

species, thus, tree deaths caused by this pathogen may pose a threat to owls or their prey species.

In summary, threats affecting the California spotted owl's habitat by themselves, or in combination with other factors, do not seem to pose now or in the foreseeable future a significant threat to the continued existence of the California spotted owl such that it warrants listing.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We found no evidence that overutilization for commercial, recreation, scientific, or educational purposes is a threat to the California spotted owl. Research by Federal and State agencies, and various public institutions and private groups is conducted on the California spotted owl, but such research is not known to have a negative effect on the species. We are aware that northern spotted owl sites are visited by ecotourists (Sacramento Bee, October 27, 2002) and photographers, but we are not aware of such visits to California spotted owls. Therefore, we believe that overutilization for commercial, recreation, scientific, or educational purposes does not pose a threat to the continued existence of the California spotted owl.

C. Disease or Predation

Little is known regarding disease in California spotted owls (Verner *et al.* 1992b, Gutiérrez *et al.* 1995). They have a high infection rate by blood parasites, with 76 individuals examined showing 100 percent infection with one or more of *Haemoproteus noctuae*, *H. syrnii*, *Leucocytozoon ziemanni*, *Trypanosoma avium*, microfilariae, and/or *Atoxoplasma spp* (Verner *et al.* 1992b, Gutiérrez *et al.* 1995). However, survival rates are high even where blood parasite infection rates are high (Verner *et al.* 1992b, Gutiérrez *et al.* 1995). Infection by parasitic worms has been documented in northern spotted owls, including round worms, flat worms, and spiny-headed worms (Verner *et al.* 1992b, Gutiérrez *et al.* 1995); and similar infections are likely in the California subspecies. External parasites have also been recorded in California spotted owls, including louse flies (*Icosta americana*) and chewing lice (*Strigiphilus spp*).

In 1999, a strain of the West Nile Virus (WNV) that has a high fatality rate in some birds was discovered in the eastern United States and more recently has infected humans in California (Russell 2002 and CDC 2002). WNV has

been detected in dead birds of at least 138 species, although cause of death was not conclusively attributed to WNV (CDC 2002). Although birds, particularly crows and jays, infected with WNV can die or become ill, most infected birds do survive (CDC 2002). WNV is amplified during periods of adult mosquito blood-feeding by continuous transmission between mosquito vectors and bird reservoir hosts. Infectious mosquitoes carry virus particles in their salivary glands and infect susceptible bird species during blood-meal feeding. Bird reservoirs can sustain an infectious viremia (virus circulating in the bloodstream) for one to four days after exposure, after which these hosts develop life-long immunity. A sufficient number of vectors must feed on an infectious host to ensure that some survive long enough to feed again on a susceptible reservoir host.

In 2002, WNV activity has spread to most eastern and mid-western states, with 113 cases and 5 human deaths as of August 8, 2002 (United States Geological Service (USGS) 2002). We are not aware of any infection of spotted owls by the virus, but WNV has been found to infect the closely related barred owl (USGS, *in litt.* 2002), and may pose a threat to spotted owls.

Natural predators are discussed under Natural Mortality in the Life History section, above. Natural predation probably has little effect on healthy populations. However, as populations become smaller and more fragmented, the impacts of natural predation may also become significant. Also, the invasion of a new competitor and possible predator, the barred owl, is discussed in Factor E.

In summary, disease or predation factors by themselves, or in combination with other factors, do not seem to pose now or in the foreseeable future a significant threat to the continued existence of the California spotted owl such that it warrants listing.

D. The Inadequacy of Existing Regulatory Mechanisms

Existing regulatory mechanisms that could provide some protection for the California spotted owl include: (1) Federal laws and regulations including the Migratory Bird Treaty Act (16 U.S.C. 703–712), the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531), the Wilderness Act of 1964 (16 U.S.C. 1131–1136), the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*), the Forest and Rangeland Renewable Resources Planning Act of 1974 (16 U.S.C. 1601–1614, §§ 1641–1647), and the Sierra Nevada Forest Plan Amendment (USFS 2001a and b); and

(2) State laws including the California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 *et seq.*), the California Forest Practice Rules (14 C.C.R. § 895 *et seq.*), and the California Fish and Game Code §§ 1 *et seq.* Local land use processes and ordinances are subject to CEQA.

Federal

The Migratory Bird Treaty Act (MBTA) prohibits “take” of any migratory bird. “Take” is defined as to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect. However, no provisions in the MBTA prevent habitat destruction except that causing direct mortality or destruction of active nests.

The Wilderness Act of 1964 established a National Wilderness Preservation System made up of federally owned areas designated by Congress as “wilderness areas” for the purpose of preserving and protecting designated areas in their natural condition. Commercial enterprise, road construction, use of motorized vehicles or other equipment, and structural developments are usually prohibited within designated wilderness areas. The Wilderness Act has protected some California spotted owl habitat from development or other types of habitat conversions; however, it does not have any provisions specific to the protection of the species.

The National Environmental Policy Act of 1969, as amended (NEPA), requires all Federal agencies to formally document and publicly disclose the environmental impacts of their actions and management decisions. NEPA documentation is provided in either an environmental impact statement, an environmental assessment, or a categorical exemption, and may be subject to administrative or judicial appeal. The Forest Service considers the California spotted owl a species of concern. Therefore, part of the analysis generated by the Forest Service to direct management decisions under NEPA may include a biological evaluation that discloses potential impacts to species of concern on a project by project basis.

The Multiple-Use Sustained-Yield Act of 1960, as amended, (MUSY) provides direction that the national forests be managed using principles of multiple use and to produce a sustained yield of products and services. Specifically, MUSY provides policy that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. Land management for multiple uses has inherent conflicts.