) (citing *Kleppe v. Sierra Club*, 427 U.S. 390, 412 (1976)).

24. See Mehmet K. Konar-Steenberg, *In Re Annandale and the Disconnections Between Minnesota and Federal Agency Deference*, 34 WM. MITCHELL L. REV. 1375, 1394 (2008) ("Although Chevron deference is often thought to be justified by agency technical expertise, a better argument can be made that the actual justification lies in notions of separation of powers and political accountability.").

25. *Ala. Wilderness Rec. & Tourism Ass'n v. Morrison*, 67 F.3d 723, 727 (9th Cir. 1995) (quoting *Greenpeace Action v. Franklin*, 14 F.3d 1324, 1331 (9th Cir. 1992)).

26. *Id.*

Later in *Environmental Defense Center, Inc. v. EPA*, the Ninth Circuit again affirmed strong deference to agency expertise.²⁷ Their ruling cites to the Supreme Court's ruling in *Baltimore Gas and Electric Co. v. NRDC* that "a reviewing court must generally be at its most deferential" when examining "scientific determination[s]" by the administrative agency "within its area of special expertise."²⁸ The Ninth Circuit also cited to *Chemical Manufacturers Ass'n v. EPA*, which held that "[i]t is not the role of courts to 'second-guess the scientific judgments of the EPA' . . . and we give considerable latitude to the EPA in drawing conclusions from scientific and technological research, even where it is 'imperfect' or 'preliminary.'"²⁹

Beyond agency deference, earlier courts showed a reluctance to entertain matters of scientific disagreement at all. An example is *Friends of the Earth v. Hall*, which stated that "[a] federal court is not in the business of resolving scientific disagreements between plaintiffs' experts and the [agency's] experts."³⁰ The Second Circuit Court of Appeals added that "[c]ourts should be particularly reluctant to second-guess agency choices involving scientific disputes that are in the agency's province of expertise."³¹ The Supreme Court, in *Marsh v. Oregon Natural Resources Council*, stated that "[w]hen specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive."³² Even more on point with respect to NEPA and matters of scientific controversy are some earlier Ninth Circuit opinions, which "observe . . . that 'NEPA does not require that we decide whether an [EIS] is based on the best scientific methodology available, nor does NEPA require us to resolve disagreements among various scientists as to methodology.'"³³

But more recently, the courts have made it clear that agency deference in technical and factual matters is not limitless. In *Institute for Wildlife*

27. *Envtl. Defense Ctr., Inc. v. EPA*, 344 F.3d 832, 869 (9th Cir. 2003) ("We treat EPA's decision with great deference because we are reviewing the agency's technical analysis and judgments, based on an evaluation of complex scientific data within the agency's technical expertise.").

28. *Baltimore Gas & Elec., Co. v. Natural Res. Def. Council*, 462 U.S. 87, 103 (1983).

29. *Chem. Mfr's Ass'n v. EPA*, 919 F.2d 158, 167 (D.C. Cir. 1990) (quoting *New York v. EPA*, 852 F.2d 574, 580 (D.C. Cir. 1988) and *Ethyl Corp. v. EPA*, 541 F.2d 1, 28 (D.C. Cir. 1976)).

30. *Friends of the Earth v. Hall*, 693 F. Supp. 904, 922 (W.D. Wash. 1988) (citing *Story v. Marsh*, 732 F.2d 1375, 1381 (8th Cir. 1984)).

31. *Browning-Ferris Indus., Inc. v. Muszynski*, 899 F.2d 151, 160 (2d Cir. 1990).

32. *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 378 (1989).

33. *Or. Env'tl. Council v. Kunzman*, 817 F.2d 484, 496 (9th Cir. 1987) (citing *Friends of Endangered Species, Inc. v. Jantzen*, 760 F.2d 976, 986 (9th Cir. 1985)).

Protection v. Norton, the court indicated that “[w]hile Appellees [representing the government] are correct that it is within the province of the agency to resolve scientific disputes using its expertise, the deference accorded the agency’s determination is bounded.”³⁴ A footnote discussed the government’s citation to *Brower v. Daley* for the proposition that “where there are competing expert opinions, ‘it is the prerogative of [the Secretary] to weigh those opinions and make a policy judgment based on the scientific data.’”³⁵ But the court noted that the “very next paragraph in the opinion, which Appellees do not cite, discusses the boundary of an agency’s discretion: ‘The presumption of agency expertise may be rebutted if its decisions, even though based on scientific expertise, are not reasoned.’”³⁶

IV. CURRENT NINTH CIRCUIT RULINGS INVOLVING FOREST MANAGEMENT SCIENCE

Over the past few years, a series of Ninth Circuit rulings revealed what appeared to be a shifting level of deference afforded to federal agencies in matters of science, particularly where scientific disputes or concerns were raised about the accuracy of agency science applied to analyses and subsequent forest management decisions. Since the Ninth Circuit encompasses most federal forestland in the Western United States, that court’s rulings have significant bearing on federal forest management.

In the first of these cases, *Lands Council v. Powell (Lands Council I)*, the court reviewed a challenge to a U.S. Forest Service “watershed restoration” project and found, among other things, that the agency’s scientific methodology lacked reliability.³⁷ The project was designed to “improve the aquatic, vegetative, and wildlife habitat in the Project area” or “to restore nature’s balance in the watersheds within the Project area.”³⁸ The selected alternative included logging 1,408 acres “to fund the [restoration] project.”³⁹ The court cited the “accurate scientific analysis”⁴⁰ provision in the CEQ regulations and found, first, that the agency failed to disclose known limitations in their water and sediment yields model as per

34. *Inst. for Wildlife Prot. v. Norton*, 174 Fed. App’x. 363, 366–67 (9th Cir. 2006).

35. *Id.* at 367 n.2 (citing *Brower v. Daley*, 93 F. Supp. 2d 1071, 1082–83 (N.D. Cal. 2000)).

36. *Id.*

37. *Lands Council v. Powell*, 395 F.3d 1019, 1031 (9th Cir. 2005).

38. *Id.* at 1025.

39. *Id.*

40. 40 C.F.R. § 1500.1(b) (2007).

the “incomplete and unavailable information”⁴¹ provision of the CEQ regulations.⁴² The court also found that the agency’s scientific methodology for their soils analysis, even “granted appropriate deference,” lacked “required reliability” because it was based entirely on a “spreadsheet model . . . with no on-site inspection or verification.”⁴³

Subsequently, in *Ecology Center, Inc. v. Austin*, the Ninth Circuit panel split two-to-one in similarly finding that, among other things, the U.S. Forest Service’s soil quality analysis was insufficiently reliable to satisfy NEPA and the National Forest Management Act (NFMA).⁴⁴ This case involved a post-wildfire project proposal, the Lolo National Forest Post Burn Project, that included “commercial thinning of small diameter timber and prescribed burning in old-growth forest stands, as well as salvage logging of burned and insect killed timber in various areas of the forest.”⁴⁵ The court repeatedly cited to *Lands Council I* as precedent in the area of soil quality analysis.⁴⁶ Although recognizing that “[a]n agency’s choice of methodology is entitled to deference,” the court added the qualification that “there are circumstances under which an agency’s choice of methodology, and any decision predicated on that methodology, are arbitrary and capricious. For example, we have held that in order to comply with NFMA, the Forest Service must demonstrate the reliability of its scientific methodology.”⁴⁷

The Forest Service attempted to distinguish this case from *Lands Council I* by showing that rather than relying on what *Lands Council I* described as “spreadsheet models, unaccompanied by on-site spot verification of the model’s predictions,”⁴⁸ the Lolo Post Burn Project analysis included “sufficient on-the-ground verification of its soil quality estimates.”⁴⁹ The court found such arguments unpersuasive, citing “one of the Service’s own experts” as stating that “most of the activity areas were *not* transected” and then finding that the agency’s use of “data from areas with ecological characteristics similar to the proposed harvest units” was

41. *Id.* §1502.22.

42. *Lands Council v. Powell*, 395 F.3d at 1031–32.

43. *Id.* at 1035.

44. The National Forest Management Act, 16 U.S.C. §§ 1600–1614 (2000); *Ecology Ctr., Inc. v. Austin*, 430 F.3d 1057, 1071 (9th Cir. 2005).

45. *Ecology Ctr.*, 430 F.3d at 1061.

46. *Id.* at 1069 (“We addressed a nearly identical claim, involving the same Regional Soil Quality Standard, in *Lands Council I*.”).

47. *Id.* at 1064 (citing *Lands Council v. Powell*, 395 F.3d 1019 (9th Cir. 2005)).

48. *Lands Council v. Powell*, 395 F.3d 1019, 1035 (9th Cir. 2005).

49. *Ecology Ctr., Inc. v. Austin*, 430 F.3d 1057, 1069 (9th Cir. 2005).

the “same argument” that “*Lands Council I* expressly rejected.”⁵⁰ The Forest Service further pointed to field reports indicating “that a small percentage of the activity areas were observed directly.”⁵¹ The court questioned the reliability of these reports, saying that “we do not know the qualifications of the persons conducting the field review, the methodology utilized, or whether the field observations confirmed or contradicted the Service’s estimates.”⁵² Finally, the project decision’s commitment to “verify soil conditions in the activity areas . . . before actually commencing harvest activities” was viewed by the court as (1) implying “that even the Service recognizes that its soil-quality estimates need to be verified” and (2) that such verification “post-decision fails to satisfy NEPA, because ‘NEPA requires consideration of the potential impact of an action *before* the action takes place.’”⁵³

The Ninth Circuit went one step further in a subsequent case, *Lands Council v. McNair* (also referred to as the Mission Brush Project or *Lands Council II*).⁵⁴ This case reviewed the U.S. Forest Service’s supplemental EIS prepared following—and in an attempt to comply with—the *Lands Council I* ruling for a similar forest restoration project. In a decision containing a relatively passionate “special concurrence” by one judge who questioned the prior precedents the court was obligated to follow, this court reversed the district court’s denial of an injunction, finding instead that the plaintiffs “demonstrated a probability of success on the merits and . . . further showed that the balance of hardships and the public interest favored granting the preliminary injunction.”⁵⁵

The Mission Brush Project was designed to “perform silvicultural treatments and commercial logging on 3,829 acres of forest, including restoration cutting within 277 acres of old growth stands, with the goal of trending the forest toward historic conditions.”⁵⁶ The court summarized its precedence relative to scientific methodology by first citing to *Ecology Center* and noting that “[t]he Forest Service must . . . ‘demonstrate the reliability of its scientific methodology.’”⁵⁷ The court elaborated by citing *Lands Council I*: “A reliable scientific methodology is one that the Forest

50. *Id.* at 1070.

51. *Id.*

52. *Id.*

53. *Id.* at 1071 (citing *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1380 (1998)).

54. *Lands Council v. McNair*, 494 F.3d 771 (9th Cir. 2007).

55. *Id.* at 780.

56. *Id.* at 774.

57. *Id.* at 776 (citing *Ecology Ctr.*, 430 F.3d 1057, 1064 (9th Cir. 2005)).

Service has ‘verified with observation’ and ‘on the ground analysis.’⁵⁸ It then concluded that “[t]he Forest Service may not rely on a methodology that ‘is predicated on an unverified hypothesis.’⁵⁹ Applying the foregoing precedents to this case, the court held that the Service “failed to demonstrate that the Project will not harm” several wildlife species “designated as ‘sensitive species’” and therefore, “[a]s in *Ecology Center*, the Forest Service is relying on the ‘unverified hypothesis’ that ‘treating old-growth forest is beneficial to dependent species.’⁶⁰

As in *Ecology Center*, the Forest Service attempted to distinguish this case by identifying the various field studies and reports the project analysis relied upon. The court found that “none of the documents . . . demonstrates the reliability of the . . . hypothesis that restoration treatment will benefit dependent species.”⁶¹ Specifically, it noted that the primary study, *Dawson Ridge Flammulated Owl Habitat Monitoring*, covered “a ‘relatively small area’ of flammulated owl habitat” and that “researchers received [only] a single response” or “solitary hoot.”⁶² The report itself “concluded that ‘owls are using the area,’” then “admitted that it was ‘inappropriate’ to conclude that the treatments had improved owl habitat, but found it ‘encouraging’ that an owl response had been received in the area Such responses, [the report] concluded, ‘imply’ that the harvesting practices ‘are at least *maintaining* suitable habitat.’⁶³ The court found this report “insufficient to meet the requirements of *Ecology Center*” and further faulted the study as saying “nothing about whether such treatment can create suitable habitat that dependent species will actually use.”⁶⁴

The court then indicated that the “other studies fall even shorter of meeting the *Ecology Center* standards” since none included “any observation . . . of the actual dependent species.”⁶⁵ One such study was based in British Columbia. Other documents, such as Montana Partners in Flight’s *Montana Bird Conservation Plan* and Idaho Partners in Flight’s *Idaho Bird Conservation Plan*, were characterized by the court as “not studies at all, but rather position papers and ‘conservation plans’” and definitely “not ‘on the ground analysis’ sufficient to prove the reliability of the Project’s methodology.”⁶⁶

58. *Id.* (citing *Lands Council v. Powell*, 395 F.3d 1019, 1035 (9th Cir. 2005)).

59. *Id.* (citing *Ecology Ctr.*, 430 F.3d 1057, 1064 (9th Cir. 2005)).

60. *Id.*

61. *Id.*

62. *Id.*

63. *Id.*

64. *Id.*

65. *Id.* at 777.

66. *Id.* (citing *Lands Counsel v. Powell*, 395 F.3d 1019, 1035 (9th Cir. 2005)).

V. IMPLICATIONS AND OUTCOME OF RECENT NINTH CIRCUIT TRENDS

Following from earlier deferential rulings to the more recent Ninth Circuit opinions described above, it would appear, as Circuit Judge Margaret McKeown characterized in her *Ecology Center* dissent, that each case “ratchets up the scrutiny [the Circuit judges] apply to the” Forest Service’s scientific methodology.⁶⁷ Two opposing perceptions arose from these Ninth Circuit rulings. Did they represent “an unprecedented incursion into the administrative process” that has “displaced ‘arbitrary and capricious’ review for a more demanding standard?”⁶⁸ Or conversely, did they provide long overdue judicial “recognition of the scientific accuracy provisions of [the CEQ regulations at] 40 CFR §§ 1500.1(b) and 1502.24,” which evoke NEPA § 101(b)(3)’s “precautionary principle” rather than “simply deferring to the agencies?”⁶⁹

Until July 2008, the answer within the Ninth Circuit appeared to be the latter. Each new ruling cited to the preceding cases and held the agency to the use of scientific models only if they had been verified on the ground in more than just a few of the proposed activity areas by some unspecified level of qualified field reviewers. Agency attorneys expressed frustration not only with what they viewed as waning deference relative to the scientific uncertainty inherent in almost every resource management decision, but also with the apparent shift in the burden of proof—from requiring plaintiffs to show contrary, persuasive evidence or studies that the agency had improperly disregarded, to the one best described in the *Ecology Center* court ruling itself: “While Ecology Center does not offer proof that the proposed treatment causes the harms it fears, the Service does not offer proof that the proposed treatment benefits—or at least does not harm—old-growth dependent species.”⁷⁰

Looming reactions, including growing agency frustration and ever-stronger dissenting opinions, set the stage for a possible appeal to the Supreme Court, where environmental organizations have not had much success. Although the Supreme Court had already denied *certiorari* for consideration of *Ecology Center*, some viewed *Lands Council II*’s special concurrence by one judge and the “counter concurrences” by the other two

67. *Ecology Ctr., Inc. v. Austin*, 430 F.3d 1057, 1072 (9th Cir. 2005) (McKeown, J., dissenting).

68. *Id.* These phrases from Judge Margaret McKeown’s dissent in *Ecology Center* are also cited as support for Judge Milan D. Smith’s “special concurrence” in *Lands Council II*. *Lands Council v. McNair*, 494 F.3d 771, 782 (9th Cir. 2007) (Smith, J., concurring).

69. Thomas Woodbury, lead attorney for plaintiffs in *Ecology Center*, Class Presentation at University of Montana (July 31, 2007).

70. *Ecology Ctr.*, 430 F.3d at 1063.

as compelling evidence that the Ninth Circuit had crossed the line and stepped into the role of the expert agency decision maker. Not only did these “concurring” opinions debate the details of competing scientific methodologies, they also referenced information drawn from websites and provided viewpoints colored by attitudes toward corporations and management of public forests—all beyond the record before the court.⁷¹ The heat of this particular debate may have been an important factor in the Ninth Circuit’s consent to a rare *en banc* review of the *Lands Council II* ruling, as requested by the Government.⁷² Oral arguments were heard in March 2008.⁷³ The unanimous opinion of the *en banc* review panel, filed on July 2, 2008, was a stunning reversal of the Ninth Circuit’s trend in deference afforded federal agencies in their use and interpretation of forest management science.⁷⁴ Not only did the eleven-judge panel overrule the Ninth Circuit’s prior *Lands Council II* ruling, but it also reversed several prior opinions used as precedent for that ruling.⁷⁵

The *en banc* opinion, written for the panel by the author of *Lands Council II*’s special concurrence, first described that the Ninth Circuit “took this case *en banc* to clarify some of our environmental jurisprudence with respect to our review of the actions of the United States Forest Service.”⁷⁶ It then set the stage for its ultimate conclusion on the role of the court in scientific matters:

In essence, *Lands Council* asks this court to act as a panel of scientists that instructs the Forest Service how to validate its hypotheses regarding wildlife viability, chooses among scientific studies in determining whether the Forest Service has complied with the underlying Forest Plan, and orders the agency to explain every possible scientific uncertainty. As we will explain, this is not a proper role for a federal appellate court. But *Lands Council*’s arguments illustrate how, in recent years, our environmental

71. See Michael Milstein, *Timber fight pits judge vs. judges*, THE OREGONIAN, July 25, 2007, available at <http://www.klamathbasin-crisis.org/forestsandlogging/timberfightpits072507.htm> (“The three [judges] went beyond anything lawyers discussed, looking up their own newspaper and magazine stories, Wikipedia entries and timber company Web sites to make their points.”).

72. Michael Milstein, *Judge angrily scolds court, and it responds*, THE OREGONIAN, Mar. 3, 2008, at A1, available at <http://www.klamathbasin-crisis.org/forestsandlogging/judgescold9th030308.htm>.

73. An audio file of the *en banc* hearing can be accessed at the following website address, http://www.ca9.uscourts.gov/media/view_subpage.php?pk_id=0000000832.

74. *Lands Council v. McNair*, 537 F.3d 981, 984 (9th Cir. 2008) (*en banc*).

75. *Id.* at 994.

76. *Id.* at 984.

jurisprudence has, at times, shifted away from the appropriate standard of review and could be read to suggest that this court should play such a role.⁷⁷

In reversing one of the precedential cases referred to in *Lands Council II*, the opinion states:

We made three key errors in *Ecology Center*. First, we read the holding of *Lands Council I* too broadly. Second, we created a requirement not found in any relevant statute or regulation. And, third, we defied well-established law concerning the deference we owe to agencies and their methodological choices. Today, we correct those errors.⁷⁸

The opinion elaborated that “*Ecology Center* illustrates the consequences of failing to grant appropriate deference to an agency Essentially, we assessed the quality and detail of on-site analysis and made ‘fine-grained judgments of its worth.’ It is not our proper role to conduct such an assessment.”⁷⁹ The court offered that “[i]nstead, our proper role is simply to ensure that the Forest Service made no ‘clear error of judgment’ that would render its action ‘arbitrary and capricious.’”⁸⁰ It concluded that “[t]his approach respects our law that requires us to defer to an agency’s determination in an area involving a ‘high level of technical expertise.’ We are to be ‘most deferential’ when the agency is ‘making predictions, within its [area of] special expertise, at the frontiers of science.’”⁸¹

Finally, the *en banc* opinion confirmed its alignment with other circuits in matters of agency deference, stating that “[a] number of our sister circuits agree that we are to conduct a ‘particularly deferential review’ of an ‘agency’s predictive judgments about areas that are within the agency’s field of discretion and expertise . . . as long as they are reasonable.’”⁸² The

77. *Id.* at 988.

78. *Id.* at 991.

79. *Id.* at 992–93 (citing *Ecology Ctr. v. Austin*, 430 F.3d 1057, 1077 (9th Cir. 2005) (McKeown, J., dissenting)).

80. *Id.* at 993 (citing *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 378 (1989)).

81. *Id.* (citing *Forest Guardians v. U.S. Forest Serv.*, 329 F.3d 1089, 1099 (9th Cir. 2003); *Selkirk Conservation Alliance v. Forsgren*, 336 F.3d 944, 954 (9th Cir. 2003)).

82. *Id.* (citing *Earthlink Inc. v. FCC*, 462 F.3d 1, 12 (D.C. Cir. 2006)); see *Cellnet Commc’ns, Inc. v. FCC*, 149 F.3d 429, 441 (6th Cir. 1998) (“It is well-established that under the arbitrary and capricious standard of review, an agency’s predictive judgments about areas that are within the agency’s field of discretion and expertise are entitled to particularly deferential review.”); *W. Fuels-III, Inc. v. ICC*, 878 F.2d 1025, 1030 (7th Cir. 1989) (noting the high deferential standard afforded agency decisions within their field of expertise).

opinion ultimately affirmed the district court's denial of Lands Council's request for a preliminary injunction.⁸³

CONCLUSION

It is clear that there is no bright line of deference afforded to federal agencies in the realm of scientific methodologies. It is equally clear that once the step is taken "into the weeds" of selected scientific analyses, it is not difficult to find fault or disagree with a host of the choices that must be made, such as sampling techniques, data resolution, confidence levels, extrapolation of data, and interpretation of results. Such inquiry has been the role of scientific debate through history. Given unlimited time and money, and no competing social demands, who could argue with anything less than one hundred percent sampling or attainment of the highest feasible confidence levels using the most exacting research techniques? But our land managing agencies are not so unencumbered, and the question then becomes whether it is the proper role of the courts to be wading into these weeds in the first place.

Those challenging forest management decisions may view the subjects of these recent Ninth Circuit cases as particularly egregious examples of slipshod science falling short of congressional intent as interpreted through the accurate scientific analysis provisions of the CEQ regulations. But earlier deferential rulings concluded that "[w]hen specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive."⁸⁴ Such deference has basis in the fundamental separation of powers doctrine and the avoidance of creating statutory obligations where Congress did not intend. The recent *en banc* opinion confirmed, for the Ninth Circuit, that "act[ing] as a panel of scientists . . . is not a proper role for a federal appellate court."⁸⁵

Issues of agency deference relative to the accuracy of their scientific information will no doubt reemerge in various forms as forest management science continues to evolve.⁸⁶ In the meantime, NEPA will continue to be

83. *Id.* at 1006.

84. *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 378 (1989).

85. *Lands Council v. McNair*, 537 F.3d 981, 988 (9th Cir. 2008) (*en banc*).

86. For example, while the *en banc* panel was reconsidering *Lands Council II*, another Ninth Circuit panel rejected claims that NEPA's scientific accuracy provisions require that scientific methodologies be "peer reviewed." The court found "no legal requirement that a methodology be 'peer-reviewed or published in a credible source.'" The plaintiffs cited NEPA regulations at 40 C.F.R. § 1500.1(b) and § 1502.24, but the court found that "those regulations contain no such

the instrument for disclosure of, and subsequent litigation over, scientific information supporting impact analyses and achievement of substantive provisions of such public land management laws as NFMA and Federal Land Policy and Management Act.⁸⁷ For now, the Ninth and other “circuits agree that [courts] are to conduct a ‘particularly deferential review’ of an ‘agency’s predictive judgments about areas that are within the agency’s field of discretion and expertise’”⁸⁸ as long as the agency “explain[s] the conclusions it has drawn from its chosen methodology, and the reasons it considers the underlying evidence to be reliable.”⁸⁹

requirements and do not even mention peer review or publication.” *Lands Council v. Martin*, 529 F.3d 1219, 1226 (9th Cir. 2008).

87. *See* Federal Land Policy and Management Act, 43 U.S.C. §§ 1701–85 (2000) (applying primarily to land managed by the Secretary of the Interior through the Bureau of Land Management).

88. *Lands Council v. McNair*, 537 F.3d at 993.

89. *Id.* at 994.