

## **Mill Creek Restoration Projects**

June 23, 2007

### **Salmon/steelhead monitoring (Rod McLeod)**

- Spawning production has been monitored along Mill Creek for over 26 years.
- The Mill Creek Fisheries Monitoring Program collects data on the health and production of salmon species using 1) downstream migrant traps; 2) summer abundance dive counts; and 3) fall/winter spawner “escapement” surveys.
- The downstream migrant trap captures outmigrating “smolts”, which are those young fish that are moving toward the estuary and salt water in the spring.
- Data from the Mill Creek Monitoring Program is useful in guiding and informing instream habitat improvement projects --- specifically the reintroduction of large woody debris into the stream channels.
- Mill Creek is one of the best producing salmon and steelhead streams in California – and that fact was an important reason the Mill Creek property was purchased for addition to the Del Norte Coast Redwoods State Park.

### **Erosion control and prevention related to roads (Don Beers)**

- The Mill Creek Acquisition road system has been assessed and inventoried. This includes 129 miles of partially decommissioned roads, 189 miles of maintained roads and approximately 11 miles of abandoned roads.
- Resource threats and structural deficiencies in the road system have been identified and quantified. Cost estimates for maintaining, re-engineering and removing each road have been developed.
- The partially decommissioned roads are not drivable but they still represent a significant threat to aquatic and terrestrial resources. Their partially removed stream crossing sites have a high potential for failure and the road segments between the crossings are susceptible to drainage diversions and fill slope failures. These failures have the potential to deliver tens of thousands of cubic yards of sediment into Mill Creek streams.
- A restoration plan has been developed for the partially decommissioned roads and road removal work has been underway since 2004. To date 20.64 miles of partially decommissioned roads have been removed.
- Some funding has been obtained to begin repairs on the 189 miles of drivable roads. 13 culverts will be replaced this summer. An additional culvert will be replaced with a bridge next summer that will restore fish passage to nearly 1 mile of stream. Winter road patrol crews have been funded to keep road ditches and culverts clear.
- Future management plans are needed to determine which of the 189 miles of drivable roads we need to keep, re-engineer, remove or convert to trails.

### **Restoring older forests from young forest plantations (Lathrop Leonard)**

- The majority of forests in Mill Creek consist of young, even-aged forests with tree densities that are too high to support vigorous tree growth.
- Many areas have shifted from being primarily old-growth redwood forests with a scattered mixture of other tree species to young Douglas-fir plantations with scattered young redwoods.

- Without “treatment”, forest health will decline, stands may fail to progress towards old-growth conditions and they will not develop a resistance to catastrophic wildfire.
- By reducing tree densities we can allow the forest to grow much more quickly.
- Remaining trees will then be able to develop fire resistant characteristics naturally.
- The forests will also develop old-growth characteristics faster and become better habitat for wildlife than without treatment.
- By the end of this year, we will have treated 1700 acres of the forests with the greatest need for restoration.
- The stands we are currently treating have between 500 and 2000 trees per acre, but had on average 30-40 trees per acre when it was old-growth.
- Our monitoring program will track changes over time and will compare several restoration treatments to no treatment controls.

### **Instream habitat creation (Rocco Fiori)**

- Large wood (logs) provide critically important habitat for salmon species in our coastal streams. However, in the 1980’s some agencies encouraged removal of large wood with the belief that logs were blocking fish migration. More thorough field survey has confirmed the large wood is an essential part of the stream ecosystem.
- This “removal” of large wood from the stream channel occurred here in the Mill Creek property. Also, over 100 years of timber harvest eliminated streamside standing conifers (especially redwood, grand fir, Sitka spruce, and hemlock) that are the source of large woody debris (LWD) in these streams.
- State Parks in cooperation with the California Department of Fish and Game and others has been restoring LWD to select locations in Mill Creek. Data from the Mill Creek Fisheries Monitoring Program guides this habitat restoration program.
- The goal is to provide essential habitat for the salmon and other aquatic species – and to replace LWD into the stream ecosystem --- so that LWD can once again contribute to channel form and structure.
- A program of riparian conifer planting has been started to replace the redwoods and other conifer species that will become future LWD in the stream.

### **Native plant nursery (Dan Burgess)**

- A native plant nursery has been developed at the former mill site. On-site plants and seeds are collected from the Mill Creek property --- with propagation at the nursery, which provides “genetic integrity” for all revegetation and restoration projects.
- Plants grown at the nursery are used as part of restoration involving streams, road decommissioning, and to restore redwoods and other riparian conifers along the stream corridors.
- The nursery has been a cooperative project involving local agencies, the Del Norte Academy of Natural Resources, AmeriCorps Watershed Stewards Project, the California Conservation Corps, and State and private funding.