Chapter [#] Forest Resource Management Strategy

Clarification

- add native vegetation to sustainable production of resources in first paragraph
- forest encroachment on meadows and stream ecology changes is major concern, unintended consequences of removing grazing allotments
    - cattle grazing and meadow restoration aren't necessarily incompatible, experience in Upper Feather – restoration allows flash grazing, less erosion, ranchers up there and partnerships with Forest Service waiting to do restoration, Quincy Library Group can provide information on this
    - meadows are linked to fire management for new growth and water uptake
    - text box to provide case study – like Melvin Carmen's story or Upper Feather
- page 2: acreages could be pie chart – can do both
    - is tribal forest ownership in this list? BIA has mapping of Tribal lands, GIS data, cartography unit can get that information -- just summary figure needed
    - BLM map too – acres do not give spatial appreciation of size or location in upper watersheds, also shows ownership

Potential Benefits of Forest Management

- right now a lot of background information is included in this section, easier to read if this is taken out and limit here to benefits
- major benefit, perhaps should be its own: meter soil & nutrients, affects lowlands, primary source of these for rest of landscape
- removal/exclusion of invasive non-native can be up front because affects all benefits

Meadow Groundwater Storage

- "new water" – depends on size and depth – deep aquifers are carry-over water, significant because carryover water acts in same fashion as surface reservoir downstream, and second temperature significantly lower than water in un-restored meadow (so significant that submitted to FERC to meet flow below Lake Almanor by using this and save water in reservoir)
    - point is, need to reference work paid by State and Federal gov to document benefits that accrue
    - author comment: significant to look at meadow in watershed context, will work to clarify
    - water availability or net water is better term than "new water", easier to describe – in 2005 chose to avoid the term "new water"
- rather than take out references, can put in endnotes
- non-technical reader: suggested, "Like dams, meadow restoration does not create new water"
- controlled burns were key to feed and springs, saplings drain the water
- use "However" rather than "but" on page 5 – "however, alters the temporal…"

Riparian Forests

- emphasize vegetation not only influenced by geomorphology but influences this, the two are interrelated and move back and forth

- "some riparian forests" paragraph: fencing not necessary, need to keep cattle off while restoring, but not necessary afterward because grazing pattern – once sage and conifers ground out from around meadow, the grazing period that cattle are on there is much shorter – need to capture that, upland forest management with forest & meadow restoration that permits grazing to take place and only requires using fencing once, afterwards it's not needed

Fuels/fire management

- what are constraints on management? need to list these
- and feedback loop of fires on water supply – more fires might demand more water, often use treated municipal water to fight in urban areas
    - different from controlled, prescribed burns with fire lines and know timing
- can flag potential of shaded forest breaks
- urban/rural interface with wildlands – significantly affects fire management, so notion of what the costs are – again this is avoided cost in very extreme fire hazard conditions
    - point to State Fire Plan that discusses the interface, directly relevant to this strategy
- what is "natural"? historically done with climate and weather at right time, would burn twice within 5 years, get devastating fires today because lack this; natural just meant "let it grow", same with "canopy" – if have this do not have filtration deep into soil

Road management

- have actual road use, recreational use on non-paved roads – but not clearly linked to water; Off-Highway Vehicle Commission also represented, and can also point back to Forest Service
    - roads are necessary intermediary to benefits, if managed properly benefit can be realized

Potential Costs of Forest Management

- useful to put in statewide and also regional perspective

Urban Forestry

- Watershed Program funding research in Bay Area has costs and benefits related to water quality improvement, may have useful data

Major Issues Facing Forest Management

Climate change

- Forest CAT: meadow restoration potential is key for adaptation, can't replace snowpack loss but best mitigation is to raise water tables within high mountain meadows so have sustained flow through mountain watershed systems and down to lowlands
- species migration northward, could have water ramifications between now and 2050, like cedar mixed conifer move uphill followed by oak woodlands, would affect precipitation and all sorts of different issues – can bring this in?
    - author comment: will add reference to this, still speculative but can flag

- Kamyar comment: these were supposed to be things that would make more difficult, but here seems to be about motivation; might want to consider how to bring this information in, and not make it sound like climate change is making this more difficult – **so move these things to benefits section or front end**;
    - **the important thing here** is climate change outcomes uncertainty, changes cost-benefit equation
    - new modeling, might be less rain and less snowpack, not more rain – so statements are slippery

REMAINDER FROM DAVID SUMI
Environmental and economic constraints

Adequacy of Protective Measures
Land Conversion/Fragmentation

Recommendations to
Promote Forest Management

- [DAVID this was from before you started taking notes] potential recommendation: work with Sierra Nevada Conservancy for meadow restoration?

Attendance:

Jared Aldern, Prescott College
Dennis Bowker, State Watershed Program
Josh Brown, Sacramento River Conservation Area Forum
Melvin Carmen, North Fork Mono Tribe
Woody Elliott, DPR
Ron Goode, North Fork Mono Tribe
Bruce Gwynne, DOC
Barbara Hennigan, BSBAGU
Barry Hill, US Forest Service
Rebecca Kanegawa, MWH
Chris Keithley, Calfire
Galen Lee, SWRCB
John Lowrie, DOC
Iovanka Todt, FMA
Betty Yee, Central Valley RWQCB

By telephone
Beverly Anderson
Ric Costales
Vance
Julie
Elizabeth Patterson, DWR
Melanie Powers

DWR and Facilitation Staff
Lisa Beutler, CCP
Barbara Cross, DWR
Megan Fidell, DWR
Tom Filler, DWR
Dorian Fougeres, CCP
Ted Frink, DWR
Kamyar Guivetchi, DWR
Ray Hoagland, DWR
Lew Moeller, DWR