

FOR PUBLICATION
UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

THE LANDS COUNCIL, a Washington
nonprofit corporation; KOOTENAI
ENVIRONMENTAL ALLIANCE, an
Idaho nonprofit corporation; THE
ECOLOGY CENTER, a Montana
nonprofit corporation; IDAHO
SPORTING CONGRESS, INC., an Idaho
nonprofit corporation,

Plaintiffs-Appellants,

v.

BRADLEY POWELL, Regional
Forester of Region One of the
U.S. Forest Service; UNITED
STATES FOREST SERVICE, an agency
of the United States,

Defendants-Appellees.

No. 03-35640

D.C. No.
CV-02-00517-EJL

OPINION

Appeal from the United States District Court
for the District of Idaho
Edward J. Lodge, District Judge, Presiding

Argued and Submitted
March 30, 2004—Seattle, Washington

Filed August 13, 2004

Before: William C. Canby, Kim McLane Wardlaw, and
Ronald M. Gould, Circuit Judges.

Opinion by Judge Gould

COUNSEL

Thomas J. Woodbury, Forest Defense P.C., Missoula, Montana, for the plaintiffs-appellants.

Ronald M. Spritzer, Environmental and Natural Resources Division, United States Department of Justice, Washington, D.C., for the defendants-appellees.

OPINION

GOULD, Circuit Judge:

Appellants Lands Council, Kootenai Environmental Alliance, Ecology Center, and Idaho Sporting Congress, Inc. (collectively “the Lands Council”) challenge the timber harvest approved by the United States Forest Service (“Forest Service”) as part of a “watershed restoration” project in the Idaho Panhandle National Forest (“the Forest” or “IPNF”). The district court granted summary judgment in favor of the Forest Service, finding that it had complied with the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.* (“NEPA”) and the National Forest Management Act, 16 U.S.C. § 1601 *et seq.* (NFMA), and thus did not act arbitrarily and capriciously by approving the plan. For the reasons discussed below, we reverse the decision of the district court and grant summary judgment in favor of Lands Council.

I

The Lands Council contests a decision of the United States Forest Service to proceed with Modified Alternative Eight of the Iron Honey Project (“Project”). The Project area is at the headwaters of the Little North Fork of the Coeur d’Alene River, and the fourteen watersheds within the Project area account for one-fifth of the watershed¹ of the Little North Fork. In the Little North Fork watershed, 39,977 acres of National Forest have been logged since 1960. As a result of

¹A “watershed” is the whole gathering ground of a river system; i.e., the geographic area from which any river or creek draws its flow. The New Shorter Oxford English Dictionary 3636 (Thumb Index ed. 1993).

this intense logging, all but two of the fourteen watersheds within the Project area either are not functioning or are functioning at risk. The Project is designed to improve the aquatic, vegetative, and wildlife habitat in the Project area. Stated another way, this is a project designed to restore nature's balance in the watersheds within the Project area.² This is no easy task because of past environmental degradation. Nonetheless, the Lands Council is troubled that the selected alternative allows the logging of 17.5 million board feet of lumber from 1,408 acres of the Idaho Panhandle National Forest in order to fund the project.

The Forest Service began scoping³ the Project in 1996 as a watershed restoration project. In April 2000, a Draft Environmental Impact Statement for the Project was released. After receiving comments, the Final Environmental Impact Statement was released in November 2001. The Final Environmental Impact Statement included several alternatives. In February 2002, the Supervisor of the IPNF issued a Record of Decision that selected Modified Alternative Eight. Modified Alternative Eight anticipates creating 17.5 million board feet of commercial lumber by shelterwood⁴ harvesting of 1,408

²Unlike other types of federal conservation statutes, the law regulating the use of national forests embraces concepts of "multiple use" and "sustained yield of products and services." 16 U.S.C. § 1607. The Forest Service is obligated to balance competing demands on national forests, including timber harvesting, recreational use, and environmental preservation. 16 U.S.C. §§ 528-31. "The national forests, unlike national parks, are not wholly dedicated to recreational and environmental values." *Cronin v. United States Dept. of Ag.*, 919 F.2d 439, 444 (7th Cir. 1990).

³"Scoping" describes when an agency begins initial consideration of a project, and identifies the significant issues related to the contemplated action. *See* 40 C.F.R. § 1501.7. Scoping typically happens after an agency decides to complete an Environmental Impact Statement and serves to identify the major issues the Environmental Impact Statement should cover. *Id.* The Forest Service conducts scoping on all proposed actions. *Alaska Ctr. for the Env't v. United States Forest Serv.*, 189 F.3d 851, 858 (9th Cir. 1999).

⁴Shelterwood harvesting cuts the majority, but not all, of the trees in a given harvesting site. *The New Shorter Oxford English Dictionary* 2822

acres. Modified Alternative Eight would also build 0.2 miles of new road, 2 miles of temporary road, and reconstruct 29 miles of already existing roads.

The Lands Council filed an administrative appeal with the Regional Forester of Region One of the Forest Service. The appeal was denied on May 15, 2002.

The Lands Council then commenced this action pursuant to the Administrative Procedure Act (“APA”), 5 U.S.C. § 701 *et seq.*, seeking review of the project on grounds that the Project violates NEPA and NFMA. As part of the action, the Lands Council attempted to supplement the administrative record by deposing an employee of the United States Geological Survey. The Forest Service filed a motion to quash, and following briefing on the question, the United States District Court for the District of Idaho quashed the subpoena and prohibited the Lands Council from offering evidence outside of the administrative record. On subsequent cross-motions for summary judgment, the district court granted summary judgment to the Forest Service. This appeal timely followed. We have jurisdiction pursuant to 28 U.S.C. § 1291, and we reverse.

II

We review the district court’s decision to grant summary judgment *de novo* with all facts read in the light most favorable to the non-moving party. *Covington v. Jefferson County*, 358 F.3d 626, 641 n.22 (9th Cir. 2004). Because this is a record review case, we may direct that summary judgment be granted to either party based upon our *de novo* review of the administrative record. *Cf. Sierra Club v. Babbitt*, 65 F.3d 1502, 1507 (9th Cir. 1995) (“*De novo* review of a district

(Thumb Index ed. 1993). The version of shelterwood harvesting in the Project called for seventy percent of the canopy to be removed in the areas to be logged.

court judgment concerning a decision of an administrative agency means we review the case from the same position as the district court.”). Under the APA, we will reverse the agency action only if the action is arbitrary, capricious, an abuse of discretion, or otherwise contrary to law. 5 U.S.C. § 706(2).⁵ An agency’s action is arbitrary and capricious if the agency fails to consider an important aspect of a problem, if the agency offers an explanation for the decision that is contrary to the evidence, if the agency’s decision is so implausible that it could not be ascribed to a difference in view or be the product of agency expertise, *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983), or if the agency’s decision is contrary to the governing law. 5 U.S.C. § 706(2).

III

The Lands Council first challenges the NEPA analysis conducted by the Forest Service. The Lands Council asserts that the Forest Service did not comply with the requirements of NEPA when the Forest Service prepared an incomplete Environmental Impact Statement. The Lands Council urges error both in the Forest Service’s cumulative effects analysis of the Project and in the scientific methodology employed by the Forest Service.

⁵The Lands Council urges that we apply the “rule of reason” standard, *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998), instead of the arbitrary and capricious standard. However, we have more recently held that the rule of reason standard does not materially differ from arbitrary and capricious review. *Neighbors of Cuddy Mountain v. Alexander*, 303 F.3d 1059, 1071 (9th Cir. 2002). Because the Supreme Court has reviewed the adequacy of NEPA analysis under the arbitrary and capricious standard, *e.g.*, *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 377 (1989), we will do the same.

A

NEPA was passed by Congress to protect the environment by requiring that federal agencies carefully weigh environmental considerations and consider potential alternatives to the proposed action before the government launches any major federal action.

[1] NEPA imposes procedural requirements, but not substantive outcomes, on agency action. *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 371 (1989). For any proposed major federal action, and it is not disputed that the Project qualifies as such, NEPA requires the agency to prepare an Environmental Impact Statement. 42 U.S.C. § 4332. “NEPA requires that a federal agency consider every significant aspect of the environmental impact of a proposed action . . . [and] inform the public that it has indeed considered environmental concerns in its decisionmaking process.” *Earth Island Inst. v. United States Forest Serv.*, 351 F.3d 1291, 1300 (9th Cir. 2003) (internal quotation marks omitted). “In order to accomplish this, NEPA imposes procedural requirements designed to force agencies to take a ‘hard look’ at environmental consequences.” *Id.*

B

[2] Cumulative effects analysis requires the Final Environmental Impact Statement to analyze the impact of a proposed project in light of that project’s interaction with the effects of past, current, and reasonably foreseeable future projects. *See* 40 C.F.R. § 1508.7. The Lands Council contends that the Final Environmental Impact Statement did not take a “hard look” at the cumulative effects of the Project in four areas: (1) prior timber harvests; (2) reasonably foreseeable future timber harvests; (3) the possibility of toxic sediment transport; and (4) impact on Westslope Cutthroat Trout. The Forest Service argues that its review of all issues was sufficient and that it properly “analyzed the impact of a proposed project in light

of that project's interaction with the effects of past, current, and reasonably foreseeable future projects." See 40 C.F.R. § 1508.7. Upon consideration, we conclude that the Forest Service failed to take its required "hard look" with respect to prior timber harvests and the impact on the Westslope Cutthroat Trout.

1. *Prior Timber Harvests*

The Lands Council first argues that the Final Environmental Impact Statement section on the cumulative impacts of past timber harvests is "particularly vague and lacking in any detailed discussion" because the Forest Service did not note in detail past timber harvesting projects and the impact of those projects on the Little North Fork watershed. We agree. The Final Environmental Impact Statement generally describes the past timber harvests, gives the total acres cut, with types of cutting, per decade, and asserts that timber harvests have contributed to the environmental problems in the Project area. But there is no catalog of past projects and no discussion of how those projects (and differences between the projects) have harmed the environment. Apart from a map in the Project file that shows past harvests, with general notes about total acres cut per watershed, there is no listing of individual past timber harvests. Moreover, there is no discussion of the connection between individual harvests and the prior environmental harms from those harvests that the Forest Service now acknowledges. Instead, the Final Environmental Impact Statement contains only vague discussion of the general impact of prior timber harvesting, and no discussion of the environmental impact from past projects on an individual basis, which might have informed analysis about alternatives presented for the current project.

When we consider the purposes that NEPA was designed by Congress to serve, what was done here is inadequate. Congress wanted each federal agency spearheading a major federal project to put on the table, for the deciding agency's and

for the public's view, a sufficiently detailed statement of environmental impacts and alternatives so as to permit informed decision making. The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a "hard look" by the agency, and thereby to permit informed public comment on proposed action and any choices or alternatives that might be pursued with less environmental harm. To this end, we have previously held that NEPA requires adequate cataloging of relevant past projects in the area. *Muckleshoot Indian Tribe v. United States Forest Serv.*, 177 F.3d 800, 809-10 (9th Cir. 1999) ("[A]n EIS must catalogue adequately the relevant past projects in the area. . . . Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions." (internal citation and quotation marks omitted)). Stated differently, the general rule under NEPA is that, in assessing cumulative effects, the Environmental Impact Statement must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. See *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1379-80 (9th Cir. 1998); *City of Caramel-By-The-Sea v. United States Dept. of Transp.*, 123 F.3d 1142, 1160-61 (9th Cir. 1997).

The issue then is whether the description of past timber harvests and previous environmental harms caused by these past timber harvests was set forth in sufficient detail to promote an informed assessment of environmental considerations and policy choices by the public and agency personnel upon review of the Final Environmental Impact Statement.

[3] Here, while the Final Environmental Impact Statement discloses tables with types of past harvesting, there was no inclusion of the specific projects that comprise the totals. Though the Forest Service asserts that the Final Environmental Impact Statement had a "comprehensive accounting" of past timber harvests, in fact the prior harvests from different

projects were not separately discussed, neither as to their method of harvest, nor as to the consequences of each. Although the agency acknowledged broad environmental harms from prior harvesting, the data disclosed would not aid the public in assessing whether one form or another of harvest would assist the planned forest restoration with minimal environmental harm. For the public and agency personnel to adequately evaluate the cumulative effects of past timber harvests, the Final Environmental Impact Statement should have provided adequate data of the time, type, place, and scale of past timber harvests⁶ and should have explained in sufficient detail how different project plans and harvest methods affected the environment. The Forest Service did not do this, and NEPA requires otherwise.⁷ *Muckleshoot*, 177 F.3d at 809-10.

2. *Reasonably Foreseeable Future Timber Harvests*

The Lands Council asserts that while the Final Environmental Impact Statement lists only one future timber harvest in the “reasonably foreseeable projects” discussion, there are other future harvests that should have been included in this section of the cumulative effects analysis. Lands Council points to the Deerfoot Ridge Restoration Project, scoped six-

⁶This was not difficult data to generate, as is apparent by the Forest Service’s response to the Freedom of Information Act request from the Lands Council.

⁷The Forest Service contends that by not raising this issue in the comments to the Draft Environmental Impact Statement, the Lands Council has waived the argument. In our view, however, the Lands Council expressly and adequately raised and preserved this issue. For example, Lands Council commented on the Draft Environmental Impact Statement that the maps supplied did not display all past logging, which was keyed to method, to assess environmental impacts; the Forest Service replied that such a list was in the Project Files. This list was not provided in the Final Environmental Impact Statement, and the Forest Service’s response shows that the Lands Council raised the issue and the current objection to the Final Environmental Impact Statement is not waived.

teen days after the Record of Decision was issued in this case, and the Forest's 1998 Geographic Assessment, which recommends clear-cut harvesting in the Upper Little North Fork area. Because the Final Environmental Impact Statement must include cumulative effects discussion for "reasonably foreseeable projects," 40 C.F.R. § 1508.7, we must determine whether these two potential projects are "reasonably foreseeable."

Our precedent defines "reasonably foreseeable" in this context to include only "proposed actions." *Or. Natural Res. Council v. Marsh*, 832 F.2d 1489, 1498 (9th Cir. 1987), *rev'd on other grounds*, 490 U.S. 360 (1989). This rule makes sense: The agency is required to analyze the cumulative effects of projects that it is already proposing. For any project that is not yet proposed, and is more remote in time, however, a cumulative effects analysis would be both speculative and premature. By contrast, any future project, once proposed, becomes more concrete and less speculative, and thus, would be subject to NEPA's cumulative effects analysis. Further, at the time it was proposed, if it is a major federal action, its NEPA assessment would be obligated to include all past projects in the cumulative effects analysis.

[4] Here, of the future projects that the Lands Council urges were improperly ignored, none appears to have been proposed or scoped at the date of the Final Environmental Impact Statement, with one exception.⁸ Under these circumstances, the Forest Service acted within its discretion when it did not analyze the projects cited by the Lands Council.

⁸Scoping occurs after there is a proposed project. 40 C.F.R. § 1501.7. Although the Administrative Record is not clear on this matter, the Deerfoot Ridge Restoration Project could have been proposed at the time of the Final Environmental Impact Statement and Record of Decision because scoping occurred so soon after the Record of Decision in this case. If such is the case, then the Deerfoot Ridge Restoration Project should have been included as a reasonably foreseeable activity.

3. *Possibility of Toxic Sediment Transport*

Lands Council argues that cumulative effects analysis did not consider the risk of increased peak flows in the relevant watersheds caused by “rain-on-snow” events⁹ that could churn up toxic sediments downstream at the confluence of the North and South Forks of the Coeur d’Alene River. The evidence proffered to the district court demonstrated the risks of “peak flows”¹⁰ from the North Fork which scoop up toxic sediments from the heavily contaminated South Fork of the Coeur d’Alene River and deposit the contamination in Lake Coeur d’Alene and/or the Spokane River. Further, the proffered evidence showed that the Project would increase the amount and intensity of such peak flows, increasing the possible risk of toxic sediment transportation. The Lands Council argues that the district court erred by refusing to admit new evidence of this risk, and that had the evidence been admitted, it would have shown that the Forest Service did not address a substantial environmental risk posed by the Project. The Forest Service argues that the administrative record is complete, with no need of supplementation, and that district court did not err in limiting consideration to the administrative record.

The Lands Council’s enthusiastic argument pressing evidence that the Forest Service did not consider stands at odds

⁹“Rain-on-snow” events occur when rain melts a significant amount of snow that has accumulated in the holes or gaps in a forest. This melting causes a spike in runoff and water flow in watersheds. Increased water flows are reflected in greater velocity and volume of water; the water runs faster and there is more of it. The result is massive sediment deposit in a watershed. Clearcutting and shelterwood harvesting increase both the likelihood and severity of such events by opening up the necessary gaps in the forest. See, e.g., Brian Connelly, *The Cumulative Effects of Forest Management on Peak Flows During Rain-on-Snow Events*, at <http://depts.washington.edu/cwws/Theses/connelly.html> (1992) (abstract of a theses studying this phenomenon).

¹⁰“Peak flows,” often measured in cubic feet (of water) per second, are the highest volume of water passing a given point at a given time.

with the norms of administrative law and typical judicial review of agency action.¹¹ As the district court below correctly noted, the Supreme Court has expressed a general rule that courts reviewing an agency decision are limited to the administrative record. *Fla. Power & Light Co. v. Lorion*, 470 U.S. 729, 743-44 (1985). We have previously stated that “[j]udicial review of an agency decision typically focuses on the administrative record in existence at the time of the decision and does not encompass any part of the record that is made initially in the reviewing court.” *Southwest Ctr. for Biological Diversity v. United States Forest Serv.*, 100 F.3d 1443, 1450 (9th Cir. 1996). This general rule derives from our statutory role to review an agency’s action. See *Fla. Power & Light Co.*, 470 U.S. at 743-44 (“The task of the reviewing court is to apply the appropriate APA standard of review to the agency decision based on the record the agency presents to the reviewing court.”) (internal citation omitted).

We have, however, crafted narrow exceptions to this general rule. In limited circumstances, district courts are permitted to admit extra-record evidence: (1) if admission is necessary to determine “whether the agency has considered all relevant factors and has explained its decision,” (2) if “the agency has relied on documents not in the record,” (3) “when supplementing the record is necessary to explain technical terms or complex subject matter,” or (4) “when plaintiffs make a showing of agency bad faith.” *Southwest Ctr.*, 100 F.3d at 1450 (internal citation and quotation marks omitted).¹² These limited exceptions operate to identify and plug holes in the administrative record. Though widely accepted, these exceptions are narrowly construed and applied. See, e.g.,

¹¹Normally, if an Agency’s administrative record is incomplete, we would expect litigants to seek to supplement the record in the agency before seeking to expand the record before the district court.

¹²A district court’s decision whether to admit extra-record evidence is reviewed for abuse of discretion. *Southwest Ctr. for Biological Diversity*, 100 F.3d at 1447.

Camp v. Pitts, 411 U.S. 138, 142-43 (1973) (holding that a reviewing court may require supplementation of the administrative record if it is incomplete); *USA Group Loan Servs., Inc. v. Riley*, 82 F.3d 708, 715 (7th Cir. 1996) (holding that a “court is supposed to make its decision on the basis of the administrative record,” but that “[t]here are exceptions”) (citing *Animal Def. Council v. Hodel*, 840 F.2d 1432, 1436 (9th Cir. 1988), *amended by*, 867 F.2d 1244 (1989)).

The scope of these exceptions permitted by our precedent is constrained, so that the exception does not undermine the general rule. Were the federal courts routinely or liberally to admit new evidence when reviewing agency decisions, it would be obvious that the federal courts would be proceeding, in effect, *de novo* rather than with the proper deference to agency processes, expertise, and decision-making.

[5] Here, the risks presented by the supplemental evidence are serious, because the evidence purports to show that the risk of toxic sediment transport would be increased by the Project, thereby creating risks to the public downstream. Yet it is not entirely clear that Lands Council could not have moved the agency to supplement its record with this evidence.

[6] Given the difficulty of this issue, we decline to answer it without necessity. We need not address the extra-record evidence issue because we have determined that there are other bases for reversing the district court and enjoining the Project. The Lands Council’s arguments and evidence can be submitted to the Forest Service, and be made part of the administrative record, if and when the Forest Service conducts a new NEPA analysis of the Project.

4. *Cumulative Effects on Westslope Cutthroat Trout*

Finally, the Lands Council challenges the cumulative effects analysis on the Westslope Cutthroat Trout.¹³ The

¹³“Westslope Cutthroat Trout (*Oncorhynchus clarki lewisi*, Salmonidae) are native to the upper Columbia, Missouri, and South Saskatchewan river

Lands Council contests the lack of up-to-date habitat information in the administrative record because the last survey of the Westslope Cutthroat Trout's habitat conditions was taken thirteen years ago. The Forest Service counters that it conducted fish count surveys in 1993, 1994, 1996, and 1997.¹⁴

The evidence of fish count surveys is unavailing. While these fish count surveys are at least six years old, and reliance on them is suspect, the Final Environmental Impact Statement discloses no recent survey of the habitat of the Westslope Cutthroat Trout. Evidence of the current habitat conditions, and any degradation or improvement in the last thirteen years, is relevant evidence in analyzing and determining what, if any, impact the current Project will have on the cumulative effect of current and past timber harvesting on trout habitat and on trout population. Instead, the Forest Service predicted the Project's impact on the Westslope Cutthroat Trout (and its habitat) using stale habitat data.

[7] We do not suggest that all data relied upon by the agency be immediate, but here the data about the habitat of the Westslope Cutthroat Trout was too outdated to carry the weight assigned to it. We conclude that the lack of up-to-date evidence on this relevant question prevented the Forest Service from making an accurate cumulative impact assessment of the Project on the habitat and population of the Westslope Cutthroat Trout. *See Seattle Audubon Soc'y v. Espy*, 998 F.2d

drainages of western North America and are at the northern periphery of their range in southeastern British Columbia, Canada." E. B. Taylor et al., *Population Subdivision in Westslope Cutthroat Trout (Oncorhynchus clarki lewisi) at the Northern Periphery of its Range: Evolutionary Inferences and Conservation Implications*, 12 *Molecular Ecology* 2609, 2609 (2003) (available at <http://www.zoology.ubc.ca/~etaylor/wsct2003.pdf>). This sub-species was scientifically described by Lewis and Clark, whose cohort ate well on these fish.

¹⁴Fish habitat surveys analyze the habitat conditions for potential fish. Fish surveys count (or estimate) the actual number of fish in a watershed.

699, 704-05 (9th Cir. 1993) (overturning an agency decision when it rested on “stale scientific evidence”).

C

Lands Council argues that the scientific methodology used by the Forest Service in conducting its NEPA analysis was flawed and therefore violated NEPA. We agree that the WATSED model did contain faulty analysis, but defer decision as to the Forest Service’s sediment reduction analysis.

1. *The WATSED Model*

The Lands Council first claims that the Final Environmental Impact Statement’s cumulative effects analysis of in-stream sedimentation is arbitrary because the Water and Sediment Yields (“WATSED”) model¹⁵ used by the Forest Service was incomplete and ignored key variables such as high peak flow analysis, in-channel and streambank erosion, and “rain-on-snow” peak flow events. Moreover, Lands Council argues that the fact that the model was incomplete was never disclosed. The Forest Service rejoins that this is a technical dispute and that courts routinely uphold modeling.

NEPA requires that the Environmental Impact Statement contain high-quality information and accurate scientific analysis. 40 C.F.R. § 1500.1(b). If there is incomplete or unavailable relevant data, the Environmental Impact Statement must disclose this fact. 40 C.F.R. § 1502.22. The government concedes that the WATSED model does not include relevant variables in determining total sedimentation of the watershed and that WATSED does not have variables to predict the effects of large-scale, high-intensity, short-term peak flows. Although there are some disclosures of the model’s shortcom-

¹⁵“WATSED” is the model the Forest Service used to estimate the cumulative effects of the Project on water yield, peak flows, and sediment yield.

ings in an appendix to the Final Environmental Impact Statement,¹⁶ nowhere do the disclosures cover the limitations of WATSED shown by the Lands Council and now conceded by the Forest Service.

[8] The Forest Service's heavy reliance on the WATSED model in this case does not meet the regulatory requirements because there was inadequate disclosure that the model's consideration of relevant variables is incomplete. Moreover, the Forest Service knew that WATSED had shortcomings, and yet did not disclose these shortcomings until the agency's decision was challenged on the administrative appeal.¹⁷ We hold that this withholding of information violated NEPA, which requires up-front disclosures of relevant shortcomings in the data or models. *See* 40 C.F.R. § 1502.22; *Lands Council v. Vaught*, 198 F. Supp. 2d 1211, 1239 (E.D. Wash. 2002) (finding the same WATSED shortcomings and holding that the Environmental Impact Statement failed to disclose such shortcomings).

2. *The Forest Service's Sediment Reduction Analysis*

The Lands Council next argues that the EPA's methodology in calculating the sediment reduction for the Project was faulty and that the district court erred in excluding evidence supporting this contention. The Lands Council proffered evidence to the district court that, if admitted, would tend to show that the Forest Service "overstated" the amount of

¹⁶For example, Appendix D to the Final Environmental Impact Statement notes that WATSED estimates cumulative effect based on the average, measured response of the watersheds used to develop the model and that different watersheds react in different ways.

¹⁷Unlike the general disclosure language in the appendix to the Final Environmental Impact Statement, the "Appeal Transmittal Letter," sent by Forest Service staff to the Regional Forester in response to the administrative appeal, states: "WATSED is not intended to estimate events, or instantaneous pulses."

reduced sedimentation from the Project's culvert replacement.¹⁸ The Lands Council sought to demonstrate that many of the Project area's culverts were not likely to fail; that when the culverts did fail, 100 percent of the sediment would not be washed downstream; and that the Forest Service asserted that it was replacing more culverts than its records indicated existed in the Project area.

On this issue as above explained in Part III.A.3, the Lands Council urges us to make an exception to the general rule of administrative review. Again we need not decide this issue, because we have already held that NEPA was not satisfied. The Lands Council may submit its evidence to the administrative record if and when the Forest Service conducts a new NEPA analysis on this Project.

IV

The Lands Council next attacks the Project's compliance with the NFMA. NFMA requires the Forest Service to create a comprehensive Forest Plan for each national forest, *see* 16 U.S.C. §§ 1604(a), (e); *Inland Empire Pub. Lands Council v. United States Forest Serv.*, 88 F.3d 754, 757 (9th Cir. 1996) (describing how the Forest Service first develops a Forest Plan or Land Resource Management Plan consistent with the requirements of NFMA), and once the Forest Plan is adopted, NFMA prohibits any site-specific activities that are inconsistent with the Forest Plan. *Inland Empire Pub. Lands Council*, 88 F.3d at 757 (“[S]ite-specific projects must be consistent with the stage-one, forest-wide plan.”). The Lands Council contends that the Project does not comply with the Forest Plan in three areas: Protection of fisheries; soils impact; and old-growth species viability. We address each in turn.

¹⁸One of the major improvements contemplated by the Project is to use the money generated from timber harvests to replace or upgrade the existing culverts in the Project area.

A

The Lands Council first argues that the Forest Service did not comply with the portion of the IPNF Forest Plan that protects fisheries within the forest. The Forest Plan incorporates an 80 percent success rate for fry emergence¹⁹ as a measure of the health of the fisheries. The Lands Council asserts that, pursuant to the NFMA, the Forest Service had a duty to analyze whether the project would meet the fry emergence standard within the Forest Plan. The Forest Service concedes that it did not analyze the Project under the fry emergence standard, but argues that it did have to do so.

In 1995, the Forest Service amended the Forest Plan to incorporate the Inland Native Fish Strategy (“INFISH”). INFISH creates buffer zones in Riparian Habitat Conservation Areas where the INFISH standards limit timber harvest and minimize road construction to lessen sediment delivery to streams. *See Inland Native Fish Strategy: Decision Notice and Finding of No Significant Impact A-5—A-7* (1995).²⁰ INFISH also stated that “[the INFISH] interim standards and guidelines replace existing conflicting direction [in Forest Plans] except where Forest Plan direction provides for more protection for inland native fish habitat.” *Inland Native Fish Strategy: Decision Notice and Finding of No Significant Impact* (1995); *see also* Inland Native Fish Strategy, 60 Fed. Reg. 43758 (Aug. 23, 1995) (publishing the Finding of No Significant Impact).

The issue is whether the INFISH amendment supersedes, or

¹⁹An eighty percent success rate means that eighty percent of hatched fish fry can escape the sediment that has settled on top of the eggs during incubation. If too much sediment has settled on the eggs during incubation, the fry will suffocate before breaking through the sediment.

²⁰It is unclear from the record whether some or all of the watersheds in the Project area have been classified as Riparian Habitat Conservation Areas to which INFISH applies.

instead supplements, the Forest Plan's existing fry emergence standard. If the fry emergence standard is not implicitly superseded by INFISH, then the Forest Service's decision must be set aside because the fry emergence standard was never evaluated in the Final Environmental Impact Statement. *Neighbors of Cuddy Mountain*, 137 F.3d 1372. The Forest Service argues that the two standards are in conflict, and that the fry emergence rule is less strict, and therefore that INFISH superseded the fry emergence standard. The Lands Council argue to the contrary.

INFISH itself describes our framework for analysis. We must first determine whether INFISH and the fry emergence standard are in conflict. If they are, then we must determine if the fry emergence standard "provides for more protection" than INFISH alone.

The Lands Council has the better of the argument. The two standards do not necessarily conflict. The INFISH standard tries to minimize sediment deposits by limiting where timber harvest may take place within the National Forest. The emerging fry standard requires corrective actions if a certain sedimentation threshold is met. There is no explicit rejection of the fry emergence standard in the INFISH requirements. There is also no implicit rejection, because both standards can be met in all cases: The INFISH standard will always be required and, in addition, the fry emergence standard will apply when cumulative sedimentation thresholds reach a prescribed level. Because the INFISH standard and the fry emergence standard measure different variables, are triggered by different conditions, and have different remedies, applying both to this, or any conceivable, project presents no conflict.

[9] The Forest Service asserts that we owe its interpretation deference as a reasonable interpretation of an ambiguity in a Forest Plan. *See Idaho Sporting Cong.*, 137 F.3d at 1154. There is no call for deference to the agency's legal interpretation of these two standards, however, because neither the

scope nor the effect of the two standards is ambiguous. *See, e.g., The Wilderness Society v. United States Fish & Wildlife Serv.*, 353 F.3d 1051, 1059 (9th Cir. 2003) (en banc), *amended by*, 360 F.3d 1374 (9th Cir. 2004). Because the fry emergence standard does not conflict with INFISH, the Forest Service's decision should have considered the fry emergence standard to comply with the Forest Plan under NFMA. That it did not do so is legal error.

B

The Lands Council next challenges the Forest Service's analysis of disturbed soil conditions. Under the Forest Plan and the applicable Regional Soil Quality Standard, the Forest Service cannot allow an activity that would create detrimental soil conditions in fifteen percent of the project area.²¹ The Lands Council's claims that the methodology that the Forest Service used to calculate the amount of soil that was in a detrimental state was insufficiently reliable because the Forest Service never sampled the soil in the activity area. Instead, based on samples from throughout the Forest, and aerial photographs, the Forest Service estimated the quality of the soils in the Project area using a spreadsheet model.

[10] This methodology has previously been called into question. In a similar case, the United States District Court for the Eastern District of Washington considered the exact same methodology and concluded that its use was impermissible:

The shortcomings in the USFS analysis are all directly tied to the fact that they did not take the time to walk the areas that they planned to harvest. Instead, based on assumptions [from general data

²¹Under the Regional Soil Quality Standard, if fifteen percent or more of the project area already has detrimental soil conditions, then the Project will not be permitted to make it worse. Rather, the Project should then aim to improve the soil conditions.

from the IPNF soils], geological maps, and aerial photographs, they *estimated* the condition of each unit, tried to determine which units *might* exceed established standards, and *projected* potassium levels.

Kettle Range Conservation Group v. United States Forest Serv., 148 F. Supp. 2d 1107, 1127 (E.D. Wash. 2001) (emphasis in original). We find this reasoning persuasive. Here, the same problem exists: The Forest Service did not walk, much less test, the land in the activity area.

The Forest Service concedes that it did not test the activity area, but argues that because it tested similar soils within the Forest, and similar soils act the same way, then the methodology is sound. Moreover, the Forest Service argues that we owe its technical expertise deference. *See Marsh*, 490 U.S. at 378.

[11] The Forest Service, granted appropriate deference, still does not demonstrate the required reliability of the spreadsheet model. We are asked to trust the Forest Service's internal conclusions of the reliability of the spreadsheet model when the Forest Service did not verify the predictions of the spreadsheet model. Under the circumstances of this case, the Forest Service's basic scientific methodology, to be reliable, required that the hypothesis and prediction of the model be verified with observation. The predictions of the model, which may be reliable across the entire Forest, were not verified with on the ground analysis. The Forest Service, and consequently the public at large, has no way to know whether the projection of the Project area's soils was reliable. Was the Forest Service "dead on" or "dead wrong?" The Final Environmental Impact Statement is inadequate to tell. Our conclusion that such unverified modeling is insufficient is similar to the holding in *Kettle Range*, because in that case the court noted that some of model's input was based on data about the soils throughout the Forest. 148 F. Supp. 2d at 1126-27. The

failure of the Forest Service in that case, as well as here, was that the soils analysis was based entirely on the model with no on-site inspection or verification. Therefore, we hold that Forest Service's reliance on the spreadsheet models, unaccompanied by on-site spot verification of the model's predictions, violated NFMA.

The Lands Council also challenges the Forest Service's substantive determination that the fifteen percent detrimental soils threshold would not be exceeded by the Project. The heart of this argument is the Lands Council's contention that it was error to categorize "jammer"²² roads as permanent capital improvements, which do not count for soil compaction. Instead, Lands Council argues that these are temporary roads, which must be included in the detrimental soils tally.²³ The Forest Service argues that the jammer roads, while once (and perhaps still) used for harvesting, now are maintained and used for other purposes such that, even if they were not initially permanent, they have now achieved that status.

This determination is supported by the record and the Forest Service properly excluded the jammer roads from the soils analysis. Although we accept the Lands Council's critique of the Forest Service's methodology for evaluating soil conditions, we do not agree with the Lands Council's argument that the "jammer" roads should be considered temporary rather than permanent.

C

The Lands Council's final two arguments under the NFMA relate to the Project's impact on old growth forests.

²²Jammer roads are roads created for the sole purpose of timber harvest and are usually, but not always, abandoned when the harvest is completed.

²³This is a crucial determination, because if the jammer roads are counted as temporary, then the fifteen percent threshold for detrimental soil conditions would be exceeded prior to the Project, and the Project would be required to prevent the conditions from worsening.

First, the Lands Council argues that the Project would not allow the Forest Service to reach the ten percent old growth forest minimum requirement contained in the Forest Plan. The Plan's minimum requirement for old growth forest is important, both because these forests maintain our connection to a bygone age and because their well-being is necessary for the survival of many species. However, because no old growth forest is to be harvested under the selected alternative, we reject the contention that the Project will be impermissible if, thereafter, the "allocated old growth" within the Forest is less than the Forest Plan requirement. If that requirement would not be met after this Project, then it must be that the requirement is not met now, for the proposed timber harvest cut no old growth. If we were to accept the Lands Council's argument on this score, it would prevent any project from taking place. We do not think this is a sensible reading of the NFMA. Because no old growth forest is to be harvested under the Project, we hold that it cannot be said that the Project itself violates the IPNF Plan's requirement to maintain ten percent of the forest acreage as old growth forest. Thus we reject the Lands Council's first contention regarding old growth forests.

Second, the Lands Council challenges the old growth forest analysis as it relates to the population and viability of species that require old growth habitat, arguing that the Forest Service was obligated to look deeper than the cumulative effects of the Project on Management Indicator Species ("Indicator Species") by conducting a long-term viability study of the Indicator Species. NFMA requires that the Forest Service identify Indicator Species, monitor their population trends, and evaluate each project alternative in terms of the impact on both Indicator Species habitat and Indicator Species populations. *Idaho Sporting Cong., Inc. v. Rittenhouse*, 305 F.3d 957, 971-74 (9th Cir. 2002).

We have, in appropriate cases, allowed the Forest Service to avoid studying the population trends of the Indicator Spe-

cies by using Indicator Species habitat as a proxy for Indicator Species population trends in a so-called “proxy on proxy” approach.²⁴ *Id.* at 972. Crucial to this approach, however, is that the methodology for identifying the habitat proxy be sound. *Id.* If the habitat trend data is flawed, the proxy on proxy result, here species population trends, will be equally flawed.

Here, there is evidence that the Forest Service’s main tool for old growth calculation, the timber stand management reporting system database (“TSMRS”), was inaccurate. Problems with the TSMRS database have been recognized by another court, which found that the database overstates old growth by thirty-two percent to fifty-six percent. *Lands Council*, 198 F. Supp. 2d at 1224. The record here shows that the proffered data is about fifteen years old, with inaccurate canopy closure estimates, and insufficient data on snags.²⁵ These concerns leave the results generated by the proxy on proxy approach unable to satisfy the requirements of the NFMA. *Rittenhouse*, 305 F.3d at 970 n.5 (holding that if the proxy on proxy method is flawed, then NFMA is violated because there was no population monitoring as required by NFMA).

While the majority of the Forest Service’s analysis is proxy on proxy, the Forest Service asserts that it does not rely entirely on the flawed database because it employed field surveys and on-the-ground detection methods. But the spot surveys done for the Final Environmental Impact Statement are largely irrelevant: They cannot make up for the problems with

²⁴The “proxy on proxy” approach to studying MIS population trends operates on the assumption that as long as a species’ habitat is maintained, the species will likewise be maintained. Thus, analysis of trends in the species habitat is, in essence, an indirect measurement of the species population trends.

²⁵Snags are typically dense woody areas created by fallen trees or branches, and they are a key habitat for the pine marten, one of the Indicator Species. The database contains no information about this key habitat variable.

the database because different variables are being measured. Moreover, the surveys do not even begin to qualify as an accurate monitoring of population trends. The spot surveys do not rehabilitate the proxy on proxy method, and, in this case, do not vitiate the Forest Service's reliance on the proxy on proxy method as a monitoring of population trends.

[12] We conclude that, on the record presented in this case, the Forest Service has not complied with NFMA. The Forest Service has not ensured that there are no adverse viability concerns to the relevant MISs because the Forest Service did not monitor MIS population trends, and its proxy on proxy approach was flawed as applied here.

V

[13] The decision made by the Forest Service to proceed with Modified Alternative Eight violates both NEPA and NFMA.²⁶ We reverse the district court's summary judgment granted to the Forest Service, and direct the district court to enter summary judgment on behalf of the Lands Council, vacating the agency's decision. The stay we entered on April 12, 2004, is reaffirmed and "shall remain in full force and effect until the Forest Service satisfies its NEPA" and NFMA obligations. *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1216 (9th Cir. 1998).

REVERSED and REMANDED with INSTRUCTIONS.

²⁶Although harmless error is not addressed by either party, we conclude that the errors we have pointed out are not harmless because they prevented a proper, thorough, and public evaluation of the environmental impact of the Project. *See Laguna Greenbelt, Inc. v. United States Dept. of Transp.*, 42 F.3d 517, 527 (9th Cir. 1994).