trade must be tagged with a speciesspecific tag. Quotas are developed after the direct monitoring of populations on an annual basis, and individual properties may be monitored through ground surveys and property inspections before receiving a quota. Quotas are released in stages so management can respond to changes in climatic conditions. Kangaroo shooters are licensed to shoot on individual properties.

The Department of Conservation and Land Management has the responsibility for the conservation and protection of all flora and fauna under the Western Australia Conservation and Land Management Act of 1984. The Department has authority under the Wildlife Conservation Act 1950 and associated regulations to control the killing of red and gray kangaroos. Landowners and their agents may take kangaroos non-commercially for damage mitigation purposes in open-season areas. Kangaroos can only be taken under a damage license specifically issued to particular properties in nonopen-season areas. The harvest is monitored by using species-specific tags and by monitoring monthly reports from licensed shooters and dealers. Population trends are monitored on a triennial basis because of the State's vast area and because kangaroo densities are frequently low.

Critics of the kangaroo management program in Australia cite the incongruity of legislation granting a measure of protection to the species and the presence of a commercial industry that is responsible for the harvest of several million kangaroos per year. Critics also state that few studies substantiate claims that kangaroos are major depredators of range and agricultural crops, so that arguments that kangaroos are harvested to reduce damage especially to range products are specious, especially when sheep numbers remain too high for fragile ranges. The Service believes that any perceived incongruity in domestic laws needs to be resolved domestically and is not a reason for an ESA listing decision. It is additionally not necessary for the Service to address the argument that the commercial killing of kangaroos is solely for damage mitigation purposes to make a decision on a listing status. Kangaroos incidentally prosper at this time because of land management accomplished for other purposes. Active kangaroo management essentially only regulates kind and level of take so that overutilization does not occur and so that sustainable populations are maintained throughout their range.

Regulatory mechanisms in place are adequate to perform this function.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Kangaroo populations fluctuate in response to environmental and climatic conditions. Appropriate wildlife management agencies routinely evaluate kangaroo populations over a wide area and monitor current harvest statistics to track population trends. This activity is intended to provide a sufficient understanding so that harvest activities, can be slowed or terminated if that becomes necessary. This may be appropriate, especially during drought, when kangaroo populations may become reduced and are most vulnerable to population control activities.

There is great concern among critics that management programs both for individual States and the Commonwealth are insensitive to the plight of kangaroos during environmental stress periods as during the 1982-1984 drought. The perceived insensitivity at that time was an apparent inability or unwillingness to reduce the commercial harvest of kangaroos in what critics considered a timely manner during an environmental stress period. The critics argue that demands from the pastoral industry and the commercial kangaroo industry superseded important kangaroo management decisions. The present concern with insensitivity occurred because some important kangaroo habitats experienced droughts during 1992 at a time when a record macropod harvest quota of 5.2 million animals (including 4,942,000 red and gray kangaroos) was established. The Commonwealth indicates (ANPWS in litt.) that the determination of quotas during a dry period as during a normal period is on the basis of estimated kangaroo populations.

Droughts are quite variable in their duration and distribution and kangaroo populations do not automatically decline in response to dry seasonal conditions. The 1983 harvest quotas were set at high levels because kangaroo populations measured during the June-August 1982 winter period were still high. The actual harvest during 1983 was considerably less than the actual quota and the quotas in 1984 and 1985 were maintained below 2 million animals as populations recovered.

Kangaroo populations have risen across Australia since that time and quotas have correspondingly increased. For example, the 1991 mid-winter kangaroo population in New South Wales was estimated at 9.1 million and

the 1992 harvest quota in NSW was fixed at 2.1 million (23 percent of the 1991 population estimate). The midwinter 1992 kangaroo population in NSW (obtained while the 1992 drought was still ongoing) was estimated at 8.04 million and a 1993 harvest quota of 1.66 million (21 percent of the 1992 population estimate) was established. The 1992 mid-winter survey indicated that statewide the populations of red kangaroos were diminished by about 40 percent (a statistically significant reduction, P< 0.05) and gray kangaroo populations were diminished about 8 percent (a statistically non-significant reduction). The 1992 mid-winter survey also indicated that kangaroo populations in central and southern management zones were little-changed from 1991 levels. The NSW National Parks and Wildlife Service, in mid-year, consequently switched some harvest quotas from northern to more southerly harvest management zones. The NSWNPWS also determined in mid-year that 15 percent of the 1992 harvest quota would be held back and not allocated during 1992. The NSW commercial kangaroo harvest during 1992, when a portion of the state was involved in a drought event, totalled about 800,000 kangaroos during a year when the potential harvest quota totalled 2.1 million. The kangaroo harvest strategy was thus to actively adapt and modify management plans as a dry season developed into a drought.

States have additional regulatory mechanisms to reduce actual harvest to levels below the commercial quota. Licenses to take animals may be amended to restrict the numbers taken in a particular area, to limit harvesting to certain species, or to cease hunting altogether. Thus, management may progressively restrict and then cease all harvesting of kangaroos in response to declining populations. Following the 1982-83 drought in New South Wales, a moratorium on harvesting was applied to some of the worst affected areas to enable populations to recover. Should a severe drought occur during the 1990's, States can be expected to respond in an appropriate manner to changes in the kangaroo populations. The ultimate assurance that conservation of the species will be given primary consideration is the approval and review of ongoing operations of State management programs by the Commonwealth Government (ANPWS in litt.).

Control over the methods used to kill kangaroos rests with State and Territory management personnel and is determined by relevant State and Territory legislation. Thus, new harvest