



# L.W. Schatz Demonstration Tree Farm

## 2013 Annual Report

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### Research at the L.W. Schatz Demonstration Tree Farm

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#### Seedling Root:Shoot Study

In addition to their other duties, the Tree Farm summer crew is getting more involved in faculty research. In summer 2013, the crew started a multi-year project designed by Professor Pascal Berrill. The goal is to identify factors affecting root mass and root:shoot ratio in planted seedlings of different ages and species. The “Root:Shoot Biomass Matrix Study” involves repeatedly (annually), measuring and digging up seedlings of different species, planted in different years in replicated row-plot plantings (established by the FOR 432 Silviculture class each winter), after recording how much browsing they had sustained and which weed species they were competing with, etc.



Excavated seedlings, which was measured, photographed, weighed, dissected, and then oven-dried on campus

The students excavated seedlings, which were measured, photographed, weighed, dissected, and then oven-dried back on campus until they reach constant weight. Dr Berrill said “these kinds of hands-on experiences are what distinguish our forestry students from those in other programs and universities – I involved the undergraduate students right from the start, designing the experiment and selecting the sample trees, and gave them the opportunity and responsibility of completing the field measurements, excavations, and laboratory work by themselves... where else could we do this type of work? I mean, who else would let us plant this mixture of tree species, tend them for a few years, and then dig them up again?! The tree farm is a great resource”.

#### Douglas-fir Branching Study

Graduate student Christopher Kirk is working with Dr. Pascal Berrill to further our understanding of factors affecting branch size in the second log of Douglas-fir trees. The main focus is on comparing branching in even-aged stands versus trees regenerating under a partial canopy, but other factors such as stand density and topography are

## Research projects in 2013 (continued from page 1)



Giant salamander  
found by Forest  
Restoration students

being studied. “I foresee California forestry transitioning from volume production paradigm to value production,” Dr. Berrill said. “If we can control branching, or be aware of how our management activities will affect branching, there is great potential to capture value ordinarily lost in faster-grown trees with knots (i.e, branches) so big that they degrade structural lumber...The second log is where much value gain/loss takes place”. Christopher Kirk - also famous for his distinguished HSU bus driving career - has hacked his way through walls of poison oak to measure Douglas-fir branches on every acre of the tree farm. He also involved the summer crew and other undergraduate students in his research, giving these students valuable experience and exposure to applied, field-based graduate research.

## Research Projects Anticipated for 2014

### Root:Shoot Biomass

Dr. Pascal Berrill will continue work on his root:shoot biomass project (detailed on page 1 of this report) in 2014. The project will continue for two more years, finishing in the end of 2015.

### Investigating the Potential for Forest Thinning to Augment Summer Flows in Northern California Watersheds

Dr. Andrew Stubblefield will begin work on his research project investigating tree and forest stand water use in thinned and un-thinned areas. Sapflow measurements will be used to quantify forest stand water use in thinned and un-thinned forests on the Schatz Tree farm.

## Summer Operations and Maintenance Planned for 2014

- The Schatz Tree Farm building is scheduled to be repainted during the summer.
- The summer maintenance crew will assist with current research projects.
- The summer maintenance crew will locate, map and measure redwood trees on the tree farm.

## Summer Operations and Maintenance in 2013

As in past summers, significant maintenance and improvement projects were done over the Summer in 2013. Chris Crowell and Greg Winkley comprised the 2013 summer maintenance crew, along with Gordon Schatz, Tree Farm Manage. Projects completed include:

Tree Farm building

- Mowed lawns and outer areas to reduce fire hazard.
- Cleaned shop, bathrooms and interior of the building.

- General landscaping, including weeding, cleanup and mulching.
- Saws and other power equipment brought into town for annual maintenance.
- Resupplied gas and oil for machines.
- Fire alarm System installed
- Weather station installed

*Tree Farm acreage*

- Cleared storm debris

and downed trees from roads, trails and culverts.

- Mowed roads, and turnouts as well as brush cut trails.
- Removed brush and pruned trees along roadsides to improve visibility.
- Shaded fuel break enhancement and pruning along roads and trails.
- Potholes filled on roads with gravel.

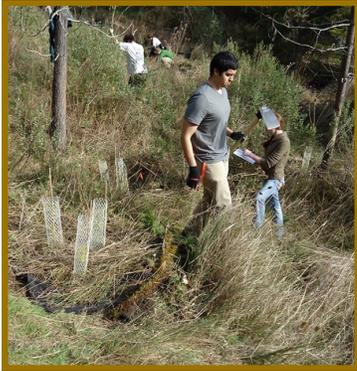


Gordon Schatz showing the work of the summer crew . Trees were pruned and brush removed along roads and trails to increase visibility and reduce fire hazards.

## Tree Farm as Educational Tool

In the spring of 2013 Dr. Pascal Berrill's Forest Restoration (FOR 431) class visited the Tree Farm to take part in a restoration project. The restoration project focused on Restoring forest in poison oak brushfield on dry south-facing slope.

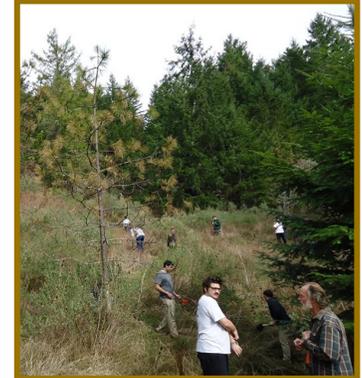
### Forest Restoration Project in Pictures



Hand cut terrace, berm, and mulch to enhance survival, and cluster planting to ensure stocking under expectation of high mortality in dry spot.



Testing innovative approaches to restoration on drought-prone sites: planting in auger bore holes to promote rapid taproot extension on dry site, and cutting 'light well' openings in the poison oak to plant trees amongst the partial shade provided by the vines.



Gordon Schatz overseeing the planting operations



Looking for favorable microsites to plant seedlings on steep, dry slope.



Improved tree shelters oriented to provide shade from afternoon sun.

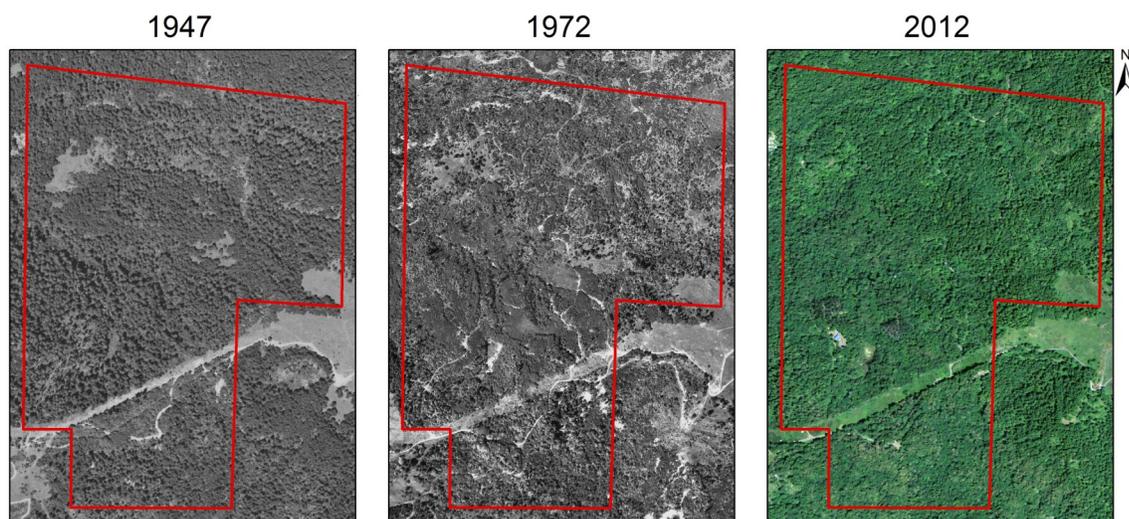
## Digitizing Historical Photos and Records

In the summer of 2013 Schatz Tree Farm staff member Sara Hanna began digitizing Schatz Tree Farm historical documents and images. The digitizing project will preserve important Tree Farm documents and images. The digitalization will improve faculty and students access to Schatz Tree Farm records.

The first records to be digitized were documents and news articles detailing the donation of the property to HSU by L.W. Schatz. Annual reports, information bulletins and research reports have also been digitized. More documents will be digitized this summer as part of the ongoing project.

Eventually all of the digitized documents will be organized and made available to faculty and students at HSU.

In addition to digitizing important Tree Farm records, historical photographs are also being obtained and digitized. Aerial photographs from 1947, 1972 were obtained through the U.S. Geological Survey (USGS). These photos were then georeferenced using ArcGIS software. This will allow the photos to be integrated into the existing geospatial database.



Historical aerial photographs of the Schatz Tree Farm property from 1947, 1972 and 2012 imagery from the USDA's Farm Service Agency (FSA) National Agriculture Imagery Program.

## Contact Information

### **L.W. Schatz Demonstration Tree Farm**

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## **L.W. Schatz Demonstration Tree Farm**

The L.W. Schatz Demonstration Tree Farm's mission is to provide a demonstration tree farm operation for the benefit of the instructional and research needs of the students and faculty of Humboldt State University and as an example for owners of small timberland parcels. The Tree Farm enables experimentation and research regarding the growing, harvesting, and replacement of trees on timberland. The Tree Farm aims to utilize as many square feet as practical for production of commercial wood crops. The Tree Farm serves as an outdoor classroom for educational purposes and also enables public educational assistance to landowners through publications, photos, lectures, symposia, and tours.



## **Department of Forestry & Wildland Resources**

### **Tree Farm Advisory Committee**

Ken Fulgham, Chair, Department of  
Forestry and Wildland Resources

Steve Smith, Dean, College of Natural  
Resources and Sciences

Pascal Berrill, Assistant Professor, De-  
partment of Forestry and Wildland  
Resources

### **Tree Farm Staff**

Gordon Schatz, Tree Farm Manager  
George Pease, Technician  
Sara Hanna, Research Associate and  
Coordinator

Greg Winkley, summer crew  
Chris Crowell, summer crew

### **Department of Forestry & Wildland Resources Faculty**

Pascal Berrill  
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