

Fisher Natal Den Use On Managed Timberland In California

Fisher Data Compiled from Cooperative Studies

Study Cooperators:

California Department of Fish and Wildlife

Sierra Pacific Industries

US Fish and Wildlife Service

North Carolina State University

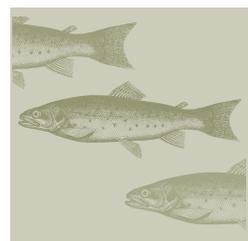
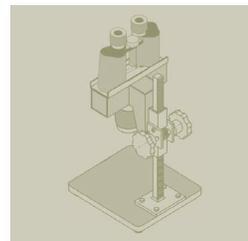
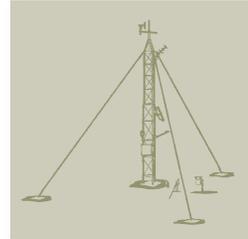
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Report on Fisher Natal Den Use

Introduction

Starting in 2006 Sierra Pacific Industries (SPI) has been a cooperator in two different fisher wildlife studies, the first being a habitat use and home range study via radio telemetry on Pacific fisher in a portion of SPI lands south of Weaverville, and in the Sacramento Canyon north of Redding, the second being the much larger effort to translocate fishers from the Northern California population to SPI's Stirling Management Area. In these three areas radio collars were placed on female fishers and those fishers were followed to determine denning and reproductive success. The California Department of Fish and Wildlife (CDFW) was a cooperator in both of these studies. The translocation effort included the US Fish and Wildlife Service and North Carolina State University as cooperators. From those efforts we located 30 natal den sites from which the following analysis has been conducted. Prior to these efforts published literature indicates that as of 2006 fewer than 10 natal sites were known in California (Zielinski, 2006). Natal dens are usually the first den used each season, where parturition (birth) occurs. Female fishers move their kits to subsequent dens and those are referred to as maternal dens. These data are presented here with the permission of the cooperators to help inform fisher management. The cooperators reserve the right to formally publish these data in the scientific literature and academic papers.

Earliest Date of Natal Den Use

The data presented here is based on cooperative efforts to monitor 30 natal dens from Weaverville, Sacramento Canyon and Stirling City study sites. Natal den data will continue to be collected on the translocation effort. At these study sites we did not document fisher denning earlier than March 17, with the latest natal den found on April 19th. The average date of natal den establishment was March 29th. These findings are similar to other denning studies in western North America where the earliest and latest parturition dates were March 9th (Higley and Matthews 2006) and April 12th (Weir and Corbould 2008). The average start date for denning in Hoopa was March 22 (range 9 March-7 April) (Matthews et al. in press). Realizing that fishers may have begun using a den before researchers detected the natal den location, March 1 would be a reasonable estimate for the earliest date of natal den selection and use.

Ability to Move Kits to Maternal Dens

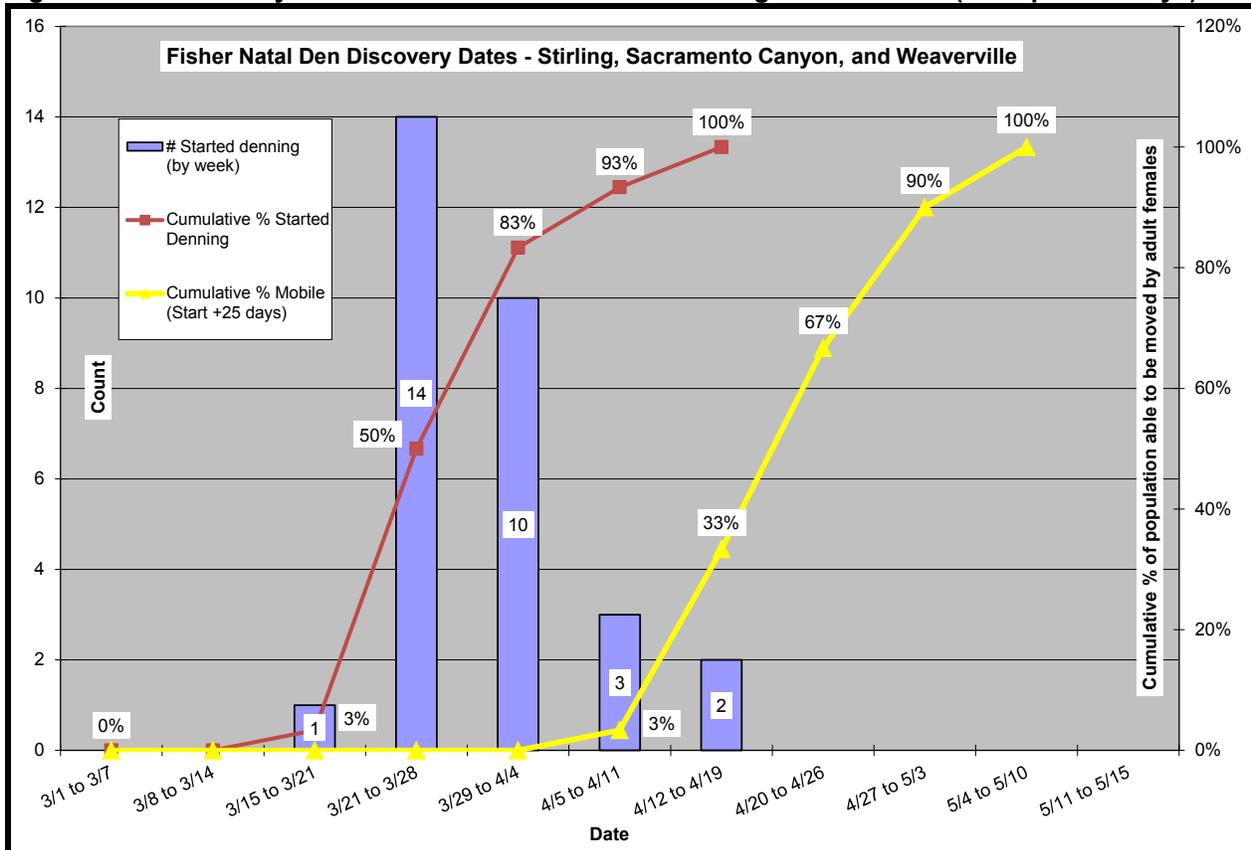
As kits grow, the female moves them from natal dens to maternal dens. Data from 29 of 30 natal dens indicates the average stay is 25 days (95% CI ranges from 19.7 to 30.9 days). One fisher was able to slip her collar after denning started. The total data set for natal den stay ranges from a minimum 5 days to the longest 68 days with a standard deviation of ± 16 days. We can safely assume the kits are sufficiently developed for the mother to move them with the average move occurring 25 days following parturition.

Days Spent in Natal Dens

Using the average natal den stay (25 days) and adding 1 standard deviation (16 days) we get what we term a Max Average Stay of 41 days. Using our average start of natal den as March 29 and adding 41 days for the Max Average Stay we extend until May 9. Using our data we can describe the natal den period beginning March 1 (9 days earlier than any reported start of denning in California) to May 15 (1 week longer than the average stay in a natal den plus one standard deviation from our data set).

In these studies, 29 (one slipped her collar) out of the 30 fishers in this data set successfully moved from their natal den trees to at least one additional maternal den, and most had many (ranging from 1 to 9) maternal dens. The accuracy of these denning period dates has been confirmed by frequent walk-ins and digital images from cameras positioned around den trees with date and time stamps. Our researchers reported fishers making multiple trips carrying kits to subsequent maternal dens, showing they can make these moves very quickly as recorded by camera time stamps.

Figure 1 - # of Dens by Date – Cumulative % Started Denning and % Mobile (Start plus 25 days)



Date Ranges for Natal Den Tree Protection

Using our earliest March 17 start date adding 41 days gives us an end date of April 27. Using our mean start date of March 29 adding 41 days gives us a May 9 end date. So we have decided to extend the protection period to May 15. After this period based on our study sites fishers have the ability to move away from any potential harvest activities, since they already make such moves without any harvest associated disturbance. Assuming the fisher is able to move young safely after 25 days, using the start of denning date for each of the 30 studied fishers, and allowing for 25 days in the den, 100% of these fishers would be able to move their kits on or before May 10. See Figure 1.

Since these radio collared research fishers have demonstrated they are capable of moving their kits on their own from a natal den to the first maternal den and if we avoid harvesting a natal den structure, we would significantly reduce one of the harvest associated risks, while already a very low risk, that our harvesting would kill a fisher adult female or her kits. To understand how low a probability of harvesting an actual natal den tree is, in two full years of harvesting on each

research project, the Stirling Management Unit and Weaverville Study Area with radio collared fishers, with no prohibition or limitation on where they harvest, SPI has not commenced harvesting within a quarter of a mile of any active natal or maternal den tree. By not cutting a natal den structure down between March 1 and May 15 we would significantly minimize to the extent practical direct take (i.e. killing per CESA's definition of take) of fisher associated with harvesting trees on a THP.

Trees Typically Containing Natal or Maternal Dens

Based on our measured den data set, the minimum diameters of den structures in the inland Forest Districts in California is any hardwood (dead or alive) ≥ 15 " DBH or snag or cull conifer ≥ 22 " DBH. Such a tree must contain a suitable cavity for a den. Conservatively, natal den tree protection can be accomplished by mitigation to not fall any tree that meets these definitions regardless of cavity presence between March 1 and May 15. To provide even greater protection during the remainder of the denning season (after May 15th) suitable trees with potential den structures can be provided protection by avoiding harvest until at least one additional day after other trees have been harvested. This will provide fishers time to leave their den trees during the night.

References

Higley, J.M., and S. Matthews. 2006. Demographic rates and denning ecology of female Pacific fishers (*Martes pennanti*) in northwestern California: preliminary report October 2004–July 2006 Hoopa Valley Tribe and Wildlife Conservation Society, Hoopa, California, USA.

Weir, R.D., and F.B. Corbould 2008. Ecology of fishers in sub-boreal forests of north-central British Columbia Final report PFWWCP Report No.315. Peace/Williston Fish & Wildlife Compensation Program, Prince George, British Columbia, Canada.

Zielinski, W. J., Truex, R. L., Dunk, J. R., & Gaman, T. 2006. Using forest inventory data to assess fisher resting habitat suitability in California. *Ecological Applications*, 16(3), 1010-1025.