V. Conservation Goals and Objectives for Maintaining and/or Improving Habitat

As related to the original objectives of the CRMP group, one may ask the following questions:

a. Have we achieved the goals?
b. Are we continuing to develop new goals and objectives as conditions warrant?
c. Have we changed course?

It is necessary for the above stated questions to be answered as part of a group discussion. Based on the information presented in this document, perhaps better discussions may occur when knowledge of the past has been captured in print. As stated before, the decisions and discussions of projects and actions are better achieved when thought out amongst many.

A. Rangeland Riparian

Overall, grazing impacts within the riparian areas have decreased. Has annual monitoring shown an improvement in range conditions, channel conditions, watershed health? Continued monitoring of range conditions will be crucial to successful stream and riparian restoration, and ultimately, the response of ELRT to reintroduction within the upper stretches of Pine Creek.

B. Instream Habitat/Water Quality

Based on the current management within the watershed, specifically livestock grazing and timber activities within riparian areas, it appears that we can achieve Proper Functioning Condition (PFC) of stream channels and aquatic systems as shown during the 1999 assessments from the National Riparian Service Team. It is important to recognize too that PFC may not equal our desired condition of the stream, and that monitoring of projects and the continuation of idea development for improvements to the system will be the most beneficial. Current monitoring (Off-Site Mitigation near Highway 44, Weixelman Plots, Aspen monitoring, livestock utilization data) indicates a positive change in ecological conditions, with few exceptions. Most activities have the potential to affect instream habitat and water quality, and monitoring must be continually applied and reviewed to continue to achieve positive results.

C. Restore Eagle Lake Rainbow Trout Natural Spawning

In 1988, the goal was to "Restore the natural Eagle Lake trout fishery in Pine Creek". At the present time, issues are still related to this goal and are focused on the timing of the release of the fish, and what to do in the perennial section of Pine Creek where brook trout are firmly established. With recent confirmation in 2006 that ELRT have spawned

successfully in the perennial section of Pine Creek and Bogard Spring Creek, the next steps to take may become easier to follow. A recent proposal by UC Davis fisheries specialists includes a proposal to reduce and/or eliminate brook trout by electrofishing in Bogard Spring Creek, as well as mechanically blocking upstream migration of brook trout into this tributary. If brook trout numbers can be effectively suppressed in this small tributary to Pine Creek, it may offer an alternative method of dealing with the competition between species. Bogard Spring Creek may then become a living classroom to judge the habitat use, needs, and other population biology of ELRT.

An obvious further step in future establishment of ELRT will be the release of mature fish at the lake to migrate upstream. Numerous meeting minutes have recorded the intent of the CRMP group to have a plan in place to allow for release of ELRT when streamflow and migration conditions were right. While the decision has been in the hands of CDFG to release ELRT, in the past, doing so has been thought to come at a cost. Increased law enforcement upstream, as well as a perceived "loss" of fish to the Eagle Lake fishery have been two issues. Certainly with the status given the ELRT in 1999 as a "Heritage Trout" (CDFG 2005), achieving the objective to "Promote collaborative efforts with organizations and individuals involved with native trout restoration and management" appears to be a very good fit with CRMP goals.

Adding to the element of upstream spawning success could be the option of attempting to establish ELRT through placement of egg boxes upstream. This has been proposed numerous times through the years, and by the NRST (1999) who stated:

> *"...egg box programs have been very successful in many areas so we would expect that such a program in the Pine Creek watershed could reasonably be expected to accelerate recolonization of abandoned habitats".*

Trout Unlimited and Forest Service fisheries biologist Don Duff also offered a project design for a similar type of process of raising eggs in the stream environment. Known as "Trout in a Fridge", the program takes used refrigerators as an insulated and well-protected location for the eggs as they mature and the fish hatch, eventually entering the stream. Possible locations for placement of either egg boxes or the "Trout in a Fridge" assembly are the Stephens Meadow area of Pine Creek, and Bogard Springs Creek (better road access in the winter months). Although Stephens Meadow is privately owned, early discussions with the landowner's representative have been encouraging.

VI. Planned Conservation Actions and Attainment Measures

For fish species, attainment of the actions underway or accomplished is expected to lead to barrier-free fish passage for Eagle Lake rainbow trout, as well as associated migratory species such as Tahoe sucker, speckled dace, and Lahontan redsides. Establishment of a riverine population of ELRT will be considered the success standard. Much harder to quantify, yet likely related to successful fish passage is the improvement of stream channel and riparian conditions. With continued project implementation and monitoring (both long and short-term), sites within the watershed should show a return to vegetative and functional potential. Success is likely to be a measure of achieving a functional state near site potential.

A. Recommendations

There are numerous improvements yet to occur that will enhance the function of the Pine Creek stream system and associated ecological components. It would be ignorant to believe that by changing one aspect of management or by implementing one more project that the system would be "healed". As time passes, so to do processes that form "functional" or "non-functional" streams. What may be of the highest priority is to constantly monitor and adapt management to fit what is perceived best for the system for that time.

The areas of future projects or activities are related to grazing, fish passage and release, and vegetative condition. The continuation of collaborative efforts within the CRMP group will be critical to maintaining a system of checks and balances to more thoroughly address the issues and concerns still affecting the eventual release and/or establishment of ELRT within the Pine Creek system. While an attempt was made to capture the most obvious or pressing thoughts and needs, it is the authors intent that certainly many more ideas will be added to this list after review of this paper by CRMP participants and others. To that end, the following recommendations have been formulated:

- The CRMP group needs to have a well-defined purpose and opportunity to contribute to land management and/or fisheries management decisions.
- Continue the CRMP process with all associated meetings and field trips, as well as meetings and discussions amongst technical review teams. It is evident by the file notes that the process facilitates better ideas than any one group or agency can formulate individually.
- As a CRMP group, develop an annual plan that lines out specific tasks and objectives, target dates for completion, and responsible individual or agency. Those projects that were accomplished were almost always lined out in this manner.
- Date every note and document all discussion at CRMP meetings and during project design, analysis and implementation (see **Appendix 6** "Summary of Information Collected for Pine Creek"). Indicate source(s) of funding for project work, planning, and design.

- Cooperate with the CDFG to facilitate release adult ELRT, Tahoe sucker, Lahontan redsides, and speckled dace above the weir at the Spalding fish trap. Because ELRT may have the most specific habitat needs, release of these fish may be calculated with and tied to snowpack and projected runoff.
- Investigate removal of Bogard Campground from the active floodplain in and around potential spawning and rearing areas for ELRT. Potential exists to move the location to the south of its present boundary.
- Remove the gauging station weir as soon as practical, and based on sound information. Have a hydrologist design the obliteration in conjunction with the stream crossing directly below the weir to assess elevational drop between the two features.
- Assess channels of Pine Creek near Bogard Barn and determine if removal of McKenzie Cow Camp road is warranted to restore the natural flow patterns within the McKenzie Cow Camp area.
- Continue to plant adult ELRT (all sizes) in the upstream stretches of Pine Creek.
- Cooperate with CDFG and private landowner to determine whether placement of ELRT eggs in the upper end of Pine Creek (Stephens Meadow), using "Trout in a Fridge" program developed by TU and the USFS will be beneficial.
- Continue to monitor upstream migration of ELRT using PIT tag technology to assess timing of movement, temperature, and habitat needs.
- Reduce cattle access to the mainstem of Pine Creek, specifically through Pine Creek Valley, Logan Springs, Harvey Valley, and Champs Flat to reduce use of the mainstem of the stream as a watering hole.
- Continue to work with UC Cooperative Extension, UCDavis, USFS, and CDFG to evaluate habitat in Bogard Spring Creek for ELRT spawning.
- Explore opportunity to use Bogard Rest Area for interpretive signing to encourage understanding of local ecology, similar to interpretive signs at the fish trap at Eagle Lake.
- Continue to monitor (implementation and trend monitoring) livestock and project impacts within Pine Creek watershed, and adapt management to reduce or eliminate negative impacts. The annual meeting of the CRMP group should once again serve as the venue to hear the results of monitoring activities from all aspects of riparian management.
- It has been 10 years since the NRST provided a progress report on activities and conditions within the watershed. An invitation to that group to come back and once again report on our progress would be useful to long-term trend monitoring.

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