

Discussion Questionnaire:

(**Note:** Verbatim transcription of the cards distributed to participants at the February 2006 Fisher Marten Workshop.
No effort to keep responses segregated by author)

What are the top three research priorities for Fisher or Marten?

- Intense surveys from S. Humboldt to Sonoma Co. in Coast Redwood & Mendo Nat. Forest.
- Population estimate for S. Sierra Fisher.
- Confirm “gap” in C. Sierra Fisher distribution via focused intensive/innovative survey techniques in “prime” habitat areas.
- Demography- especially at the eastern edge of the NW California Fisher pop. This seems the most logical area as a source pop. for translocation due to its close proximity.
- Fisher- “the gap”? Why hasn’t it been occupied/reoccupied—habitat unsuitability or other factors?
- Limiting factor(s): food, habitat & if habitat- what characteristics.
- How do Fisher use their entire home range (as conventionally defined by max context polygon)?
- What is the dist. & abundance of habitat types used by Fisher apart from den & resting sites?
- How do Fisher respond to changes in forest structure and comp. resulting from forest management.
- Is prey a limiting factor?
- Investigate dispersal capabilities in association with habitat.
- Causes of mortality which might limit population growth and expansion.
- Interspecific competition with other meso-carnivores.
- Effects of projects on habitat/survival recovery.
- Long-term habitat trends – predator/prey.
- Fishers- How do we bridge the gap between prey and habitat?
- Fishers use land to catch prey- all habitats used by fishers are filtered thru prey populations and prey availability.
- Identify habitat gaps/bottlenecks for fisher in central/northern sierra.
- Research low-intensity fuels treatments to assess impacts on fisher & marten.
- Reconcile results of Zielinski & Perrine re: apparent gap in marten habitat in north sierra.
- Source pop. health stats as well as the introduced areas sympatric meso/animal health status
- Determine risk to reintroduced /source pop.
- Establish generic makeup of individual populations & compatibility for source/introduced populations.
- Dispersal -- how, how far, fate, etc.
- I have seen almost no research on fisher reproduction- a key issue in population viability.
- Habitat thresholds
- Landscape
- Population information.
- Dispersal – are “poor” habitats (e.g., high altitude forests for fishers) used as dispersal corridors?
- Can martens & fishers persist in a dynamic landscape?
- How can we identify and remove barriers to mvmt or distribution to facilitate fisher expansion?
- Can marten co-exist with hi-elev human recreation?
- Is there a silvicultural prescription to enhance fisher habitat & structure element?

- What is the likely size of existing fisher populations?
- Genetic sustainability
- Habitat connectivity
- Captive fisher management & research similar to other species survival plans in Zoological facilities, i.e., California Condor, GLT, etc.
- Estimate survival and fecundity rates for fishers in the west
- Link habitat information to population dynamics
- Natal den characteristics for fisher, dispersal rates, sub population characteristics
- Determine limiting factor for each population via intensive autecological study

What are the top three management priorities for Fisher and Martens?

- Implement landscape level habitat practices on public and private lands (snags, large live trees, etc.)
- Status review for Humboldt marten w/management & research recommendations
- Rule of private lands in Cons'vn strategy
- Need a conservation strategy for all lands, not just federal.
- Can we “create” fisher micro-habitat as a by-product of fuels treatment? Assuming yes, how should we distribute those?
- We need dependable cumulative effects method
- Develop an acceptable population monitoring approach to monitor potential source populations before, during and after re-introduction efforts.
- Same for re-introduced population
- Determine the best re-introduction sites based on habitat quality.
- How to manage for widgets and rare spp.
- How does Fisher mgmt fit with other priority species & resources?
- How to do it all?
- Revise existing forest plans to protect & improve habitat for fisher in central/northern sierra.
- Avoid removing large trees/structure & excessive reductions in canopy cover in southern sierra
- Avoid creating more forest openings & fragmenting marten habitat in northern sierra.
- Efforts of mgmt actions on vital rates
- Improving martens mobility/availability of home ranges
- Stepping stone populations in CA or encouragement of population interactions
- What are their habitat limitations
- How should forest be managed to prevent fisher decline/allow fisher repatriation?
- How to analyze project effects when we don't have data on effects?
- How to address historic hab. associate vs. what they use today-can fisher survive in open park-like stands?
- How do we address effects to individual fisher and therefore (pops) vs. habitat?
- Group cohesion & communications
- Large tree retentions
- Fuels reduction & methodology
- Creating a contiguous CA populations with strong habitat management.
- Determine/agree on what constitutes a viable population of fishers
- Try to estimate population size of just occurrence.
- Translocation, critical habitat retention, multiple use of forest land.
- Reintroduction of fisher to Northern sierra

Is there a specific question or comment you want to make sure is addressed during the discussion?

- USFS needs to commit to protection of S. Sierra fisher population.
- Private timber companies need to commit to protection of late seral habitat elements.
- We need to investigate the (potential) impact of bear hunting w/hounds on fishers & specifically in the proposed re-introduction region in the central SN.
- How would translocations/re-introductions affect the current regulatory status of fisher under the ESA?
- Research monitoring priorities, is there a clear consensus?
- Potential methods for source and re-introduced populations monitoring.
- Lacking a cons. strategy, how should we operate in the meantime?
- All “fuels treatments” are not alike. There is no conflict between effective fuels treatment, which protect trees >20” diameter and canopy cover of $\geq 50\%$ and protecting fisher habitat. The conflict occurs because forest service insists on logging large trees (up to 35” in Kings River project) and reducing canopy cover to levels below that needed to achieve fuels goals.
- Handling and trapping methods minimizing pathogen risks to subsequent recaptures.
- Will a species breeding program be feasible or beneficial to fisher in general or to population interaction (as far as genetics)?
- Seems very premature to talk about and model fisher reintroductions without knowing answers to questions listed above and without securing the future health & viability of present populations.
- How can we facilitate data sharing by private landowners & timber companies? They have not chosen to participate in assessments & strategies at bioregional scale to date.
- Much has been discussed on habitat and genetics, but little on behavior.
- Translocation feasibility
- How does one know the factor limiting a fisher or marten population?

Do you have recommendations for areas of improved collaboration between agencies, landowners, or other organizations?

- Focused meetings w/ select representatives of each stakeholder group to reach agreement on management/conservation committees.
- The Federal Fisher Science team- why consulting & private biologist no included on the team?
- Is there the will and a way to pool resources for high priority work?
- I think we are moving in the right direction. My top research priority would require coordinated collaborative effort between USFS, USFWS, BLM, BIA, and several private land managers/owners.
- Centralized website for pubs & grey literature share progress of CA/CS's w/all- as you go.
- Discuss different values/obligations of different owners.
- Reg. Conference calls, use technology not \$.
- Focus on areas of common ground – training of surface & ladder fuels to reduce wildfire risk rather than proposing intensive & controversial plans like Kings River & Quincy Library ways plan.
- Botzer & Armstrong paper elaborate that when an animal is in hand, a researcher should try to remove as much biotic samples to minimize stress to an individual & population = set up a list

of biological samples that have to be removed from an individual: samples could prove invaluable to future studies as well as a timeline for health monitoring.

- Collaboration between the very few captive fisher holders (zoos) biologists studying fishers.
- Other agencies, offices, tribes, and stakeholders should be involved in ongoing timber company
- USFWS candidate conservation agreements.
- Repeal FACA.
- Get over fear. Neither litigation nor secrecy is the answer.
- More timely sharing of data (raw) & analysis results.
- There was no discussion of benefits of working with captive management to increase knowledge of biology, physiology, diet, reproductive mgnt. etc. What is the connection here ?
- Better understanding of other groups goals & ideas.
- Push professionalism in research and management at all levels.