

University of Montana

## ScholarWorks at University of Montana

---

Graduate Student Theses, Dissertations, &  
Professional Papers

Graduate School

---

1993

### Malevolent disdain impoverished desire and oblivious neglect : the sensitive species program in three national forests

William Paul Haskins  
*The University of Montana*

Follow this and additional works at: <https://scholarworks.umt.edu/etd>

**Let us know how access to this document benefits you.**

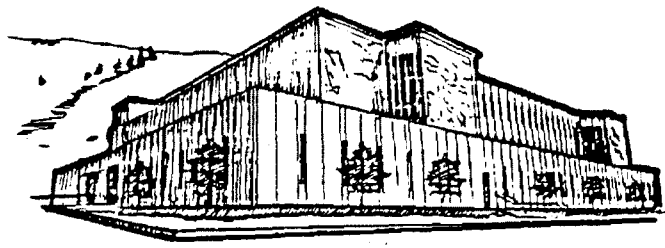
---

#### Recommended Citation

Haskins, William Paul, "Malevolent disdain impoverished desire and oblivious neglect : the sensitive species program in three national forests" (1993). *Graduate Student Theses, Dissertations, & Professional Papers*. 8396.

<https://scholarworks.umt.edu/etd/8396>

This Thesis is brought to you for free and open access by the Graduate School at ScholarWorks at University of Montana. It has been accepted for inclusion in Graduate Student Theses, Dissertations, & Professional Papers by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact [scholarworks@mso.umt.edu](mailto:scholarworks@mso.umt.edu).



Maureen and Mike  
**MANSFIELD LIBRARY**

---

Copying allowed as provided under provisions  
of the Fair Use Section of the U.S.  
COPYRIGHT LAW, 1976.

Any copying for commercial purposes  
or financial gain may be undertaken only  
with the author's written consent.

---

University of  
**Montana**



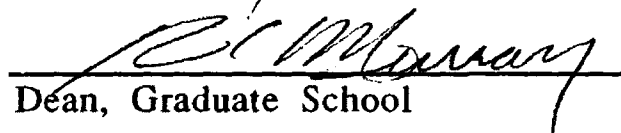
MALEVOLENT DISDAIN, IMPOVERISHED DESIRE,  
AND OBLIVIOUS NEGLECT—  
THE SENSITIVE SPECIES PROGRAM IN THREE NATIONAL FORESTS

By  
William Paul Haskins  
B.S., University of Nebraska, 1980

Presented in partial fulfillment of the requirements  
for the degree of  
Master of Science  
University of Montana  
1993

Approved by

  
Chairperson, Board of Examiners

  
Dean, Graduate School

May 28, 1993  
Date

UMI Number: EP39197

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.

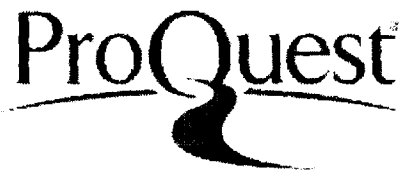


UMI EP39197

Published by ProQuest LLC (2013). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against unauthorized copying under Title 17, United States Code



ProQuest LLC.  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106 - 1346

**Malevolent Disdain, Impoverished Desire and Oblivious Neglect—  
The Sensitive Species Program in Three National Forests (129 pp.)**

**Director: Tom Roy**

Biological evaluations (BEs) prepared during the period from 1988 through 1992 by biologists for Idaho's Clearwater National Forest and Montana's Lolo and Helena National Forests were examined for conformance to federal regulations regarding sensitive species. The following parameters were evaluated: frequency and timing of BEs, documentation of BE findings in decision documents, listing of sensitive species in BEs, frequency of field surveys for sensitive species, descriptions of occupied and unoccupied habitat, cumulative effects analyses, determinations of effect, analysis of significance, and listing of sources.

The Forest Service failed to observe federal regulations regarding sensitive species in numerous instances. No biological evaluations were found to conform fully to all relevant regulations, and many requirements were rarely or never fulfilled.

Limitations in funding, apparent lack of familiarity with regulations, and clashes with the commodity production schedule of the Forest Service were found to be major limitations on the ability of agency biologists to complete adequate biological evaluations on schedule. Without dramatic improvements in the agency's ability to fulfill and improve upon sensitive species requirements, the future security of rare plants and animals on public lands will remain very much in doubt.

## TABLE OF CONTENTS

List of Tables . . . . .	iv
List of Figures . . . . .	v
Introduction. . . . .	1
Methods. . . . .	5
Results . . . . .	24
Frequency and timing of biological evaluations . . . . .	24
Documentation of biological evaluation findings in the decision document . . . . .	29
Listing of sensitive species in the biological evaluation . . . . .	32
Frequency of sensitive species field surveys . . . . .	33
Species for which no surveys were conducted . . . . .	41
Descriptions of occupied and unoccupied habitat. . . . .	49
Cumulative effects analyses. . . . .	49
Determinations of effect . . . . .	52
Analysis of significance.. . . .	57
Consultations, sources and literature citations. . . . .	64
Discussion . . . . .	66
Initiation, timing and documentation of biological evaluations. . . . .	66
Listing of species within the biological evaluation. . . . .	73
Sensitive species surveys. . . . .	76
Descriptions of occupied and unoccupied habitat. . . . .	83
Cumulative effects analyses. . . . .	85
Determinations of effect and analysis of significance. . . . .	86
Consultations, sources and literature citations . . . . .	89
The sensitive species budget.. . . .	90
Sensitive species as management indicators. . . . .	91
Conclusion . . . . .	97
Appendix 1. Conformance of biological evaluations to Forest Service regulations. . . . .	99
Appendix 2. Biological evaluation process. . . . .	126
Bibliography . . . . .	127

## LIST OF TABLES

Table One. Decision documents required for different types of projects. . . . .	6
Table Two. Sensitive species list. . . . .	10
Table Three. Species for which no surveys were conducted, Clearwater National Forest. . . . .	42
Table Four. Species for which no surveys were conducted, Lolo National Forest. . . . .	46
Table Five. Species for which no surveys were conducted, Helena National Forest. . . . .	48



## LIST OF FIGURES

Figure 1.	Frequency and timing of biological evaluations. . . . .	26
Figure 2.	Documentation of biological evaluation findings in decision document . . . . .	31
Figure 3.	Listing of sensitive species in biological evaluations, Clearwater National Forest. . . . .	34
Figure 4.	Listing of sensitive species in biological evaluations, Lolo National Forest. . . . .	35
Figure 5.	Listing of sensitive species in biological evaluations, Helena National Forest. . . . .	36
Figure 6.	Completion of field surveys, Clearwater National Forest . . . . .	37
Figure 7.	Completion of field surveys, Lolo National Forest. . . . .	39
Figure 8.	Completion of field surveys, Helena National Forest. . . . .	40
Figure 9.	Descriptions of occupied and unoccupied habitat. . . . .	50
Figure 10.	Completion of cumulative effects analyses. . . . .	51
Figure 11.	Analysis of significance . . . . .	53
Figure 12.	Referencing of sources . . . . .	65

## INTRODUCTION

The Forest Service defines sensitive species as "those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution."<sup>1</sup> Many of these species belong to the great collection of critically imperiled biomass waiting for sufficient scientific scrutiny or the proper political climate to allow the label of "threatened" or "endangered" to be attached. Others qualify as sensitive simply because no one understands them well enough yet to know where or how to look for them.

As they await inspection by the experts, these species enjoy none of the formal protection afforded threatened or endangered species under the Endangered Species Act of 1973.<sup>2</sup> However, the National Forest Management Act of 1976<sup>3</sup> and its implementing regulations<sup>4</sup>

---

<sup>1</sup>Forest Service Manual (FSM) 2670.5 (19).

<sup>2</sup>42 USC 4321.

<sup>3</sup>16 USC 1600. The National Forest Management Act's Sec. 6(g)(3) calls for implementing regulations which include "specifying guidelines for land management plans developed to achieve the goals of the Program which—(A) insure consideration of the economic and environmental aspects of various systems of renewable resource management...to provide for...wildlife and fish; (B) provide for diversity of plant and animal communities...."

<sup>4</sup>36 CFR 219.19: "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning

provide the Forest Service with the authority and responsibility to enact at least some protection for the plants and animals most sensitive to habitat destruction. The United States Department of Agriculture (of which the Forest Service is a part) also has regulations that imply protection for sensitive species.<sup>5</sup>

Soon after the Department of Agriculture issued its regulations in 1983, the Forest Service established its sensitive species program and published extensive Forest Service Manual<sup>6</sup> instructions regarding agency procedures for dealing with these species.<sup>7</sup> These Manual regulations remain the primary guidance for agency personnel, and the courts have generally treated the Manual regulations as legally binding.<sup>8</sup>

Although the sensitive species program was in place nationwide in 1984, sensitive species were not formally acknowledged in Region

---

area. In order to insure that viable populations be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planing area."

<sup>5</sup>USDA Departmental Regulation 9500-4 (8/22/83): "National Forest System Lands: Habitat for all existing native and desired non-native plants, fish, and wildlife species will be managed to maintain at least viable populations of such species. In achieving this objective, habitat must be provided for the number and distribution of reproductive individuals to ensure the continued existence of a species throughout its geographic range. Habitat goals for threatened or endangered plants and animals, species with special habitat needs, species in demand for hunting, fishing and trapping, and for other species as appropriate, will be established and implemented.

<sup>6</sup>FSM 1105(4): "The Manual contains legal authorities, objectives, policies, responsibilities, instructions, and guidance needed on a continuing basis by Forest Service line officers and primary staff in more than one unit to plan and execute assigned programs and activities."

<sup>7</sup>FSM Chapter 2670 covers threatened, endangered and sensitive plants and animals. This direction was issued in July, 1984.

<sup>8</sup>*National Forest Preservation Group v. Butz*, 343 F. Supp. 696, 703 (D. Mont. 1972); *Parker v. United States*, 448 F.2d 793, 797 (10th Cir. 1972).

One until the first list of sensitive species was published for the Region in March, 1988.<sup>9</sup> This list was revised and expanded substantially in July, 1991.

This study examines whether the Forest Service has conformed to its own regulations regarding analysis of and protection for sensitive species on three National Forests. This study also examines the conditions and practices that contribute to Forest Service observance and non-observance of agency sensitive species regulations.

The intended audience for this study is made up of Forest Service personnel interested in improving agency performance, and those members of the public interested in forcing the agency to follow its own regulations and to protect sensitive species. The latter group has had, and will likely continue to have, considerable influence on the sensitive species program thorough the application of the administrative appeals process and through the courts. It is hoped that this study will facilitate both groups in their endeavors.

The Clearwater, Lolo and Helena National Forests were chosen for this study to represent a cross-section of approaches to sensitive species analysis within Forest Service Region One. These three National Forests stretch across the midsection of Forest Service Region One: from the Clearwater's relatively moist and diverse

---

<sup>9</sup>In a 9/25/92 interview, Angela Evanden, former Region One botanist, indicated that the compilation of the Region One list was initiated using \$48,000 of funds earmarked as a direct result of a 1986 Congressional inquiry into the poor performance of the Forest Service sensitive plant program nation wide. The inquiry was launched at the behest of Faith Campbell of the Natural Resources Defense Council. Prior to 1987, there were no botanist positions (and therefore no one capable of or responsible for compiling a list of sensitive species) within Region One.

forests in north-central Idaho, through the Lolo in west-central Montana, and over the continental divide into the drier forests of the Helena in central Montana.

## METHODS

When the Forest Service decides to proceed formally with a specific course of action that may affect the environment, the agency is required by the National Environmental Policy Act (NEPA) to issue a decision document.<sup>10</sup> Decision memos, decision notices, and records of decision all fall under the heading of decision documents.<sup>11</sup> Table One summarizes the different types of decision documents required for different kinds of proposed projects.

Decision documents were examined for all project decisions formalized on the Clearwater, Helena and Lolo National Forests from late 1988 through mid-1992. Also examined were analyses and documentation of probable environmental effects as required by the NEPA<sup>12</sup> (including environmental impact statements, environmental assessments, findings of no significant impact<sup>13</sup> or project files<sup>14</sup>) for all decisions issued within this time period on the Lolo National Forest. Environmental assessments for decisions signed by Clearwater and Helena National Forest officials were examined if they were on file at the Ecology Center<sup>15</sup> in Missoula, Montana (this

---

<sup>10</sup>40 CFR 1505.2, .

<sup>11</sup>Forest Service Handbook (FSH) 1909.15.

<sup>12</sup>*Id.* and 42 USC 4321 Sec. 102 (C).

<sup>13</sup>A "finding of no significant impact" establishes that the Forest Service is not required to prepare an environmental impact statement for a particular project (40 CFR 1508.13).

<sup>14</sup>A "project file" is simply an indexed file, kept at a Forest Service office, that contains all official documents related to a particular project.

<sup>15</sup>The Ecology Center is a non-profit conservation organization which collects and catalogs Forest Service documents.

**Table One.** Decision documents required for different types of projects.

<u>Type of project</u>	<u>Type of decision document</u>
Major federal actions that may affect the quality of the environment, and which require an environmental impact statement to document likely environmental effects	Record of decision
Projects that will have no significant impact on the quality of the environment, but require the preparation of an environmental assessment	Decision notice
Projects categorically excluded† from documentation in an environmental impact statement of environmental assessment, but which require that a project file must be maintained.	Decision memo
Projects categorically excluded from documentation in an environmental impact statement or environmental assessment, for which no project file is required.	None

†Categories of projects expected to have little or no cumulative or indirect impacts on the environment are excluded, as a group, from requirements for formal documentation of likely effects.

Sources: 40 CFR § 1505.2; Forest Service Handbook 1909.15.

amounted to a random sample of approximately half of the total number of projects for these two national forests).

In addition to providing documentation of the environmental effects of a proposed project under the requirements of the NEPA, the Forest Service must analyze the likely effects of a proposed project on sensitive species in a document called the biological evaluation.<sup>16</sup> This study compared biological evaluations prepared for the aforementioned projects with the requirements of specific Forest Service regulations, primarily from the Forest Service Manual. This comparison was aided by information gleaned from project files, environmental assessments, and environmental impact statements.

The Manual requirements and the methods used in this study to analyze conformance to the requirements are as follows (also see Appendix 2 for a flow chart of the general biological evaluation protocol):

1) The agency must prepare a biological evaluation for every proposed project.<sup>17</sup> All projects that required a decision document were examined to determine whether a document entitled "Biological Evaluation" had been completed. Occasionally, a wildlife situation report or other specialist's report would bear some resemblance to a biological evaluation in format or content (e.g., wildlife reports for the Phoebe-Windfall and Donlan projects on the

---

<sup>16</sup>FSM 2672.4 - Biological Evaluations: "Review all Forest Service planned, funded, executed, or permitted programs and activities for possible effects on endangered, threatened, proposed, or sensitive species. The biological evaluation is the means of conducting the review and of documenting the findings."

<sup>17</sup>*Id.*



Lolo), but since the Forest Service did not presume to fulfill the requirements of a biological evaluations with these documents, they were not regarded as such.

2) **The biological evaluation must be completed before the decision document is signed.**<sup>18</sup> This study relaxed this requirement slightly to allow for completion of biological evaluations within a week of the signing of the decision document.

3) **The findings of the biological evaluations must be documented in the decision notice.**<sup>19</sup> This requirement was relaxed to include any mention of sensitive species within the decision notice or finding of no significant impact. Smaller projects (with decision memos rather than decision notices) do not appear to be subject to a strict interpretation of this requirement.

4) **The biological evaluation must list sensitive species that may be affected by a proposed project.**<sup>20</sup> Lists of species examined within biological evaluations were compared with the Forest Service Region One sensitive species list in place at the time the project decision was signed. This list was initiated in 1988 and

---

<sup>18</sup>FSM 2672.41(3) - Objectives of the Biological Evaluation: "To provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decisionmaking process."

<sup>19</sup>FSM 2672.4 - Biological Evaluations: "Document the findings of the biological evaluation in the decision notice. Where decision notices are not prepared, document the findings in Forest Service files."

<sup>20</sup>FSM 2672.42 - Standards for Biological Evaluations: "Biological evaluations shall include the following: 1. An indication of all listed, proposed, and sensitive species known or expected to be in the project area or that the project potentially affects."

revised 5/17/91. Table Two lists the sensitive species for the Clearwater, Lolo and Helena National Forests.

For the purposes of this study, any list (or even a mere reference to a list) of sensitive species likely to be found in the area of a project was considered sufficient to fulfill the requirements of this standard. Even a simple statement indicating that no sensitive species were likely to be present was accepted as fulfillment of the requirement if there was any documentation of an attempt to identify populations or suitable habitat of sensitive species. However, if the Forest Service's only attempt at listing species likely to be present consisted of a check of Forest Service or State Natural Heritage Program records,<sup>21</sup> and no attempt was made to determine whether sensitive species habitat existed within the project area, the standard was not considered to have been met. The accuracy of a list presented in a biological evaluation was not questioned unless independent Forest Service documentation indicated that species not listed in the biological evaluation were in fact likely to be present in the project area.

---

<sup>21</sup>The Montana Natural Heritage Program and the Idaho Conservation Data Center (formerly known as the Idaho Natural Heritage Program) keep records of occurrences of rare plant and animal species on the Clearwater, Lolo and Helena National Forests. This is often the primary, and occasionally the only source of information regarding these species unless the Forest Service chooses to investigate on its own the sensitive species within a project area. Neither Montana nor Idaho has been systematically surveyed for rare plants and animals, and the occurrence reports are only helpful in the unlikely event that a project area has already been extensively surveyed for all of the rare species likely to be found there.

**Table Two.** Sensitive species: Lolo, Clearwater, and Helena National Forests, 1988 and 1991 lists.

### Plants

1. *Agoseris lackschewitzii* pink agoseris
2. *Agrostis oregonensis* Oregon bentgrass
3. *Allium fibrillum* fringed onion
4. *Allium tolmiei* var. *platyphyllum* Tolmie's onion
5. *Allotropa virgata* candystick (left off of '91 Clearwater list)
6. *Arabis fecunda* sapphire rockcress
7. *Arenaria kingii* King's sandwort
8. *Asplenium trichomanes* maidenhair spleenwort
9. *Asplenium viride* green spleenwort
10. *Astragalus molybdenus* leadville milkvetch
11. *Athysanus pusillus* sandweed
12. *Blechnum spicant* deerfern
13. *Botrychium minganense* Mingan Island moonwort
14. *Botrychium paradoxicum* peculiar moonwort
15. *Calochortus nitidus* broad-fruit mariposa
16. *Cardamine constancei* Constance's bittercress
17. *Carex californica* California sedge
18. *Carex leptalea* bristle-stalked sedge
19. *Carex livida* pale sedge
20. *Carex paupercula* poor sedge
21. *Chrysosplenium tetrandum* Northern golden-carpet
22. *Clarkia rhomboidea* common clarkia
23. *Cornus nuttallii* Pacific dogwood
24. *Corydalis caseana* ssp. *hastata* Case's corydalis (dropped)
25. *Cypripedium calceolus* var. *parviflorum* small yellow lady's-slipper
26. *Cypripedium fasciculatum* clustered lady's-slipper
27. *Cypripedium passerinum* sparrow's egg lady's-slipper
28. *Dasynotus daubenmirei* dasynotus
29. *Drosera linearis* linear-leaved sundew
30. *Dryopteris cristata* crested shield-fern
31. *Epipactus gigantea* giant helleborine
32. *Eriophorum viridicarinatum* green-keeled cottongrass
33. *Eupatorium occidentale* western boneset
34. *Festuca subuliflora* crinkle-awn fescue
35. *Gentianopsis simplex* hiker's gentian

## Table Two, continued.

36. *Grindelia howellii* Howell's gumweed
37. *Howellia aquatilis* water howellia
38. *Idahoa scapigera* scalepod
39. *Juncus effusus* var. *pacificus* soft rush
40. *Juncus hallii* Hall's rush
41. *Lesquerella paysonii* Payson's bladderpod
42. *Mertensia bella* Oregon bluebell
43. *Mimulus clivicola* bank monkeyflower
44. *Orchis rotundifolia* round-leaved orchid
45. *Orogenia fusiformis* (probably *O. linearifolia*) Great Basin orogenia
46. *Oxytropis podocarpa* stalked-pod crazyweed
47. *Phlox kelseyi* var. *missoulensis* Missoula phlox
48. *Polygonum douglasii* ssp. *austiniae* Austin's knotweed
49. *Polypodium glycyrrhiza* licorice fern
50. *Potamogeton obtusifolius* blunt-leaved pondweed
51. *Prenanthes alata* rattlesnake-root (misidentified)
52. *Scirpus cyperinus* wool grass
53. *Scirpus subterminalis* water clubrush
54. *Sedum lanceolatum* var. *rupicolum* rock stonecrop
55. *Synthyris platycarpa* evergreen kittentail
56. *Thalictrum alpinum* alpine meadowrue
57. *Thelyoperis nevadensis* sierra wood-fern
58. *Toeplitzia glutinosa* ssp. *absona* out-of-tune sticky toefieldia
59. *Trientalis latifolia* western starflower
60. *Trifolium eriocephalum* wooly-head clover
61. *Trifolium gymnocarpon* hollyleaf clover
62. *Viola renifolia* kidney-leaved violet

Plant species dropped from the list in 1991:

63. *Dodecatheon dentatum* white shooting-star
64. *Viola sempervirens* redwoods violet

**Table Two, continued****Mammals**

- 65. *Felis lynx lynx*
- 66. *Gulo gulo* wolverine
- 67. *Martes pennanti* fisher
- 68. *Plecotus townsendii* western big-eared bat
- 69. *Synaptomys borealis* northern bog lemming

**Amphibians**

- 70. *Plethodon vandykei idahoensis* Coeur d'Alene salamander

**Fish**

- 71. *Acipenser transmontanus* white sturgeon
- 72. *Cottus confusus* shorthead sculpin
- 73. *Oncorhynchus clarki lewisi* westslope cutthroat trout
- 74. *Oncorhynchus mykiss* steelhead trout
- 75. *Oncorhynchus tshawytscha* "spring/summer" chinook salmon
- 76. *Salvelinus confluentus* bull trout

**Birds**

- 77. *Aegolius funereus* boreal owl
- 78. *Buteo regalis* ferruginous hawk
- 79. *Charadrius montanus* mountain plover
- 80. *Gavia immer* common loon
- 81. *Histrionicus histrionicus* harlequin duck
- 82. *Otus flammeolus* flammulated owl
- 83. *Pedioecetes phasianellus* Columbian sharp-tailed grouse
- 84. *Picoides arcticus* black-backed woodpecker

5) Quantitative information must be obtained on population and habitat size and distribution. There appears to be no explicit Manual requirement that the Forest Service conduct field surveys to determine the presence of sensitive species or their habitat within an area slated for road building, mining or timber cutting. However, the National Forest Management Act's implementing regulations<sup>22</sup> and US Department of Agriculture regulations<sup>23</sup> both indicate the necessity for quantitative information in order to assess effects to diversity. Since a reduction in diversity is a direct result of extirpation of endangered, threatened or sensitive species, it follows logically that impacts upon diversity would be most accurately predicted through an analysis of impacts upon these species. It would seem impossible to perform a quantitative analysis of effects on diversity without field surveys to determine the presence of those species most likely to withdraw their respective contributions to local diversity as a result of extirpation.<sup>24</sup>

---

<sup>22</sup>36 CFR § 219.26: Diversity. Forest planning shall provide for diversity of plant and animal communities and tree species consistent with the overall multiple-use objectives of the planning area. Such diversity shall be considered throughout the planning process. Inventories shall include quantitative data making possible the evaluation of diversity in terms of its prior and present condition.

<sup>23</sup>USDA Departmental Regulation 9500-4 3a(1), August 22, 1983: "Habitats for all existing native and desired non-native plants, fish and wildlife species will be managed to maintain at least viable populations of such species. In achieving this objective, habitat must be provided for the number and distribution of reproductive individuals to ensure the continued existence of a species throughout its geographic range."

<sup>24</sup>See FSM 2672.43 - Procedure for Conducting Biological Evaluations, Exhibit 1 (reproduced in Appendix 2 of this study). This flow chart indicates that field surveys are the immediate and essential next step after a determination that a sensitive species might be present.

Documents from each national forest were examined to determine the percentage of biological evaluations that indicated field surveys had been conducted for some or all of the sensitive species thought to be present. If Forest Service personnel determined, either through field surveys or examinations of aerial photographs and habitat data, that no suitable habitat was present for sensitive species, then they were considered to have nominally fulfilled the obligation to conduct surveys. If no attempt to identify potential habitat was documented and no field surveys were conducted, the obligation was not considered to have been met.

In preparing a biological evaluation, the Forest Service must also include "an identification and description of all occupied and unoccupied habitat recognized as essential for listed or proposed species recovery, or to meet Forest Service objectives for sensitive species."<sup>25</sup> Assuming for the purposes of this study that it is also necessary to describe sensitive species habitat in the absence of specific objectives for sensitive species, each biological evaluation was examined to determine whether it included any description or identification of occupied or unoccupied habitat for the sensitive species likely to be present. Only those species which the Forest Service acknowledged as likely to be present were considered. Any quantitative description of both occupied and unoccupied habitat for the sensitive species thought to be present was accepted as conformance to the requirement. Descriptions of habitat which

---

<sup>25</sup>FSM 2672.42 (2).

lacked some indication of quantity were not accepted, nor were descriptions which left out some of the species likely to be present.

In order to analyze the necessity for surveys, each project was examined to determine which species were suspected to be present, but for which the Forest Service had no information regarding populations or suitable habitat because no surveys had been conducted. Forest Service biological evaluations, environmental assessments, and specialist's reports were consulted to determine which species were likely to be present, and this list was compared against the list of species for which field surveys had been conducted in a given project area. If the project area had been surveyed as part of some generalized, region-wide survey for a particular species or if the Forest Service had received information from another agency or from credible individuals, the species was considered to have been surveyed for even if the general survey had taken place several years earlier than project approval. No qualitative measure of survey effectiveness was attempted: if the Forest Service called it a survey, it was accepted as such no matter how abbreviated it may have been.

This study only attempted to examine the more obvious references to possible occurrences and possible suitable habitat found through a relatively cursory review of project files. This study undoubtedly underestimates the potential occurrence of sensitive species within projects for which no surveys were conducted.



6) **Cumulative effects must be analyzed.** The Forest Service is required to examine the effects of a proposed project in conjunction with effects from other projects.<sup>26</sup> These cumulative effects are defined as impacts on sensitive species that result when a proposed action's impacts are added to other past, present and reasonably foreseeable future actions. Each biological evaluation was examined for any acknowledgment that the effects of a given project were considered in the context of the additive effects of other projects in the same general area. Unless specific projects in the area of the project under consideration were mentioned, or there was an explicit statement that no nearby actions had taken place or were planned, this standard was not considered to have been met. Occasionally, environmental assessments contained references to other projects, but these were usually not in the specific context of an analysis of sensitive species. In order to meet this requirement, there had to have been some indication that cumulative impacts were considered for all of the sensitive species thought to be present in the project area.

---

<sup>26</sup>FSM 2672.42 (4): "Biological evaluations shall include the following: A discussion of cumulative effects resulting from the planned project in relationship to existing conditions and other related projects." 40 CFR 1508.7 defines cumulative effects as impacts that result when a proposed action's impacts are added to other past, present and reasonable foreseeable future actions.

7) The agency must determine whether a "no effect," "may affect," or "beneficial effect" situation exists.<sup>27</sup> After determining what sensitive species are likely to be present within the area of a proposed project, the Forest Service must decide among these three choices for the type of effect the project is likely to have on each species. Although the Forest Service attempted many variations on the words "no," "may" and "beneficial," these are the only three choices offered by the regulations for types of potential effects.

Each biological evaluation was examined for a determination of effects. Any determination other than "no effect" (including "no affect" [sic], "will not affect" and "will not impact") or "beneficial effect" was tallied as a "may affect" situation, no matter how the Forest Service composed the actual wording. "Not likely to adversely affect," "no significant impact," and no determination at all were considered to be semantically and legally equivalent to "may affect." A determination of "conflict" was taken to be an explicit acknowledgment of a "may affect" situation. Occasionally, an explicit "no effect" situation was tallied within this study as a "may affect" when Forest Service documentation indicated that the "no effect" situation was arrived at incorrectly. For example, the Clearwater National Forest gave the Steep Creek #4 project a "no effect" ruling for *Cypridium fasciculatum* based upon its supposed absence from

---

<sup>27</sup>FSM 2672.42(5): "Biological evaluations shall include the following: A determination of no effect, beneficial effect, or 'may' effect on the species and the process and rationale for the determination, documented in the environmental assessment or the environmental impact statement."

cutting units. Forest Service surveys subsequently found this plant within a unit.

8) If a "may affect" situation exists, the agency must analyze the significance of likely effects.<sup>28</sup> The Forest Service shoulders a considerable burden of proof in arriving at a "no effect" determination since such a conclusion allows the agency to forego any further analysis: a "no effect" situation is difficult to establish *a priori* if there is any suitable occupied or unoccupied habitat present for a particular species. A "no effect" ruling cannot be supported unless the Forest Service has determined that no suitable habitat is present or that suitable habitat will be in no way affected. The more permissive "may affect" carries very little burden of proof since it only indicates that further analysis is needed.

In biological evaluations that did not conclude a "no effect" situation, the Forest Service was required to analyze the significance of the potential impacts, both within the project area and on the species as a whole.<sup>29</sup> These biological evaluations were examined to determine whether significance was analyzed, and the nature of such an analysis if it was conducted. A positive response for a project-

---

<sup>28</sup>FSM 2672.1 - Sensitive Species Management: "There must be no impacts to sensitive species without an analysis of the significance of adverse effects on the populations, its habitat, and on the viability of the species as a whole."

<sup>29</sup>FSM 2670.32(3) - Sensitive species: "Avoid or minimize impacts to species whose viability has been identified as a concern, and (4) if impacts cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole." The Forest Service has sometimes interpreted "the species as a whole" to include only the species' range on a given National Forest. This approach is clearly unworkable for many species, particularly wide-ranging species such as wolverine (Mary Maj, 10/8/92 interview).

level analysis was recorded if there was an attempt to analyze significance of effects to local distribution or abundance of all species in the "may affect" category in a given biological evaluation. Non-quantitative measures of distribution or abundance were not accepted as fulfilling the requirements of analysis of significance at the project level.

If the Forest Service included any statement regarding the significance of a project to viability at the species level, the agency was considered to have met the requirement for analysis of significance to the species as a whole, whether or not any quantitative information was provided. For this exceedingly permissive standard to have been met, some statement regarding species viability was required for all "may affect" sensitive species likely to be present in a given project area. Conformance to this relaxed standard did not assure that any sort of sound analysis had been conducted.

The two-fold requirement for an analysis of significance (at both the local and species-wide level) is derived from USDA regulations that require maintenance of viable populations and indicate that such maintenance is to be accomplished by assuring continued local numbers and distributions of species.<sup>30</sup>

---

<sup>30</sup>USDA Departmental Regulation 9500-4: Habitats for all existing native and desired non-native plants, fish and wildlife species will be managed to maintain at least viable populations of such species. In achieving this objective, habitat must be provided for the number and distribution of reproductive individuals to ensure the continued existence of a species throughout its geographic range.

9) The agency must reference sources of information contained within the biological evaluation. The Forest Service is required to include with each biological evaluation "a reference of any informal consultations with the Fish and Wildlife Service as well as a list of contacts, contributors, sources of data, and literature references used in developing the biological evaluation."<sup>31</sup> Because information regarding the Lolo National Forest was gathered before it was decided to include this requirement within this study, no information from that National Forest is presented. Each biological evaluation from the Clearwater and Helena National Forests was examined for references and lists, and adherence to the regulation was evaluated in three ways:

*a) Documentation of consultation with the Fish and Wildlife service.*

Formal consultation with the Fish and Wildlife Service is required for a sensitive species in a "may affect" situation only if that species has been proposed for threatened or endangered status.<sup>32</sup> None of the species in "may affect" situations within the biological evaluations examined in this study were proposed species. However, a type of informal consultation is also strongly indicated for federal candidate species (those species which the Fish and Wildlife Service considers as possibly eligible for listing as threatened or endangered).<sup>33</sup> Several sensitive species (including lynx, wolverine,

---

<sup>31</sup>FSM 2672.42(7) - Standards for Biological Evaluations.

<sup>32</sup>FSM 2671.44

<sup>33</sup>FSM 2670.32: "Establish objectives for Federal candidate species, in cooperation with the FWS or NMFS and the States."

fisher, ferruginous hawk, western big-eared bat, Coeur d'Alene salamander, bull trout and *Dasynotus daubenmirei*) analyzed within biological evaluations examined in this study were listed as candidate species. A Forest Service request of a list of proposed, candidate, threatened and endangered species from the Fish and Wildlife Service was not considered to be informal consultation.

*b) Contact, contributors and sources.*

Any referenced source of information, including Fish and Wildlife Service or Idaho Conservation Data Center lists and personal communications with various experts, was included in this category.

*c) Published literature.*

Any reference to a publication available to the general public was included in this category.

After inspection of the majority of Forest Service documents was completed, interviews were conducted with sensitive species authorities and agency officials. These interviews helped define agency interpretations of sensitive species regulations and clarify the nature and scope of agency efforts to conform to those regulations. The following is a list of the persons interviewed and the times and places of the interviews:

Terry Egenhoff, District Environmental Coordinator, 5/11/92,  
Superior Ranger District, Superior, Montana

Angela Evanden, Director, Research Natural Areas Program and former Region One Botanist, 9/25/92, Forest Service Research Station, Missoula, Montana

Dave Genter, Montana Natural Heritage Program, 4/27/92, phone conversation

Mike Hillis, Forest Biologist, 4/30/92, Lolo National Forest, Missoula, Montana

Kirk Horn, Director, Region One Wildlife and Fisheries Division, 6/28/91, the Ecology Center, Missoula, Montana

Beth Kennedy, District Biologist, 5/11/92, Superior Ranger District, Superior, Montana

Dick Kramer, Forest Fisheries Biologist, 5/11/92, Lolo National Forest Headquarters, Missoula, Montana

Peter Lesica, Botanist, 3/25/93, phone conversation.

Mary Maj, Assistant Threatened, Endangered and Sensitive Program Coordinator, 6/28/91, the Ecology Center, Missoula, Montana; 5/7/92, phone conversation: 10/8/92, Forest Service Region One Headquarters, Missoula, Montana

Bob Ralphs, Biologist and Appeals Group member, 10/8/92, Forest Service Region One Headquarters, Missoula, Montana

William Ruediger, Region One Threatened, Endangered and Sensitive Program Leader, 9/22/92, Forest Service Region One Headquarters, Missoula, Montana

Rick Schneider, Lolo National Forest Botanist, 5/14/92, Lolo National Forest Headquarters, Missoula, Montana

David Seesholtz, NEPA Coordinator and Acting District Ranger on the Pierce District of the Clearwater National Forest, 11/9/92, Kamiah, Idaho

Steve Shelly, Acting Regional Botanist, 5/5/92, Forest Service Region One Headquarters, Missoula, Montana

Beverly Yelczyn, District Biologist, 5/7/92, Seeley Lake Ranger District, Seeley Lake, Montana

Following the interviews, a small percentage of the results were retabulated to reflect more accurate interpretations and new information gleaned from the interviewees.



## RESULTS

The results of this study are organized under the following headings: frequency and timing of biological evaluations, documentation of biological evaluation findings in decision documents, listing of sensitive species in the biological evaluation, frequency of sensitive species surveys, species for which no surveys were conducted, descriptions of habitat, cumulative effects analyses, determinations of effect, analysis of significance, and sources and citations. The results are summarized in Appendix 1.

### Frequency and timing of biological evaluations.

Results for the three national forests were assessed for the following four parameters: 1) conformance to the requirement that a biological evaluation must be prepared for a proposed project; 2) whether the smaller, categorically excluded projects tended to have a lower percentage of compliance to the requirement that a biological evaluation be prepared; 3) whether compliance with the requirement for the preparation of a biological evaluation appeared to improve over time; and 4) conformance to the objective that the results of the biological evaluation must be part of the decision-making process (in other words, whether the biological evaluation was finished when the decision to proceed with a given project was signed).

*Clearwater National Forest*

For this Forest, 10 of the 65 projects examined did not have biological evaluations completed (see Figure 1). Only three of these (the Palouse District pocket gopher poisoning programs for 1990 and 1991 and the Plum Creek skidding permit) were for non-categorically excluded projects which required formal documentation in the form of an environmental assessment. The other projects without biological evaluations included smaller, categorically excluded projects, such as proposals to issue grazing permits, harvest bear grass, or cut small amounts of timber.

An examination of the dates of the projects for which no biological evaluations were prepared indicates that no obvious improvement was shown over time: most of these projects were later rather than earlier in the period examined.

Of the 55 projects with biological evaluations, only four (the Barnyard, Len-Sou, Squash Saddle and Walde Canyon timber sales) had decisions signed after a final version of the biological evaluation was completed: the bulk of the documents met the requirement that biological evaluations be completed before the final project decision is made.

*Lolo National Forest*

Since the Lolo often split responsibility for the completion of a biological evaluation between fish, plant and animal specialists, it had as many as three different biological evaluations for a given project (e.g., the McCabe and Dry Camp timber sales). This somewhat

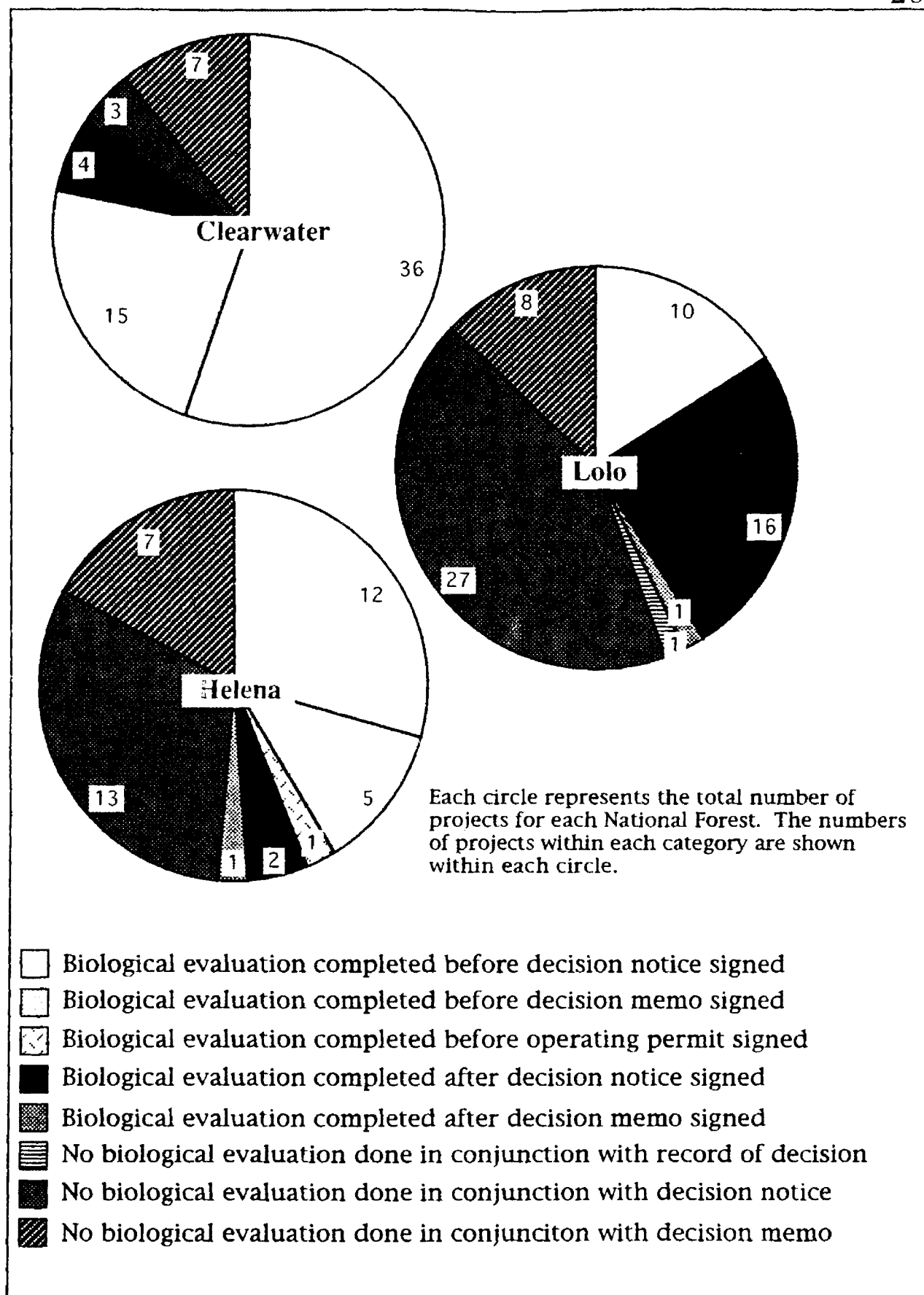


Figure 1. Frequency and timing of biological evaluations.

arbitrary splitting of the animal kingdom into fish and terrestrial animals reflects the traditional division of personnel within the Forest Service. For simplicity of analysis, this study preserves that division. Many projects had only one or two biological evaluations, not because fish, animal and plant biological evaluations had been combined into one document, but usually because one or more classes or organism (e.g. fish or plants) had been entirely omitted from analysis.

Of the 63 decisions examined for this Forest, 36 did not have biological evaluations of any kind (fish, plants or animals). Projects without any biological evaluation whatsoever were predominantly projects such as timber sales, weed control and road easements, for which an environmental assessment was required.

The Lolo also had only six decisions which were categorically excluded from the preparation of an environmental assessment.<sup>34</sup> Of these, only one was accompanied by a biological evaluation.

Overall, there was no obvious decrease over time in the percentage of projects without some sort of biological evaluation, but biological evaluations prepared later on were more likely to contain an analysis of fish and plant species. These species were almost never covered in biological evaluations prepared early in the period examined,<sup>35</sup> but were at least occasionally prepared after 1990.

---

<sup>34</sup>Mike Hillis, Lolo Forest Biologist, 4/30/92 interview: "We don't do many decision memos [decision documents for categorically excluded projects]; we find that the public doesn't trust them."

<sup>35</sup>Dick Kramer, Lolo Fisheries Biologist, 5/11/92 interview: "I can tell you beyond two years ago there were probably no biological evaluations done; absolutely none."

Examples from this later period include the Dry Camp, McCabe, and Mosquito timber sales.

Out of 27 decisions, 14 were signed before the final biological evaluation was available. This is not to imply that modifications of projects were never done based upon biological evaluations completed after final project decisions were signed; it indicates only that any such modification was not necessarily part of the public record nor was it subject to public review or administrative appeal.

Before fall of 1991, the Lolo completed virtually no biological evaluations for plants before decisions were signed. During the 1991 field season, the Lolo had seasonal botanists conduct surveys in connection with several dozen projects.<sup>36</sup> Decisions for some of these projects had been signed years earlier (e.g., the Upper Clear and East John timber sales) and some were projects that were a year or two away from finalization (e.g., the East John timber sale). This field season was unusual in that it allowed the Lolo to catch up, and in some cases get out ahead in its documentation of effects to plants before the rendering of final decisions for several proposed projects. However, in 1992 the Lolo still signed at least one decision (the Sixmile road use permit) before the final biological evaluation was completed for plants.

Discussions with Lolo Forest personnel revealed that at least a dozen projects proposed for late 1992 and 1993 had some sort of

---

<sup>36</sup>Rick Schneider, Lolo National Forest Botanist, 5/14/92 interview.

biological evaluation at some stage of completion at this writing.<sup>37</sup>

However, since it was unclear how many other projects without biological evaluations may also be signed in the near future, this does not necessarily represent a trend toward improved compliance.

#### *Helena National Forest*

For this Forest, 20 of 41 project decisions had no biological evaluations prepared. Thirteen of these were for mining permits and timber sales which were not categorically excluded from the preparation of an environmental assessment. Projects for which biological evaluations were not prepared were distributed throughout the survey period: no obvious increase in the percentage of projects with biological evaluations could be seen over time. Eighteen out of 21 projects for which a biological evaluation was completed were signed after the completion of the biological evaluation, allowing the decision-maker the opportunity to review the biological evaluation's findings before signing the decision.

#### **Documentation of biological evaluation findings in the decision document.**

Many decision notices or findings of no significant impact mentioned threatened and endangered species, but contained no mention of findings regarding sensitive species even though extensive analysis had been conducted regarding these species. For example, sensitive species were primary issues in the biological

---

<sup>37</sup>Mike Hillis, Lolo Forest Biologist, 4/30/92 interview; Rick Schneider, Lolo Forest Botanist, 5/14/92 interview.

evaluations for the Mid Skull/Upper Bear and Steep Creek timber sales on the Clearwater National Forest, but neither mentioned the results of extensive analysis in the decision documents. These projects were not considered to be in compliance with the requirement that biological evaluation results must be listed in the decision notice.

Although projects with decision memos were not strictly subject to this regulation, memos at least occasionally documented the findings of a biological evaluation.

#### *Clearwater National Forest*

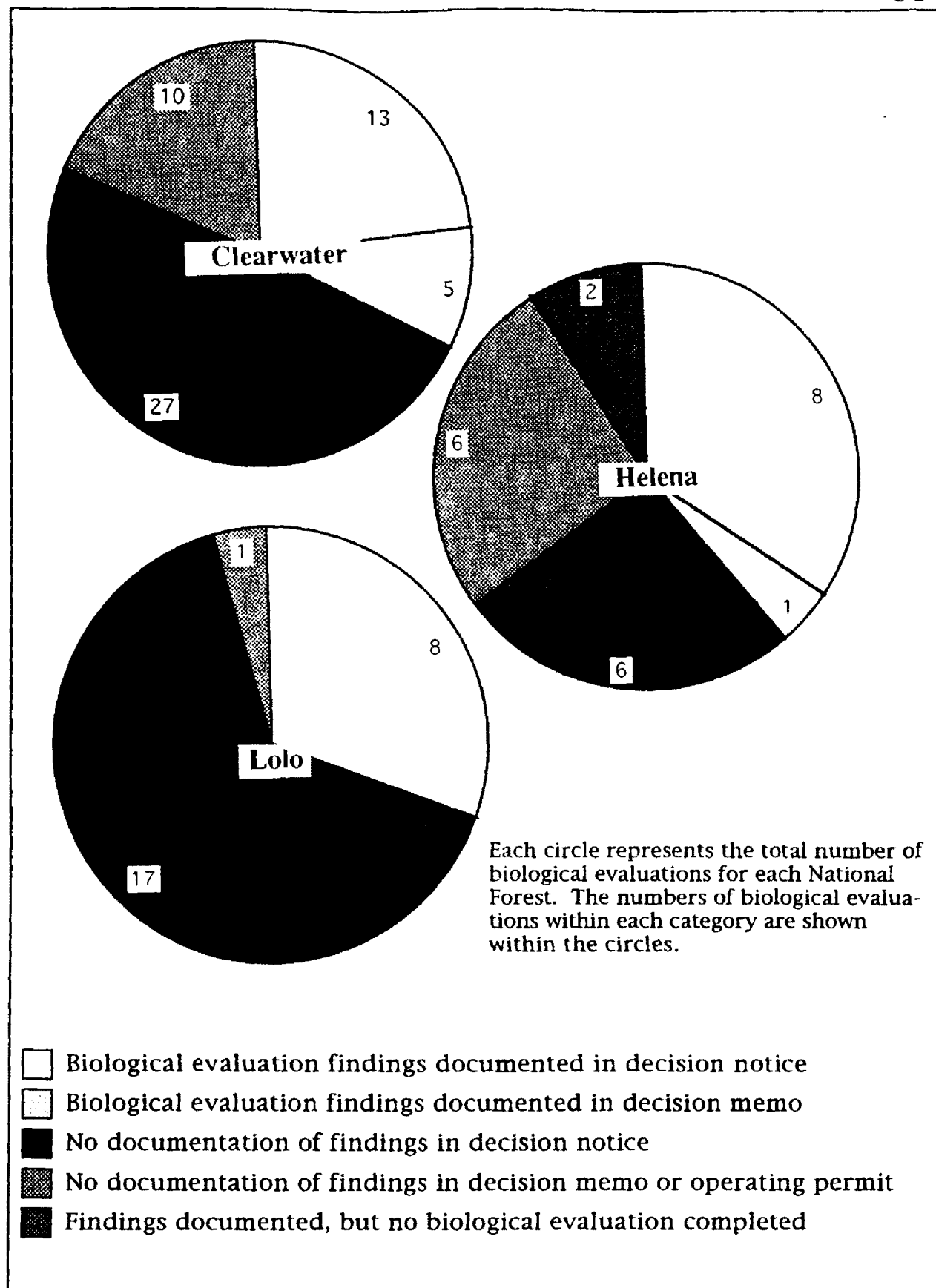
For projects with both decision notices and biological evaluations prepared, only 13 out of 40 mentioned sensitive species in the decision document or finding of no significant impact (see Figure 2).

#### *Lolo National Forest*

A mention of sensitive species was found in the decision document for only eight out of the 25 projects which had both biological evaluations and decision notices.

#### *Helena National Forest*

For projects on the Helena with both decision notices and biological evaluations prepared, eight out of 14 contained a mention of sensitive species in the decision document or finding of no significant impact. There were also two projects (the Pegasus Miller Mountain and September Mourn salvage) for which the decision documented biological evaluation findings, but no biological evaluation existed.



**Figure 2.** Documentation of biological evaluation findings in decision document.



For all three Forests, mention of sensitive species was almost always limited to a statement conveying a finding of no significant impact to threatened, endangered and sensitive species, with no further documentation of that finding. A typical example is the sole mention of sensitive species in the Clearwater's Brushy Creek timber sale finding of no significant impact, signed May 22, 1991: "All endangered, threatened, or sensitive species will not be affected."

### **Listing of sensitive species in the biological evaluation**

Several biological evaluations (e.g., those prepared for the Clearwater's Upper Palouse and Blake's Fork Blowdown timber sales) documented only Heritage Program records or only Forest Service District records, or concluded that no sensitive species habitat was present without indicating which species were considered and to what extent habitat for these species was analyzed. These biological evaluations were not considered to have met the requirement that sensitive species likely to be found within a project area must be listed in the biological evaluation.

Some projects which had been appealed reemerged with more extensive listings of species likely to be found in the project area (see Coin Purse on the Clearwater and Glidden timber sales on the Lolo). Other projects proposed further development in areas that already had projects underway, and the later project analysis acknowledged species that the earlier analysis had ignored (e.g., the Miller Mountain mine's several consecutive proposals on the Helena).

### *Clearwater National Forest*

Forty-seven of 55 biological evaluations contained a list of the sensitive animal species likely to be found within the area of the proposed project (see Figure 3). There were also 47 with a list of sensitive fish species, while 37 had a list of sensitive plants.

### *Lolo National Forest*

Of the 27 projects with biological evaluations completed, 11 contained a list of sensitive animals, 20 had a list of plants and only 4 had a complete list of sensitive fish (see Figure 4).

### *Helena National Forest*

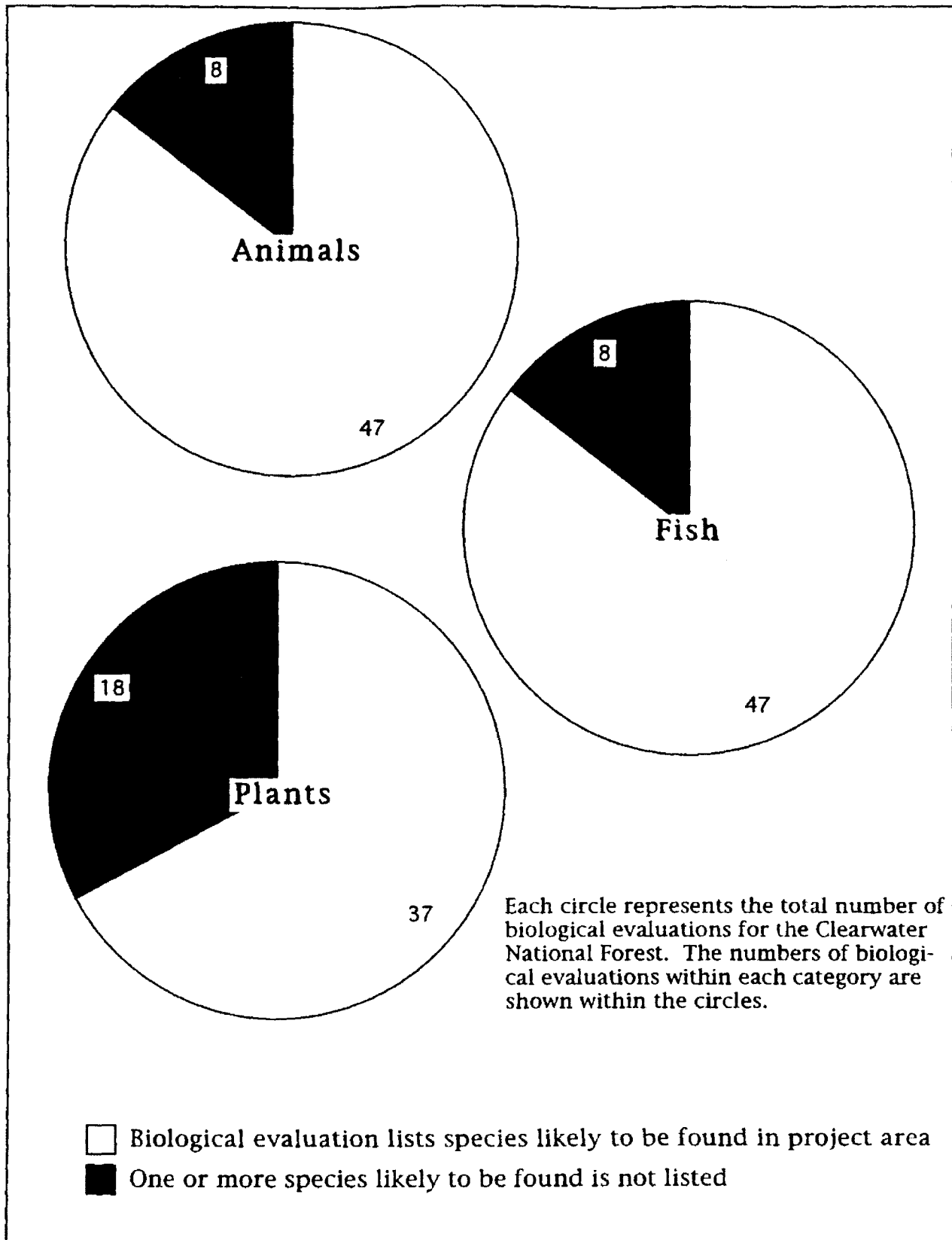
Nineteen biological evaluations were examined for this Forest. Fifteen of these had a list of sensitive animals, eight had a list of sensitive fish, and 11 had a list of sensitive plants (see Figure 5).

## **Frequency of sensitive species field surveys**

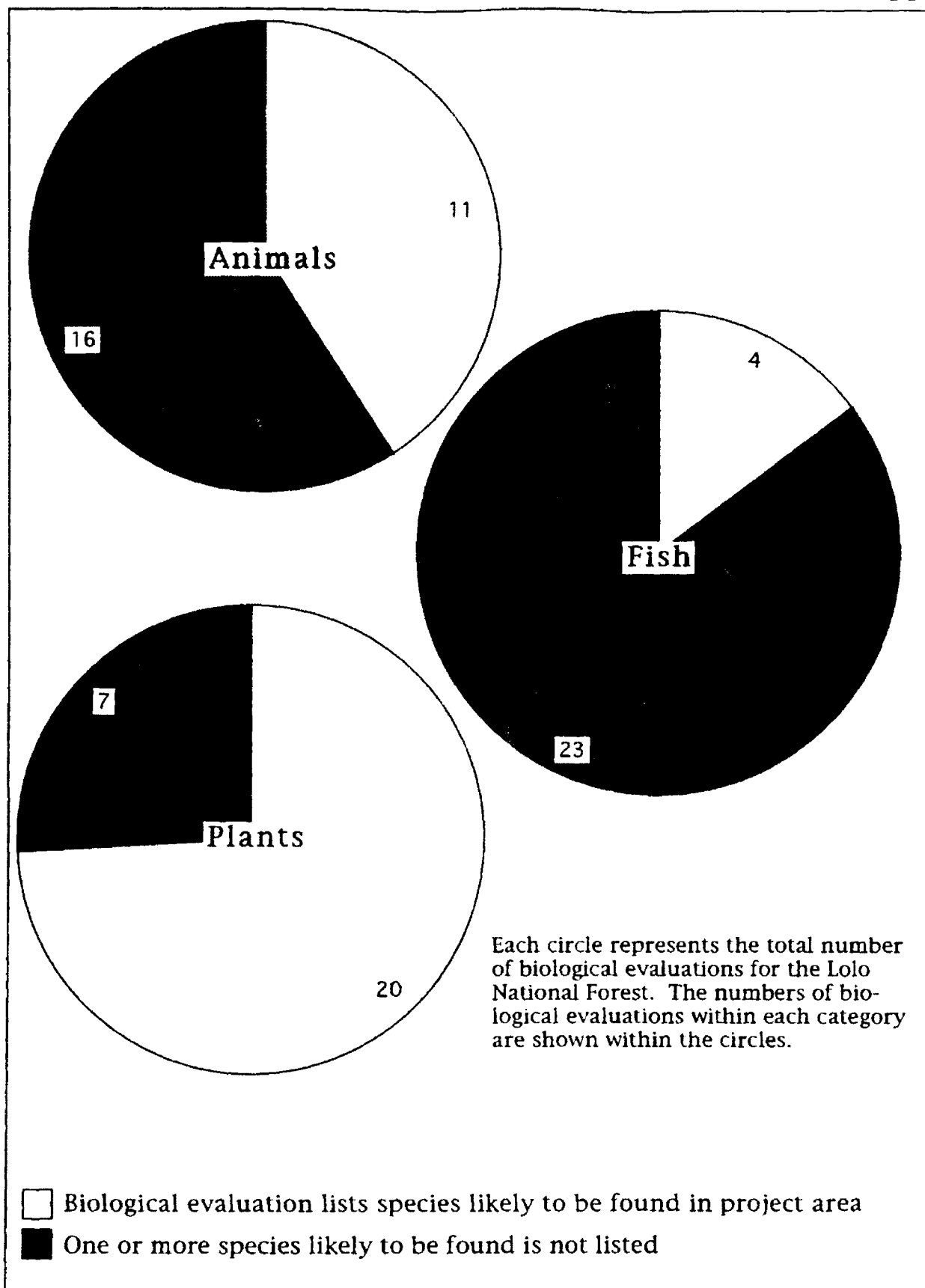
### *Clearwater National Forest*

Of the 55 projects with biological evaluations completed, four had some sort of field survey for all animals likely to be present, eight had surveys for some (but not all) of the animals, and 43 had no animal surveys whatsoever (see Figure 6).

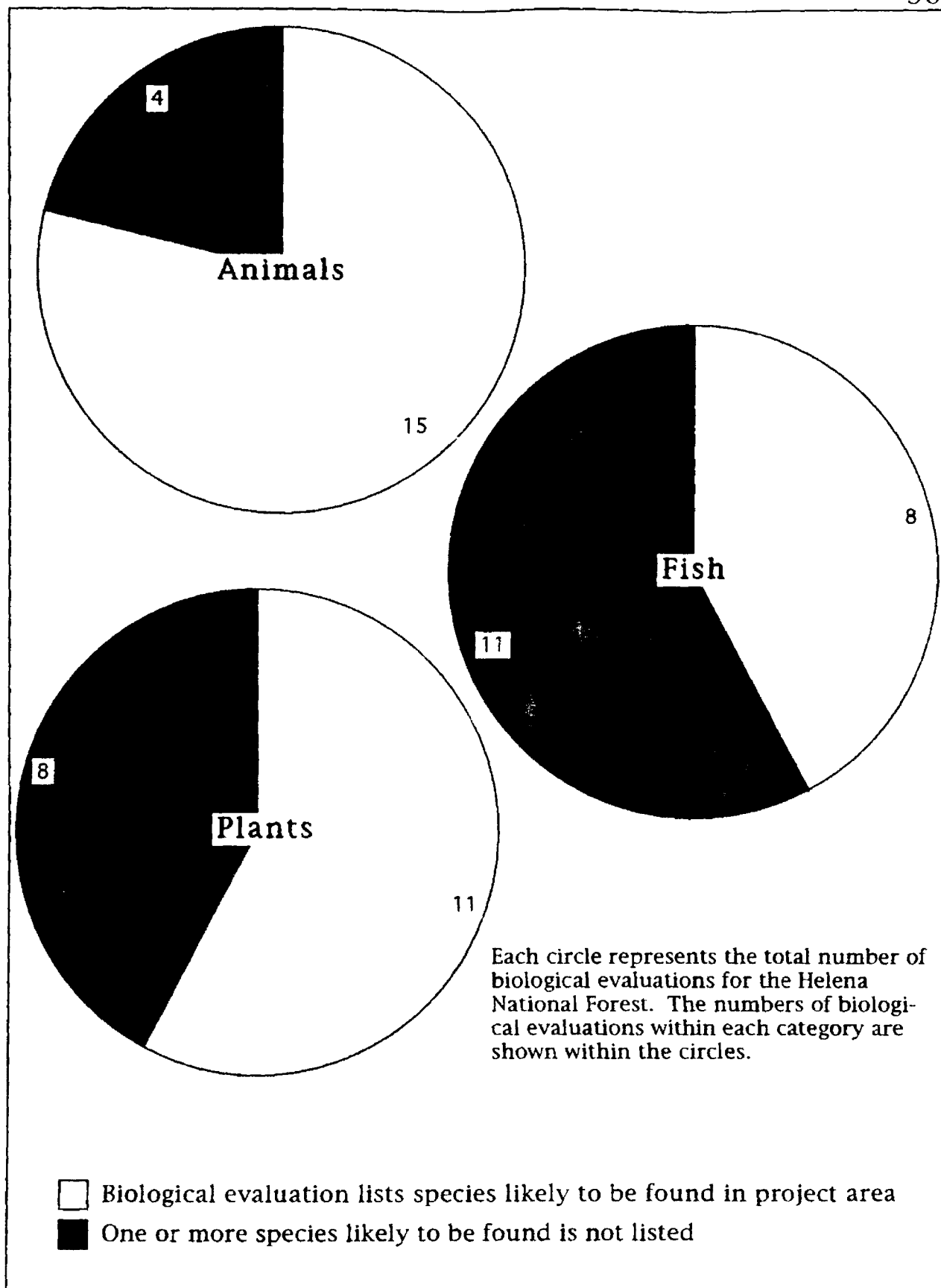
The Clearwater had survey information for all fish likely to be present for 28 biological evaluations, for only some of the fish in two biological evaluations and for none of the fish in 25 biological evaluations.



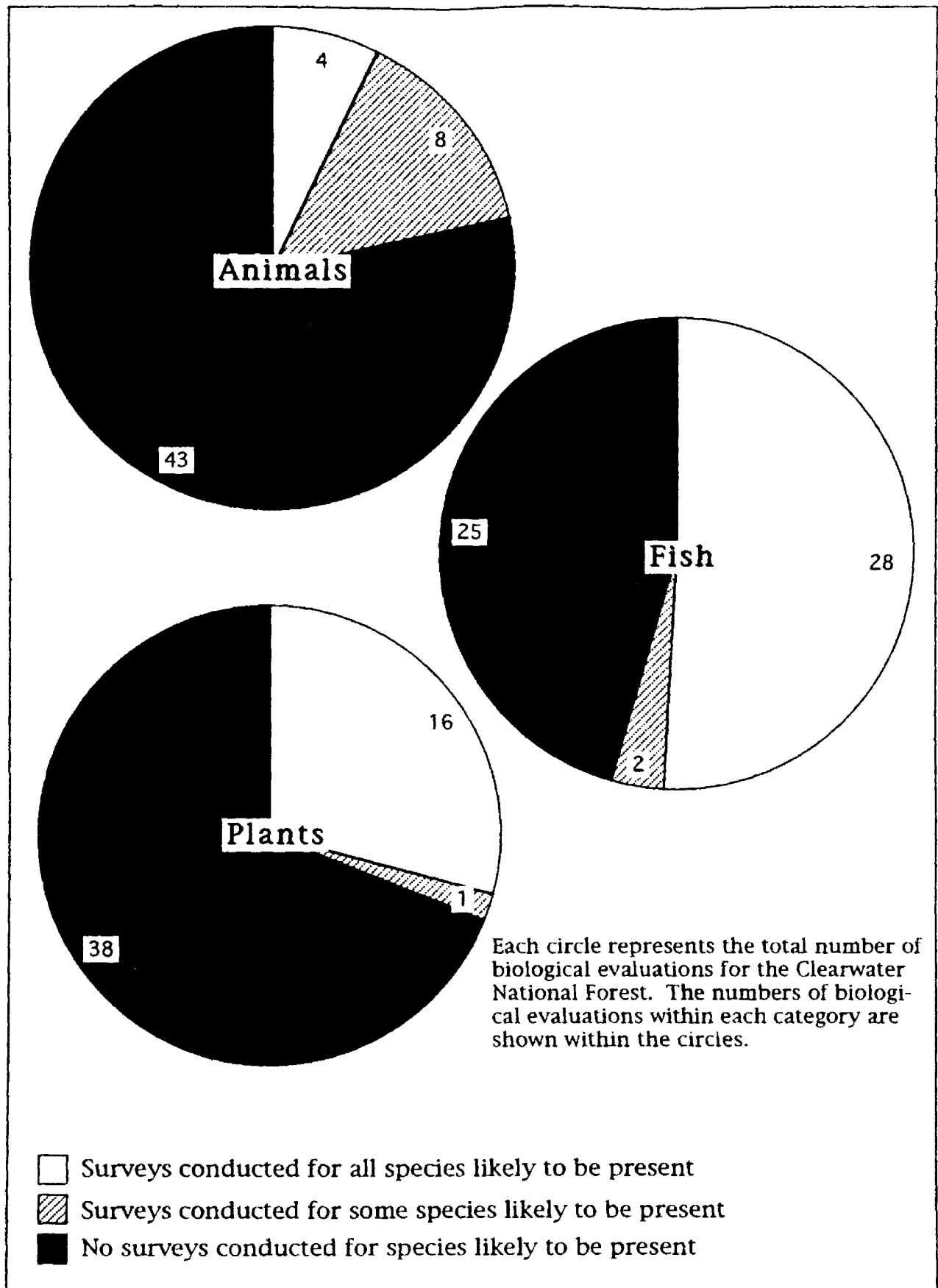
**Figure 3.** Listing of sensitive species in biological evaluations, Clearwater National Forest.



**Figure 4.** Listing of sensitive species in biological evaluations, Lolo National Forest.



**Figure 5.** Listing of sensitive species in biological evaluations, Helena National Forest.



**Figure 6.** Completion of field surveys, Clearwater National Forest.

Sixteen projects had surveys conducted for all plants, one had a survey conducted for some (but not all) of the plants thought to be present, and 38 had no plant surveys conducted.

#### *Lolo National Forest*

On the Lolo, 23 of the 27 biological evaluations indicated that no sensitive animal surveys had been conducted, four indicated that surveys had been conducted for only some of the sensitive animals expected to be found in a project area, and none indicated that surveys had been conducted for all animals likely to be found (see Figure 7).

Surveys were conducted for all fish species suspected to occur within the project area for three projects, and 24 projects had no fish surveys whatsoever.

Nineteen biological evaluations indicated that plant surveys (for all sensitive plant species) had been conducted, and eight indicated that no plant surveys had been conducted.

#### *Helena National Forest*

Of 19 biological evaluations completed for projects on this Forest, none indicated that surveys were conducted for any sensitive animal species (see Figure 8), although the documents indicated that for two projects (the Phelps-Dodge Karger mine and the Elkhorn 100 race), animal surveys would be conducted at some point in time subsequent to the decision to proceed with the project. Five indicated that surveys were done for some or all sensitive fish species, and only one indicated that a plant survey had been

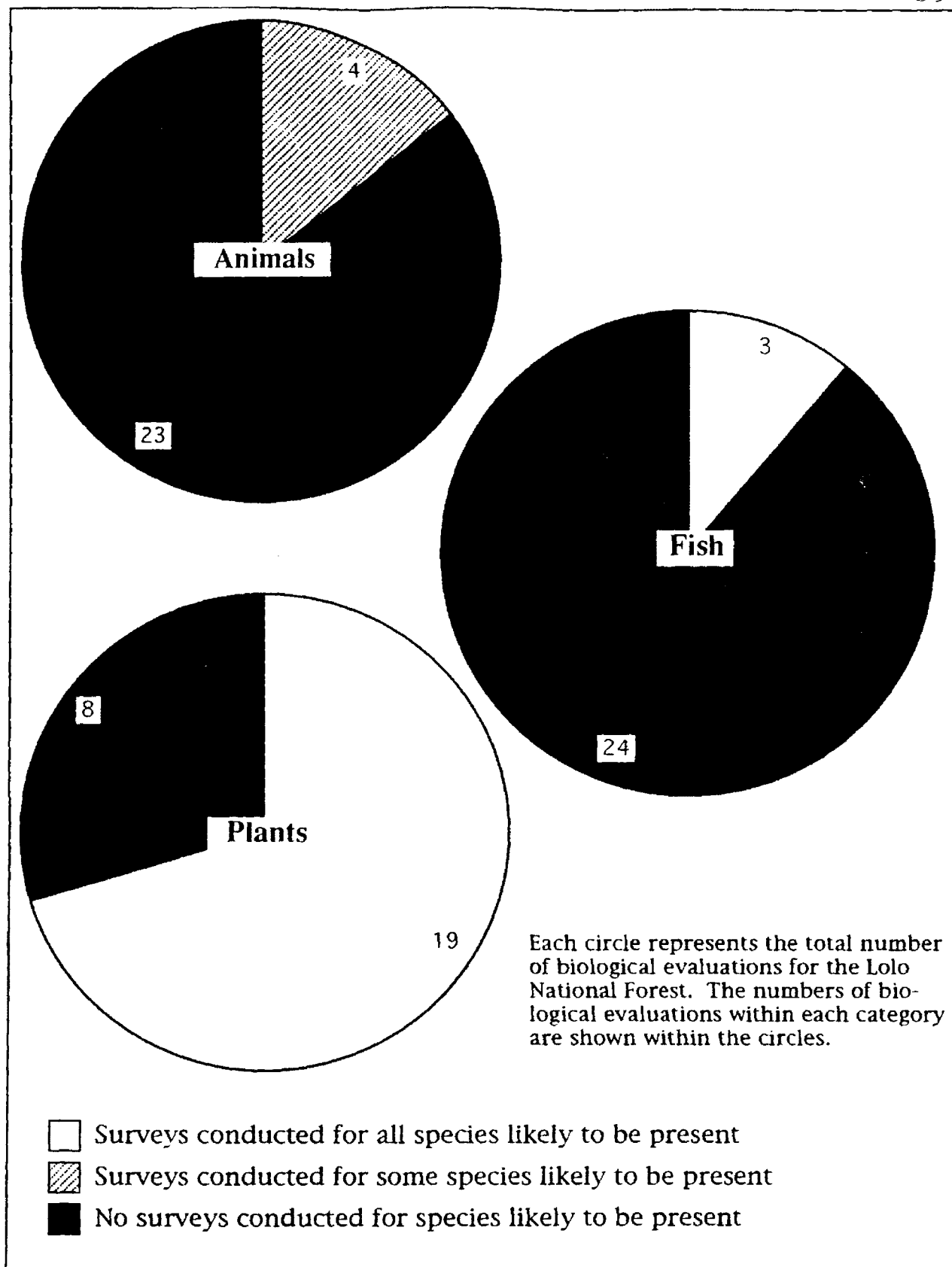


Figure 7. Completion of field surveys, Lolo National Forest.



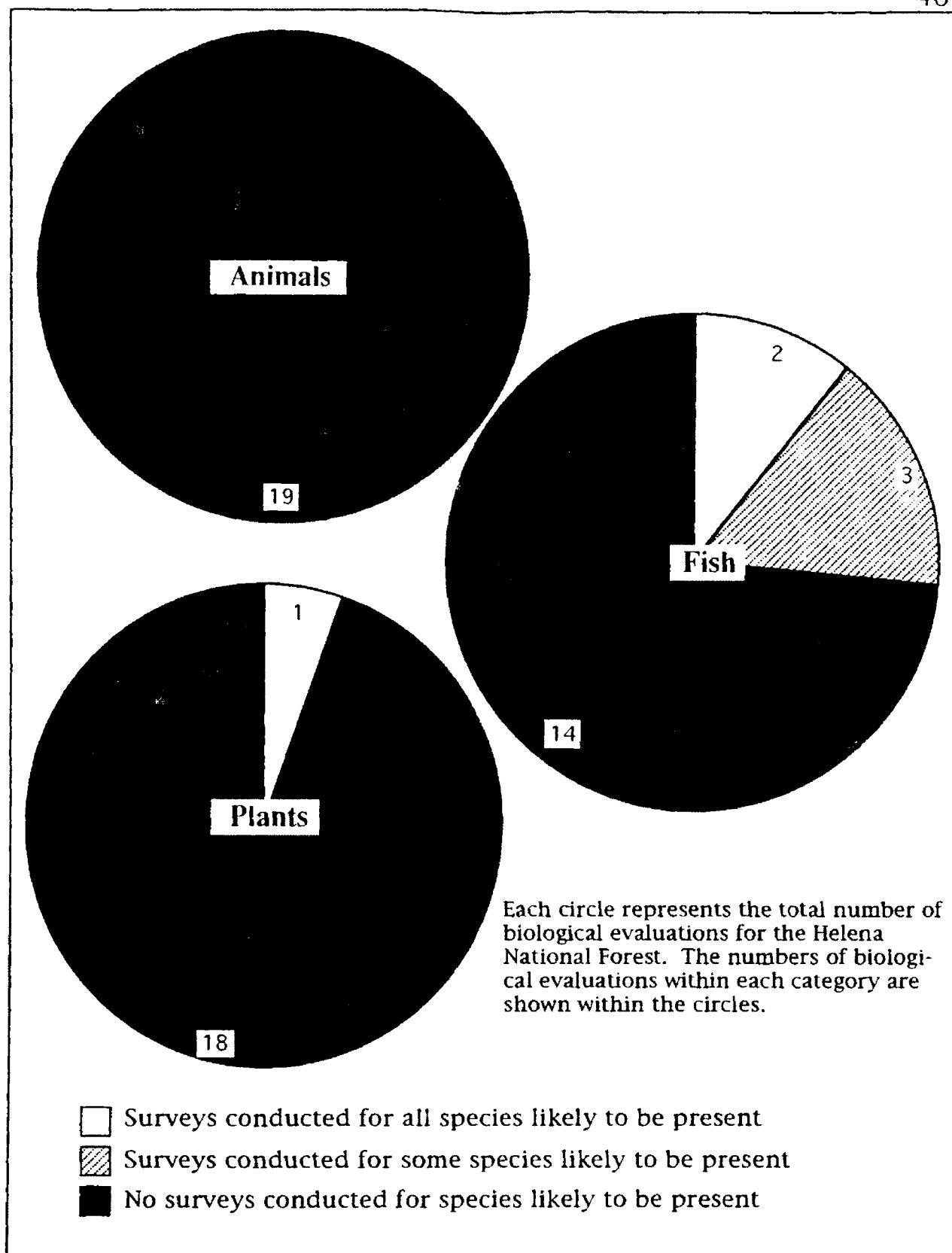


Figure 8. Completion of field surveys, Helena National Forest.

conducted. A plant survey was conducted for one additional project (the Whites Gulch safety timber sale), but no biological evaluation was prepared for this project.

### Species for which no surveys were conducted

Table Two lists the species designated as sensitive for the Clearwater, Lolo, and Helena National Forests. The numbers listed in Table Two correspond with the species codes listed in Tables Three through Five.

#### *Clearwater National Forest*

Of the 55 biological evaluations examined for the Clearwater, 42 indicated that surveys had not been done for at least some of the sensitive species suspected or known to be present (see Table Three). Several projects had up to a dozen sensitive species without any surveys conducted (and therefore no population information). For example, the North Fork small sales had 13 species likely to be affected without the benefit of survey information, and the Mid Skull and Coin Purse timber sales each had 12.

The species most commonly thought to be present for which no surveys were conducted was the wolverine, which lacked surveys in the 30 projects in which it was likely to occur. Also commonly lacking in surveys were the western big-eared bat (likely to be in 21 projects), the black-backed woodpecker (17 projects), the boreal owl and harlequin duck (15 projects each), and the Coeur d'Alene salamander (13 projects). The plant most commonly omitted from

Table Three. Species For Which No Surveys Were Conducted, Clearwater National Forest.

Project*	Species possibly present for which no surveys were conducted†
Backwash TS	24, 65, 66, 67 & 84
Barnyard TS	5
Beaver Block TS	39, 66, 73 & 76
Beaver Cr. fisheries improvement	66
Blackfoot Telephone cable	84
Blake's Fork Blowdown TS	26
Brushy Cr. TS #1 (remanded)	5, 17, 28, 42, 58, 68, 70 & 81
Brushy Cr. TS #2	5, 17, 28, 42, 58, 65, 67, 68, 81 & 84
-revised biological evaluation	5, 17, 28, 42, 58, 65, 67, 68, 81 & 84
Bugaboo TS	66, 73 & 76
Campground improvements	66, 67, 68, 70, 75, 82 & 84
Coin Purse TS #1 (remanded)	2, 12, 16, 26, 28, 59, 65, 66, 67, 68, 82 & 84
Coin Purse TS #2	2, 12, 16, 26, 28, 59, 65, 66, 67, 68, 82 & 84
Crooked Fork TS	66 & 77
Cub-Cat TS (revised)	16
Deception Gulch TS	66
Dry Knob TS	66
East Fork Blowdown TS	26
Elk Cr. Cedar TS	††

\*Projects for which no biological evaluation was prepared are not included in this table.

†See Table Table for key to these species.

††No entry indicates either that the Forest Service did conduct surveys or that it did not acknowledge the likely presence of sensitive species.

Table Three (continued). Species For Which No Surveys Were Conducted.

Clearwater National Forest Project	Species possibly present for which no surveys were conducted
Gene Pool II TS	2, 17, 26, 66, 67, 68, 75, 77, 81, 82 & 84
Goat Roost road	13, 26, 55, 67, 68, 77, 81, 82 & 84
Headlong Cleanup TS	
Hiway 12 improvements	2, 12, 17, 26, 43, 65, 67, 68, 81 & 84
Hornet Peak rd. easement	65, 66, 67, 70, 77, 81 & 84
Jerome/Boulder TS	
Laguna Cr. prospecting	
Long Jungle TS	28, 66, 68 & 77
Lolo Yoosa TS	66
Lower Beaver salvage TS	65, 66, 67, 68, 70, 82 & 84
Mid Skull TS	12, 16, 26, 34, 59, 65, 67, 68, 70, 77, 81, 84
Mizpah salvage TS	43
Moosehorn salvage TS	66 & 77
Neva Hill salvage TS	
Plum Pickle TS	
Pocket gopher control #1 (Pierce)	66, 68, 70 & 81
Pocket gopher control #2 (Pierce)	65, 66, 67, 68, 70, 81, 82 & 84
Powell aggregate stockpile	66, 75 & 76
Purdue Cr. prospecting	
Rescue Cedar TS	

Table Three (continued). Species For Which No Surveys Were Conducted.

Clearwater National Forest Project	Species possibly present for which no surveys were conducted
Ruby Cr. TS	
Running Scared Gold TS	
Small sales (N.Fork)	8, 16, 24, 49, 55, 59, 63, 64, 65, 66, 67, 70 & 84
Sneaky Sheep TS	43, 65, 66, 67, 68, 70, 77, 81 & 84
Steep Cr. TS #1 (remanded)	66, 68, 70, 77 & 81
Steep Cr. TS #2 (remanded)	66, 68, 70, 77 & 81
Steep Cr. TS #3 (withdrawn)	65, 66, 67, 68, 70, 77, 81 & 84
Steep Cr. TS #4	65, 66, 67, 68, 70, 77, 81 & 84
Squash Saddle TS	28, 66, 68 & 77
Trap Point road	66, 73 & 76
Upper Cool TS	66
Upper Palouse TS	
Van Camp TS	23, 28, 66, 68 & 77
Walde Canyon TS	28, 66, 68 & 77
White Pine Gulch prospecting	

surveys even though it was likely to be present was *Dasynotus daubenmirei* (eight projects).

#### *Lolo National Forest*

The Lolo had two projects for which it failed to prepare a biological evaluation even though it acknowledged that sensitive species were likely to be present (see Table Four): the Dry Canyon timber sale area contained westslope cutthroat and bull trout, and the Plains District weed control area possibly contained Coeur d'Alene salamander and flammulated owl, even though neither project had a biological evaluation prepared. Of the 27 projects with biological evaluations prepared, 17 showed that one or more sensitive species thought to be present had not had surveys conducted. The species most commonly lacking surveys were westslope cutthroat trout and boreal owl (nine projects each), Coeur d'Alene salamander and black-backed woodpecker (eight projects each), and fisher (five projects). The most species lacking surveys within a single project occurred in the Mosquito timber sale, where the Forest Service declined to survey for seven sensitive species.

#### *Helena National Forest*

The Helena also had several projects which possibly contained populations of sensitive species, but for which no biological evaluations were prepared (see Table Five). Examples included the Clear Creek and Gold/Red salvage timber sales and the Miller Mountain mine.

Table Four. Species For Which No Surveys Were Conducted, Lolo National Forest.

Project	Species possibly present for which no surveys were conducted
Big Elk TS	
Cloudburst Posts TS	65, 67, 73 & 84
Dick Cr. pulp TS	67 & 84
Donlan mine	65, 66, 68 & 70
Dry Camp TS	70
Dry Fork TS	
East John TS	
Four Vs mine	
Glidden TS #2	70, 73, 76 & 77
Golden Smoke TS	77 & 84
Lodgepole & etc. trailheads	84
Mattie V mine	73
McCabe TS	67, 77 & 82
Miller pulp TS	
Mosquito TS	65, 67, 68, 73, 77, 82 & 84
Orphan Annie TS	
Pat Gulch posts TS	65, 67, 77 & 84
Phoebe Windfall TS	68, 70, 73, 77 & 81
Randolf-Packer TS	70 & 73

Table Four (continued). Species For Which No Surveys Were Conducted.

Lolo National Forest Project	Species possibly present for which no surveys were conducted
Rd. 4328 TS #1	77 & 84
Rd. 4328 TS #2	77 & 84
Sixmile Rd. use permit	26
Stoneman TS	
Upper Clear TS	70 & 73
Ward Cr. road	
Weed control-Seeley	
Weed control-Superior	



Table Five. Species For Which No Surveys Were Conducted, Helena National Forest.

Project	Species possibly present for which no surveys were conducted
Alice Cr. lode	
Copper Cr. TS	68, 76, 77 & 81
East Fork Willow TS	27, 31, 44, 68, 77 & 81
Elk Ridge TS	
Elkhorn 100 race	68 & 77
Green Mtn. mine	
Hoovestal Rd.	77
Hope/Snowshoe TS	72, 76, 77 & 78
Indian Meadows portal	
Lindsay diversion permit	77
Lone Pt. TS	68 & 77
McQuithy TS	77
Phelps Dodge Karger mine	68, 77 & 78
Sheldon Gulch TS	27, 31, 44, 68, 77 & 81
Sucker Keep Cool TS	73
Surveyor Gulch TS	
Three Freinds Claim	
Upper Telegraph TS	68, 72, 76 & 77
Wagner Rd.	65, 67, 77 & 82

Of the 19 biological evaluations prepared, 13 indicated that one or more sensitive species was possibly present, but that surveys had not been conducted. Species most commonly lacking in surveys were boreal owl (11 projects) and western big-eared bat (nine projects). The Helena declined to survey for as many as six sensitive species within a project area (e.g., in the East Fork Willow and Sheldon Gulch timber sales).

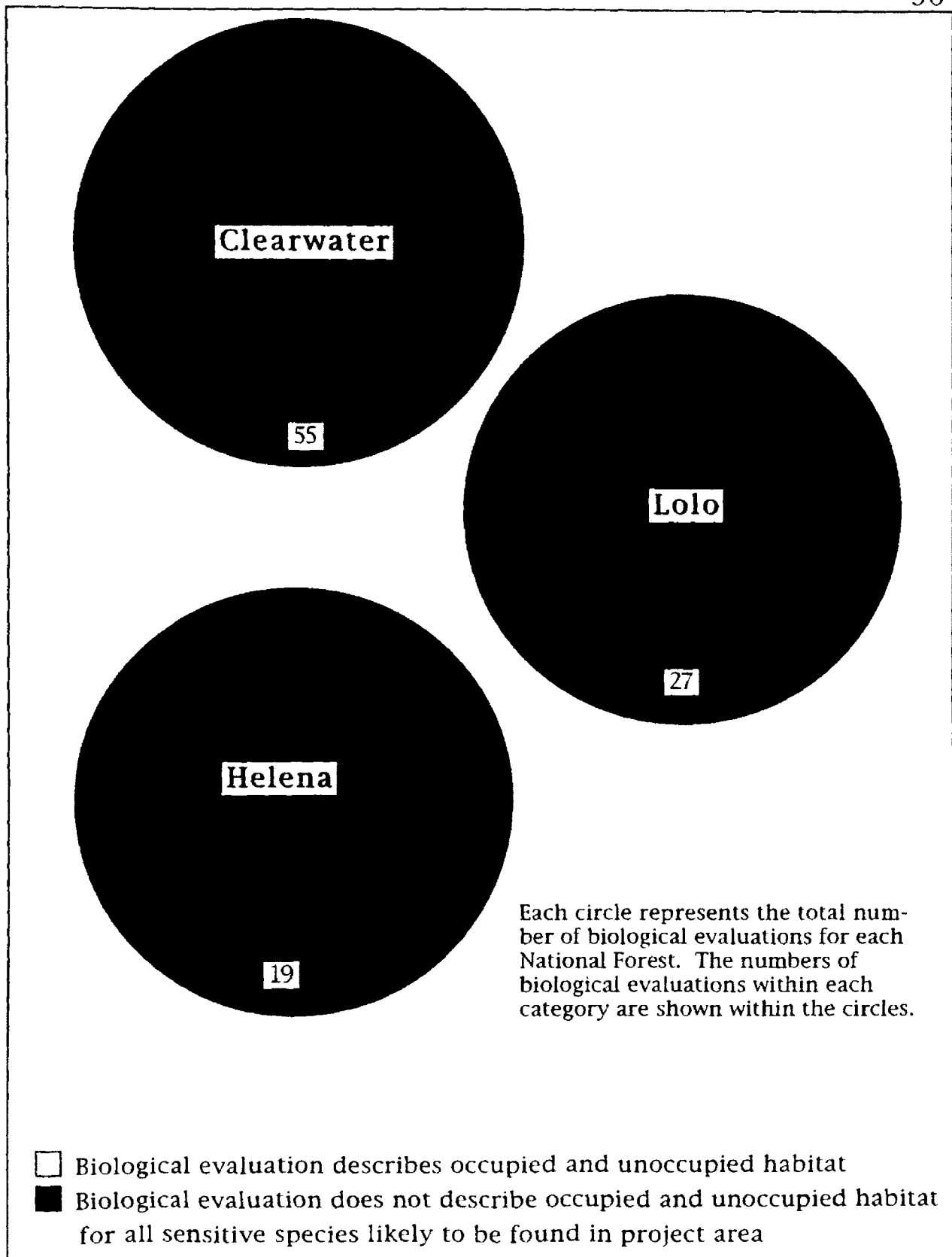
### **Descriptions of occupied and unoccupied habitat**

None of the three National Forests had any biological evaluations which met the requirement for a description of occupied and unoccupied habitat (Clearwater National Forest: 0 for 55; Lolo National Forest: 0 for 27; Helena National Forest: 0 for 19; see Figure 9). Most were entirely lacking in any attempt to describe or identify habitat. The few biological evaluations that made some stab at fulfilling this requirement left out habitat descriptions for one or more sensitive species likely to be present, or considered only occupied habitat (e.g., the Brushy Creek timber sale's later incarnations on the Clearwater National Forest).

### **Cumulative effects analyses**

#### *Clearwater National Forest*

Only four of 55 biological evaluations mentioned specific past, present or reasonably foreseeable future actions in analyzing sensitive species (see Figure 10).



**Figure 9.** Descriptions of occupied and unoccupied habitat.

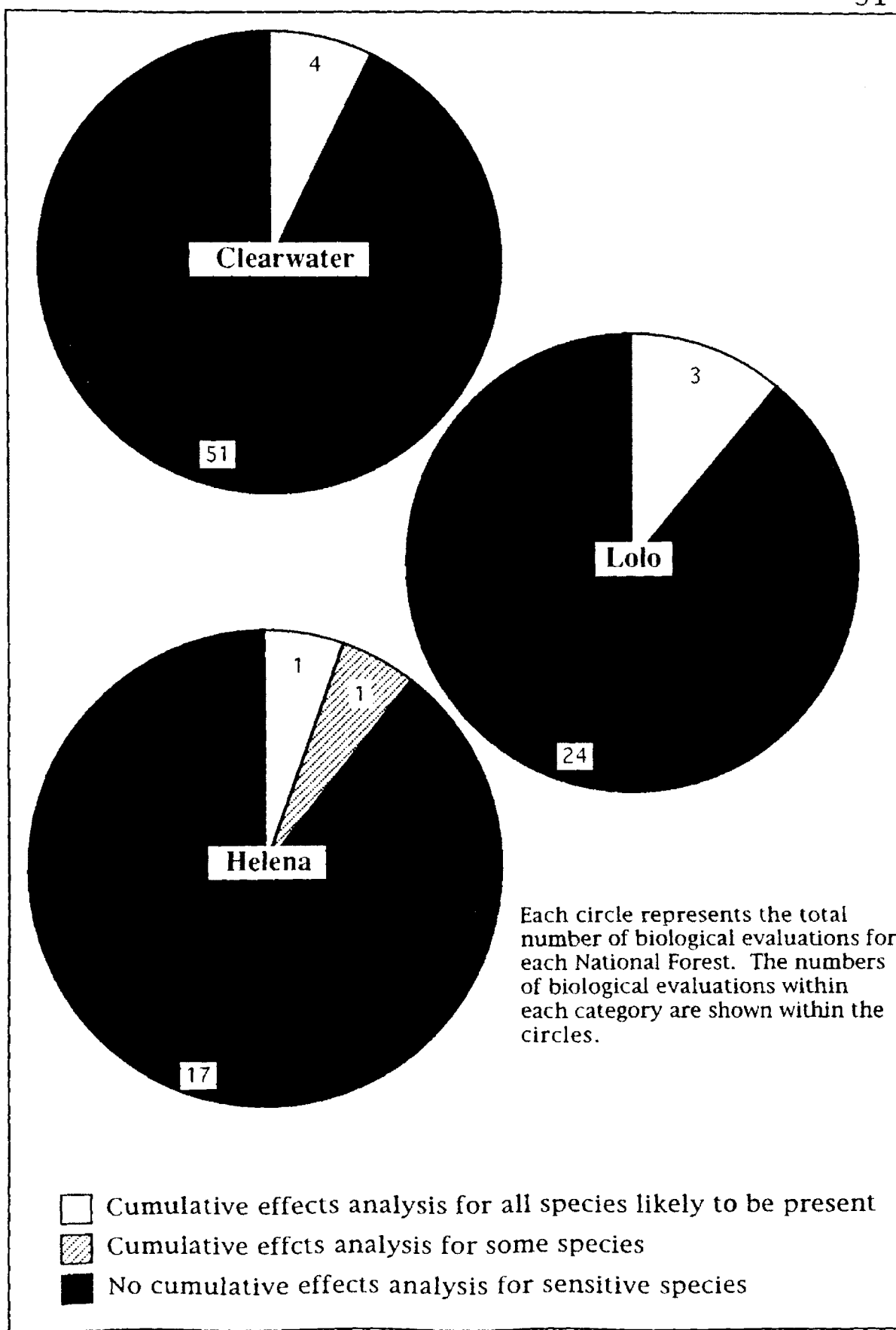


Figure 10. Completion of cumulative effects analyses.

### *Lolo National Forest*

Three of 27 biological evaluations identified other projects in the area of the project under consideration. In its animal biological evaluations, the Lolo often discussed cumulative effects in general terms, but these analyses usually contained no specific information regarding adjacent past or future projects.

### *Helena National Forest*

Of the 19 biological evaluations prepared, only two mentioned the cumulative effects of specific past or expected future projects on sensitive species within the project under consideration.

## **Determinations of effect**

This section considers only the *determination* of effects, not an *analysis* of effects, which will be discussed later. An *analysis* of effects, as required by the National Environmental Policy Act, includes an analysis of the significance of expected impacts. A *determination* of effects refers specifically to an initial assessment (as required by FSM 2672.42 [4]) of potential for conflict between a proposed project and the sensitive species in a project area.

### *Clearwater National Forest*

The Clearwater scrupulously avoided the words "may affect," even though an implicit "may affect" situation existed for one or more species in 26 out of 55 biological evaluations examined (Figure 11). The Clearwater routinely skipped explicit determination of a "may affect" situation and forged ahead to a conclusion regarding the

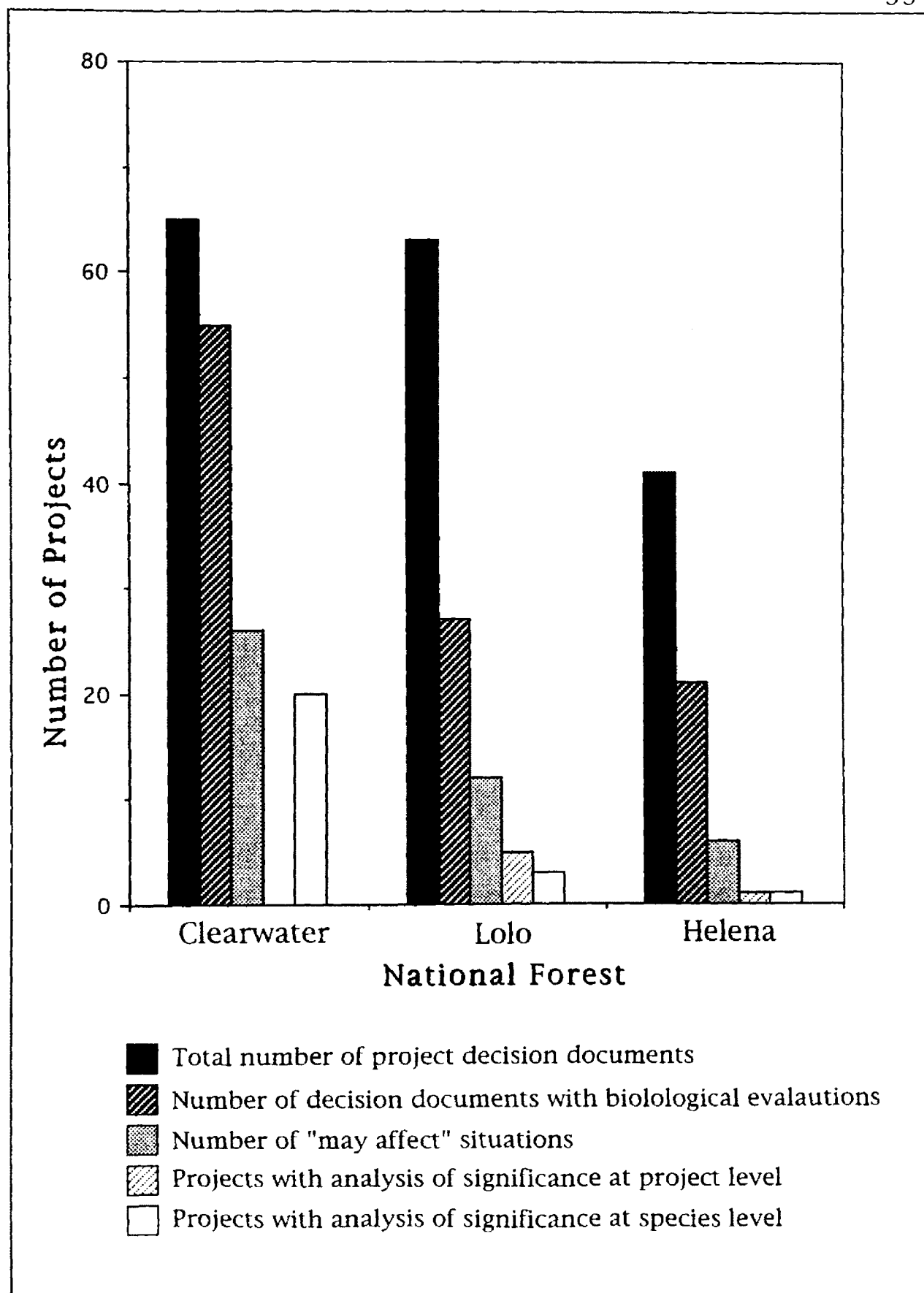


Figure 11. Analysis of significance.

significance of effects, such as "not likely to adversely affect."

Occasionally, Clearwater biological evaluations arrived at a "no effect" conclusion only after producing substantial arguments for the assertion that there would be no *significant* effects. For example, the biological evaluation for the Pierce gopher control project arrived at a "no effect" determination for several sensitive species after substantiating the claim that the proposed project would "not result in the loss of species viability or create significant trends toward Federal listing." The statements regarding significance of effects were used to justify a "no effect" ruling. This is a reversal of the progression required by the FSM, which directs that an analysis of significance should follow a determination of effects.

#### *Lolo National Forest*

The Lolo directly acknowledged a "may affect" situation in only three out of 27 projects. The Golden Smoke biological evaluation indicated that the project "may adversely affect the black-backed woodpecker." In the McCabe timber sale, a "may affect" situation was implicitly acknowledged: "The alternative will have a minor short-term adverse impact on martens and fishers by reducing the crown density." The Dry Fork timber sale indicated that clustered lady's slipper "may experience some habitat modification" and that a "conflict" with timber cutting existed.

Instead of acknowledging "may effect" situations, Lolo biologists generally chose to skip a determination of effects altogether in *de facto* "may affect" situations, or to move to an analysis of significance

of effects rather than to acknowledge directly the likely existence of effects.

In the Glidden timber sale documentation, there was no determination of effects for boreal owl, Coeur d'Alene salamander, westslope cutthroat or bull trout even though all were suspected to be present. In the Big Elk timber sale, westslope cutthroat trout were present in the drainage, but no determination of effects was conducted. The Phoebe Windfall timber sale decision document indicated that no sensitive species would be affected, but there was no animal or fish biological evaluation and no further explanation in the project file. Species likely present in this sale included the Coeur d'Alene salamander, westslope cutthroat and bull trout.

The McCabe timber sale biological evaluation indicated that, "The project will maintain a reasonable level of fisher habitat in the area" and the Dry Camp biological evaluation maintained that the selected alternative would not affect "the maintenance of viable boreal owl populations in this general area." Each of these examples speaks to the significance, not the possible existence, of effects.

Plant biological evaluations were prepared in a standardized format on the Lolo. This format required an explicit determination of "may affect" (or "conflict") when a sensitive plant was located within a project area (e.g., the Dry Fork and East John timber sales). Animal and fish biological evaluations were much less precise in their interpretation of the circumstances under which a "may affect"



situation existed: this determination was apparently left up to the particular biologists working on the biological evaluation.

### *Helena National Forest*

One of every three of the biological evaluations from the Helena were in a standardized format that appeared to require a determination of "may affect" or "conflict" whenever sensitive species were found within areas likely to be affected by proposed activities. This standardized risk assessment procedure was similar to that used for plants on the Lolo during 1991. The Helena procedure was based upon Forest Service Region Six Risk Assessment Guidelines (FSM 2672, R-6 Supplement, 10/89). These guidelines are no longer being used by Helena personnel.

Although the standardized format seemed to encourage the acknowledgment of a "conflict" situation when sensitive species were found in a project area (five of the six biological evaluations which contained an admission of a "may affect" situation were in this standardized format), it did not appear to encourage Forest Service personnel to initiate surveys for suitable habitat or individuals of species likely to be present: several species for which no habitat or population data existed were given a "no conflict" determination (examples include ferruginous hawk and boreal owl in the Hope-Snowshoe timber sale, boreal owl in the Lindsay special use permit area, and shorthead sculpin and bull trout in the Upper Telegraph timber sale: all of these species were given "no conflict"

determinations without survey information even though suitable habitat was acknowledged to exist in the project areas).

### Analysis of significance

Biological evaluations that did not rule out a "may effect" situation for one or more species were examined to determine the type of further analysis that was conducted. This further analysis is required to determine the significance (at various geographic scales) of likely effects.

#### *Clearwater National Forest*

None of the 26 biological evaluations which implied a "may affect" situation for one or more sensitive species went on to analyze the significance of those effects specifically within the project area (Figure 11). Instead, the Clearwater routinely declared that projects "would not result in a loss of species viability or create significant trends towards Federal listing." These words were used repeatedly to confer the final conclusion of the Forest Service regarding overall species viability of each sensitive species. It is possible that this statement was intended to imply that local distribution and abundance of sensitive species would not be significantly affected, but quantitative analysis to back up such a statement was never included for all species likely to be found in a given project, and the statement was not considered to have met the requirement for an analysis of significance of project-level effects.

Statements regarding significance of effects at the species level were spread across the spectrum, from almost completely unsubstantiated conclusions to conclusions supported by rather extensive qualitative arguments. An example of the former was contained within the Walde Canyon biological evaluation, which indicated that *Dasynotus daubenmirei* was possibly present. This document contained absolutely no discussion of the reasoning that led up to the following conclusion: "Forest Service management practices would not affect viability of these sensitive species nor cause significant downward trend toward federal listing." Note that by definition, Forest Service sensitive species already exhibit downward trends.<sup>38</sup> An example of the latter is contained within the Brushy Creek biological evaluation (revised twice after appeals), which contains two full pages of analysis regarding wolverine alone. Other species were also the subject of extensive qualitative analysis within this biological evaluation.

Six of 26 biological evaluations had no conclusions regarding the species-wide significance of effects for one or more species for which a "may affect" situation existed. These were generally projects for which the Forest Service had failed to acknowledge that sensitive species existed within the project area, or projects which failed to conclude anything regarding species-wide viability. An example of the former is the initial version of the Steep Creek timber sale biological evaluation, which omitted western big-eared bat, Coeur

---

<sup>38</sup> *Supra* note 1.

d'Alene salamander, boreal owl and harlequin duck from analysis, whereas later versions acknowledged that these species were possibly present. Another example is the Barnyard timber sale biological evaluation, which failed to acknowledge that *Allotropa virgata* existed within the project area. Examples of the latter include the following: the Forest Service indicated in the Crooked Fork biological evaluation that "this area is not expected to have many, if any wolverines" and concluded nothing further about species viability (wolverine have characteristically low densities even when present, and an indication of "not many" wolverine did not relieve the Forest Service of its obligations for analysis); the Brushy Creek #1 biological evaluation avoided conclusions regarding several sensitive species for which suitable habitat existed, and instead contained the following statement: "Winter tracking surveys were conducted during 1989 for wolverine that included portions of the project area. No evidence of wolverine were [sic] found. No data are available on the western big-eared bat and Coeur d'Alene salamander in the project area."

None of the three national forests employed quantitative arguments (either in terms of population numbers or potential habitat acreage affected) to support conclusions regarding significance to species as a whole. This judgment was always a qualitative one.

*Lolo National Forest*

Of the 12 biological evaluations that contained some indication that a "may affect" situation existed for one or more species, five contained a quantitative analysis of project-level effects, and seven did not (for one or more species). The Dry Fork biological evaluation contained an example of a quantitative analysis. This document indicated that *Cypridium fasciculatum* was confirmed within the project area, and went on to describe in detail the likely effects of the project on numbers and distribution of specific sub-populations. Another example was the Pat Gulch post and pole biological evaluation, which gave quantitative figures for projected reductions in black-backed woodpecker habitat within the project area (while one might quibble that the unusually large area chosen to represent the "project area" diluted out the analysis of specific local effects, one cannot deny that some attempt at quantifying project-level effects was accomplished).

Biological evaluations without a quantitative analysis of significance either offered qualitative analyses of likely effects (but avoided putting these effects into numeric terms) or lacked any analysis for species acknowledged to be present. For example, the Dry Camp biological evaluation concluded that it was "unlikely that this option will disturb the maintenance of viable boreal owl populations in this general area," but contained no quantitative analysis to back up such a contention. The Randolph Packer project file indicated that sensitive westslope cutthroat were present in the

drainage, but no biological evaluation for sensitive fish was completed. The Sixmile road use permit biological evaluation indicated that an analysis of significance would be deferred until further plant surveys were conducted (note that the decision to proceed with this project had already been signed).

Biological evaluations which had some analysis of significance of effects at the project level also generally had some statement regarding significance at the species level. Even in the absence of cumulative effects considerations, it was evidently a great temptation to extrapolate conclusions from the project under consideration to the species as a whole. The Lolo did not make extensive use of the phrase "would not result in a loss of species viability or create significant trends towards Federal listing" as the Clearwater did. Instead, the Lolo used "not likely to adversely affect the species" (this phrase was used to describe the effects on *Cypridium fasciculatum* in Dry Fork timber sale cutting units) or "no significant impact on the species" (this phrase was used to describe effects on fisher and lynx in the Pat Gulch post and pole sale) for those cases where a "may affect" situation had been established, but for which further analysis had concluded that no significant effects were likely to occur.

For two biological evaluations, Lolo biologists offered some analysis of effects at the project level, but declined to produce a direct conclusion regarding effects to the species as a whole. Regarding fishers in the McCabe timber sale area, the Forest Service

could only conclude that "the project will maintain a reasonable level of fisher habitat in the area." In the Golden Smoke biological evaluation, the Forest Service concluded that the sale would "clearly adversely affect the black-backed woodpecker," but that "food supplies for the black-backed woodpecker...should remain high Forest-wide." The Forest Service side-stepped a direct conclusion regarding species-wide viability for this project: "salvaging dead wood in the Golden Smoke project will not compromise black-backed recovery on the Forest." In this instance, inference would allow a conclusion of no significant impact to the species as a whole only if cumulative effects were explicitly taken into account. These were projects for which analysis was made more complex by the obvious intrusion of substantial cumulative effects of nearby past, concurrent and future habitat degradation. For these projects, conclusions were confined to areas smaller than the entire range of the species, and no conclusions were offered regarding the effects of the project (in concert with other effects) on the overall viability of the species.

The seven biological evaluations that contained no analysis of significance of impacts on species at the project level were also found to contain no statements regarding the significance of effects on the species as a whole. Unlike the Clearwater, the Lolo generally avoided making a leap to a conclusion of non-significance at the species level without quantitative analysis of habitat or species abundance.

*Helena National Forest*

Of the six biological evaluations that contained an acknowledgment of a "may affect" situation, only one went on to provide an analysis of the significance of the project on sensitive species within the project area. The Hope-Snowshoe biological evaluation, following a rather extensive and occasionally quantitative discussion of likely effects and proposals of mitigation for those effects, concluded that "a conflict will not exist between planned timber management activities and the maintenance of viable westslope cutthroat trout populations in [the project] area."

Five of the six biological evaluations contained no conclusions regarding species viability for all of the sensitive species for which "may affect" situations had been acknowledged. For example, the Upper Telegraph biological evaluation, after indicating that no surveys had been conducted for several sensitive species likely to be in and near the project area, was able to conclude only that the timber sale would "not appear to have any effect" on sensitive species. In the Wagner Road biological evaluation, the Forest Service biologist's final conclusion regarding lynx indicated only that there would be "no net effect" (over an unspecified time interval) and that "adequate displacement habitat exists on public lands to the south and to the west of the project area." The Helena was apparently unable or unwilling to offer specific conclusions regarding species viability because of lack of adequate habitat and population survey information.



## Consultations, sources and literature citations

### *Clearwater National Forest*

Fifty-three out of 55 biological evaluations contained some kind of list of sources (see Figure 12). None had any reference to informal consultations or an attempt to establish population objectives in conjunction with the Fish and Wildlife Service or the State of Idaho for candidate species in potential "may affect situations" (examples of projects that had candidate species in "may affect" situations include the Beaver Block, Brushy Creek and Crooked Fork timber sales). Nine biological evaluations included citations of published references.

### *Helena National Forest*

Of the 19 biological evaluations for this forest, 12 contained a list of sources. Eleven of these also contained citations of published references. One of these (the Surveyor Gulch timber sale biological evaluation) had citations by author's name and year of publication, but no information on the publication name or volume.

Seven biological evaluations had no indication of the sources used in preparing the biological evaluation, and none had any reference to informal consultations. Projects which had candidate species in "may affect" situations included the Phelps-Dodge Karger mine and the Wagner Road project.

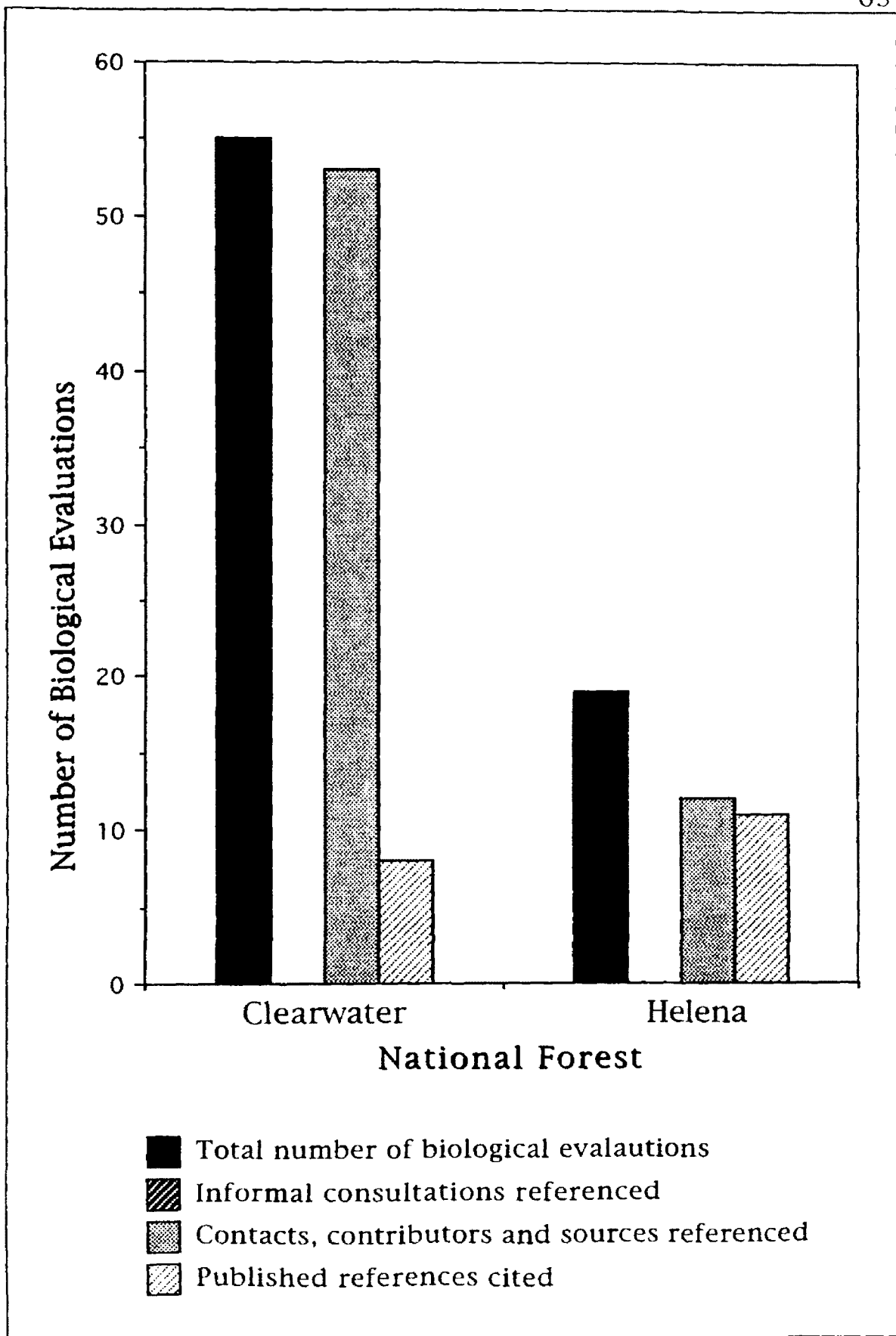


Figure 12. Referencing of sources.

## DISCUSSION

### The initiation, timing and documentation of biological evaluations.

The Forest Service had no obvious reason for not having followed meticulously the clear direction to produce biological evaluations for all projects. The Lolo and Helena National Forests were particularly unsuccessful at fulfilling this requirement.

One reason for relatively poor compliance in completing biological evaluations may have been the perception that the species for which a biological evaluation would have been completed were already protected adequately by measures put in place to protect other species.<sup>39</sup> While such a situation could conceivably exist, it would not relieve Forest Service biologists of the requirement to complete the biological evaluation, it would merely be part of a plausible analysis of effects.

The Lolo National Forest was particularly adept at completing a biological evaluation *after* the decision to proceed with a project had been signed. Occasionally, the decision notice would acknowledge that the biological evaluation had not been completed, and that a particular project might be modified to accommodate necessary changes should evidence of sensitive species be found. The problem

---

<sup>39</sup>In a 5/1/92 interview, Lolo National Forest fisheries biologist Dick Kramer indicated that "sensitive species don't really get extra consideration above general fisheries concerns of the Forest Plan."

with such after-the-fact biological evaluations is that the public had no input on the adequacy of the biological evaluations, the validity of its conclusions or the adequacy of any needed modifications. Such matters were left up to the discretion of unspecified Forest Service officials. While trust in the Forest Service may be deserved in some instances, analysis after a decision is clearly in violation of the requirement that "sensitive species receive full consideration in the decisionmaking process."<sup>40</sup>

The Lolo's difficulty in providing biological evaluations for its projects seemed to stem partly from its propensity for modifying and offering for sale old projects which had no formal environmental assessment document or biological evaluation completed. In such cases, the decision to proceed with a project was based upon sifting through a disjointed assemblage of specialists' reports in various formats. Even for those projects which did have some sort of biological evaluation, the Lolo was inclined to keep fish, plant and terrestrial animal reports and biological evaluations separate without having them merged into one document. Apparently, the decision to prepare a biological evaluation was considered independently by three different specialists (the botanist, the wildlife biologist, and the fisheries biologist), and no one person was directly responsible for gathering together the various reports, surveys and fragments of a complete biological evaluation. As a result, an extensive and thorough biological evaluation may have been prepared for plant

---

<sup>40</sup>FSM 2672.41(3).

species, but no biological evaluation at all may have been written for fish. The Lolo would clearly benefit from a more coordinated approach to sensitive species. One would hope that the result of such a coordinated effort would be that the analysis for all species within a biological evaluation would rise to the level of the most thoroughly evaluated species, but this hopefulness may be naïve: the Helena Forest demonstrated that the option of integrated biological evaluations (containing standardized procedures for all sensitive species likely to be found in a given project area) did not necessarily elevate the analysis to a particularly high level, nor did it necessarily compel the agency to initiate the biological evaluation process in the first place. On the contrary, it may have made biologists more reluctant to undertake any sort of biological evaluation when presented with what they perceived as a burdensome task of completing a full-blown biological evaluation covering all sensitive species.

Within the time period examined, the Lolo did make significant progress in getting its biological evaluations done before decisions were signed. This progress was particularly evident in plant species: several seasonal botanists were hired during the 1991 summer season. However, all of the Forests were still guilty of occasionally producing biological evaluations which indicated that one or more species would need surveys or further analysis before the project activities began.

Many biological evaluations relied upon contract stipulations as a means to assure "no effect" situations.<sup>41</sup> These clauses allow the Forest Service to modify or cancel a project that affects sensitive species discovered as the project is being carried out on the ground. Unfortunately, contract clauses rely primarily upon sawyers and other contractors whose experience in identifying rare species or their habitat may be limited or lacking, and whose vested interests may run counter to the protection of sensitive species. As addenda to thorough Forest Service analyses, contract clauses could serve as additional protection with potentially useful legal clout. The agreement between the Forest Service and the contractor provides the Forest Service with the quickest and most reliable leverage in the event that certain sensitive species or habitat are discovered after the project has begun. Court injunctions, filed by interested outside parties and based upon more general environmental legislation (such as the Endangered Species Act), are relatively slow and cumbersome compared with potentially swift action possible within the

---

<sup>41</sup>Contract clause C6.251 is routinely included in timber sale and road building contracts. This clause reads as follows: "Protection of habitat of endangered species. Location of areas needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act of 1973, or as listed on the Regional Forester's Sensitive Species List, are shown on Sale Area Map and identified on the ground. Measures needed to protect such areas have been included elsewhere in this contract or are as follows: Protection measures shall be identified in the event of discovery. If protection measures prove inadequate, if other such areas are discovered, or if new species are listed on the Endangered Species List, Forest Service may either cancel under C8.2 or unilaterally modify this contract to provide additional protection regardless of when such facts become known. Discovery of such areas by either party shall be promptly reported to the other party."

framework of the contract. However, as primary or sole protection for sensitive species, contract clauses are unproved at best.

The three Forests apparently regarded the categorically excluded projects (those for which no environmental assessment was required) to have had less compelling need for biological evaluations. This may have been a justifiable impression since a categorical exclusion is only intended to be granted to classes of projects which reliably produce no effects upon sensitive species.<sup>42</sup> In practice, however, the Forest Service often does not have enough information to justify an exclusion until *after* a biological evaluation has been completed. It would seem impossible to demonstrate a "no effect" situation for sensitive species in support of a categorical exclusion without first having done at least a cursory analysis of suitable habitat and a preliminary determination of effects (the first steps in conducting a biological evaluation). If categorically excluded projects relied upon some initial determination of "no effect" for sensitive species, the Forest Service was obligated to document that fact.<sup>43</sup> Placing a biological evaluation in the project file was the obvious way for the Forest Service to have done that. Without a biological

---

<sup>42</sup>FSH 1909.15 30.3(3): "If scoping indicates that extraordinary circumstances are present and it is uncertain that the proposed action may have a significant effect on the environment, prepare an environmental assessment." A "may affect" situation for a sensitive species is an explicit admission that "the proposed action may have a significant effect on the environment." It follows then that the decision to categorically exclude a project is an acknowledgment that no "may affect" situations are present.

<sup>43</sup>FSH 1909.15 31.2: "As a minimum, the records of a case file [i.e. project file for categorically excluded project] should include any records prepared, such as ...(2) the determination that no extraordinary circumstances [i.e. no 'may affect' situations] exist..." [parenthetical comments added].

evaluation for categorically excluded projects, the public is left to wonder if a categorical exclusion was based upon, or was used to obviate, the need for a reasonable understanding of effects to sensitive species in a project area.

The Forest Service recently relaxed the criteria upon which the categorical exclusion of projects is based.<sup>44</sup> Such a move would not necessarily reduce protection of sensitive species had the agency accompanied the move with a strengthening of its requirement for an adequate biological evaluation to be completed for categorically excluded projects. However, the Forest Service moved not to strengthen biological evaluations, but rather to weaken them: the Chief of the Forest Service directed Regional Foresters to utilize "the maximum flexibility of current Forest Service direction"<sup>45</sup> when proposing salvage sales (particularly those which will now be available for categorical exclusion). This "maximum flexibility" includes the following limitations to the biological evaluation process:

Biological Evaluations - For species designated as sensitive by the Regional Forester, use existing information. Limit any additional field data to specific areas where sensitive species are known to exist or likely to exist because of known habitat. Consider excluding areas known to have high habitat value from initial salvage sales when field data collection would unnecessarily delay the project. After

---

<sup>44</sup>On 9/18/92, the Forest Service increased the amount of timber that could be cut in a categorically excluded project from 100 MBF (thousand board feet) to 1,000 MBF of dead timber or 250,000 MBF of live timber. Federal Register, v. 57, n. 182, p. 43209.

<sup>45</sup>Letter from Forest Service Chief F. Dale Robertson to Regional Foresters, dated 9/15/92.



completing additional data collection, such areas could be included in additional sales later, as appropriate.<sup>46</sup>

This new, more "flexible" framework effectively deletes the analysis of suitable unoccupied habitat from biological evaluations. It is difficult to envision how this new direction will result in anything but reduced protection for sensitive species protection within categorically excluded projects.

All Forests demonstrated very poor compliance regarding the requirement that the results of biological evaluations be documented in the decision notice. The poor performance could have been the result of an attitude that the requirement itself was a mere formality, and that full consideration of the sensitive species in a project should have been demonstrated in the biological evaluation. The thinking may have been that further discussion in the decision document would have been unnecessarily redundant.

There is a critical distinction between the biological evaluation and the decision document, however. The persons involved with the preparation of the biological evaluation carry no lasting responsibility other than the obligation to have completed the document in good faith and according to the relevant regulations: the document is strictly a scientific analysis of the effects that may take place. In contrast, the decision document and the person signing that

---

<sup>46</sup>*Id.* The directive is ambiguous regarding the actual point at which field data collection is to commence for areas with high habitat value but no known occupants: there is no prohibition against developing these areas without having undertaken any field data collection. Note that this new direction implicitly acknowledges that biological evaluations are needed for categorically excluded projects.

document bear the entire weight for the choice to proceed down a given path.<sup>47</sup> The requirement to document findings of the biological evaluation in the decision document underscores and formalizes the responsibility of the person signing the decision to have read, understood and acknowledged the information contained in the biological evaluation, and to have made a decision with the consequences upon sensitive species in mind. When sensitive species were omitted from mention within the decision document and finding of no significant impact, the Forest Service was, in effect, refusing to document the extent to which sensitive species were considered by the person making the decision.

There is no logical reason why the Forest Service should differentiate between decision memos and decision notices within the context of the requirement that biological evaluation findings must be documented in the decision document. It seems likely that the intent of the regulation is that findings must be documented in memos as well as notices.

### **The listing of species within a biological evaluation.**

All three Forests had difficulty fulfilling the requirement that all species potentially affected by a project must be listed within the

---

<sup>47</sup>FSM 2670.32(4) - Sensitive species: "If impacts cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole. (The line officer, with project approval authority, makes the decision to allow or disallow impact, but the decision must not result in loss of species viability or creates significant trends toward Federal listing.)"

biological evaluation. The Lolo and the Helena resisted fulfillment of this requirement the most, particularly regarding fish species.

The simplest way this requirement was fulfilled was via a regurgitation of all sensitive species on the list for a particular Forest at the time the biological evaluation was prepared.<sup>48</sup> Such a list (accompanied by an additional listing of watch species<sup>49</sup> for a given Forest) can serve as a good starting point for analysis within a biological evaluation, but offers little in the way of site-specific information. In order to move from the general to the site-specific, the logical next steps after the compilation of such a list would be a check of District, State or Natural Heritage program occurrence records to establish whether verified sightings had been recorded for the project area, and an analysis of the suitability of habitat within the project area for each of the species on the list. These steps are not merely intuitive: they are clearly presented as part of the preferred progression of analysis in Exhibit 1, FSM 2672.43 -

---

<sup>48</sup>The Forest Service Chief's decision (dated 3/16/89) on Donna Agoitia's appeal of the Flathead National Forest Plan indicates that the Forest Plan should "(1) list the sensitive plant species known to occur or suspected to occur on the national forest and (2) establish any standards and guidelines necessary for the conservation of these species." To date, the Flathead National Forest is the only Forest in Region One to have included such a list with the Forest Plan, but the Region One list breaks down the species by Forest. This Region-wide list serves as a basis for the listing of species likely to be found (in the very loosest sense) within a given project area.

<sup>49</sup>The Forest Service maintains a list of species which are thought likely to be found, but are not known to exist on National Forest lands. If found, these "watch species" are placed on the sensitive species list. The watch list may also include rare species which are known to occur on National Forest lands, but for which there are no predicted immediate threats to population viability (Lesica, P. and J.S. Shelly. 1991. Sensitive, Threatened and Endangered Vascular Plants of Montana. Montana Natural Heritage Program Occasional Publication No. 1).

Procedure for Conducting Biological Evaluations (see Appendix 2). In regarding a mere listing of existing records as fulfillment of its obligations, the Forest Service declined to acknowledge or pursue the very real possibility that unknown amounts of occupied habitat existed within a project area.

The biological evaluations that indicated no sensitive species were likely to have been present (but did not indicate the species that had been considered) required the leap of faith that habitat needs for all of the sensitive species for the Forest had been compared with habitats known or suspected to exist in the project area. This leap would have been unnecessary had the Forest Service plainly listed (as required by the regulations) those species with even the smallest chance of being affected by the project, and demonstrated that suitable habitat for all of these species had been sought out.<sup>50</sup> A biological evaluation which glossed over or omitted any one of the steps mentioned above was an open invitation for legitimate doubts regarding the thoroughness of attempts to include all species which should have been considered in the analysis process. Such doubts would be grounded in experience: the Steep Creek and Big Smith biological evaluations (both recently completed on the Clearwater National Forest) both declined to analyze effects to *Cypridium fasciculatum* based upon its supposed absence from cutting units. This species was independently confirmed by Natural Heritage

---

<sup>50</sup>FSM 2672.42 indicates that biological evaluations must include "an indication of all listed, proposed, and sensitive species known or expected to be in the project area or *that the project potentially affects*" (emphasis added).

Program documentation to be within cutting units of both timber sales.

### Sensitive species surveys.

Survey information serves as the foundation of analysis regarding plant and animal species.<sup>51</sup> Lack of survey information demoted Forest Service conclusions to the level of unsubstantiated speculation. Such speculation may have been expert speculation,<sup>52</sup> to be sure, but it was speculation all the same. Without the initial reference points and continual feedback supplied by surveys<sup>53</sup> of actual conditions, biologists' speculations are a rudderless raft adrift in a featureless sea: there is no way to know where one has been or where one was going, and no way to judge the best way to get anywhere.

When the Forest Service did make some effort to gain quantitative information regarding sensitive species, the attempts fell into three categories: 1) surveys of individuals within the area of a proposed project, 2) surveys of suitable habitat in the area of a proposed project, and 3) general surveys of large areas of a given National Forest which happened to include areas proposed for a particular project. The first category was used routinely by botanists, to a lesser extent by fisheries biologists, and rarely by terrestrial animal

<sup>51</sup>"...It is impossible to conserve a species unless one knows the actual places where its populations occur." Morse, L.E. 1981. *The Nature Conservancy and rare plant conservation in the United States*, in *The Biological Aspects of Rare Plant Conservation*. Hugh Synge, ed. Pp. 453-457.

<sup>52</sup>Generally known in Forest Service parlance as "professional judgment."

<sup>53</sup>This study defers consideration of two critical issues regarding surveys: effectiveness of the survey methods and expertise of the persons conducting the survey.

biologists. The exception was on the Helena National Forest, where plant surveys were almost never conducted. More recent biological evaluations from this Forest indicate some effort toward the identification of suitable habitat. Numerous projects from all Forests included terrestrial and aquatic species for which no project-level surveys were attempted.

The surveys of suitable habitat in project areas were used and documented in biological evaluations to widely varying degrees by biologists of the three Forests. Again, the botanists on the Lolo and Clearwater demonstrated more explicit documentation to show that all suitable habitat had been considered (if not surveyed). This documentation often included descriptions of the habitat needs for the plants likely to be found in the project area, and a description of the likelihood of finding those particular habitat types. Biologists dealing with aquatic and terrestrial animals had much more difficulty quantifying suitable habitat, although there was no obvious reason why this would be the case: maps, database records, and aerial photographs seem capable of providing as much information regarding possible suitable habitat for animals as they do for plants.

General surveys of more extensive areas were applied most often to fish species (as part of general fish survey information, including information gained from state Fish and Game surveys), to some plant species on the Lolo (e.g. *Lesquerella carinata*, *L. paysonii*, *Trifolium gymnocarpon* and *Orogenia fusiformis*, for which broad-scale surveys were conducted on the Lolo during 1991) and to a selection of other

species on the Clearwater and Lolo (Clearwater biologists conducted large-scale surveys for Coeur d'Alene salamander, harlequin duck, wolverine, and boreal owl starting in the late 1980s; the Lolo was in the process of collecting large-scale survey information on common loons). Mammals such as wolverines, which can have enormous home ranges and low population densities, require such large-scale surveys if any useful information is to be turned up: there are not very many animals to begin with and the ones that are there move around a lot.<sup>54</sup> Other large-scale surveys were conducted for species like Coeur d'Alene salamanders or harlequin ducks, which have highly specific and predictable habitat needs. For these species, large-scale surveys were apparently the result of biologists knowing more or less exactly where to look, and having the time and money to do it. In such cases, the Forest Service gained valuable initial insight regarding population numbers and distributions within a given National Forest.<sup>55</sup> Unfortunately, the Forest Service has not conducted coordinated, larger-scale surveys for the majority of sensitive species.

---

<sup>54</sup>Mary Maj, Assistant Region One TES Program Coordinator, in a 10/8/92 interview: "We can't monitor a wolverine population on a District; that probably needs to be done at a larger scale."

<sup>55</sup>These surveys were often the result of cooperative efforts or cost-share programs. Examples include: Musil, D. and W.R. Stutz. 1989. Boreal owl winter survey: Nez Perce and Clearwater National Forests, Idaho. Cooperative Challenge Cost Share Project, National Forest Service and Idaho Department of Fish and Game. 23 pp.; and Cassirer, E.F. and C. R. Groves. 1990. Distribution, habitat use and status of harlequin ducks (*Histrionicus histrionicus*) in northern Idaho, 1990. Cooperative Challenge Cost Share Project, National Forest Service and Idaho Department of Fish and Game. 55 pp.

Many projects had neither project-level nor larger-scale survey information available, nor was there any quantitative (or often qualitative) data regarding habitat suitability. The Forest Service acknowledged that many of these projects were likely to contain suitable and possibly occupied habitat for sensitive species. The failure of the Forest Service to attempt to quantify, at the very least, the amount and type of suitable habitat present was often the result of two types of constraints: budgetary (and/or personnel) and time.

Budgetary problems will be discussed later, but it is important to note at this point that one of the hardest blows delivered to the sensitive species program by a lack of funding was dealt directly to this most vulnerable point: field surveys. Survey funding for Forest Service personnel or for outside contractors<sup>56</sup> was often a limiting factor in providing adequate analysis of sensitive species. The Forest Service had only seven full-time botanists employed in the entire agency in 1987.<sup>57</sup> This number has now grown to something around 100. Many National Forests still do not have a full-time botanist. The shortage of funding for biologists comes to the surface in some of the more forthright Forest Service documents: the Castro timber sale (Idaho Panhandle National Forest) biological evaluation indicated that "no determination of habitat quality or occupancy of habitat was done because of time and dollar constraints."

---

<sup>56</sup>The Forest Service often contracts or arranges cost share programs to allow Natural Heritage Program employees to conduct surveys.

<sup>57</sup>Angela Evanden, former Region One Botanist (9/25/92 interview).



As the Castro document suggests, time constraints were another obvious problem in fulfilling sensitive species regulations: numerous projects were approved without field surveys not for lack of intent or resources to conduct such surveys, but because of the compelling need to produce commodities according to output goals. Biological evaluations for several Helena sales (including the McQuithy and Karger Lode projects), indicated that surveys of suitable habitat "should be conducted," but not in time to apply any information thereby acquired to the project in question; the information gained was intended to "identify and document any use" of the project areas for future analyses of sensitive species. In the meantime, the projects went ahead as planned. The biological evaluation for the Emerald project (Idaho Panhandle National Forest) indicated that "a conflict determination cannot be made at this time,...more survey time is needed."

This discussion will forego a thorough analysis of the driving force applied to National Forest timber production via Congressionally assigned timber targets; it suffices to say that timber outputs have been a higher priority than sensitive species protection within a significantly powerful faction of the Forest Service. One recommendation of an April 18, 1991 presentation of Forest Service Deputy Chief James Overbay to the Regional Foresters was to "suspend agency policy on sensitive species." Mr. Overbay proposed an "action plan" to deal with about 3.2 billion board feet of the 1991 timber sale program which had "a high risk of not being offered."

According to Overbay, "The risks are due to appeals, lawsuits, roadless areas, and spotted owls. Among other things, the [plan] suggests such things as adding personnel on districts where local timber companies have less than a six-month supply of timber and changing the agency's policy on sensitive species." That projects on the three National Forests in this study were not delayed in order to conduct adequate sensitive species surveys is a *de facto* demonstration of Forest Service priorities.

In general, the most obvious need for survey information was in situations in which the Forest Service indicated that suitable habitat was indeed present or expected to be present in areas scheduled to be logged, mined, graded, poisoned or grazed in a proposed project. If the agency conceded the need for surveys in these instances, it generally took two approaches. The first was to acknowledge (directly or in a round-about way) that a conflict existed, and to initiate surveys of populations or habitat to gain more information. The second approach was to assume, without having conducted surveys, that all suitable habitat within the project area was occupied, and move on to further analysis based upon that assumption.

The advantage of conducting actual surveys over making any assumptions regarding suitable habitat is that the surveys provided hard information with which guesses about suitability of habitat can be refined or refuted. If the Forest Service *always* assumed that its guesses about the suitability of habitat were accurate, it never had

the opportunity to check itself against reality: there may have been substantial differences between hypothesized and actual areas of occupation. Given the rarity of actual surveys for many species, the Forest Service was remarkably close to this extreme.

If the Forest Service decided to be generous and acknowledge ample areas of potentially suitable (but unsurveyed) habitat, such an allowance did not necessarily work to the advantage of conservation of the species without an indication of the *quality* of habitat of the exact parcels of land scheduled for development. For example, the Forest Service may have proposed to affect only a small percentage of the generously estimated suitable habitat for boreal owl in a particular area, but the proposed action coincidentally included the best, or only, occupied nesting trees. In such a situation, the prediction of a minuscule effect would have been incorrect.

Surveys were obviously not routinely conducted for sensitive species within project areas. This fact alone would not be so troubling had there been an indication for each of these projects that such surveys would have served no useful purpose. Such an indication would have been the logical conclusion had there been a thorough analysis of affected potential suitable habitat for each sensitive species, and none had been found. Unfortunately, there was no indication that this was the case for most of the projects which were thought to contain sensitive species.

The Forest Service cannot claim to lack completely the knowledge and ability necessary to undertake and complete an adequate census

of sensitive species within a project area: Region One botanists have occasionally done thorough surveys and analyses of effects to sensitive plants (e.g., *Allotropa virgata* in the White Stallion timber sale on the Bitterroot National Forest). However, this knowledge has apparently not been disseminated extensively throughout the agency.

### **Descriptions of occupied and unoccupied habitat within project areas**

The requirement for "an identification and description of all occupied and unoccupied habitat...to meet Forest Service objectives for sensitive species"<sup>58</sup> is somewhat ambiguous. One might argue that, in the absence of specific objectives on a given National Forest, no habitat at all need be identified or described. Such an argument would be specious: a general information deficit should argue all the more persuasively *in favor* of the need for project-specific information, not against it.

Forest Service direction indicates that specific objectives regarding population numbers or habitat quantity or quality should be included within the Forest Plans.<sup>59</sup> In addition, agency regulations direct the Forest Service biologists to develop and follow a management scheme on a larger, Regional or inter-Regional scale if

---

<sup>58</sup>FSM 2672.42(2).

<sup>59</sup>FSM 2672.32 - Forest Plan Objectives for Sensitive Species: "For sensitive species, include objectives in forest plans to ensure viable populations throughout their geographic ranges. Once the objectives are accomplished and viability is no longer a concern, species shall not have 'sensitive' status."

required by the range of the particular species.<sup>60</sup> Such a scheme includes a management plan for specific activities within the context of an overall conservation strategy for a particular species.

Unfortunately, the Forest Service has yet to finalize a conservation strategy for any of the sensitive species within Region One.<sup>61</sup> In addition, sensitive species were generally omitted from any discussion within the Forest Plans of most National Forests. Although the Flathead National Forest has amended its Forest Plan to include a list of sensitive species, it does not have any specific standards and guidelines for individual sensitive species. As a result, there are no specific habitat or population objectives for any of the sensitive species within Region One.

In the absence of conservation strategies, the lack of effort from the Forest Service in quantifying occupied and unoccupied habitat within project areas is particularly disturbing. Fulfillment of the requirement for habitat descriptions would provide the Forest Service with a valuable opportunity to construct at least part of its

---

<sup>60</sup>FSM 2670.44 - Regional Foresters: "The Regional Foresters ensure that specific management objectives and legal and biological requirements for the conservation of endangered, threatened, proposed, and sensitive plants and animals are included in Regional and Forest planning, and ensure that planning for those species common to two or more Forests is coordinated among concerned units, [and] identify and approve management strategies to achieve conservation.

<sup>61</sup>Mary Maj, Assistant Region One TES Program Coordinator, in a 10/8/92 interview, regarding conservation strategies: "There's not been a lot of actual work done in terms of actual completed documents. I shouldn't say 'not actual work done' because there's still a lot of effort in collecting data and formalizing groups that are identifying conservation needs." According to Steve Shelly, Acting Regional Botanist, in a 5/5/92 interview, draft conservation strategies have been completed for four plants: *Howellia aquatilis*, *Mimulus clivicola*, *Calochortus nitidis* and *Grindelia howellii*.

conservation strategies from the ground up, using the information discovered from surveying and analyzing various projects. Instead, the Forest Service may have to depend upon generating most of the information for its conservation strategies from scratch, using expensive overlays of more levels of surveys and analysis, conducted independently of the projects for which the agency prepares biological evaluations. Such an approach would clearly be redundant and unnecessary if the agency had all the while been fulfilling its obligations within the context of biological evaluations for projects. While the Forest Service will undoubtedly need to initiate additional surveys at some point to fill in the considerable gaps in its data regarding sensitive species, it seems ridiculous to allow obvious and necessary surveys needs to go unfulfilled in the meantime.

### Cumulative effects analyses

Cumulative effects analyses are a hedge against the weaknesses of conducting piecemeal biological evaluations outside of the context of coordinated conservation strategies. Without such strategies, the next best option is for the Forest Service to analyze the effects of each project within the context of specific nearby projects scheduled for roughly the same time, and past and future projects in roughly the same area. Like descriptions of occupied and unoccupied habitat, thorough cumulative effects analyses would provide an indication that the Forest Service has a good start down the road toward formulating conservation strategies. The poor showing of the Forest

Service in meeting the cumulative effects requirement indicates that the agency is still mired at the starting line in this effort.

### **Determination of effect and analysis of significance**

One of the most critical weaknesses of Forest Service biological evaluations resulted from the inability or unwillingness of agency personnel to keep separate and distinct its determinations of effect and analyses of significance. A determination of effect follows from the specific requirement of the Forest Service Manual<sup>62</sup> that the agency specify for each sensitive species whether the project under consideration will lead to no effect, a beneficial effect, or a "may affect" situation. There are no options for a determination of effects other than these three.

The requirement for an exact determination forces the agency to nail down the exact nature of the next necessary step in analysis (see Appendix 2). If a "may affect" situation exists, then an analysis of significance must be conducted, and if necessary, the project modified. An analysis of significance is not only required by the FSM, it must also conform to the requirements of the National Environmental Policy Act. The logical progression from a determination of effects to an analysis of significance lends a rational structure to biological evaluations.<sup>63</sup>

---

<sup>62</sup>*Supra* note 27.

<sup>63</sup>Steve Shelly, Acting Region One Botanist, in a 5/5/92 interview: "I see the whole effects analysis process as being a very logical building-up of the case that you're going to try to make for that particular population, and I think it's really important to keep the determination of effects separate. It gains clarity for one thing."

Unfortunately, there seemed to be no trend within the Forest Service (particularly within the Clearwater) to sharpen the distinction between effects determinations and analyses of significance. The Helena's use of a biological evaluation format with clearly separated determinations and analyses during 1991 (based on a highly structured risk assessment analysis borrowed from Region Six) was subsequently withdrawn from use. Evidently, the agency will continue to jumble its analyses into one, skipping over intermediate steps to arrive at conclusions which offer little clarification regarding the exact nature and scale of threats to sensitive species.<sup>64</sup> Phrases such as "not likely to adversely affect" or "would not result in a loss of species viability or create significant trends towards Federal listing" appear as determinations of effect and conclusive statements of non-significance all rolled into one.

What was meant to be an iterative process (with specific mitigation measures added into the equation in a "may affect" situation until likely effects are tamed into insignificance) will

---

<sup>64</sup>The recently completed chapter on sensitive plants within *Our Approach to Effects Analysis: a Desk Reference* (Forest Service Region One) mentions no need for a discrete determination of effects. Instead, it offers four choices for an effects prediction: "The final analysis documentation should include...a conclusion, which presents the effects prediction (no effect, may beneficially affect, may adversely affect, or not likely to adversely affect). In the case of a "may adversely affect" prediction, and whenever appropriate in a "not likely to adversely affect" situation, the associated biological evaluation should include mitigation recommendations to avoid or minimize impacts." The precise distinction between "may affect" and "not likely to adversely affect" appears to be unresolved at this point. The phrase "not likely to adversely affect" appears to have originated from the office of Forest Service Deputy Chief George Leonard, and has been incorporated into the Forest Service Manual for Region Six (the Pacific Northwest), but not officially for Region One.



evidently continue as meandering quests for arguments, rather than data, which support the contention that significant effects are unlikely. Such quests often end up relying upon the dilution of local effects by inclusion of large areas of a species range within the analysis. Without survey information and without information on quality of habitat, such analyses are easily manipulated by simply increasing the acreage of unsuitable habitat included within the analysis area to decrease the percentage of suitable habitat affected.

The clear path out of the analysis maze is quite simple. In addition to keeping the determination of effects, analysis of significance, and application of mitigation as discrete and clearly defined entities, the Forest Service must perform analyses on several different carefully defined spatial scales. The agency has recognized the obvious need for this approach,<sup>65</sup> but has yet to put it into routine effect. A good-faith effort to keep all its analyses in their place within the context of a biological evaluation would go far in helping the Forest Service pinpoint weaknesses in sensitive species information, analysis, and ultimately, protection.

Recent biological evaluations seem to be almost entirely focused upon the presentation of an assertion that none of the species within a particular project area will become extirpated from some vaguely

---

<sup>65</sup>*Id.*: "In order to conduct a complete analysis of the effects of a proposed action on a sensitive plant population, it is important to address several different geographical scales. Specifically, the analysis should include a summary of the species distribution on all of the following levels: a. global range of the species, b. statewide range of the species, c. distribution and status of the species on a National Forest, and d. distribution and status of the species within and near the proposed project effect area."

defined portion of that particular plant or animal's range. Without a clear definition of the geographic area under consideration, such arguments become nearly meaningless. A far more productive course of analysis would be to accept that extirpation would occur *on some scale* for the species in "may affect" situations (i.e. suitable habitat is present and will be altered), and to direct the bulk of the subsequent analysis at determining what that scale would likely be. One cannot help but exclude, for some period of time, plants and animal which are not adapted to roads, mines and clearcuts from roads, mines and clearcuts. The question is: how long and for how large of an area will they be excluded, and can they make their way back after habitat has healed?

#### Consultations, sources and literature citations

This was one category for which the Forest Service demonstrated reasonably good compliance. Although the agency had many biological evaluations that did not list sources early in the time period examined, the vast majority of more recent biological evaluations listed sources and literature citations. The agency apparently did not consider it important to list informal consultations regarding candidate species in "may affect" situations, or perhaps the agency had not undertaken any.

## The sensitive species budget

The short history of the sensitive species budget for Region One has been one of constant under-achievement. In 1989, the budgetary need for sensitive plant species (as published in a reference meant for public circulation) was \$1,087,000.<sup>66</sup> Within the agency, the estimated funding need for the Region One sensitive plant program was a more modest \$309,000.<sup>67</sup> The actual amount that the program received in 1989 was \$170,500.<sup>68</sup> The total budgetary need for 1995 for the entire threatened, endangered and sensitive species program within Region One has been estimated at nearly ten million dollars, but total spending for the program has hovered around two million for the last three years.<sup>69</sup> Overall budgets for programs within the Forest Service are not greatly flexible and do not tend to change dramatically.<sup>70</sup> It is therefore unlikely that such a dramatic increase (on the order of five-fold) will

---

<sup>66</sup>This total was obtained by adding up the figures itemized for the first-year program budget for each individual species in Reel, S., L. Schassberger, and W. Ruediger. 1988. *Caring for Our Natural Community: Region 1 - Threatened, Endangered & Sensitive Species Program*. US Forest Service.

<sup>67</sup>*Summary of FY88 accomplishments & projected program for FY89*. Forest Service R-1 TES Plant Program.

<sup>68</sup>*Preliminary summary of FY 1989 activities and accomplishments*. Forest Service R-1 TES Plant Program. William Ruediger, Region One TES Program Leader, indicated in a 9/22/92 interview that "roughly speaking, we get one third to one half of what we need."

<sup>69</sup>*Supra* note 66. See also: Regional Forester J.W. Mumma's Fiscal Year 1991 Final Advice, dated 2/13/91.

<sup>70</sup>William Ruediger (*supra*, note 68) indicated that the "four-way budget process" (i.e. agency requests, Presidential recommendations, Congressional appropriations, and Capitol Hill lobbying) often reduces or restructures budget requests, but rarely increases them.

be realized within the next few years without substantial reordering or priorities in Washington DC.

Although a chronic lack of funding pervades the sensitive species program, money cannot be blamed for all that ails it. Some agency personnel do not lament the lack of funds so much as they rue the way in which information provided by biologists is used to make decisions within the agency.<sup>71</sup> In the context of commodity-related priorities within the agency, additional funding would not necessarily increase protection of sensitive species: better analyses only provide better protection if the conclusions of the analyses are acknowledged and acted upon by those making decisions within the agency.

### **Sensitive species as management indicators**

The National Forest Management Act's implementing regulations require that the Forest Service "maintain viable populations of existing native and desired non-native vertebrate species,"<sup>72</sup> but do not explicitly mention sensitive species. Instead, these regulations direct that each National Forest choose (for the Forest Plan and for each individual project) "management indicator species" selected because "their population changes are believed to indicate the effects of management activities."<sup>73</sup> Management indicator species are to include "species with special habitat needs that may be influenced

<sup>71</sup>Mary Maj, Assistant TES Program Coordinator, in a 10/8/92 interview: "I've never found money as the entire answer. There are probably a higher level of decisions that could be made with available information...."

<sup>72</sup>36 CFR § 219.19.

<sup>73</sup>*Id.*

significantly by planned management programs, and non-game species of special interest."<sup>74</sup> The regulations go on to specify requirements for quantitative analysis to be used when determining the effect of agency proposals on management indicator species.<sup>75</sup>

When Region One Forest Plans were finalized in the late 1980s, they incorporated lists of management indicator species, but since the Region did not have a sensitive species list at the time, the Plans did not necessarily include what are now sensitive species as management indicator species, nor did they usually include any separate mention of sensitive species.<sup>76</sup> In addition, although general management indicator species were designated by the Forest Plan, they have not been routinely assigned to specific projects: if none of the Forest Plan management indicator species happen to be found within a specific project area, the Forest Service does not often go shopping for species that represent the species that *are* there.<sup>77</sup> Although they would seem logical choices for that role, sensitive

---

<sup>74</sup>*Id.*

<sup>75</sup>*Id.*: "Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and of animal population trends of the management indicator species."

<sup>76</sup>One National Forest in Region One, the Flathead, has subsequently added a sensitive species list to its Forest Plan. The rest have not. The Gallatin National Forest proposed amending its Forest Plan in 1991 to include sensitive species, but that amendment was not finalized, even though amendments regarding threatened and endangered species and old growth requirements have been.

<sup>77</sup>See American Wildlands *et al.* appeal of the Norbeck Wildlife Preserve Environmental Impact Statement decision, 8/13/89, for a description both of the failure of the Forest Service to assign adequate management indicator species, and the failure of the management indicator concept to protect all species present within a project.

species were not routinely chosen as management indicator species for projects examined in this study.

New Forest Service Manual regulations published July 19, 1991 should have resolved many of the problems the agency was evidently having in coordinating efforts for its sensitive and management indicator species. These regulations explicitly dictate that sensitive species should be considered to be management indicators when located within a specific project that may affect them.<sup>78</sup> The regulations also clarify that detailed conservation strategies must be prepared for all sensitive species (on a project-level basis as well as on a Forest-wide basis),<sup>79</sup> that analyses must include an exploration of effects to habitat capability (a means of

---

<sup>78</sup>FSM 2621.1: "Select management indicators for a forest plan or project that best represent the issues, concerns, and opportunities to support recover of Federally-listed species [and] provide continued viability of sensitive species...." Also: "In selecting management indicators, meet the following requirements: ...consider for selection all sensitive species in the plan or project area."

<sup>79</sup>FSM 2621.2 - Determination of Conservation Strategies. "To preclude trends toward endangerment that would result in the need for Federal listing, units must develop conservation strategies for those sensitive species whose continued existence may be negatively affected by the forest plan or a proposed project. To devise conservation strategies, first conduct biological assessments of identified sensitive species. In each assessment, meet these requirements:

1. Base the assessment on the current geographic range of the species and the area affected by the plan or project. If the entire range of the species is contained within the plan or project area, limit the area of analysis to the immediate plan or project area. If the geographic range of the species is beyond the plan or project area, expand the area of analysis accordingly.
2. Identify and consider, as appropriate for the species and area, factors that may affect the continued downward trend of the population, including such factors as: distribution of habitats, genetics, demographics habitat fragmentation, and risk associated with catastrophic events.
3. Display findings under the various management alternatives considered in the plan or project (including the no-action alternative)."

documenting cumulative effects in a quantitative way),<sup>80</sup> and that standards for sensitive species and other management indicators must be added to the Forest Plans.<sup>81</sup> With a few notable exceptions,<sup>82</sup> the new regulations shore up several sagging spots in the sensitive species requirements.

These new regulations also contain direction regarding what many biologist consider to be much more important than strict adherence to previous sensitive species regulations: the use of communities of species, rather than single species, as the preferred entities to be

---

<sup>80</sup>FSM 2621.3 - Analysis of Habitat Capability: In analyzing proposed actions, conduct habitat analyses to determine the cumulative effects of each alternative on management indicators selected in the plan or project area. Follow these guidelines for the analyses:

1. Define analysis areas of sufficient size to allow adequate evaluation of the cumulative effects on management indicators.
2. Use models, coefficients, and other components of the Wildlife and Fish Habitat Relationships System (FSM 2603, para. 6) to quantify conditions, trends, and responses of management indicators to each management alternative being considered, and the desired future condition.
3. Include in the analysis all management activities proposed for the current planning period, their interactions and collective effects on the distribution and abundance of habitat in space and time, on vegetative succession, and on natural disturbance regimes.

<sup>81</sup>FSM 2621.4 - Determination of Standards, Guidelines, and Objectives: "The forest plan must identify habitat components required by management indicators; determine goals and objectives for management indicators; specify standards guidelines, and prescriptions needed to meet management requirements, goals and objectives for management indicators."

<sup>82</sup>FSM 2620.3 Indicates that the agency must "provide habitat management direction to ensure maintenance of viable populations generally well-distributed throughout their current range." This requirement is essentially the same as the FSM 2670.22 requirement to "maintain viable populations of all native and desired nonnative wildlife, fish and plant species in habitats distributed throughout their geographic range on National Forest System lands." except that the qualifier "generally" has been inserted in the part about maintaining a species throughout it's range. This waffling may indicate a reluctance on the part of the Forest Service to preclude local or regional extirpation of species.

used in analyzing and predicting effects due to development.<sup>83</sup> The new regulations broaden the definition of management indicators to include "communities or special habitats"<sup>84</sup> as well as single species. The agency is obligated to designate rare assemblages of plants and animals as management indicators, and then conduct a quantitative analysis of cumulative impacts of upon those assemblages. While such analyses may currently be just as unattainable for the agency as adequate single-species analyses have proved to be, such analyses could actually reduce the work load of biologists: a single comprehensive analysis of two or three of the most sensitive communities within a project area could represent a reduction in paper work from an adequate analysis of 10 or 15 separate species. However, the findings of this study indicate that *any* adequate analysis, whether done on single species or communities, is bound to involve a significant increase in effort on the part of the agency.

In the absence of coherent overall strategies for individual species, and without thorough cumulative effects analyses conducted on a project-by-project basis, the only real opportunity for the Forest Service to provide meaningful analysis and protection for sensitive species is for the agency to incorporate these new regulations as standard protocol for its environmental analyses. Unfortunately, the new regulations show little sign of having been implemented. Although a few Forest Service personnel acknowledged that they

---

<sup>83</sup>Peter Lesica, botanist, in a March 25, 1993 interview.

<sup>84</sup>FSM 2620.5.



were aware of the new regulations,<sup>85</sup> those in the Regional Office directly responsible for getting the word out on such new regulations indicated that they were not aware of the new regulations.<sup>86</sup> Such reluctance to apply these important clarifications of sensitive species policy does not bode well for Forest Service commitment to sensitive species protection in the future.

---

<sup>85</sup>E.g.: David Seeshoftz, NEPA Coordinator and Acting District Ranger, and other personnel on the Pierce District of the Clearwater National Forest, in a 11/9/92 interview.

<sup>86</sup>In a 10/8/92 interviews Mary Maj, Assistant TES Program Coordinator, indicated that "I can't tell you if it's actual policy, whether it will be implemented or not." Bob Ralphs, Biologist and Appeals Group member, concurred during the same interview. In a 10/13/92 phone call, Ms. Maj indicated that the new FSM 2620 regulation "is not a draft, it is the current direction."

## CONCLUSION

This study indicates that for the period examined, the Forest Service did not accomplish any significant degree of implementation of the majority of the specific regulations which govern agency treatment of sensitive species. Lethargic response to recently issued sensitive species direction indicates that the agency will continue to struggle in its efforts for these species.

The means of non-compliance range from the overt and obvious disregard for the entire biological evaluation process, to the more subtle disinclination toward quantitative documentation to support apparently reasonable (but often unsubstantiated) speculation. Although many of the regulations were adhered to within certain biological evaluations for certain projects, such examples of adherence were exceptions.

It is obvious from many creditable analyses conducted and many thoughtful guidelines prepared by agency personnel that the agency is not entirely lacking in sources of talent, experience and clarity of mission. What the Forest Service does conspicuously lack is an adequate budget, and the ability, knowledge and desire to carry out the requirements of the sensitive species program without clashing with the commodity-production aspects of the agency.

Given the lack of compliance to many of even the simplest of its own regulations regarding sensitive species, it is clear that the Forest

Service cannot, with any degree of certainty, guarantee that it has, or ever will, live up to its obligation to prevent the extirpation of species from public lands. In the future, protection of biological diversity on Forest Service lands will depend upon the ability and willingness of agency personnel to undertake a reorganization of priorities, to put sensitive species protection on par with resource extraction, to begin to attempt, and ultimately to transcend, a *pro forma* compliance with regulations.

**Appendix 1**  
**Conformance of Biological Evaluations to**  
**Forest Service Regulations**

Clearwater National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE† findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted
Backwash TS††	7/15/91	Notice	4/29/91	Yes	Yes	Yes	No	No	Yes	No
Barnyard TS	8/90	Notice	11/30/91	No	No	No	No	No	No	No
Bear grass harvest (North Fork)	11/19/90	Memo	None completed							
Bear grass harvest (Powell)	6/7/90	Memo	None completed							
Beaver Block TS	8/3/89	Notice	7/19/89	No	Yes	Yes	Yes	No	No	No
Beaver Cr. fisheries improvement	7/25/91	Memo	6/17/91	No	Yes	Yes	Yes	No	Yes	Yes
Blackfoot Telephone cable	7/27/91	Notice	7/16/91	No	Yes	No	No	Yes	No	No
Blake's Fork Blowdown TS	8/14/91	Notice	7/26/91	No	No	No	No	No	No	No
Brushy Cr. TS (remanded)	7/2/90	Notice	6/7/90	Yes	Yes	Yes	No	Some	Yes	No
Brushy Cr. TS	5/22/91	Notice	1/17/91	Yes	Yes	Yes	Yes	Some	Yes	No
-revised biological evaluation			1/28/92		Yes	Yes	Yes	Some	Yes	No
Bugaboo TS	7/18/89	Notice	7/19/89	No	Yes	Yes	No	No	No	No
Campground improvements	6/19/92	Memo	8/14/91	No	Yes	Yes	Yes	No	No	Yes

†Biological evaluation.

††Timber sale.

Clearwater National Forest

Project	Species possibly present for which no surveys were conducted†††	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced*
					-within project area	-on species as a whole	
Backwash TS	24, 65, 66, 67 & 84	No	No	Yes	No	Yes	2
Barnyard TS	5	No	No	Yes	No	No	2
Bear grass harvest (North Fork)		No biological evaluation prepared					
Bear grass harvest (Powell)		No biological evaluation prepared					
Beaver Block TS	39, 66, 73 & 76	No	No	Yes	No	No	2
Beaver Cr. fisheries improvement	66	No	No	Yes	No	Yes	2
Blackfoot Telephone cable	84	No	No	No			2
Blake's Fork Blowdown TS	26	No	No	No			2
Brushy Cr. TS (remanded)	5, 17, 28, 42, 58, 68, 70 & 81	No	No	Yes	No	No	2,3
Brushy Cr. TS	5, 17, 28, 42, 58, 65, 67, 68, 81 & 84	No	No	Yes	No	Yes	2,3
-revised biological evaluation	5, 17, 28, 42, 58, 65, 67, 68, 81 & 84	No	No	Yes	No	Yes	2,3
Bugaboo TS	66, 73 & 76	No	No	No			2
Campground improvements	66, 67, 68, 70, 75, 82 & 84	No	No	No			2

†††See Table Two for key to these species.

\*1=informal consultation, 2=contacts, contributors and sources, 3= published references.

Clearwater National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted		
Coin Purse TS (remanded)	9/9/91	Notice	8/5/91	No	Yes	Yes	Yes	No	Yes	Yes		
Coin Purse TS	9/3/92	Notice	8/24/92	No	Yes	Yes	Yes	No	Yes	Some		
Crooked Fork TS	7/2/90	Notice	6/25/90	Yes	Yes	Yes	No	Some	Yes	No		
Cub-Cat TS (revised)	10/12/90	Notice	1/8/88	Yes	No	No	No	No	No	No		
Deception Gulch TS	9/30/89	Notice	7/6/89	Yes	No	No	No	No	No	No		
Dry Knob TS	11/14/91	Notice	9/27/91	Yes	Yes	Yes	Yes	No	No	Yes		
Dworshak access route	4/6/90	Notice	4/90	Yes (no-action alternative chosen without further documentation)								
East Fork Blowdown TS	8/14/91	Memo	8/6/91	No	Yes	Yes	Yes	No	No	No		
Elk Cr. Cedar TS	10/2/91	Memo	9/9/91	No	Yes	Yes	Yes	No	No	No		
Gene Pool II TS	8/9/91	Notice	7/17/91	Yes	Yes	Yes	Yes	Some	Some	No		
Goat Roost road	11/8/91	Notice	10/7/91	Yes	Yes	Yes	Yes	Some	Yes	No		
Headlong Cleanup TS	8/14/91	Memo	7/26/91	Yes	Yes	Yes	Yes	No	No	No		
Hi-five salvage TS	11/2/90	Memo	None completed									
Hiway 12 improvements	6/13/91	Notice	4/10/91	Yes	Yes	Yes	Yes	Some	Yes	No		

Clearwater National Forest		Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced
Project						-within project area	-on species as a whole	
Coin Purse TS (remanded)	2, 12, 16, 26, 28, 59, 65, 66, 67, 68, 82 & 84	No	Yes	No	Yes	2		
Coin Purse TS	2, 12, 16, 26, 28, 59, 65, 66, 67, 68, 82 & 84	No	Yes	No	Yes	2,3		
Crooked Fork TS	66 & 77	No	Yes	No	No	2,3		
Cub-Cat TS (revised)	16	No	Yes	No	No	No		
Deception Gulch TS	66	No	No	No	No	2		
Dry Knob TS	66	No	Yes	No	Yes	2		
Dworshak access route								
East Fork Blowdown TS	26	No	No	No	No	2		
Elk Cr. Cedar TS		No	No	No	No	2		
Gene Pool II TS	2, 17, 26, 66, 67, 68, 75, 77, 81, 82 & 84	No	Yes	Yes	No	2,3		
Goat Roost road	13, 26, 55, 67, 68, 77, 81, 82 & 84	No	Yes	Yes	No	2,3		
Headlong Cleanup TS		No	No	No	No	2		
Hi-five salvage TS		No biological evaluation prepared						
Hiway 12 improvements	2, 12, 17, 26, 43, 65, 67, 68, 81 & 84	No	No	No	No	2,3		



Clearwater National Forest										
Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted
Hornet Peak rd. easement	8/1/91	Notice	7/1/91	No	Yes	Yes	No	No	Yes	No
Jerome/Boulder TS	9/20/91	Notice	9/9/91	No	Yes	Yes	Yes	No	No	No
Laguna Cr. prospecting	6/28/91	Memo	6/10/91	No	Yes	Yes	Yes	Yes	Yes	Yes
Lean-to-ridge TS	10/17/91	Memo	None completed							
Len-sou TS	4/13/89	Notice	5/3/89	No	No	No	No	No	No	No
Long Jungle TS	9/27/90	Notice	9/11/90	No	Yes	Yes	Yes	No	Yes	No
Long overstory removal TS	10/17/91	Memo	None completed							
Lolo Yoosa TS	7/22/91	Notice	6/27/91	No	Yes	Yes	Yes	No	Yes	No
Lower Beaver salvage TS	8/13/92	Notice	9/25/91	Yes	Yes	Yes	Yes	Some	Yes	Yes
Mid Skull TS	9/30/91	Notice	9/30/91	No	Yes	Yes	Yes	No	Yes	No
Mizpah salvage TS	8/14/91	Memo	8/6/91	No	Yes	Yes	Yes	No	No	No
Moosehorn salvage TS	8/9/90	Notice	7/13/90	No	Yes	Yes	No	No	Yes	No
Musselshell livestock allotment	8/5/91	Memo	None completed							

Clearwater National Forest							
Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced
					-within project area	-on species as a whole	
Hornet Peak rd. easement	65, 66, 67, 70, 77, 81 & 84	No	No	Yes	No	Yes	2
Jerome/Boulder TS		No	No	No			2
Laguna Cr. prospecting		No	No	No			2
Lean-to-ridge TS		No biological evaluation prepared					
Len-sou TS		No	No	No			2
Long Jungle TS	28, 66, 68 & 77	No	No	No			2
Long overstory removal TS		No biological evaluation prepared					
Lolo Yoosa TS	66	No	No	Yes	No	Yes	2
Lower Beaver salvage TS	65, 66, 67, 68, 70, 82 & 84	No	Yes	No			2
Mid Skull TS	12, 16, 26, 34, 59, 65, 67, 68, 70, 77, 81, 84	No	No	Yes	No	Yes	2
Mizpah salvage TS	43	No	No	No			2
Moosehorn salvage TS	66 & 77	No	No	Yes	No	Yes	2
Musselshell livestock allotment		No biological evaluation prepared					

Clearwater National Forest										
Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted
Neva Hill salvage TS	10/2/91	Memo	9/12/91	No	Yes	Yes	Yes	No	No	No
Parachute salvage TS	7/9/90	Memo	None completed							
Plum Creek skidding permit	8/8/91	Notice	None completed							
Plum Pickle TS	10/21/91	Notice	9/12/91	No	Yes	Yes	Yes	No	No	No
Pocket gopher control (Palouse)	5/23/90	Notice	None completed							
Pocket gopher control (Palouse)	3/11/91	Notice	None completed							
Pocket gopher control (Pierce)	5/8/89	Notice	3/27/89	No	Yes	Yes	No	No	No	No
Pocket gopher control (Pierce)	4/24/92	Memo	4/9/92	No	Yes	Yes	Yes	No	Yes	No
Powell aggregate stockpile	2/5/92	Memo	12/16/91	Yes	Yes	Yes	Yes	No	Some	No
Purdue Cr. prospecting	10/21/91	Memo	10/3/91	Yes	Yes	Yes	Yes	No	No	No
Rescue Cedar TS	5/3/91	Memo	4/5/91	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ruby Cr. TS	8/6/91	Notice	7/3/91	No	Yes	Yes	Yes	No	No	No
Running Scared Gold TS	5/3/91	Memo	4/5/91	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Small sales (N.Fork)	7/30/91	Memo	4/29/91	No	Yes	Yes	No	No	Yes	No

Clearwater National Forest							
Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced
					-within project area	-on species as a whole	
Neva Hill salvage TS		No	No	No			2
Parachute salvage TS		No biological evaluation prepared					
Plum Creek skidding permit		No biological evaluation prepared					
Plum Pickle TS		No	No	No			2
Pocket gopher control (Palouse)		No biological evaluation prepared					
Pocket gopher control (Palouse)		No biological evaluation prepared					
Pocket gopher control (Pierce)	66, 68, 70 & 81	No	No	No			No
Pocket gopher control (Pierce)	65, 66, 67, 68, 70, 81, 82 & 84	No	No	Yes	No	Yes	2
Powell aggregate stockpile	66, 75 & 76	No	No	No			2
Purdue Cr. prospecting		No	No	No			2
Rescue Cedar TS		No	No	Yes	No	Yes	2
Ruby Cr. TS		No	No	No			2
Running Scared Gold TS		No	No	Yes	No	Yes	2
Small sales (N.Fork)	8, 16, 24, 49, 55, 59, 63, 64, 65, 66, 67, 70 & 84	No	No	Yes	No	Yes	2

Clearwater National Forest										
Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted
Sneaky Sheep TS	9/30/91	Notice	9/27/91	No	Yes	Yes	Yes	No	Yes	Yes
Steep Cr. TS (remanded)	8/24/90	Notice	7/1/90	No	No	Yes	Yes	No	Yes	Yes
Steep Cr. TS (remanded)	4/22/91	Notice	4/22/91	No	No	Yes	Yes	No	Yes	Yes
Steep Cr. TS (withdrawn)	2/25/92	Notice	2/25/92	No	Yes	Yes	Yes	No	Yes	Yes
Steep Cr. TS	8/18/92	Notice	7/1/92	No	Yes	Yes	Yes	No	Yes	Yes
Squash Saddle TS	7/20/90	Notice	8/21/90	No	Yes	Yes	No	No	Yes	No
Trap Point road	5/16/90	Notice	5/15/90	No	Yes	Yes	No	No	No	No
Upper Cool TS	5/7/90	Notice	11/1/89	Yes	Yes	No	Yes	No	No	No
Upper Palouse TS	9/20/91	Notice	9/9/91	No	No	No	No	No	No	No
Van Camp TS	7/31/90	Notice	2/3/89	No	Yes	Yes	Yes	No	Yes	Yes
Walde Canyon TS	7/26/90	Notice	8/21/90	No	Yes	Yes	No	No	No	Yes
White Pine Gulch prospecting	9/21/91	Memo	8/12/91	No	Yes	Yes	Yes	No	No	Yes

Clearwater National Forest							
Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced
					-within project area	-on species as a whole	
Sneaky Sheep TS	43, 65, 66, 67, 68, 70, 77, 81 & 84	No	No	Yes	No	Yes	2
Steep Cr. TS (remanded)	66, 68, 70, 77 & 81	No	No	Yes	No	No	2
Steep Cr. TS (remanded)	66, 68, 70, 77 & 81	No	No	Yes	No	Yes	2
Steep Cr. TS (withdrawn)	65, 66, 67, 68, 70, 77, 81 & 84	No	No	Yes	No	Yes	2
Steep Cr. TS	65, 66, 67, 68, 70, 77, 81 & 84	No	No	Yes	No	Yes	2,3
Squash Saddle TS	28, 66, 68 & 77	No	No	No			2
Trap Point road	66, 73 & 76	No	No	Yes	No	Yes	2
Upper Cool TS	66	No	No	No			2
Upper Palouse TS		No	No	No			2
Van Camp TS	23, 28, 66, 68 & 77	No	No	No			2
Walde Canyon TS	28, 66, 68 & 77	No	No	No			2
White Pine Gulch prospecting		No	No	No			2

**Lolo National Forest**

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys	Fish surveys	Plant surveys
Bateman Cr. road	7/13/91	Notice	None completed							
Belmont Blowdown TS	9/18/91	Memo	None completed							
Bestwick Right-of-way	3/28/90	Notice	None completed							
Big Elk TS	6/15/90	Notice	Undated	No	No	No	No	No	No	No
Bonita FRTA easement	5/8/91	Notice	None completed							
Butler Cr. allotment	1/28/92	Memo	None completed							
Cloudburst Posts TS	7/8/91	Notice	10/28/91 plants 7/8/91 animals	No	Yes	No	Yes	Some	No	Yes
Crystal Cr. road.	9/2/90	Notice	None completed							
Deep Cr. access road	6/26/91	Notice	None completed							
Dick Cr. pulp TS	6/15/90 (with 9/18/90 supplement)	Notice	5/20/91	No	Yes	No	No	Some	No	No
Donlan mine	2/10/92	Notice	9/25/91	Yes	No	No	Yes	No	No	Yes
Dry Camp TS	7/8/91	Notice	9/25/91 plants 5/23/91 fish undated animals	No	Yes	Yes	Yes	Some	Yes	Yes

Lolo National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance	
					-within project area	-on species as a whole
Bateman Cr. road		No biological evaluation prepared				
Belmont Blowdown TS		No biological evaluation prepared				
Bestwick Right-of-way		No biological evaluation prepared				
Big Elk TS		No	No	No		
Bonita FRTA easement		No biological evaluation prepared				
Butler Cr. allotment		No biological evaluation prepared				
Cloudburst Posts TS	65, 67, 73 & 84	No	No	No		
Crystal Cr. road.		No biological evaluation prepared				
Deep Cr. access road		No biological evaluation prepared				
Dick Cr. pulp TS	67 & 84	No	No	Yes	Yes	Yes
Donlan mine	65, 66, 68 & 70	No	No	No		
Dry Camp TS	70	No	No	Yes	No	No



Lolo National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys	Fish surveys	Plant surveys
Dry Canyon TS	4/30/90	Notice	None completed							
Dry Fork TS	6/8/89	Notice	10/4/91	No	No	No	Yes	No	No	Yes
East John TS	9/14/87	Notice	10/28/91	No	No	No	Yes	No	No	Yes
Elk Mtn. allotment	1/29/91	Memo	None completed							
Foothills TS	2/30/90	Notice	None completed							
Fort Fizzle hazard TS	5/4/89	Notice	None completed							
Four Vs mine	6/29/90	Notice	11/7/91	Yes	No	No	Yes	No	No	Yes
Glidden TS (remanded)	12/10/90	Notice	None completed							
Glidden TS	8/8/91	Notice	9/25/91	No	No	No	Yes	No	No	Yes
Golden Smoke TS	12/17/90	Notice	11/13/90	Yes	Yes	No	No	No	No	No
Granite Cr. easement	11/7/89	Notice	None completed							
Granite/Lee Blowdown TS	7/9/91	Memo	None completed							
Harmon's llama caches	12/14/90	Memo	None completed							
Kennedy allotment	1/25/92	Memo	None completed							

Lolo National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		
					-within project area	-on species as a whole	
Dry Canyon TS	73 & 76	No biological evaluation prepared					
Dry Fork TS		No	No	Yes	Yes	Yes	
East John TS		No	No	No			
Elk Mtn. allotment		No biological evaluation prepared					
Foothills TS		No biological evaluation prepared					
Fort Fizzle hazard TS		No biological evaluation prepared					
Four Vs mine		No	No	No			
Glidden TS (remanded)		No biological evaluation prepared					
Glidden TS		70, 73, 76 & 77	No	No	Yes	No	No
Golden Smoke TS			No	Yes	Yes	Yes	No
Granite Cr. easement	77 & 84	No biological evaluation prepared					
Granite/Lee Blowdown TS		No biological evaluation prepared					
Harmon's llama caches		No biological evaluation prepared					
Kennedy allotment		No biological evaluation prepared					

Lolo National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys	Fish surveys	Plant surveys
Lee Cr. rd. easement	6/26/91	Notice	None completed							
Lodgepole & etc. trailheads	7/25/91	Notice	11/25/91 plants 12/11/90 animals	Yes	Yes	No	Yes	No	No	Yes
Marshall Cooper TS	8/2/89	Notice	None completed							
Mattie post & pole TS	7/10/90	Notice	None completed							
Mattie V mine	2/13/91	Notice	11/6/91	No	No	No	Yes	No	No	Yes
McCabe TS	1/15/92	Notice	8/30/91 animals undated fish 10/31/91 plants	Yes	Yes	Yes	Yes	No	Yes	Yes
Miller pulp TS	12/3/90	Notice	12/3/90	No	Yes	No	No	No	No	No
Mosquito TS	5/26/92	Notice	5/29/92	No	Yes	Yes	Yes	No	No	Yes
Ninemile Bugs TS	2/5/90	Notice	None completed							
Orphan Annie TS	12/3/84 modified 8/9/90	Notice	10/28/91	No	No	No	Yes	No	No	Yes
Pat Gulch Posts TS	12/17/91	Notice	12/17/90	No	Yes	Yes	No	Some	Yes	No

Lolo National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance	
					-within project area	-on species as a whole
Lee Cr. rd. easement		No biological evaluation prepared				
Lodgepole & etc. trailheads	84	No	No	No		
Marshall Cooper TS		No biological evaluation prepared				
Mattie post & pole TS		No biological evaluation prepared				
Mattie V mine	73	No	No	Yes	No	No
McCabe TS	67, 77 & 82	No	No	Yes	Yes	No
Miller pulp TS		No	No	No		
Mosquito TS	65, 67, 68, 73, 77, 82 & 84	No	No	No		
Ninemile Bugs TS		No biological evaluation prepared				
Orphan Annie TS		No	No	No		
Pat Gulch Posts TS	65, 67, 77 & 84	No	No	Yes	Yes	Yes

Lolo National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys	Fish surveys	Plant surveys
Petty Cr. sheep burn	5/14/91	Notice	None completed							
Phoebe Windfall TS	7/16/91	Notice	10/30/91	Yes	No	No	Yes	No	No	Yes
Powell Cr. easement	8/9/89	Notice	None completed							
Randolf-Packer TS	3/14/91	Notice	10/31/91	No	No	No	Yes	No	No	Yes
Rd. 466 post & pole TS	4/30/91	Notice	None completed							
Rd. 4328 TS	3/25/91	Notice	11/12/90	No	Yes	No	No	No	No	No
	6/20/91	Notice	"	No	Yes	No	No	No	No	No
Rd. 17142 salvage TS	4/23/90	Notice	None completed							
Rock Cr. riparian trail	8/27/91	Notice	None completed							
St. Regis winter range	8/12/91	Memo	None completed							
Sec. 9 & 10 thinning TS	9/14/90	Notice	None completed							
Sixmile Rd. use permit	4/14/92	Notice	In progress	No	No	No	Yes	No	No	No
Soil & water conservation	2/21/91	Memo	None completed							
SPUSP salvage TS	4/27/90	Notice	None completed							

Lolo National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance	
					-within project area	-on species as a whole
Petty Cr. sheep burn		No biological evaluation prepared				
Phoebe Windfall TS	68, 70, 73, 77 & 81	No	No	Yes	No	No
Powell Cr. easement		No biological evaluation prepared				
Randolf-Packer TS	70 & 73	No	No	Yes	No	No
Rd. 466 post & pole TS		No biological evaluation prepared				
Rd. 4328 TS	77 & 84	No	Yes	No		
Rd. 17142 salvage TS	77 & 84	No	Yes	No		
Rd. 17142 salvage TS		No biological evaluation prepared				
Rock Cr. riparian trail		No biological evaluation prepared				
St. Regis winter range		No biological evaluation prepared				
Sec. 9 & 10 thinning TS		No biological evaluation prepared				
Sixmile Rd. use permit	26	No	No	Yes	deferred until survey completed	
Soil & water conservation		No biological evaluation prepared				
SPUSP salvage TS		No biological evaluation prepared				

Lolo National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys	Fish surveys	Plant surveys
Stoneman TS	4/4/91	Notice	9/25/91	No	No	No	Yes	No	No	Yes
Twelvemile Cr. fish habitat	9/3/91	Memo	None completed							
Upper Clear TS	10/31/88	Notice	9/25/91	No	No	No	Yes	No	No	Yes
Vaughn Blowdown TS	8/9/91	Notice	None completed							
Ward Cr. road	12/19/90	Memo	10/31/91	No	No	No	Yes	No	No	Yes
Weed control EIS	4/12/91	ROD*	None completed							
Weed control-Ninemile	4/18/91	Notice	None completed							
Weed control-Plains/T-Falls	1/22/92	Notice	None completed							
Weed control-Seeley	7/25/91	Notice	11/25/91	Yes	No	No	Yes	No	No	Yes
Weed control-Superior	9/17/91	Notice	9/3/91	Yes	No	No	Yes	No	No	Yes
West Graves salvage TS	9/14/90	Notice	None completed							
Work Center easement	7/10/90	Notice	None completed							

\*Record of decision.

Lolo National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance	
					-within project area	-on species as a whole
Stoneman TS		No	No	No		
Twelvemile Cr. fish habitat		No biological evaluation prepared				
Upper Clear TS	70 & 73	No	No	Yes	No	No
Vaughn Blowdown TS		No biological evaluation prepared				
Ward Cr. road		No	No	No		
Weed control EIS		No biological evaluation prepared				
Weed control-Ninemile		No biological evaluation prepared				
Weed control-Plains/T-Falls	70 & 82	No biological evaluation prepared				
Weed control-Seeley		No	No	No		
Weed control-Superior		No	No	No		
West Graves salvage TS		No biological evaluation prepared				
Work Center easement		No biological evaluation prepared				



Helena National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted
Alice Cr. lode	8/22/91	Memo	7/10/91	No	Yes	Yes	Yes	No	No	No
Bar Gulch drilling	8/9/91	Memo	None completed							
Black Diamond TS	7/7/89	Notice	None completed							
Cement Gulch mine	8/14/91	Memo	None completed							
Clear Cr. salvage TS	5/2/90	Notice	None completed							
Copper Cr. TS (revised)	7/2/91	Notice	3/14/91	No	Yes	No	Yes	No	No	No
Dallas salvage TS	8/22/91	Memo	None completed							
Delrane TS	7/7/89	Notice	None completed							
Diamond Hill mine	4/27/90	Notice	None completed							
East Fork Willow TS	2/21/91	Notice	12/3/90	Yes	Yes	No	Yes	No	No	No
	9/24/91	Notice	"	Yes						
Elk Ridge TS	6/13/87	Notice	7/2/91	No	No	Yes	No	No	Yes	No
Elkhorn 100 race	6/5/90	Memo	6/15/90	No	Yes	Yes	Yes	No	No	No
Gold/Red salvage TS	4/30/90	Notice	None completed							

Helena National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced
					-within project area	-on species as a whole	
Alice Cr. lode		No	No	No			No
Bar Gulch drilling		No biological evaluation prepared					
Black Diamond TS		No biological evaluation prepared					
Cement Gulch mine		No biological evaluation prepared					
Clear Cr. salvage TS	73	No biological evaluation prepared					
Copper Cr. TS	68, 76, 77 & 81	No	No	No			No
Dallas salvage TS		No biological evaluation prepared					
Delrane TS		No biological evaluation prepared					
Diamond Hill mine		No biological evaluation prepared					
East Fork Willow TS	27, 31, 44, 68, 77 & 81	No	No	No			No
Elk Ridge TS		No	No	No			2,3
Elkhorn 100 race	68 & 77	No	No	No			2,3
Gold/Red salvage TS	73 & 76	No biological evaluation prepared					

Helena National Forest

Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted
Green Mtn. mine	8/9/90	OP**	Undated	No	No	No	No	No	No	No
Hoovestal Rd.	2/25/91	Memo	10/23/90	No	Yes	Yes	Yes	No	No	No
Hope/Snowshoe TS	4/25/91	Notice	9/14/90	Yes	Yes	Yes	Yes	No	Some	No
Indian Meadows portal	11/2/88	Notice	11/88	No	No	No	Yes	No	No	Yes
Lindsay diversion permit	8/9/90	Memo	6/28/90	Yes	Yes	Yes	No	No	Some	No
Lone Pt. TS	1/29/91	Notice	1/23/90	Yes	Yes	No	Yes	No	No	No
McQuithy TS	6/24/91	Notice	6/23/91	Yes	Yes	No	Yes	No	No	No
Miller Mt. mine — Curator	4/7/89	Notice	None completed							
— Pegasus	10/15/91	Notice	None	Yes (but no BE exists)						
O'Rielly claims	7/17/89	Notice	None completed							
Phelps Dodge Karger mine	7/14/89	Notice	6/4/91	No	Yes	No	No	No	No	No
Poorman right-of-way TS	8/22/91	Memo	None completed							
September Mourn salvage	9/23/91	Memo	None	Yes (but no BE exists)						
Sheldon Gulch TS	1/28/91	Notice	12/3/90	Yes	Yes	No	Yes	No	No	No

Helena National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced
					-within project area	-on species as a whole	
Green Mtn. mine		No	No	No			No
Hoovestal Rd.	77	No	No	No			2,3
Hope/Snowshoe TS	72, 76, 77 & 78	No	Some	Yes	Yes	Yes	2,3
Indian Meadows portal		No	No	No			No
Lindsay diversion permit	77	No	No	Yes	No	No	2,3
Lone Pt. TS	68 & 77	No	No	No			No
McQuithy TS	77	No	No	Yes	No	No	2,3
Miller Mt. mine — Curator — Pegasus		No biological evaluation prepared No biological evaluation prepared					
O'Rielly claims		No biological evaluation prepared					
Phelps Dodge Karger mine	68, 77 & 78	No	No	Yes	No	No	2,3
Poorman right-of-way TS		No biological evaluation prepared					
September Mourn salvage		No biological evaluation prepared					
Sheldon Gulch TS	27, 31, 44, 68, 77 & 81	No	No	No			No

Helena National Forest

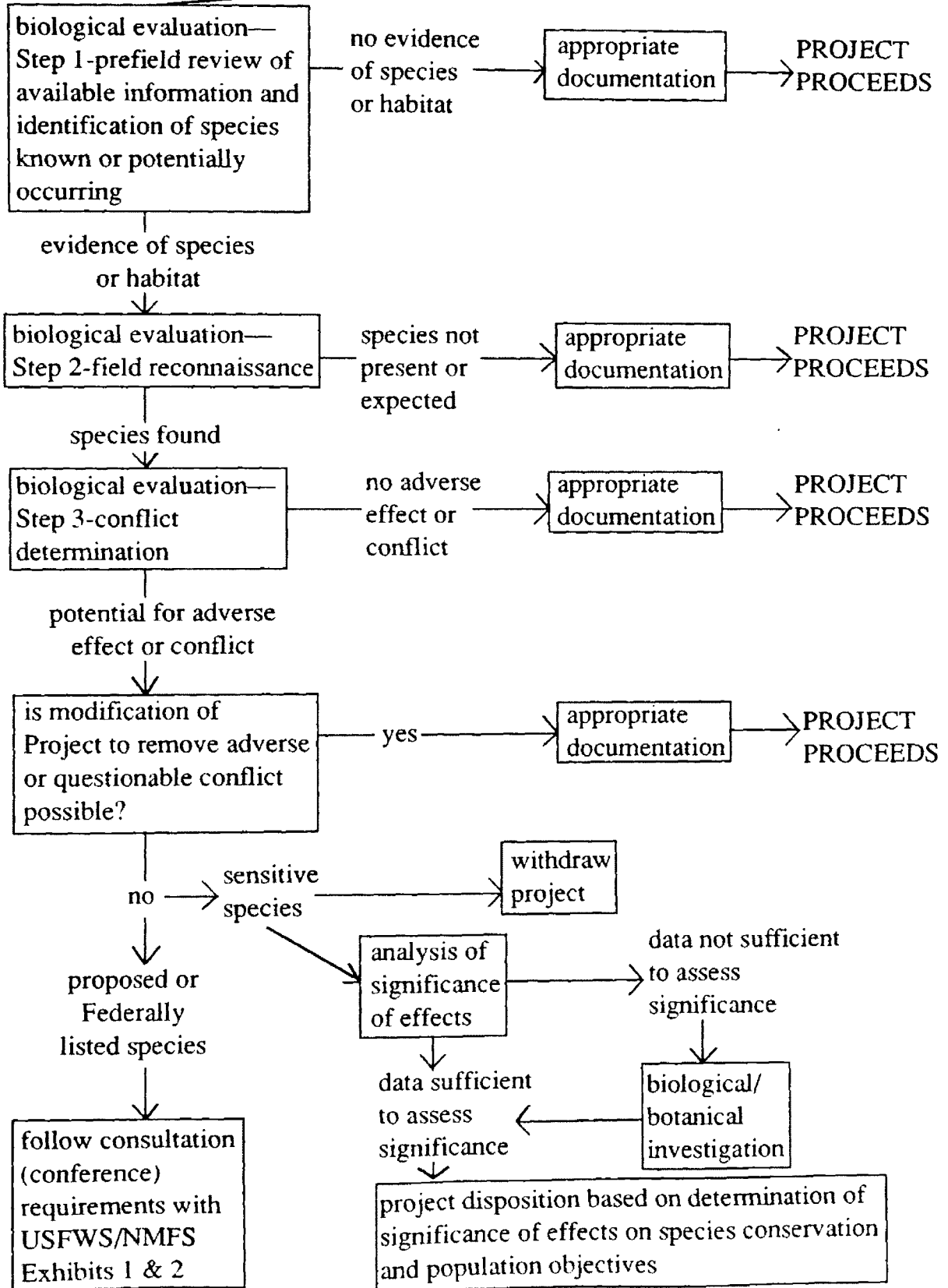
Project	Date decision signed	Decision document	Date of biological evaluation	BE findings documented in decision	BE lists sensitive animals	BE lists sensitive fish	BE lists sensitive plants	Animal surveys conducted	Fish surveys conducted	Plant surveys conducted
South Fork Atlanta TS	8/10/89	Notice	None completed							
Sucker Keep Cool TS	6/7/90	Notice	Undated	No	No	No	No	No	Yes	No
Surveyor Gulch TS	6/18/91	Notice	3/29/91	No	Yes	No	Yes	No	No	No
TM Lodes mine	7/18.90	Notice	None completed							
Therapy placer mine	5/7/91	Memo	None completed							
Three Freinds Claim	7/17/91	Memo	7/10/91	No	Yes	No	No	No	No	No
Upper Cabin OSR TS	1/10/91	Notice	None completed							
Upper Telegraph TS	7/26/90	Notice	7/11/90	Yes	Yes	Yes	No	No	Some	No
	9/19/91	Notice	"	Yes						
Wagner Rd.	10/23/91	Memo	fall, 91	No	Yes	Yes	No	No	No	No
Whites Gulch safety TS	6/28/90	Notice	None completed							Yes
Wildlife habitat burning	3/14/91	Memo	None completed							
York mining	9/1/89	Notice	None completed							

\*\*Operating permit.

Helena National Forest

Project	Species possibly present for which no surveys were conducted	Description of habitat	Cumulative effects analysis	May affect situation exists	Analysis of significance		Consultations and literature referenced
					-within project area	-on species as a whole	
South Fork Atlanta TS		No biological evaluation prepared					
Sucker Keep Cool TS	73	No	No	No			2,3
Surveyor Gulch TS		No	No	No			2,3
TM Lodes mine		No biological evaluation prepared					
Therapy placer mine		No biological evaluation prepared					
Three Freinds Claim		No	No	No			2
Upper Cabin OSR TS		No biological evaluation prepared					
Upper Telegraph TS	68, 72, 76 & 77	No	Yes	Yes	No	No	2,3
Wagner Rd.	65, 67, 77 & 82	No	No	Yes	No	No	2,3
Whites Gulch safety TS		No biological evaluation prepared					
Wildlife habitat burning		No biological evaluation prepared					
York mining		No biological evaluation prepared					

**BIOLOGICAL EVALUATION PROCESS — THREATENED, ENDANGERED, PROPOSED AND SENSITIVE SPECIES PROJECT PROPOSAL**



## BIBLIOGRAPHY

All Forest Service biological evaluations, environmental impact statements, environmental assessments, project files, records of decision, decision notices, decision memos, and findings of no significant impact cited in this study may be obtained through or examined at offices of United States Forest Service Region One, Missoula, Montana.

American Wildlands, Black Hills Group of the Sierra Club, E. Kownig, E. Kownig and N.E. Nelson. *Appeal of the Record of Decision for the Norbeck Wildlife Preserve Final Environmental Impact Statement*. 8/13/89, American Wildlands, Bozeman, Montana.

Cassirer, E.F. and C. R. Groves. 1990. *Distribution, habitat use and status of harlequin ducks (Histrionicus histrionicus) in northern Idaho, 1990*. Cooperative Challenge Cost Share Project, National Forest Service and Idaho Department of Fish and Game. 55 pp.

Code of Federal Regulations, 36 CFR § 219.19, 36 CFR § 219.26, 40 CFR § 1500, 40 CFR § 1508.4, 40 CFR § 1508.7 and 40 CFR § 1508.13.

Evanden, Angela, former Region One Botanist, 9/25/92 interview.

Federal Register, v. 57, n. 182, p. 43209, 9/18/92.

Forest Service Handbook Section 1909.

Forest Service Manual 1105(4), 1950, 2620.3, 2620.5, 2621.1, 2621.2, 2621.3, 2621.4, 2670.22, 2670.32(3), 2670.32(4), 2670.44, 2670.5(19), 2671.44, 2672.1, 2672.4, 2672.32, 2672.41(3), 2672.42(2), 2672.42(4), 2672.42(5), 2672.42(7), 2672.43 Exhibit 1.

Forest Service R-1 TES Plant Program. *Preliminary summary of FY 1989 activities and accomplishments*. Undated.



- Forest Service R-1 TES Plant Program. Summary of FY88 accomplishments & projected program for FY89. Undatad.
- Forest Service Region One. 1991. *Every Species Counts—Northern Region's TES Action Plan*. Forest Service Publication No. R1-91-56.
- Forest Service Region One. *Our approach to effects analysis; a desk reference*. Undated.
- Forest Service Region Six. *Risk Assessment Guidelines*. FSM 2672, R-6 Supplement. 10/89.
- Hillis, Mike, Lolo National Forest Biologist, 4/30/92 interview.
- Kramer, Dick, Lolo National Forest Fisheries Biologist, 5/11/92 interview.
- Lesica, P. and J.S. Shelly. 1991. *Sensitive, Threatened and Endangered Vascular Plants of Montana*. Montana Natural Heritage Program Occasional Publication No. 1.
- Lesica, Peter, botanist, 3/25/93 interview.
- Maj, Mary, Assistant Region One TES Program Coordinator, 10/8/92 and 10/13/92 interviews.
- Morse, L.E. 1981. *The Nature Conservancy and rare plant conservation in the United States*, in *The Biological Aspects of Rare Plant Conservation*. Hugh Synge, ed. Pp. 453-457.
- Mumma, J.W. , *Fiscal Year 1991 Final Advice*, 2/13/91, Office of the Regional Forester, Region One.
- Musil, D. and W.R. Stutz. 1989. *Boreal owl winter survey: Nez Perce and Clearwater National Forests, Idaho*. Cooperative Challenge Cost Share Project, National Forest Service and Idaho Department of Fish and Game. 23 pp.
- National Environmental Policy Act of 1969, 42 USC 4321, 4331-4335, 4341-4347.
- National Forest Management Act Sec. 6(g)(3).

*National Forest Preservation Group v. Butz*, 343 F. Supp. 696, 703 (D. Mont. 1972).

Overbay, James, Forest Service Deputy Chief, 4/18/91 memo to Regional Foresters.

*Parker v. United States*, 448 F.2d 793, 797 (10th Cir. 1972).

Ralphs, Bob, Biologist and Region One Appeals Group member, 10/8/92 interview.

Reel, S., L. Schassberger, and W. Ruediger. 1988. *Caring for Our Natural Community: Region 1 - Threatened, Endangered & Sensitive Species Program*. US Forest Service.

Robertson, F. D., Forest Service Chief, 9/15/92 letter to Regional Foresters.

Robertson, F.D. Forest Service Chief's decision on Donna Agoitia's appeal of the Flathead National Forest Plan. 3/16/89.

Ruediger, William, Region One TES Program Leader, 9/22/92 interview.

Schneider, Rick , Lolo National Forest Botanist, 5/14/92 interview.

Seesholtz, David , NEPA Coordinator and Acting District Ranger, 11/9/92 interview.

Shelly, Steve, Acting Region One Botanist, 5/5/92 interview.

United States Code, Sections 1600 and 1432.

United States Department of Agriculture Departmental Regulation 9500-4 3a(1).