A NORTHERN SPOTTED OWL HABITAT CONSERVATION PLAN FOR CALIFORNIA: STATUS AND LESSONS LEARNED

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ABSTRACT: The U.S. Fish and Wildlife Service's listing of the northern spotted owl (*Strix occidentalis caurina*) as threatened prompted the California Board of Forestry (BOF) to prepare a Habitat Conservation Plan (HCP) to support an incidental take permit for timber harvesting activities on private and state lands pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act of 1973 as amended. The BOF directed Steering and Scientific Committees to develop a plan that maintains the owl's range, considers other forest species of concern, supports recovery of the owl, and reduces current Timber Harvesting Plan preparation costs. A programmatic process was developed for the HCP that provided a framework for more site-specific planning and implementation. Several observations and suggested improvements in a planning process of this type and scale are presented. These include the need for adequate staffing and funding to be secured in advance, development of the plan through consensus, and the need to stratify implementation of planning effort.

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INTRODUCTION

Site-specific project analysis alone may not be adequate for wildlife habitat protection. As a result, large scale landscape or ecosystem planning has in recent years become an important part of wildlife management. In the Pacific Northwest, examples of large-scale planning includes that for the northern spotted owl on federal lands by the Interagency Scientific Committee (ISC) (Thomas et al. 1990), and for species associated with late-successional forest by the Forest Ecosystem Management Team (Anon. 1993a).

California provides some examples of large scale landscape planning efforts for wildlife. One example includes the Natural Community Conservation Program (NCCP) for protection of coastal sage scrub habitat for the threatened California gnatcatcher (*Polioptila californica*) and associated species in southern California (Anon. 1993b). This planning effort attempts to mitigate further habitat loss through creating preserves and applying other measures.

This paper describes a landscape scale planning effort in the Klamath Province of northwest California. A Habitat Conservation Plan (HCP) under section 10(a)(1)(B) of the federal Endangered Species Act of 1973 (ESA) as amended was drafted for the northern spotted owl (*Strix occidentalis caurina*) in California to support an incidental take permit for timber harvesting activities on state and private lands. This HCP was the largest in area ever attempted (Detrich et al. 1993).

The northern spotted owl was listed as "threatened" by the U.S. Fish and Wildlife Service (FWS) on July 23, 1990. The loss and modification of suitable habitat as a result of timber harvesting was the principal factor responsible for listing (Turner 1990). Another factor was the lack of adequate regulatory protection. At approximately the same time as the listing decision, the Interagency Scientific Committee released its recommended conservation strategy for the northern spotted owl on federal lands (Thomas et al. 1990).

The California Board of Forestry (BOF) establishes policy and promulgates regulations for the harvest of timber on state and private lands under the authority of the Z'berg-Nejedly Forest Practice Act of 1974. As a regulatory and permitting body, the BOF is responsible under the ESA to assure the avoidance of take of listed species. Section 3 of the ESA defines "take" as meaning to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct. Soon after the listing decision, the BOF adopted rules to prevent take as defined.

The BOF also directed that the California Department of Forestry and Fire Protection (CDF) develop an HCP to support an incidental take permit application as required under Section 10(a)(1)(B) of the ESA. On December 18, 1990, the BOF appointed a Steering Committee to provide policy guidance during development of the HCP. The Committee included representatives of the timber industry, local and national

environmental groups, local government, nonindustrial private landowners, foresters, and state and federal agencies. A Scientific Committee composed of scientists and working professionals with knowledge of spotted owl biology, forest management, and silviculture from private industry, federal and state agencies, and academia supported the Steering Committee.

HABITAT CONSERVATION PLANNING AREA

The range of the northern spotted owl in California extends from the Oregon border in the north through Marin County in the south, and east to western Modoc County (Fig. 1). The area contains approximately 4,150,000 hectares (10,250,000 acres) of private, 100,000 hectares (250,000 acres) of state, and 3,280,000 hectares (8,100,000 acres) of federal land. The Scientific Committee divided the planning area into six biogeographic subregions to facilitate analysis (Fig. 2). Subregions differ in plant species composition, rainfall, fire occurrence, ownership pattern, and land use practices.

HABITAT CONSERVATION PLANNING PROCESS

The goal of the planning effort was to develop a consensus-based HCP that was biologically sound and minimized social and economic impacts. Several alternatives were drafted through a public scoping process. These alternatives were developed to maintain owl populations and represent a broad range of owl protection. These alternatives were then reviewed for potential social and economic impacts. The process of developing alternatives and selecting the preferred conservation strategy occurred in four phases over nearly two years.

Phase One: Scoping and Public Input On Alternatives

Public scoping is required by California's Environmental Quality Act of 1970 (CEQA) and the federal National Environmental Protection Act of 1969 (NEPA). The BOF opted to develop a full Environmental Impact Report (EIR) with alternatives as required under CEQA rather than rely on its functional equivalency under the Z'berg-Nejedly Forest Practice Act of 1974. Functional equivalency means that the BOF is exempt from the CEQA requirement to develop EIRs to harvest timber. In place of writing an EIR to harvest timber, a private landowner is responsible for completing a Timber Harvesting Plan (THP) that is reviewed by a multi-agency team and ultimately approved by CDF.

The issuance of a 10(a)(1)(B) permit is a federal action subject to NEPA. The FWS determined, given the breadth of impacts, that the appropriate NEPA document was an Environmental Impact Statement.

Public scoping during phase one aided in the development and refinement of the HCP alternatives. The joint EIR/EIS scoping effort and alternative development included interviews, public meetings, and the solicitation of written comments (Anon. 1991). Many of the public comments formed the basis for developing alternatives. Issues identified in the scoping process included: 1) use of the most current information available regarding spotted owl biology, 2) owl responses to forest management, 3) impacts to timber supply, regional income and employment, and local government revenues, 4) effect of conservation measures upon small landowners, and 5 protection of other species sensitive to forest management.

Phase Two: Development of Goals, Objectives and Alternatives

As primary goals, the BOF directed the Steering Committee to develop an HCP that would maintain the range of the of the northern spotted owl, consider and mitigate impacts on other forest species of concern, support federal recovery efforts, and reduce THP preparation costs. In a series of meetings, the Steering Committee established the following specific goals for the HCP (Tuazon et al. 1992):

1. Ensure that the likelihood of survival and recovery of the owl is not appreciably reduced while permitting the incidental take of the species;
2. Attempt to provide for protection of other forest species of conservation concern; and
3. Attempt to minimize and mitigate the impacts of conservation restrictions on landowners, and on people and communities dependent on timber harvest, within the legal requirements of the Endangered Species Act and other laws.

The Steering Committee adopted the following objectives to guide formation of the alternatives (Tuazon et al. 1992):

1. Recognizing that the federal government has primary responsibility to contribute to the maintenance of a well distributed, viable population on federal lands in California, ensure that the

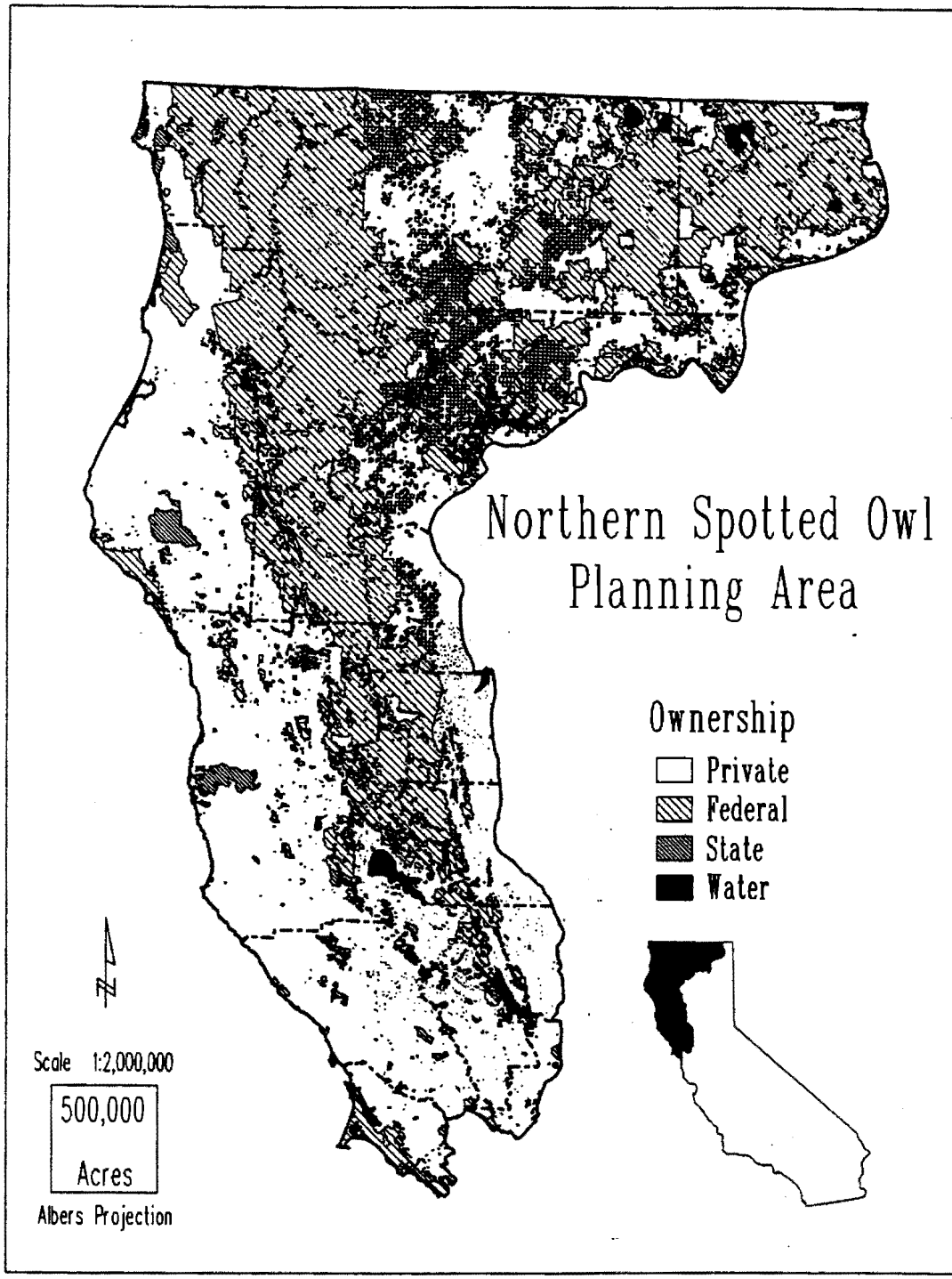

Fig. 1. Northern spotted owl planning area and land ownership in the Klamath Province, northwestern California. The area incorporates the range of the species in California.

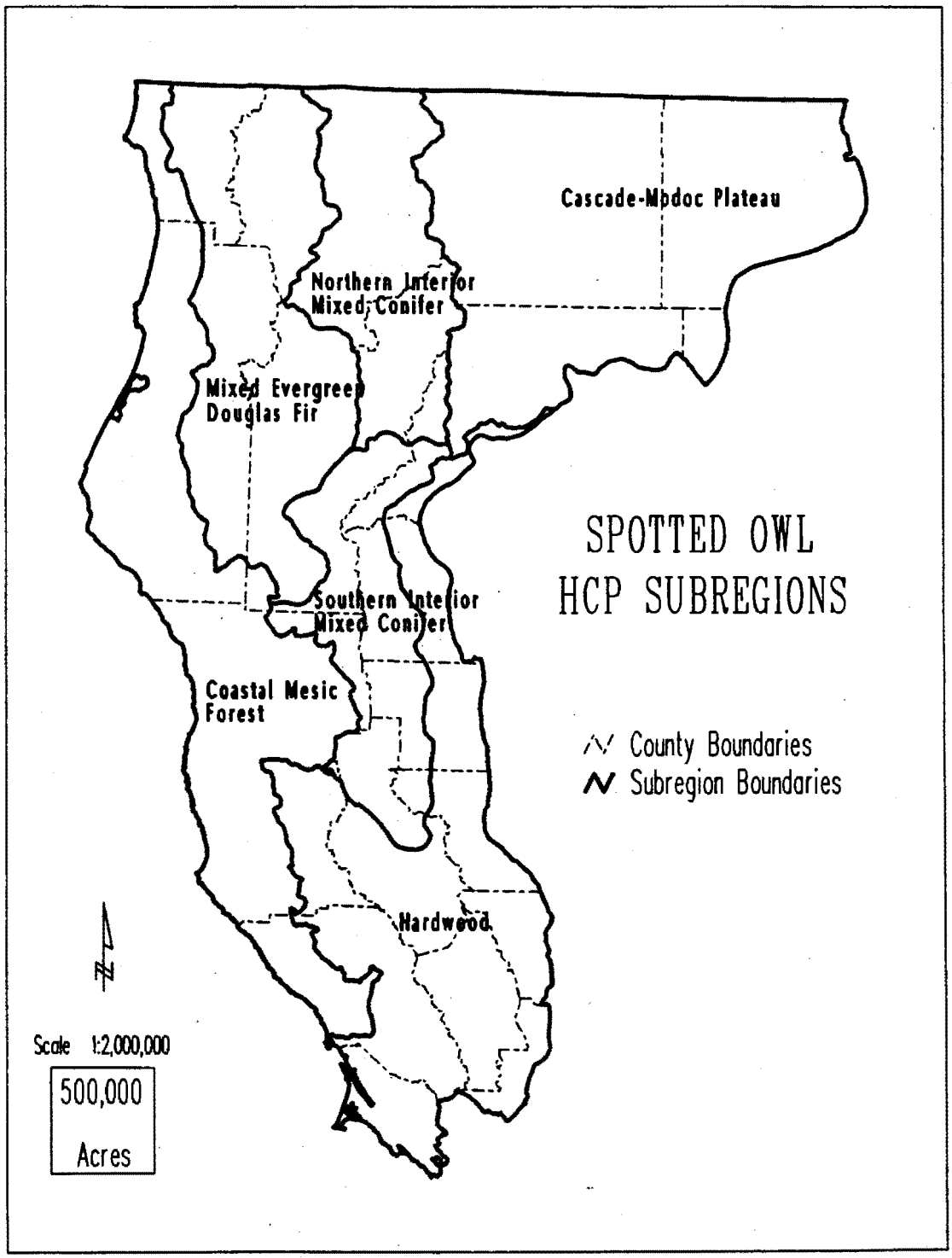

Fig. 2. Habitat Conservation Plan subregions in the planning area.

recoverability of the spotted owl population on federal lands is not reduced due to the implementation of the HCP.
2. Given the actions on federal lands, provide for the continued existence and survival of the owl throughout its range on state and private lands employing suitable conservation techniques, recognizing both the immediate and long-term needs of the species.
3. Minimize and mitigate the impacts of take, as defined by the Endangered Species Act, to the maximum extent practicable.
4. Provide, wherever feasible and practical, habitat elements for other species of concern as identified through the HCP process.
5. Minimize and mitigate the impacts on allowable uses of property, land and property value, landowner and timber income and regulatory costs, recognizing the distinctions between public and private forestland uses and between landowner classes on private lands.
6. Minimize and mitigate the impacts on timber supply, employment, and private and government revenues to the extent consistent with the protection goal.

In a series of meetings, the Scientific Committee developed alternatives that were biologically sound and consistent with BOF and Steering Committee goals and objectives. Each alternative was presented by the Scientific Committee to the Steering Committee for their review and both Committees developed criteria for alternative evaluation. The following alternatives were selected for detailed analysis:

1. Alternative 4.1: implement a strategy on private and state lands similar to the federal Habitat Conservation Area (HCA) strategy. Under this alternative, reserves would be designated on state and private lands and would be managed using the same constraints recommended by the ISC (Thomas et al. 1990) for federal HCAs.
2. Alternative 4.2.1: implement a strategy that provides for a dynamic distribution of owl habitat and populations on state and private lands. This alternative is similar to alternative 4.1 except that timber harvest and other forest management activities would be allowed on state and private lands. Limits were placed on the ability of habitat areas to move across the landscape since lands adjacent to the federal HCA strategy were to be managed only for dispersal habitat.
3. Alternative 4.2.2: implement a strategy that provides for a dynamic distribution of owl habitat and populations on state and private lands. Habitat areas would be allowed to move across the landscape following biologically based guidelines but independent of the federal HCA adjacency constraint of Alternative 4.2.1. This alternative provided for the possibility of augmenting federal HCAs with owl pairs located on state and private lands.
4. Alternative 5: maintain the suitability of occupied spotted owl habitat on all private and state lands (the no take alternative). This alternative would maintain the current measures adopted by the BOF in 1990 to prevent take of northern spotted owls.
5. Alternative 8: maintain spotted owl habitat throughout state and private lands. The intent of this alternative was to create or maintain nesting, roosting, and foraging habitat that is well distributed throughout the subspecies' range using a rule set applicable to all 3,000-5,000 acre planning watersheds.

Phase Three: Evaluation of Alternatives

The Steering and Scientific Committees evaluated the alternatives during two workshops in early 1992. The Committees used a structured decision analysis process (Bonnicksen 1992) which ultimately resulted in the identification of a preferred alternative for each subregion. At the end of Phase Three, concerns still remained regarding HCP implementation, administration, and financing. The conservation strategy presented in this paper is a composite of those preferred alternatives that met biological, social and economic criteria by subregion.

Phase Four: Refinement of the Preferred Alternative

The decision to select a different alternative in each subregion was based on the recognition of biological and physical differences between subregions. During this period, a draft HCP (Tuazon et al. 1992) was presented to the Steering and Scientific Committees and selected outside reviewers. Unresolved issues that remained, preferred alternative implementation in the northern Interior Mixed Conifer and Cascade-Modoc Plateau subregions, and estimated level of incidental take expected, were referred to the BOF with a request for resolution and additional direction.

PREFERRED ALTERNATIVE

The conservation strategy of the HCP is founded on three basic components: 1) dispersal habitat, 2) owl population centers, and 3) prohibition of take.

Owl Population Center planning groups would be responsible for meeting site-specific requirements. The BOF Technical Review Committee would approve local monitoring plans. Landscape-scale monitoring through a GIS database and THP monitoring would be performed by CDF.

MITIGATIONS FOR INCIDENTAL TAKE

Measures to mitigate the potential level of incidental take included the following:

1. Protection of all active nest sites during the breeding season.
2. Training programs on conservation strategy implementation for HCP participants.
3. Habitat retention requirements in Owl Population Centers.
4. Financial incentives for the protection of owl pairs and participation in the conservation strategy.

FUNDING

It is mandatory that an applicant for a Section 10(a)(1)(B) incidental take permit ensure that adequate funding for HCP implementation and monitoring be provided. Funding for administration, landowner planning, monitoring, research, and financial incentives was estimated at $9,811,578 per year for a fully implemented HCP. The Steering Committee decided that the HCP should be funded through a wholesale lumber transaction fee. Approximately 10 billion board feet of lumber and plywood are used annually in California. A wholesale lumber fee of $1.00 per thousand board feet applied to all lumber sold in California, regardless of origin, would generate approximately $10 million per year. A primary advantage of a transaction fee is that consumers of wood products fund the HCP directly, and out-of-state producers would not have a competitive advantage. Imposing such a fee would have required state legislation.

CURRENT STATUS OF THE HABITAT CONSERVATION PLAN

At the time of this writing, the HCP has not been developed beyond an administrative draft and is unlikely to be implemented as described in this paper. The Forest Ecosystem Management Assessment Team plan (Anon. 1993a) attempts to implement a ecosystem management approach with a focus on watershed planning as a basis for habitat management. Concurrently, the FWS is developing a process through Section 4(d) of the ESA to allow incidental take of northern spotted owls on state and private lands. On March 2, 1994, the California Resources Agency presented a proposal to the BOF for the implementation of habitat conservation rules under Section 4(d). The newly proposed 4(d) rule is not representative of the conservation strategy identified in the HCP but some components and concepts are similar. The proposed rule has been met with mixed support. In addition, the FWS was seeking a Congressional budgetary appropriation to assist the State in 4(d) rule monitoring. The rule would be implemented under the authority of the BOF with approval from FWS.

LESSONS LEARNED

Although in all likelihood the conservation strategy will not be implemented as designed, we learned some important lessons during the two years required for its development.

Lesson 1: Adequate Staffing

The majority of the work accomplished by the Steering and Scientific Committees was at the expense of private individuals or contribution by state and federal agencies. As a result, there was not an incentive to complete tasks in a timely manner or prioritize tasks with other required work.

The CDF staff of two assigned to the HCP worked less than half-time on the project due to other duties. Only one consultant and one part-time student assistant worked solely on the HCP. Clerical support was not assigned to the project. This resulted in a relatively inordinate amount of time spent on the development of the administrative record and facilitation of committee meetings.

We recommend that in the future, the state model their steering or scientific staffing needs after resource management projects of similar scale and magnitude recently completed by the U.S. Forest Service, Bureau of Land Management, and others.

Lesson 2: Adequate Funding

There is no established model for funding HCP activities (Bean et al. 1991). The principal reason behind less than adequate staffing was inadequate funding. The state expended approximately $800,000 on a programmatic HCP project area that covers several million hectares. In contrast, private industry may spend 2 million dollars for an HCP that covers only a fraction of that area (K. Smith, pers. comm.). The Stephen's kangaroo rat HCP in southern California may ultimately cost 50 to 100 million dollars for habitat

acquisition alone (Beatley 1994). The HCP Committees or CDF staff were not instructed on the level of funding potentially available for plan implementation. The most important HCP elements requiring funding are monitoring and administration. The 10 million dollar annual cost of full implementation was not expected by the BOF. In addition, the wholesale lumber transaction fee to fund the HCP was not considered to be feasible by the Governor's office and some legislators. However, no one to date has proposed an alternative means of funding the program to the level of certainty required by the federal ESA. We recommend that, prior to HCP preparation, the costs of developing and implementing a large scale plan be determined. In some cases a special legislative appropriation will be required.

Lesson 3: Constituency and Consensus

The Steering and Scientific Committees based decisions on group consensus which is a very powerful but frequently slow process. For example, Beatley (1994) observed that the tenor of discussion and the substance of policy decisions were influenced by membership composition in the Clark County, Nevada HCP for the desert tortoise. The northern spotted owl HCP staff attempted to include all of the stakeholders into the HCP process, but with limited success. In general, a significant commitment of time is required to participate in the HCP process (Beatley 1994). In most cases the HCP process is an important opportunity for reconciling economic development pressures with ESA requirements to the potential benefit of both landowners, the general public, and endangered species (Bean et al. 1991). Stakeholders must be continuously represented in the planning process so that consensus is not compromised. The end product will be more acceptable to all parties and have a higher likelihood of implementation (Bean et al. 1991).

Lesson 4: Stratify Planning Area

Bean et al. (1991) recommended that a HCP encompass as much of the target's species range as possible We found that a planning area defined by the range of the northern spotted owl in California was too large and diverse. Stratification of the subregions helped, but too much time was spent on developing alternatives intended to apply across all subregions. In contrast, the NCCP process in southern California includes a large geographic area, but the biological and physical features of the plan area are comparatively homogeneous (Anon. 1993b). Development of the HCP would have been markedly simplified with a focus on the Coastal Mesic Forest subregion since this area was the most important for northern spotted owl conservation and relief from forest management constraints. A plan could not be developed for the northern Interior Mixed Conifer and Cascade-Modoc Plateau subregions due to lack of information on spotted owl biology and habitat requirements. The Hardwood subregion also lacked detailed information on owl populations and their habitat requirements. In addition, this subregion supported relatively few THPs, had little suitable habitat, and was considered much less important to the owl's recovery (Anon. 1992). Ultimately it was decided that these subregions would remain, at least for an interim period, under the BOF's "no take" northern spotted owl rules (Alternative 5). These areas could have been eliminated from the HCP early in the planning process since the HCP would have no effect on management strategy. We recommend early development of a prioritization process to detect and avoid this type of problem when developing a programmatic HCP.

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