

additional 91 mmbf of salvage harvest per year may also be made available (USFS 2001b).

Totaling approximately 282 mmbf per year in combined volume of green and salvage timber harvest for the first five years, this harvest level would be similar to the annual average harvest volume (about 279 mmbf) from Sierra Nevada national forests from FY 1998 to 2000, described above. However, the harvest would be distributed somewhat differently than in past years, as over 70 percent of the green tree volume will be harvested from the three forests (Lassen, Plumas, and Tahoe) involved in the HFQLG pilot project. (Since 1994, the amount harvested from these three forests has ranged from 56 percent to 71 percent of the total harvested from all Sierra forests.) All of the planned harvest would be subject to the SNFPA Standards and Guidelines summarized below. It should be noted that even though the projected volume from the HFQLG pilot project was 139 mmbf per year, the total harvest in the first two years was only about 60 mmbf, primarily as a result of the constraints of the SNFPA and planning delays (Mary Carroll-Martin, USFS, pers. comm. 2003).

Timber harvest on private lands in the Sierra Nevada—Private timber harvest is widespread in the Sierra Nevada. Between 1999 and 2001, 765 timber harvest plans covering 86,685 ha (216,675 ac) within the range of the California spotted owl were submitted (Susan Britting, Sierra Nevada Forest Protection Campaign, *in litt.* 2002). For the foreseeable future, timber harvest on industrial timber lands in the Sierra Nevada will be conducted in compliance with the California Forest Practice Rules. Regulatory aspects of the Sustained Yield Plans (SYP) program are further described in Factor D below.

The primary private industrial timberland owner in the Sierra Nevada is Sierra Pacific Industries, Inc. (SPI), which owns about 376,351 ha (930,000 ac) within the range of the California spotted owl. For the next several decades, SPI's timber harvest will be conducted according to their Maximum Sustainable Production (MSP) plan pursuant to the California Forest Practice Rules (further described in Factor D below). Under this plan, SPI projects 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. Over the 100 year period, 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 (SPI 1999 a and b).

Timber harvest in southern California—The four southern California National Forests are currently operating under Forest Land and Resource Management Plans that were completed in the late 1980s. As discussed further in Factor D, these plans are in the process of revision. There is not an Allowable Sale Quantity or Proposed Sale Quantity proposed in the Southern California Conservation Strategy. The prolonged mortality of vegetation has resulted in significant build-up of fuels in the San Bernardino National Forest. In order to reduce both a fuel hazard and risk of fire, the San Bernardino National Forest has a number of salvage harvest timber sales currently under contract. Additional sales are being planned and the sale program will respond to continuing and projected mortality (M. Gertsch, USFS, pers. comm. 2002). Timber harvest on these forests will be conducted with California spotted owl protection measures (M. Gertsch, USFS, pers. comm. 2002).

In summary, available information suggests that U.S. Forest Service timber harvest levels in the Sierra Nevada and southern California are not expected to increase substantially above current levels. In addition, the SPI MSP is expected to provide an increasing amount of habitat on that large industrial ownership over the next few decades. Other private lands have not been specifically evaluated, but will be governed under the FPRs, further described below.

Risk of Catastrophic Fire—Weatherspoon *et al.* (1992) identified the following major factors of concern in habitats of California spotted owls in the Sierra Nevada that pertained to fire risk: (1) Ingrowth of shade-tolerant tree species, creating unnaturally dense stands with ground-to-crown fuel ladders; (2) excessive accumulation of surface fuels; and (3) change in composition of tree species from fewer pines and black oaks to more firs and incense-cedar. Such conditions create a tendency towards crown fires that kill most or all trees in an area, which may result in direct mortality of California spotted owls or make the burned habitat unsuitable for the species.

Approximately 39 percent of the California spotted owl sites on national forest lands in the Sierra Nevada occur in areas with high fire hazard risk (USFS 2001a). However, as stated above, the actual loss of owl sites to wildfire has been small in recent years, perhaps due to effective suppression and

environmental factors. The annual rate of loss has been only 0.2 percent of the known national forest owl sites in the Sierra (Service 2001). Thus, based on recent rates of loss to catastrophic fire, it could be argued that the risk to the subspecies is not particularly high. Effects at some local levels have been larger; the Plumas National Forest lost 5 percent of protected activity centers (PAC, protected owl nest and surrounding habitat) per year over a recent two-year period (USFS 2001a). It is also argued that the steadily increasing amount of forest fuel creates an ever-increasing risk of large catastrophic fires (Weatherspoon *et al.* 1992).

The Forest Service currently believes that wildfire effects, particularly those associated with large, stand replacing wildfires, are a major source of risk to spotted owl populations (USFS 2001b). This is based on analysis of recent trends in fire occurrence and on the explicit assumption that the recently-observed high rate of large severe fires will continue. Also, the growing concern over the potential for disastrous wildfire effects on human communities has strongly influenced management direction toward reducing fuels in forests in proximity to human communities in the so-called Wildland Urban Interface (WUI). Response to this concern is manifested in nationwide activities under the National Fire Plan (National Interagency Fire Center (NIFC) 2002), which established general guidance and funding for land management agencies and communities involved in fire suppression and fuels reduction.

This recently increased focus on reduction of forest fuels has substantial implications for the California spotted owl, and raises difficult questions about the potential benefits and risks to the subspecies that may result from reduction of forest fuels. In general terms, the situation may be described as follows: In today's forests, the high canopy-cover stands currently much-used by spotted owls are largely a product of sustained fire suppression in stands regenerating after high levels of harvest that occurred several decades ago. The large numbers of small and medium-sized understory trees that create high degrees of canopy cover also act as a potential fuel ladder that can carry fire into the forest crown, where, under some conditions, the fire can spread rapidly and create extensive tree mortality. The competition among many small trees suppresses the rate of growth of the stand into the larger trees that are an important component of high quality habitat for owl nesting and forage