

during the planning or operations phase of a THP (Cunningham, CDF, pers. comm. 2002).

The implementation of the FPRs can take several forms from development of smaller individual site specific THPs to the so called Option B—landscape scale Sustained Yield Plans (SYPs). Currently there are two approved SYPs that cover approximately 73,700 ha (182,000 ac) of California spotted owl habitat north of Lake Almanor. This is approximately 8 percent of the estimated acres of potential suitable habitat on private timberlands (Verner *et al.* 1992a).

Another way to comply with the FPRs is development of the so called Option A-Maximum Sustainable Production (MSP) plan which provides a broad set of criteria that guides the individual THP process for the ownership (FPRs §§ 913.11, 933.11, 953.11)(CDF 2002). The primary goal of the MSP is to document and provide for the long term sustained yield of timber products.

Sierra Pacific Industries (SPI) is the largest private commercial timberland owner within the range of the California spotted owl. SPI owns approximately 376,351 ha (930,000 ac) of timberland within the range of the spotted owl. All of SPI's commercial timberland is harvested under two CDF approved MSPs (one for the north and one for the south) (SPI 1999 a & b). SPI continuously collects and maintains an inventory of vegetation/habitat over the entire ownership. The ownership is inventoried in 1.6 ha (4 ac) plots with detailed information on tree species, overstory, understory, size class, snag class, etc. Thus, SPI continuously maintains information on over 350,000 plots with 10 percent of the land ownership inventoried each year and all plots are inventoried each decade. Information is also collected on wildlife including location of California spotted owl nest sites. SPI uses the baseline inventory to model growth and yield of timber stands. This sophisticated modeling projects forest conditions for a 100 year planning horizon with a mix of silvicultural and cultural practices. SPI models project an increase of large tree/closed canopy conditions from about 20 percent of the landscape in year one (current condition) to 65 percent in year 80 and stabilizing to 55 percent in year 100. The average diameter of trees increases from 18 in class (current condition) to 32 in class and projections anticipate maintenance of the higher proportion of larger tree class over time with harvest practices.

The implementation of the FPRs focus primarily on sustainable timber harvest with a secondary focus on fish and wildlife. With no requirements to

implement strategies to specifically manage and protect habitats that spotted owls use, some habitat elements may not be protected adequately. For example the FPRs do not require retention of structural elements such as downed woody debris that provide habitat for spotted owl prey species. However, the FPRs provide that all snags within the logging area be retained to provide wildlife habitat. There are exceptions, such as allowing harvest of merchantable snags in any location, snags whose felling is required for insect or disease control or safety reasons, and snags proposed for harvest by an RPF, where there is justification that there will not be a significant impact to wildlife. These exceptions provide discretion to timber operators on the ground to remove snags without specific review of the potential effects on owl habitat, unless addressed through late successional forest stands regulation. If a nest site is only discovered and buffered during harvest operations, impacts that have already occurred to the foraging and roosting habitat surrounding the nest site may not be adequately addressed. Furthermore, if planning or harvest operations occur outside the nesting season, nests may not be detected at all, and those habitats will receive no protection. Certain timber operations can be exempt from the THP process, including the harvest of dead and dying trees in amounts less than 10 percent of the volume of timber per acre.

The FPRs provide that in preparing a THP, the RPF may conduct the cumulative impacts assessment based on information that is reasonably available before submission of the THP. The effects of timber harvest in a watershed could be determined, cumulatively, to result in impacts not assessed on a site by site basis. CDF with support from CDFG for fish and wildlife species, determines the sufficiency of the assessment based on information in its files or on comments received during the notice and comment period. However, less than 25 percent of THPs are field checked by the CDFG, and most THPs do not adequately assess cumulative impacts (Berbach pers. comm. 2002). This level of review accounts for approximately 50 to 60 percent of the acres in THPs submitted, where the focus is often exclusively on listed species due to budget, priorities, and staffing issues (Garrison, CDFG, pers. comm. 2002). In smaller, non-industrial THPs, a complete cumulative effects analysis of past, present, and reasonably foreseeable actions at the watershed scale is not always provided

by the land owner or the RPF preparing a THP. This is due to factors such as lack of funding to perform adequate watershed level analysis, lack of information about other private parcels in the watershed, and sometimes lack of knowledge of available resources, including studies conducted on larger public and private ownerships that would provide such information (Cunningham, CDF, pers. comm. 2002).

Approximately 80 percent of habitat for the California spotted owl on private lands is in the ownership of SPI timberlands and accounts for approximately 10–12 percent of the range of the spotted owl. All of SPI properties operate under a State required long term plan for timber production and resources management. As part of the requirement by the State, SPI's MSP does provide a sophisticated projection for long term increases in habitats characterized as suitable for nesting, roosting, foraging and dispersal by spotted owls. These habitats are projected to be well distributed across the landscape. SPI has taken steps to collect and analyze information on spotted owl nest locations, breeding success, and habitat use to support their conclusion that long term projections include an increase in habitat for spotted owls.

The timber management plans in place on private lands are not developed or implemented with the purpose of protecting habitat for California spotted owls. However, it appears that the State FPRs and the plans in place over a significant portion of the range of the spotted owl on private lands would result in some benefits to spotted owls. These plans would benefit from further evaluation and peer review to verify their contribution to spotted owl viability in the Sierra Nevada.

Therefore, we believe there is no substantive information that indicates there are significant or immediate threats to California spotted owl viability because of the lack of regulatory mechanisms.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Climate and Climate Change. Climate may influence vital rates (survival, fecundity, and recruitment) of spotted owls directly, or through indirect means such as effect on prey populations (LaHaye *et al.* 1994, Verner 1999, Franklin *et al.* 2000, North *et al.* 2000). In southern California, drought was postulated to affect spotted owl population dynamics through its effects on prey (LaHaye *et al.* 1994), and statistical modeling showed that drought is associated with reduced