Mr. Rene Voss  
John Muir Project/Earth Island Institute  
P.O. Box 11236  
Takoma Park, MD 20912

Dear Mr. Voss:

This letter is in response to your March 10, 2003, “Request for Correction of Information Contained in the Initial Data Set for Timber Harvest Effects Monitoring,” related to the Forest Service’s proposed limited timber categorical exclusions. Your request was submitted under the United States Department of Agriculture (USDA) Information Quality Guidelines. You filed this Request for Correction along with the Sierra Club and Heartwood. Your comments were directed at the January 8, 2003, Federal Register Notice at pages 1026-1030. You also provided this request concurrently with your comments submitted in response to the Federal Register Notice. The Forest Service responded in summary to your petition, along with responses to other comments, in the Federal Register notice containing the final agency National Environmental Policy Act (NEPA) procedures. The Federal Register notice, published July 29, 2003, may be viewed at http://www.fs.fed.us/emc/lth/notice.pdf. This letter responds in more detail to your request for “the correction of data and information used to monitor timber sales and suggested that the technique of ‘measurements’ must be used in place of ‘observation’ to comply with the USDA Information Quality Guidelines.”

The Forest Service has given your request for correction careful consideration and your concerns have been thoroughly reviewed. According to USDA Quality Information Guidelines, the review of your request for correction must be based on the explanation and evidence provided in your request. We reviewed: (a) processes that were used to create and disseminate the information; (b) information being challenged; and (c) conformity of the information and those processes with both OMB and USDA Information Quality Guidelines.

Your request for correction of information asks that the Forest Service correct its reliance on “observation” as a monitoring technique and instead rely on the use of measurement on all parameters and data points for monitoring soils (compaction, displacement and ground cover), fish and wildlife (populations and trends), water quality (baseline and after implementation), and measurable data for other resources where appropriate. You request that the Forest Service, in so doing, present the specific measurement techniques used, present the entire data set, re-evaluate conclusions based on this data set, and start the rulemaking over.

The Forest Service evaluated the assessment of the 154 projects that provides the basis for its categorical exclusions, and found that this assessment complies with the USDA Information Quality Guidelines. The USDA Information Quality Guidelines, under “Objectivity of Regulatory Information” include the following: “Use reasonably reliable and reasonably timely
data and information (e.g., collected data such as from surveys, compiled information, and/or expert opinion).” The challenged “observation” is the use of expert opinion as allowed by the USDA Guidelines. The USDA Guidelines permit that within available timeframes and sources of funding, sometimes expert opinion may be the best scientific answer to a specific question. In addition to expert opinion the data quality was controlled using two methods. First, in addition to the documentation of professional judgment, respondents were also asked for their rationale. Second, data compilers were used to determine whether the rationale and the judgments were consistent. Where questions arose, the respondents were queried to clarify their responses.

The use of local expert opinion in resource disciplines such as soils, hydrology, fisheries biology, and wildlife biology is documented in the information on the study of the 154 projects, available on the website [http://www.fs.fed.us/emc/lth](http://www.fs.fed.us/emc/lth). The first eight documents listed under “Background Information for Categorical Exclusions for Limited Timber Harvest” on this website pertain to the information requested from, and provided by, Forest Service field units. The last of these eight documents, Data Collection Methodology, details the methodology used in the data collection and review.

Forest Service resource specialists are highly trained, usually holding degrees in their specialties at the bachelor’s or master’s level. They are also provided ongoing training to assure currency in their discipline. They are familiar with current literature relating to their specialty and local area, as well as applicable laws, regulations, policies, and land and resource management plan standards and guidelines required for protection of the environment. They also possess field knowledge of local conditions. The combination of this expertise, complemented by the interdisciplinary approach used by the Forest Service in managing environmental resources, render the specialists well qualified to make site-specific judgments as to the effects of a particular practice on a particular resource in a particular area. Such expert opinions are appropriate for determining the individual and cumulative significance of effects on the human environment.

Furthermore, expert judgment is performed within the context of many protective laws, regulations and guidelines that operate at the larger scales, such as those of watersheds, and fish and wildlife populations. These include the Clean Water Act, the Endangered Species Act, and forest plan standards and guidelines. The best available scientific information goes into these regulations and guidelines. Regulators determine what actions and guidelines are needed to protect these resources at those levels. These guidelines then are used on each project at the local level. Expert judgment tests whether these guidelines are being followed when integrated with knowledge of current literature and experience with the local conditions.

The Forest Service carefully considered the information you provided. After consideration and review we conclude that the documented on-site observations of Forest Service resource specialists provide sufficient precision to determine the individual and cumulative significance of effects of limited timber harvest activities on the human environment. We find no compelling reason to exclude the use of observation in support of our analysis or to exclusively rely on the use of measurement on all parameters and data points for monitoring soils, fish and wildlife, and water quality. Accordingly, the Forest Service will not be presenting any additional
measurement techniques or new data. The Forest Service will continue to rely on the reasoned conclusions based on the current data set and will not start the rulemaking over.

You may submit a request for reconsideration, if you are dissatisfied with this decision. Details on how to file a request for reconsideration can be found on the USDA website: http://www.ocio.usda.gov/irm/qi_guide/index/html. The request for reconsideration should reference this letter and follow the “Procedures for Requesting Reconsideration of USDA’s Decision.” Please submit written material to support your case for reconsideration, and a copy of the information originally submitted to support the request for correction, and a copy of this response. Requests for Reconsideration filed after the 45-day deadline may be denied as untimely. All requests for reconsideration must be submitted by overnight delivery service, letter, fax, or email to:

USDA Forest Service
Data Quality Team Leader ORMS Staff
Mail Stop 1150 1S Yates Building
14th & Independence Avenue SW
Washington D.C. 20250-1150

Phone 202 205 2938
FAX 202 260 6539
Email gcontreras@fs.fed.us

If you should have additional questions please contact Glen Contreras, Data Quality Team Leader at (202) 205-2938, gcontreras@fs.fed.us, or Sharon Friedman, Ecosystem Management Staff at (202) 205-0939, sfriedman@fs.fed.us. We appreciate your continued interest in Forest Service activities.

Sincerely,

/s/ Frederick Norbury
FREDERICK NORBURY
Director, Ecosystem Management Coordination
Rene Voss  
John Muir Project/Earth Island Institute  
P.O. Box 11236  
Takoma Park, MD 20912

Dear Mr. Voss:

We received your request of March 10, 2003, “Request for Correction of Information Contained in the Initial Data Set for Timber Harvest Effects Monitoring”, related to the Forest Service’s proposed limited timber categorical exclusions. Your request was submitted under the United States Department of Agriculture (USDA) Information Quality Guidelines. You filed this Request for Correction along with the Sierra Club and Heartwood. Your comments were directed at the January 8, 2003, Federal Register Notice at pages 1026-1030. You also provided this request concurrently with your comments submitted in response to the Federal Register Notice.

You requested “the correction of data and information used to monitor timber sales and suggested that the technique of ‘measurements’ must be used in place of ‘observation’ to comply with the USDA Information Quality Guidelines.” The USDA guidelines regarding request for correction when there has been a public comment process provide: “Requests for correction of information shall be made during the comment period for that action and, the agency’s response will normally be incorporated in the next document it issues concerning the matter”. The Forest Service is in the process of considering all responses received on the notice of proposed Categorical Exclusions. The Forest Service response to your petition will be forthcoming in the Federal Register with publication of the final agency National Environmental Policy Act (NEPA) procedures expected by the end of July. The thorough consideration provided by the public comment process serves the purpose of the Information Quality Guidelines. This process also has the advantage of placing our response in the context of other comments in a venue that is familiar and accessible to the public.

If, after publication of the final agency NEPA procedures, you are dissatisfied with this decision, you may file a request for reconsideration within 45 days by overnight delivery service, letter, fax, or email to:

USDA Forest Service  
Data Quality Team Leader, ORMS Staff  
Mail Stop 2030 1S Yates Building  
14th & Independence Avenue SW  
Washington D.C. 20250-2030

Phone 202 205 2938  
FAX  202 260 6539  
Email  gcontreras@fs.fed.us
Persons requesting reconsideration should submit written material to support their case for reconsideration, as well as a copy of the information originally submitted to support the request for correction and a copy of the Forest Service response. Requests for Reconsideration filed after the 45-day deadline may be denied as untimely.

Details on how to file a request for reconsideration can be found on the USDA website: http://www.ocio.usda.gov/irm/qi_guide/index/html. The request for reconsideration should reference this letter and follow the “Procedures for Requesting Reconsideration of USDA’s Decision”.

If you should have additional questions please contact Glen Contreras, Data Quality Team Leader at (202) 205-2938, gcontreras@fs.fed.us, or Sharon Friedman, Ecosystem Management Staff at (202) 205-0939, sfriedman@fs.fed.us. We appreciate your continued interest in Forest Service activities.

Sincerely,

/s/ Frederick Norbury
FREDERICK NORBURY
Director, Ecosystem Management Coordination

cc: Data Quality Team Leader
BEFORE THE UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE INFORMATION QUALITY STAFF

_________________________________________________________
Re: Monitoring Techniques and Data used in Support of the Forest Service’s Proposed Limited Timber Categorical Exclusion
Docket No. ___________

REQUEST FOR CORRECTION OF INFORMATION CONTAINED IN THE INITIAL DATA SET FOR TIMBER HARVEST EFFECTS MONITORING

Submitted to:
Quality of Information Officer                      Dave Sire
USDA Forest Service                             USDA Forest Service
P.O. Box 96090                                  P.O. Box 96090
Washington, D.C. 20090-6090                       Washington, D.C. 20090-6090
webmaster@fs.fed.us                            dsire@fs.fed.us
fax: (202) 205-0885                                             fax: (202)205-1012

by

John Muir Project of Earth Island Institute
P.O. Box 11236
Takoma Park, MD  20912
(301)891-1361
www.johnmuirproject.org
rene.voss@johnmuirproject.org

Sierra Club
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www.sierraclub.org
bryan.bird@sierraclub.org

Heartwood
585 Grove Avenue
Wood River, IL 62095-1615
(618)259-3642
www.heartwood.org
jbensman1@charter.net

March 10, 2003
REQUEST FOR CORRECTION OF INFORMATION CONTAINED IN THE INITIAL DATA SET FOR “TIMBER HARVEST EFFECTS MONITORING”

1. Request and Petitioners

The following data correction request is made on behalf of petitioners John Muir Project of Earth Island Institute, Sierra Club, and Heartwood and constitutes a request for correction of information submitted under USDA's Information Quality Guidelines.

On March 10, 2003, René Voss, on behalf of petitioners, contacted and spoke with Dave Sire of the USDA Forest Service via phone, the listed contact person on the Federal Register Notice for the “National Environmental Policy Act Documentation Needed for Limited Timber Harvest” (see Federal Register on January 8, 2003 at Pages 1026-1030). René Voss informed Mr. Sire that petitioners are requesting the correction of data and information used to monitor timber sales and suggested that the technique of “measurement” must be used instead of “observation” to comply with the USDA Information Quality Guidelines, as the appropriate technique to determine individual or cumulative significant effects for regulatory or influential regulatory information. Since March 10, 2003 is also the deadline for comments on the proposed rule, petitioners are submitting this data correction request concurrently with our comments in response to the Federal Register notice.

2. Requestor Contact Information. Petitioners can be reached as follows:

René Voss  
John Muir Project/  
Earth Island Institute  
P.O. Box 11236  
Takoma Park, MD 20912  
(301)891-1361  
www.johnmuirproject.org  
rene.voss@johnmuirproject.org

Bryan Bird  
Sierra Club  
7 Avenida Vista Grande #173  
Santa Fe, N.M. 87508  
(505)466-2459  
www.sierraclub.org  
bryan.bird@sierraclub.org

Jim Bensman  
Heartwood  
585 Grove Avenue  
Wood River, IL 62095-1615  
(618)259-3642  
www.heartwood.org  
jbensman1@charter.net

René Voss is Public Policy Director for the John Muir Project of Earth Island Institute; Bryan Bird is Appeals and Litigation Coordinator for the Sierra Club’s National Forest Campaign; and Jim Bensman is Forestwatch Coordinator for Heartwood.

3. Description of Information to Correct

This request pertains to certain information and data used in support of the proposed Categorical Exclusions (hereafter CEs) published in the Federal Register on January 8, 2003 at Pages 1026-1030 titled “National Environmental Policy Act Documentation Needed for Limited Timber Harvest.”
In an August 3, 2001 letter from Sally Collins to Regional Foresters with Subject: “Information Needed for Creating a New Limited Tree Removal Categorical Exclusion (CE) to Replace Timber Harvest Category Number [4]” (see: http://www.fs.fed.us/emc/lth/request1.pdf), the Associate Deputy Chief of the National Forest System provided general protocols for monitoring forest resources in its search for projects that had or could have been CE’d under Category 4 of the Forest Service NEPA Handbook 1909.15, Chapter 31.2, in order to develop new criteria as a result of the monitoring.

The protocol for monitoring was described in an attachment titled “Instructions for Timber Harvest Effects Monitoring” or “Instructions for First Data Request” (see: http://www.fs.fed.us/emc/lth/instructions1.pdf) and included the following direction:

“Monitoring must be performed by journey-level specialists who are qualified to examine and draw conclusions on the occurrence of effects that meet or do not meet project standards (i.e. Forest Plan Standards or Guidelines, state water quality standards, the conditions of a Biological Opinion, etc.) for soil, water, air, vegetation, wildlife, fish, cultural and historic resources or other pertinent issue related resources…The specialists must visit the site of the DM [decision memo] to assess the effects of the project on all of the above resources… Based on the specialists’ findings the responsible line officer must give a conclusion in the web-based form about whether the project individually or cumulatively did or did not have a significant effect on the human environment (40 CFR 1508.4). The line officer must consider the context and intensity factors described in the CEQ NEPA implementing regulations, 40 CFR 1508.27, when describing the rationale for their finding.”

The tabulated data from the initial data response is posted on the Forest Service Web Site for a total of 154 projects that were monitored in the various national forests in all 9 of the Nation Forest System Regions. (see: http://www.fs.fed.us/emc/lth/data1.xls).

John Muir Project, on behalf of petitioners Earth Island Institute, Sierra Club and Heartwood has analyzed this data and has summarized the monitoring techniques used for each resources in Appendix A of this data correction request. The monitoring data is broken down by the following resources for:

- Soil Monitoring
- Water Monitoring
- Air Monitoring
- Listed and Sensitive Plants Monitoring
- Listed and Sensitive Wildlife Monitoring
- Listed and Sensitive Fish Monitoring
- Other Vegetation Monitoring
- Other Wildlife Monitoring
- Other Fish Monitoring
- Cultural and Historic Monitoring
- Other Resources Monitoring
We have summarized the techniques used in total, by all data monitoring points for all resources, and provide the following as our results:

<table>
<thead>
<tr>
<th>Technique Used</th>
<th>Total Monitoring Data Points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation</td>
<td>1367</td>
<td>85%</td>
</tr>
<tr>
<td>Photopoint</td>
<td>5</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Measurement</td>
<td>46</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>118</td>
<td>7%</td>
</tr>
<tr>
<td>Not Answered</td>
<td>75</td>
<td>5%</td>
</tr>
</tbody>
</table>

JMP is concerned by the fact that FS “journey-level” specialists have relied overwhelmingly on personal observation to determine environmental effects on certain resources. We are also disturbed by the fact that 5% of the monitoring point requirements were not even answered by these specialists, a number that exceeds the total number of “measurement” points of the survey.

Observation is considered the least reliable monitoring technique by the science community and is usually not acceptable because it is not replicable, a major requirement in the scientific process.

SOILS

For soils, 92% of the projects were monitored by observation alone rather than using normally accepted measurement techniques for porosity, compaction, displacement, or cumulative soil impacts. Soil compaction or porosity standards are written into most National Forest Land and Resources Management Plans\(^1\) (Forest Plans), and the National Forest Management Act\(^2\) and its regulations have strict requirements that timber sales not irreversibly damage soil resources.

Of the 11 projects for which the Forest Service actually measured some soil characteristics or damage\(^3\), either no data was provided or other measurements besides compaction were presented (such as ground cover). Two projects with measurements did not meet soil compaction standards. Only 2 other projects actually presented soil compaction or displacement data.

Without the appropriate measurements for soil compaction or displacement on 91% of the projects monitored, it is impossible to determine whether significant adverse effects to soils have occurred or whether cumulative soil damage is significant. And, since the Forest Service has demonstrated that it can measure soil porosity, compaction, and displacement as it presented this data for at least 2 projects, the best available techniques should be used on all other projects to

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\(^1\) NFMA, 16 USC 1604 and NFMA Regulations 36 CFR 219

\(^2\) 16 USC 1604(g)(3)(E) “…insure that timber will be harvested from National Forest System lands only where (i) soil, slope, or other watershed conditions will not be irreversibly damaged;”

\(^3\) see: [http://www.fs.fed.us/emc/lth/data1.xls](http://www.fs.fed.us/emc/lth/data1.xls), projects in row 3, 30, 33, 35, 36, 91, 96, 104, 109, 127, and 132
provide influential information to make a determination of significance for such an important rulemaking.

WATER QUALITY

Baseline measurements before and after implementation of projects that contain streams or wetlands are needed to determine if any degradation of water quality occurred. This has not occurred on the vast majority of the projects monitored.

WILDLIFE, FISH AND VEGETATION

It’s hard to imagine how observation alone could determine the effects on listed, sensitive or other wildlife and fish in a project area without a longer-term effort to determine the effect on the species’ population. Not only is instant data (or lack thereof) used to determine non-significance, the data requirement for listed, sensitive, or “management indicator species” is also a legal requirement under the NFMA regulations, which requires measurements and a trend analysis. Again, the vast majority data points used to monitor and plants were done only by observation.

4. Explanation of Noncompliance with OMB and/or USDA Information Quality Guidelines

The tabulated data does not provide petitioners with specifics as to the kinds of observation or measurement techniques that were used to monitor the projects’ effects. It also relies heavily on a technique that is not objective or can’t be validated independently.

Using the technique of “observation” is hardly useful for another specialist or a skeptical public that is already very distrustful of the Forest Service as it pertains to logging. The technique of “observation” in this analysis is fatally flawed in that it is impossible to duplicate its conclusion and provide a verifiable, objective opinion. Therefore it is conclusory to the point of being arbitrary and cannot be relied on to determine significance for a new set of CEs.

The USDA’s Information Quality Guidelines, under “Regulatory Information Disseminated” require that “Environmental assessments, environmental impact statements, and associated documents prepared under the National Environmental Policy Act (NEPA)” are subject to the guidelines.

Regulatory and Influencial Regulatory Information must be objective:

“Objectivity of Regulatory Information

To ensure the objectivity of information disseminated by USDA agencies and offices in conjunction with their rulemaking activities, the agencies and offices will:

4  NFMA Regulations 36 CFR 219.12, 219.19, and 219.26
• Use sound analytical methods in carrying out scientific and economic analyses and in preparing risk assessments.
• Use reasonably reliable and reasonably timely data and information (e.g., collected data such as from surveys, compiled information, and/or expert opinion).
• When using the best available data obtained from or provided by third parties, ensure transparency in its dissemination by identifying known sources of error and limitations in the data.
• Evaluate data quality and, where practicable, validate the data against other information when using or combining data from different sources.
• Ensure transparency of the analysis, to the extent possible, consistent with confidentiality protections, by:
  o Presenting a clear explanation of the analysis to the intended audience.
  o Providing transparent documentation of data sources, methodology, assumptions, limitations, uncertainty, computations, and constraints.
  o Explaining the rationale for using certain data over other data in the analysis.
  o Presenting the model or analysis logically so that the conclusions and recommendations are well supported.
• Clearly identify sources of uncertainty affecting data quality.
• For quantitative assessments, clearly state the uncertainty of final estimates to the extent practicable. Data and data collection systems should, as far as possible, be of sufficient quality and precision that uncertainty in the final estimates is appropriately characterized.
• For qualitative assessments, provide an explanation of the nature of the uncertainty in the analysis.
• Where appropriate, subject the analysis to formal, independent, external peer review to ensure its objectivity. If analytic results have been subjected to such a review, the information may generally be presumed to be of acceptable objectivity. However, in accordance with the OMB standard, this presumption is rebuttable based on a persuasive showing by a petitioner in a particular instance, although the burden of proof is on the complainant.
• If agency-sponsored peer review of the analysis is employed to help satisfy the objectivity standard, the review process should, where appropriate, meet the general criteria for competent and credible peer review recommended by OMB. OMB recommends that (a) peer reviewers be selected primarily on the basis of necessary technical expertise, (b) peer reviewers be expected to disclose to agencies prior technical/policy positions they may have taken on issues at hand, (c) peer reviewers be expected to disclose to agencies their sources of personal and institutional funding (private or public sector), and (d) peer reviews be conducted in an open and rigorous manner.
Objectivity of Influential Regulatory Information

With respect to influential scientific information disseminated by USDA regarding analysis of risks to human health, safety, and the environment, USDA agencies and offices will ensure, to the extent practicable, the objectivity of this information by adapting the quality principles found in the Safe Drinking Water Act Amendments of 1996. The agencies and offices will:

- Use the best science and supporting studies conducted in accordance with sound and objective scientific practices, including peer-reviewed science and studies where available.
- Use data collected by accepted methods or best available methods (if the reliability of the method and the nature of the decision justifies the use of the data).
- In the dissemination of influential scientific information about risks, ensure that the presentation of information is comprehensive, informative, and understandable. In a document made available to the public, specify, to the extent practicable:
  - Each population addressed by any estimate of applicable effects.
  - The expected risk or central estimate of risk for the specific populations affected.
  - Each appropriate upper bound or lower-bound estimate of risk.
  - Each significant uncertainty identified in the process of the risk assessment and studies that would assist in reducing the uncertainty.
  - Any additional studies, including peer-reviewed studies, known to the agency that support, are directly relevant to, or fail to support the findings of the assessment and the methodology used to reconcile inconsistencies in the scientific data.

Petitioners alledge that the Forest Service’s data disseminated in this rule-making and monitoring techniques violate many of the “Regulatory” or “Influential Regulatory” standards. Specifically, the lack of adequate data and monitoring techniques violate the following standards.

For Regulatory Information:

- They do not “use sound analytical methods in carrying out scientific and economic analyses” since the method of “observation” is not verifiable;
- They do not “use reasonably reliable … data and information (e.g., collected data such as from surveys, compiled information, and/or expert opinion) since the method of “observation” is inherently unreliable;
- The technique of “observation” and data presented does not “ensure transparency of the analysis, to the extent possible by … Providing transparent documentation of data sources, methodology, assumptions, limitations, uncertainty, computations, and constraints” and “Explaining the rationale for using certain data over other data in the analysis,” as well as “Presenting the model or analysis logically so that the conclusions and recommendations are well supported.”
• The analysis and does not “Clearly identify sources of uncertainty affecting data quality.

Because the data is used to create entirely new Categorical Exclusions for logging, the information and monitoring techniques used to determine significance must be considered “influential.” As such, the rulemaking, the data, and the reliance on the monitoring technique of “observation” violates the standards of “Influential Regulatory Information”:

• It does not “use the best science and supporting studies conducted in accordance with sound and objective scientific practices, including peer-reviewed science and studies where available;”
• It does not “use data collected by accepted methods or best available methods.”

5. Explanation of the Effect of the Alleged Error

The effects of the alleged errors are that petitioners:

• Cannot adequately assess the significance of effects of these types of CEs or projects to determine whether they should be categorically excluded;
• Cannot provide accurate comments in the rulemaking;
• We cannot provide advice to our members or constituents as to how they should comment on the proposed rulemaking;
• As a result, we cannot fulfill our roles as stewards of the environment and of good government;
• We will be harmed by the creation of new CEs using faulty reasoning that will abridge our ability to petition our government for redress of grievances because these projects are proposed to be excluded from administrative appeal;
• We will be harmed directly by the destruction of the environment if these CEs are implemented, which reduces our ability to study, recreate and enjoy our national forests.

6. Recommendation and Justification for How the Information Should Be Corrected

Petitioners request that the Forest Service correct its reliance on “observation” as a monitoring technique and instead rely on the use of “measurement” on all parameters and data points for monitoring soils (compaction, displacement, and ground cover), fish and wildlife (populations and trends), water quality (baseline and after implementation) and measurable data for other resources, where appropriate, as the best available and scientifically supportable methods for this rulemaking. We request that the Forest Service present the specific measurement techniques used and present the entire data set, including all project records that include the data to the public as part of the rule-making on the Forest Service’s web site. We also request that the Forest Service require their managers to re-evaluate their conclusions based on this data set. Subsequently, the Forest Service should start the rulemaking over.

Respectfully submitted for Petitioners by: René Voss

Respectfully submitted for Petitioners by: René Voss
APPENDIX A – John Muir Project Summary of Resources Data Techniques

Total Timber sales Monitored: 154

Soil Monitoring Technique by:
- Observation 140 91%
- Measurement: 11 7%
- Other 2 1%
- Not Answered 1 0%

Water Monitoring Technique by:
- Observation 140 91%
- Photopoint 3 2%
- Measurement: 3 2%
- Other 5 3%
- Not Answered 3 2%

Air Monitoring Technique by:
- Observation 122 79%
- Photopoint 0 0%
- Measurement: 0 0%
- Other 19 12%
- Not Answered 13 8%

Listed and Sensitive Plants Monitoring Technique by:
- Observation 127 82%
- Photopoint 0 0%
- Measurement: 4 3%
- Other 16 10%
- Not Answered 7 5%

Listed and Sensitive Wildlife Monitoring Technique by:
- Observation 135 88%
- Photopoint 0 0%
- Measurement: 4 3%
- Other 8 5%
- Not Answered 7 5%

Listed and Sensitive Fish Monitoring Technique by:
- Observation 127 82%
- Photopoint 0 0%
- Measurement: 1 1%
- Other 13 8%
- Not Answered 14 9%
Other Vegetation Monitoring Technique by:
- Observation 131 85%
- Photopoint 2 1%
- Measurement: 13 8%
- Other 4 3%
- Not Answered 4 3%

Other Wildlife Monitoring Technique by:
- Observation 140 91%
- Photopoint 0 0%
- Measurement: 2 1%
- Other 5 3%
- Not Answered 7 5%

Other Fish Monitoring Technique by:
- Observation 127 82%
- Photopoint 0 0%
- Measurement: 0 0%
- Other 14 9%
- Not Answered 13 8%

Cultural and Historic Monitoring Technique by:
- Observation 123 80%
- Photopoint 0 0%
- Measurement: 4 3%
- Other 21 14%
- Not Answered 6 4%

Other Resources Monitoring Technique* by:
- Observation 55 79%
- Photopoint 0 0%
- Measurement: 4 6%
- Other 11 16%

* Cumulative of “Other Resources Monitoring 1-3”

Total Monitoring Data Points 1611 100%

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