

December 15, 1997

SOME CRITERIA FOR EVALUATION OF PROPOSALS FOR WATER YIELD AUGMENTATION

General

- 1) Does the proposal have a clear statement of the problem and objectives?
- 2) Are assumptions identified as assumptions?
- 3) Are supporting/justifying statements referenced to scientific literature?
- 4) Is the proposed action physically/biologically feasible?
- 5) Is the proposed action logistically feasible within its budget?

Hydrologic Concerns

- 6) Does the proposal describe how streamflow in this catchment can be increased without detrimental effects on other resources?
- 7) Does the proposal describe negative impacts (e.g., greater sediment transport, alterations in channels) of water yield augmentation in this catchment?
- 8) What "Best Management Practices" or other mitigations are proposed to minimize negative impacts?
- 9) Is a water balance described for the catchment or a hypothetical hillslope?
- 10) If so, are the potential effects on the water balance of the proposed action described?
- 11) Does the proposal include an estimate of the quantity of current water use by existing vegetation? how was it derived?
- 12) Does the proposal mention whether average precipitation for the area is adequate to allow some increase in water yield (minimum 18", preferably more than 30")?
- 13) Does the proposal recognize that hydrologic response would be greatest in wet years and minimal in dry years and provide adequate calculations based on that information?

Vegetation and Soils

- 14) Is the proposed action a short-term change or a semi-permanent conversion? if it is a short-term change in vegetation, what is the anticipated rate of hydrologic recovery?
- 15) Does the proposal describe whether the existing vegetative characteristics (e.g., canopy density and distribution of age classes) are suitable for management to increase water yield?
- 16) Does the proposal describe whether past vegetation management in the catchment has already increased water yield?
- 17) If there appears to have been some increase, does the proposal discuss whether there is still potential for additional increases from additional vegetation management?

Kattelman, R., N.H. Berg, and J. Rector 1983
The potential for increasing streamflow from Sierra Nevada watersheds.
Water Resources Bulletin 19(3): 395-402

Kattelman, R. 1987
Feasibility of more water from Sierra Nevada forests.
Report 16 Wildland Resources Center
University of California, Berkeley

Kattelman, R. 1996
Hydrology and water resources
Sierra Nevada Ecosystem Project: Final Report to Congress
Centers for Water and Wildland Resources, UC Davis
vol. II, 855-920

Kondolf, G. M., R. Kattelman, M. Embury, and D. C. Erman 1996
Status of riparian habitat
Sierra Nevada Ecosystem Project: Final Report to Congress
Centers for Water and Wildland Resources, UC Davis
vol. II, 1009-1030

Kattelman, R. and M. Embury 1996
Riparian areas and wetlands
Sierra Nevada Ecosystem Project: Final Report to Congress
Centers for Water and Wildland Resources, UC Davis
vol. III, 201-273

Kattelman, R. 1996
A review of watershed degradation and rehabilitation
throughout the Sierra Nevada.
Watershed Restoration Management: Physical, Chemical and Biological
Considerations.
edited by J. J. McDonnell, J. B. Stribling, L. R. Neville, and D. J. Leopold
American Water Resources Association, Herndon, VA
199-208

Kattelman, R. 1997
The road to water quality in the Sierra Nevada
Journal of Forestry 95(9): 22-26