

Take Avoidance and CEQA Considerations for Plan Submitters within the Current and Historic Range of Pacific Fisher

Background

The Center for Biological Diversity (CBD) submitted a petition on January 23, 2008 seeking action by the California Fish and Game Commission to list Pacific fisher as threatened or endangered under the California Endangered Species Act.

The petition to list is primarily based on a concern that long-term forest management and timber harvesting activities had reduced the acreage of mature forests which have structural elements that fisher use for denning and resting. CBD further argued that given the small population of fisher and the potential for timber harvesting to further reduce habitat and structural elements critical to fisher survival, that the listing was warranted.

The Department of Fish and Wildlife reviewed the initial petition and concluded that the information in the petition was insufficient to indicate that listing was warranted and recommended that the Fish and Game Commission reject the petition. At the August 7, 2008 Commission meeting regarding the fisher petition, the Commission voted to reject the petition. That decision was subsequently revisited during a March 4, 2009 Commission meeting where the Commission voted to accept the petition making the fisher a candidate species and eligible for take prohibitions under the CESA. The Commission also adopted a special order pursuant to FGC Section 2084 to provide for incidental take of fisher during the candidacy period. This incidental take provision applied to timber operations conducted under the Forest Practice Act and associated regulations.

Pursuant to recent court actions, the fisher remains a candidate species but incidental take provisions provided through FGC Section 2084 are no longer in effect. Therefore, Timber Harvesting Plans (THPs), Non-industrial Timber Management Plans (NTMPs), and other discretionary documents approved by the Department of Forestry and Fire Protection (CAL FIRE) must contain operational provisions that avoid take as defined by and consistent with the candidate status of this species under the CESA.

Biological Requirements of Fisher

Home Range Size and Vegetation Characteristics

Mean home range of fishers vary between coastal and Sierra populations. In addition, home range for males is greater than females. Zielinski, et.al. (2004) characterized home range size for coastal and Sierra populations and provided estimates of vegetation composition based on the California Wildlife Habitat Relations typing system.

In their study, home range size for the coastal population was estimated at 3,702 acres for females and 14,334 acres for males. The Sierra population home ranges were smaller with females at 1,286 acres and 7,408 acres for males. This study also found that there were no obvious differences between the sexes with respect to proportion of different size classes of trees within the home ranges. Size class 4 stands (11 to 24 inches in dbh) with canopy closure class D (61-100%) occupied the highest proportion of home ranges. For the coastal population Douglas-fir and true fir were the most prevalent species types. Sierran mixed conifer and ponderosa pine were the most prevalent species types for Sierra Nevada study areas. Resting structures were among the largest diameter trees available and resting site locations had high levels of canopy cover. Additionally, Sierra Nevada study area resting sites were more frequently noted within 100 meters of water and with a hardwood component (Zielinski et. al, 2004, Purcell, et. al. 2009, Zhao et. al., 2012).

Within identified home ranges, literature on fisher habitat needs and use patterns indicates use of the largest woody structures available for denning and resting. These structures are also used at various locations within their home range. Further, individual structures are used throughout the home range of an individual fisher, particularly for resting, which indicates a need for multiple resting or denning structures (Zielinski, et. al. 2004).

Structural elements used by fisher include: 1) live trees with cavities, broken tops or other similar features; 2) snags, particularly those with cavities or broken tops; 3) platforms formed by other nesting animals or witches broom associated with mistletoe; 4) existing logs either individual or in aggregations of coarse woody material, stumps etc.; and, 5) ground cavities. Other stand characteristics selected by fisher include high levels of canopy cover (>60%) and relative greater height and average diameter of the stand in relationship to the surrounding areas (Zhao et.al 2012).

From a management perspective Zielinski et al. 2004 observed:

“Based on our results, managers can maintain resting habitat for fishers by favoring retention of large trees and the recruitment of trees that achieve the largest sizes. Maintaining dense canopy in the vicinity of large trees, especially if structural diversity is increased, will improve the attractiveness of these large trees to fishers.”

Natal and Maternal Den Characteristics

Natal den trees are large enough to accommodate a cavity large enough for an adult female and kits. In the southern Oregon Cascade Range average diameter breast height (dbh) and height of live tree natal dens) was 36 inches (24-54 inches) and 131 feet (82-177 feet). Average dbh and height of snag natal dens (n=6) was 35 inches (24-

54 inches, n=6) and 85 feet (30-171 feet). Height of cavity opening averaged 53 feet (13-154 feet n=10). Maternal den structures were more variable and included cavities in the bole or butt of large live trees or snags and large hollow logs. Average dbh and height of large live trees was 38 inches (14-54 inches) and 125 feet (62-187 feet). Average snag dbh and height was 52 inches (35-98 inches) and 52.5 feet (10-89 feet). Log maternal dens were 41 inches (22 -65 inches wide end) and 49 feet long (16-89 feet) (Aubrey and Raley, 2006).

Similarly, in the Hoopa Valley Indian Reservation of northeastern Humboldt County, Higley and Matthews (2006) identified 15 natal-parturition dens, 30 natal-pre-weaning dens, and 2 maternal dens in large live trees in conifers and hardwoods. Fisher dens were found in Douglas-fir (dbh=54 inches, n=10), Port-Orford cedar (dbh=54 inches, n=1), sugar pine (dbh=41 inches, n=1), tanoak (dbh=30 inches, n=25), California black oak (dbh=34 inches, n=9) and Pacific madrone (dbh=35 inches, n=1). Female fishers used an average of 3.1 dens per den season (range 2-6 dens). Successive dens were located an average of 1,358 feet apart (se=187 feet).

Truex et al. (1998)(fide Callas and Figura 2008) reported average dbh for natal and maternal den trees from three study areas in California (Klamath Mountains, North Coast Ranges, and southern Sierra Nevada) as 45 inches for conifers and 25 inches for hardwoods (maternal dens). In the southern Sierra Nevada, five natal dens were located in cavities of large diameter trees (3) or snags (2). Of those, three were in white fir averaging 45 inches dbh, and two were found in California black oaks with an average dbh of 34 inches.

Self and Callas (2006) (fide Callas and Figura 2008) summarized the characteristics of nine fisher dens (two natal, seven maternal) in the eastern Klamath Mountains of Trinity County. The natal dens were found in a black oak and a canyon live oak. Of the seven maternal dens, five were located in California black oak, one in canyon live oak and one in a Douglas-fir snag. Most den sites were formed by decay, where limbs had fallen off at the trunk. Some were also in cavities excavated by pileated woodpecker (*Dryocopus pileatus*). Den trees ranged from approximately 19-65 inches dbh, the largest being the Douglas-fir snag.

Resting Structure Characteristics

Fishers use rest sites across their home range, often using a different structure for each resting occasion (Zielinski et al. 2004). Frequently used resting structures in live trees include cavities, large branches, and squirrel or raptor nests. Snags, logs and aggregations of large woody debris are also utilized. A general preference for large trees is likely related to the more frequent presence of large lateral limbs, areas of decay contributing to cavity formation and presence of other structural elements.

Truex et al. (1998)(fide Callas and Figura 2008) noted that fisher used Douglas-fir most often for resting sites in northern California, and hardwoods, (particularly California black oak) most often in the southern Sierra Nevada. Conifer rest site trees averaged 30 inches dbh in the eastern Klamath; 42 inches in the north Coast, and 44 inches in the southern Sierra study areas. Hardwood rest site trees for the three study areas averaged 19 inches dbh, 34 inches and 26 inches respectively. Black oak and other hardwoods may play an important role in the selection of resting habitat as they appear to be selected in greater proportion to their availability (Zielinski et al. 2004). Canopy closure percent surrounding rest sites averaged 88.2, 93.9, and 92.5 for the eastern Klamath, north Coast and southern Sierra study sites respectively. For the Sierra National Forest Purcell et al. (2009) reported an average dbh of 37 inches for all live rest trees and 46 inches for snag rest sites. Canopy cover (%) in their study area was 73.7 (12.5 SD) for fisher rest sites whereas random sites was 55.3 (22.3 SD).

In the southern Oregon Cascade Range, mistletoe brooms in live trees were used as resting platforms more than any other micro-site (44% and 33% for females and males respectively—suspected use). Average dbh of live trees used by females for resting was 35 inches (10-73 inches, n=138) and for males 25 inches (7-79 inches n=121) (Aubrey and Raley 2006).

Callas and Figura (2008) noted that considerable emphasis has been placed on investigating characteristics of habitats used for denning and resting. These habitats are clearly important but only part of the suite of attributes that define habitat capability. Foraging habitat and prey base available to fishers has been less well studied but may be more important to fisher persistence in an area.

Natal and Maternal Denning Periods

Aubrey and Raley (2006) found relatively consistent timing and duration of the natal-denning period within the southern Oregon Cascade range. Adult females gave birth from about March 17th to April 5th and the natal denning period lasted until late-May or the beginning of June. Time spent in the natal den was March 26th until June 6th for 1 female and March 24th until May 23rd for a second. Movement from the natal den to maternal den sites and time spent in the maternal den may be related to the number of kits produced and size of the den structure.

In northwestern California denning behavior was observed between March 22nd and May 26th. The earliest and latest dates denning behavior was observed to start were 9 March and 4 April (n=16) (average of March 22nd) (Higley and Matthews 2006).

Sierra Pacific Industries (2012), in a cooperative study with the California Department of Fish and Game, US Fish and Wildlife Service and North Carolina State University collected data on earliest natal den use from 30 natal dens in northern California.

Fisher denning was not documented earlier than March 17th, with the latest natal den found on April 19th. The average date of natal den establishment was March 29th. Their study suggested that March 1st would be a reasonable estimate for the earliest date of natal den selection and use. The average stay in a natal den was 25 days before movement to a maternal den (95% CI from 19.7 to 30.9 days).

General Fisher Take Avoidance and Cumulative Impact Assessment Considerations

In any year the Pacific Fisher is a candidate or listed species, RPFs writing THPs or NTMPs within the current occupied range or within dispersal proximity of that range must: 1) incorporate provisions in the plan which will avoid take per CESA FGC § 2090 or 14 CCR § 892(d); 2) include a CEQA discussion of potential significant adverse impacts to fishers as defined in 14 CCR § 895.1 and described in Technical Rule Addendum #2; and 3) describe how *Functional Wildlife Habitat* will be maintained as described in 14 CCR § 897(b)(1)(B).

Where potential for take is identified, measures need to be included in the plan which demonstrates take will be avoided. RPFs are encouraged to consult with biologists knowledgeable in fisher biology in those situations where harvesting: 1) will significantly reduce fisher denning habitat within the current range of the fisher; or 2) will significantly reduce important structural elements on a planning watershed scale within the current range of the fisher. When timber operations are proposed to take place between March 1st and July 31st of any given year, the RPF shall also consider inclusion of provisions in the THP to avoid direct take of denning fishers.

The following guidance is intended to provide information for plan preparers and reviewers to utilize in evaluating the potential for a harvesting plan to result in take of fisher as well as assess the potential for planned operations to cumulatively impact fisher habitat. At a minimum, THPs and NTMPs should address the potential to take fisher by addressing in the plans the following items:

1. Plans should disclose whether timber operations will occur during the natal denning period and address how plans will avoid take associated with disrupting natal dens or natal denning activity.
2. Plans should disclose whether timber operations will occur during the maternal denning period and address how plans will avoid take either directly through disruption of an active maternal den or through removal of maternal dens during the maternal denning period.

3. Where potential natal denning trees or maternal denning trees and structures are located on the plan area, the plan should also disclose who will be responsible for identifying these trees or structures, whether identified trees will be removed and the method of designating trees for retention or removal.

Evaluation of potential cumulative impacts to fisher should follow the guidance provided in Technical Rule Addendum #2 and potential for significant impact evaluated within the context of in 14 CCR § 895.1 based on the potential of the timber operations to impact maintenance of Functional Wildlife Habitat as described in 14 CCR § 897(b)(1)(B).

Identification and Retention of Potential Natal and Maternal Denning Structures

Based on the range of diameters of natal and maternal denning trees and other structures such as down logs and stumps described in literature, the Department is recommending that the RPFs use the following criteria when evaluating potential denning structures for live green trees. While it is recognized that den tree sizes recommended here represent the lower end of the diameter ranges found to be used by Pacific fisher, RPFs should be aware that denning can occur in small diameter trees and that a conservative approach to den tree evaluation is necessary.

In recognition of geographic differences between den tree characteristics and the desired conservative approach described above, potential den structures for inland Forest Districts include: 1) hardwoods with visible indicators of cavity formation (dead or alive) ≥ 15 inches dbh; 2) a conifer snag ≥ 22 inches dbh; or 3) a live green cull or green wildlife conifer ≥ 22 inches dbh. A potential den structure for the Coast Forest District includes: 1) hardwoods with visible indicators of cavity formation (dead or alive) ≥ 18 inches dbh; 2) a conifer snag ≥ 30 inches dbh; or 3) a live green cull or green wildlife conifer ≥ 30 inches dbh. A live green cull is a conifer tree with less than 25% merchantable wood by volume. A green wildlife conifer is considered a potential den or resting structure when it has mistletoe brooms, or large rest branches, and visible signs of fungus or other indications of cavity formation or visible cavity openings.

THPs and NTMPs should evaluate and disclose the presence of trees with potential den or resting structures. Plans should also disclose if removal of identified trees is proposed as part of the plan for other than safety reasons. In such instances, the RPF will need to address the potential for significant adverse impacts, cumulative impacts, as well as take and should be prepared to describe provisions for inspection of potential natal or maternal denning structures prior to operations to ensure that fishers are not adversely impacted.

For fisher in the Stirling Management Area, consistent with the United States Fish and Wildlife Service Candidate Conservation Agreement with Assurances (CCAA) RPFs should modify timber harvest scheduling and plan not to initiate vegetation disturbing

activities within ¼ mile of a known occupied den tree for the period of March 15th through July 15th. The CCAA provides that if a female fisher moves to a den tree within ¼ mile of an active operation that operation may continue for the purposes of studying this interaction. In this area a known occupied den was determined by radio telemetry collars.

Outside of the Stirling Management Area where fisher denning occupancy is confirmed within the THP or NTMP area, RPFs should; 1) consider limiting timber harvesting activities during the natal period described below; 2) avoid timber harvesting activities within ¼ mile of the denning location; and 3) include harvest plan mitigations which address the potential for take, if natal denning is disturbed. For timber operations within the maternal period where fisher denning is confirmed, RPFs should consider staging harvesting operations in a manner which gives the female fisher adequate time to relocate her kits. No operations should occur within 375 feet of the confirmed maternal denning location during this period until it can be confirmed that the site is no longer being utilized.

Although fisher natal and maternal den and rest sites are typically associated with the types of live and dead tree structures described in this guidance, equivalent levels of protection should be applied to confirmed alternative structures where active denning is known.

Protection of den trees for operations proposed between March 1st to July 31st of any given year

Fisher breeding success is particularly vulnerable to timber harvesting activities conducted during the natal den period. Based on review of available literature for California and southern Oregon the natal period should be conservatively considered to extend from approximately March 1st to May 15th. In order to avoid take under CESA, during this period potential den trees should not be felled. The RPF should designate in the plan who will be responsible for identification of den trees and oversight of the measures intended to protect fisher. Trees which meet the potential denning structure characteristics of cavity opening size and height above the forest floor should be retained post operations, unless the plan addresses the potential for removal of these trees to adversely impact fisher breeding opportunities and success on a planning watershed scale. When making this determination, RPFs and plan submitters are encouraged to consult with qualified biologists.

During the maternal denning period of May 16th thru July 31st, female fisher move kits from one maternal den to another. This movement of kits is part of the natural behavior to minimize potential threats to the kits from predation or other disturbance. Timber harvest operations are one such disturbance that would cause a fisher to move her kits.

Timber operations planned within the maternal denning period should retain trees that have maternal den tree characteristics. If the plan proposes to remove potential maternal den trees during the maternal denning period of May 16th to July 31st, the potential maternal tree should not be cut until the day after all other trees intended to be felled within a ten acre area (a 375 foot radius) have been felled. If a female fisher has kits in a maternal den tree within the area, this will allow her additional time to move her young from the area.

Protection of resting trees, snags and downed logs

Retention of decadent and deformed trees: Those trees which meet the definition of “decadent and deformed trees of value to wildlife” as defined in 14 CCR § 895.1 should be retained unless removal is necessary for operational or public safety needs. Where trees that meet this definition are proposed for removal, the plan should address the potential for a significant adverse impact or cumulative impact on fisher considering the entire biological assessment area.

Unmerchantable logs: downed logs with less than 25% of merchantable volume greater than 16 inches in diameter and 8 feet in length should be retained where feasible. If the plan proposes to remove unmerchantable logs from the plan area, the plan should analyze the potential for significant impacts or cumulative impacts to fisher within the biological assessment area.

Snag Retention: Snags as defined in 14 CCR § 895.1 shall be retained in compliance with 14 CCR §§ 919.1, 939.1, or 959.1.

Harvesting in Late Successional Forest Stands and Late Seral Forests

Within the current range of fisher where harvesting is proposed in Late Seral Stands as described in 14 CCR §§ 912.9, 932.9 and 952.9 Technical Rule Addendum No. 2 or in stands that meet the definition of Late Successional Forest Stands as defined in 14 CCR § 895.1, the RPF should be prepared to demonstrate that adequate scoping and evaluation of potential significant impacts, cumulative impacts, or possible take has occurred.

For stands where harvesting is proposed within the current range of fisher that meet the definition of a late succession forest stands, the analysis required in 14 CCR §§ 919.16, 939.16 or 959.16 shall include a specific discussion of the potential for take of fisher and inclusion of take avoidance mitigation measures if necessary to avoid take.

Sighting of Fisher During Operations

The Plan should also include language, in the event of an unexpected sighting of fisher after commencement of operations. At a minimum, plans should contain language

which suspends all vegetation disturbing activities within the affected units and immediate consultation with a qualified biologist. If a den, resting area or other habitation of a fisher is discovered, all operations (per PRC § 4527) should be suspended within a ¼ mile of a natal den or within 375-foot radius buffer around the maternal den or other habitation until it can be confirmed that fisher are no longer present. The Department of Fish and Wildlife and Department of Forestry and Fire Protection should also be notified immediately. For approved plans, a substantial amendment may be necessary to incorporate protection measures from such consultation.

Cumulative Effects Assessment

A specific cumulative impacts biological assessment area should be established for fisher, taking into account the most current scientific information on fisher presence. The RPF should assess and describe past impacts to fisher habitat and structural elements as well as evaluate the current and future abundance of key fisher structural habitat elements. The RPF should also assess and describe existing and future biological resources with respect to habitat suitability to support fisher denning, resting and foraging activities consistent with the guidance in Technical Rule Addendum #2. Further, the RPF should assess the potential impacts of future timber harvest entries (i.e. future THPs) where the number and quality of trees with habitat features associated with denning and resting sites has decreased or may decrease over time.

In those instances where past operations have reduced potential den structures and/or current and future plans are projected to reduce those structures further, the RPF should consult with a qualified biologist. In so doing, the RPF should provide as part of the plan a discussion of why removal of key habitat features will not lead to significant adverse impacts on fisher denning habitat within the biological assessment area.

Specific analytical components and assessment should address as necessary the following:

1. Regulatory mechanisms that exist to protect habitat and structural elements for existing fisher populations within the planning watershed and the need to provide additional mitigation measures.
2. The specific requirements for fisher regarding structural elements for denning and resting sites (large trees and snags with cavities, large limbs, downed logs, witches brooms, etc.) within the Plan area.
3. Existence of large scale habitat plans on or near the proposed Plan area.

4. Anticipated change in fisher habitat quantity and quality within the planning watershed and biological assessment area as it relates to possible future projects.

Planned Timber Operations within the Portion of the Historic Range of Fisher where Fisher are Rare or Absent

Fishers were rare or absent in approximately 43% of its historic range. In the absence of definitive surveys which affirm absence, scoping and evaluation of potential impacts to wildlife must include consideration of the potential of fisher presence that considers dispersal and habitat quality (Carroll, et al., 2012) and proximity to currently occupied range or area where fisher reintroductions have occurred. Timber harvesting plans and nonindustrial timber management plans should evaluate through the scoping process existing habitat and anticipated trends in habitat suitability to meet fisher needs. Fisher field detection surveys may be of some value in assessing potential impacts to fisher but may be viewed within the context of other factors and the need to incorporate take avoidance measures in a Plan.

Consultation with Wildlife Biologists

Where timber harvesting operations are proposed in areas within the current range of Pacific fisher and activities have the potential to result in take of fisher as defined by the CESA, consistent with PRC § 752 (b), RPFs should seek expertise from qualified biologists, as appropriate, to assist them in evaluation of potential impacts to fisher.

CDFW consultation

RPFs are encouraged to preconsult with CDFW, as appropriate, regarding the possible need for other site-specific take avoidance measures to be included in THPs or NTMPs.

On-line Information Sources

The following links are intended to provide RPFs, biologists, and plan submitters access to the documents referenced in this guidance document:

The link to a copy of this guidance document and maps which show the current and historic range of Pacific fisher is:

http://calfire.ca.gov/resource_mgt/resource_mgt_forestpractice_pubsmemos_memos.php

The bibliography and literature section provides links to the literature cited.

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Other Current Resources of Interest

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