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State of California
Department of Fish and Game

Memorandum

Date: January 26, 2009

To: John Carlson, Jr.
Executive Director
Fish and Game Commission

From: Donald Koch
Director
Department of Fish and Game

Subject: Commission Agenda Item No. 19(A) Possible Action to Affirm or Reconsider the Commission's Prior Decision Rejecting the Petition to Designate Pacific Fisher (*Martes pennanti*) as a Candidate Species for Listing Under the California Endangered Species Act (CESA); and (B) Possible Adoption of Findings.

On June 26, 2008 the Department of Fish and Game (Department) submitted its June 2008 report to the Fish and Game Commission (Commission) evaluating the January 2008 petition to list the Pacific fisher (*Martes pennanti*) as a threatened or endangered species under the California Endangered Species Act (CESA). The "June 2008 Evaluation Report" documents the Department's analysis and related recommendation to the Commission that there is not sufficient information to indicate listing Pacific fisher under CESA may be warranted. (See Fish & G. Code, § 2073.5, subd. (a)(1).) The Commission reached the same conclusion at a public meeting on August 7, 2008, after considering public comments, the petition, and the Department's June 2008 Evaluation Report. (*Id.*, § 2074.2, subd. (a)(1).)

The agenda item referenced above indicates the Commission could take further action related to Pacific fisher at its upcoming meeting on February 5, 2009. (See, e.g., *Id.*, § 2074.2, subd. (b).) A number of events have occurred during the intervening months since the Commission took action to reject the Pacific fisher listing petition. The Third District Court of Appeal issued its decision in *Center for Biological Diversity v. California Fish and Game Commission* (2008) 166 Cal.App.4th 597, for example, and the Commission with the support of the Department later petitioned unsuccessfully for California Supreme Court review of that decision. The petitioners and various other interested stakeholders have also weighed in regarding the effect of the *Center for Biological Diversity* decision on the Pacific fisher listing petition.

As the Commission contemplates further action under CESA, the Department emphasizes as the State's trustee agency for fish and wildlife that its scientific opinion regarding the biological status of Pacific fisher under CESA has not changed from its June 2008 Evaluation Report. The Department believes there is not sufficient scientific information to indicate that the petitioned action may be warranted under

CESA, and our recommendation is that at its February 5th meeting the Commission affirm its earlier determination and adopt findings under CESA to that effect. (*Id.*, § 2073.5, subd. (a)(1).)

The Department offers the brief summary below in support of its recommendation. The summary highlights relevant topical information prescribed by CESA and the Commission's related regulations. The summary also highlights the much more detailed information and analysis set forth in the Department's June 2008 Evaluation Report. As a summary, the Department also respectfully refers the Commission to the June 2008 Evaluation Report for additional substantive detail.

- **Population trend**

The petition provided no empirical evidence indicating that either the northern or southern population of fisher in California is declining. The petition (page 19) describes population vulnerability to logging; however multiple submissions of information on fisher monitoring and telemetry from industrial timberlands that were received after the petition was filed contradict the conclusion that fisher are not persisting in such habitats. No substantial empirical evidence exists to indicate that timber harvesting, loss of den/rest trees, prey abundance, or long-term decline in late successional forest are limiting fisher population growth.

There are no rigorous studies on historic fisher populations in California. What is generally understood is that fisher were not considered to be common anywhere, and that fisher population densities are low relative to other mammals, undergoing fluctuations that are related to their prey (Powell 1993:78, Powell and Zielinski 1994). The low estimates, and the recommendation from Dixon (1925) and Grinnell et al. (1937) to cease trapping in the State, are suggestive that intensive trapping was the primary mechanism affecting fisher numbers.

Definitive fisher population trends remain unknown. Data and information received from all sources during petition evaluation lack sufficient rigor and methodology to calculate population trend in any part of the fisher range. The petition refers to studies documenting fisher fecundity rates, mortality rates, and density changes over time as the basis for inferences about fisher population trends. Unfortunately, these studies are largely short-term efforts of a localized study area. The Department's assessment of the available data on fisher fecundity, reproductive potential, mortality and density levels is that: year-to-year variability is high, site/location variability is high, there have not been enough samples at a comprehensive scale to thoroughly conclude a trend (or an average/mean/median as an appropriate "standard" for comparison), or, all of the above.

- **Abundance**

Current fisher abundance and population size are unknown in California. The petition estimates there are between 850 and 1,250 animals statewide (with 100-500 in the southern Sierra Nevada and approximately 750 in northern California). The Department considers this estimate to be low. The only known statewide estimate of the population from a "historical" (1920's) era was fewer than 300 animals. The

relatively low number was largely attributed to intensive trapping of fisher (Grinnell et al. (1937)). Current fisher population estimate efforts are based on localized study of fisher home range and minimum density estimates. These estimates, which vary depending on source, suggest there are at least 1,000, to approximately 4,500, fisher statewide. Estimates of density range from approximately 15 to 51 fisher per 100 square miles. Consequently, it is reasonable to conclude that there may be at least as many fisher in California now, if not more, than there were estimated to be 80+ years ago.

- **Range and Distribution**

Considerable uncertainty about the range and distribution of fisher exists because the historical information and current information is incomplete. From what records exist, the fisher's historic distribution occurred throughout the west slope of the Sierra Nevada, north into the Southern Cascade Range, and west to the forested ranges of the Klamath and Coastal ranges north of San Francisco Bay. By the 1920's, fisher numbers and distribution were reduced to areas they generally inhabit to this day (about 57 percent of their historical range).

Fisher distribution in California today is limited to two populations, separated by approximately 270 miles: the northern California population and the southern Sierra Nevada population. The distribution of recent (1995-2008) fisher observations from several studies and surveys conducted throughout northern California is roughly similar to the distribution of 1919-1924 trapping locations mapped by Grinnell et al. (1937). However, neither the modern observations nor the historic trapping locations represent comprehensive surveys of fisher distribution during each period. The historic records, in particular, only represent the fisher reported to have been trapped during a five year period.

- **Life History**

Unlike reports in the literature, it appears in California at least under current conditions that fisher do not rely much on porcupine or snowshoe hare for food. It is widely reported, but poorly studied, that porcupine and other rodents were specifically targeted for poisoning in past decades (e.g., Anthony et al. 1986). If the fisher has had to adapt to significant dietary switches to address prey availability in California this could have had implications to life history and population status. Reports document apparent substantial feeding by fisher on prey species not typically associated with late successional forests; notably reptiles and mule deer in winter (e.g., Zielinski et al. 1999, Golightly et al. 2006).

Also of relevance to fisher conservation and management is the reportedly low reproductive capability of the fisher and limited dispersal behavior that would influence the species rate of recolonization of historical ranges (e.g., USDI 2004). This could contribute to the apparent inability of fisher to recolonize in a time-frame that investigators would be able to detect in the short-term (years).

Both the petition and the Department's June 2008 Evaluation Report include more analysis of Life History in the Population Trend and Degree and Immediacy of Threats sections.

- **Kind of Habitat Necessary for Survival**

Late successional forests of high canopy cover provide an important part of the diverse habitats that fisher likely require. The fisher requires forested habitats that will fulfill its life history for breeding, resting, and foraging to survive. The petition uses the status of late successional forests in California as a habitat surrogate to infer conditions for the fisher population. However, use of a specific habitat as a surrogate to infer a species trend risks being incorrect if new information is advanced that the relationship may not be as clear or specific as originally believed. In the case of the fisher, there are now increasing examples of fisher occupying other forest habitats that are not old growth. Information received during petition review (Self et al. 2008, Diller et al. 2008) suggests fisher inhabit forests that are not considered late successional and are possibly more adaptable to forest change than previously perceived. In the southern Sierra Nevada the potential for a broader use of habitat types than in Northern California (Davis et al. 2007) is supported by the varied diet reported in the petition (citing Zielinski work) that included reptiles and mule deer, species not regarded as late successional dependent species.

- **Factors Affecting the Ability to Survive and Reproduce**

The petition infers that, in particular, changes in forestlands have contributed to range retraction of the fisher, that these changes are a risk/threat to the fisher population, and that the population is declining or will decline, and preclude recolonization of historic range. In essence, the lack of structural attributes in terms of resting/denning habitat is considered by the petition to be limiting fisher populations, placing them at risk.

The Department recognizes the importance of these habitat attributes, but finds there is not sufficient information to indicate they are limiting the fisher population. There is not sufficient evidence in the petition, or in the other information received, that the number of snags, den sites, or resting sites are now, or would in the immediate future, limit fisher population growth or range expansion.

- **Degree and Immediacy of Threat**

The petition identifies timber harvest, roads, urban development, fire, population isolation, and other factors as threats to the fisher. The Department considers historic trapping, poisoning of carnivores and prey, and unregulated timber harvest to have had the greatest impact (threat) on fisher. Trapping and poisoning are illegal and, therefore, are not currently significantly affecting the fisher. Timber harvest activities have been more carefully regulated on both public and private forestlands for at least 2-3 decades with significant progress in recognizing the importance of conserving a wide variety of habitat elements, especially late successional forests relied upon by wildlife. The petition has not demonstrated an immediate or significant detection or occurrence of a negative change in the amount of inhabited fisher range or apparent population in California since the Grinnell period of 80+ years ago.

The Department believes the harvest of late successional forest, especially key habitat elements (large conifers and hardwoods with cavities and other structures suitable for resting and denning), can be a potential threat to fisher. At the landscape scale, the abundance and distribution of fisher is likely to depend on the size and suitability of patches of preferred habitat, and the location of those patches in relation to areas of unsuitable habitat. Additionally, fisher may be able to effectively use less desirable habitats at various scales. Relatively young stands with dense canopy can provide suitable foraging and dispersal habitat, while stands with sufficient late successional habitat elements may be suitable resting and denning habitat. While harvesting can adversely affect components of fisher habitat, the extent to which harvesting has adversely affected fisher populations or rendered large areas of habitat unsuitable in northern California is unknown.

California's fisher populations are currently isolated from each other and from fisher elsewhere in North America. This concern was articulated as early as the mid-1990's (Zielinski et al. 1995) and the fisher in the southern Sierra Nevada appear to be persisting. There is no information presented in the petition to show that inbreeding and/or population viability currently are serious problems, and the Department does not agree with the petition's low estimate of population size. The Department is not aware of studies indicating that fisher fitness in northern California is currently compromised due to population size or genetic composition.

The petition (page 37-38) includes roads as part of the threats . The conclusion that roads are a threat is doubtful considering the historic decline in fisher attributed to trapping decades ago (before major high-speed highways). Whether roads may be an attraction to fisher because of the potential availability of a food source as a result of road-kill is unknown. Reports of road-killed fisher in the central Sierra Nevada are so rare that the conclusion that roads and infrastructure pose significant threats to fisher remains unsupported.

Fisher are known to be incidentally captured in traps set for other furbearers (Lewis and Zielinski 1996). Fisher captured in box traps are infrequently injured (DFG, unpublished data on file at the Redding office), and most trapped fisher should now be released unharmed. Additionally, the sale of trapping licenses in California has declined from over 3,000 in the 1970s and 1980s to approximately 200 presently.

The petition did not address the threat to fisher posed by climate change. The interplay of increased ambient temperatures with fisher physiology may render specific sites more or less suitable relative to current conditions (Safford 2006). Such changes may adversely affect fisher. However, at least in the short term, some of these changes may improve conditions for fisher prey which primarily utilize early-seral habitats.

- **Impact of Existing Management Efforts**

The most substantial issue focuses on the California Forest Practice Rules (FPRs) adopted by the Board of Forestry and Fire Protection and implemented by the California Department of Forestry and Fire Protection (now CAL FIRE, but also and hereafter referred to as CDF) in regulating private land timber management. Private

lands comprise about 37 percent of the fisher's historic range in California. Forests on these lands are primarily regulated under the FPRs. The Department acknowledges that the rules do not require retention of certain habitat elements specifically for the fisher. However, this does not indicate *per se* that private timberlands will be managed such that they chronically reduce habitat suitability for fisher. Harvest history, market conditions, site productivity, company philosophy, as well as other factors, including the application and enforcement of FPRs and the California Environmental Quality Act (CEQA), also influence how private timberlands are managed, as well as their suitability for fishers. Additionally, old forest components and potential fisher habitat on private lands are more likely to be conserved now and in the future, than in decades past, as a result of environmental regulation. Information available to the Department indicates fisher inhabit landscapes managed for timber harvesting.

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As always, the Department appreciates the opportunity to provide input and information to the Commission. The Commission should not hesitate to contact the Department if we can be of further service moving forward on the Pacific fisher listing petition under CESA.

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