

## **Traditional Ecological Knowledge Field Workshop**

November 19, 2014

Hopland Research and Extension Center, Hopland, CA

### Summary Notes

See the California Landscape Conservation Cooperative website (<http://californialcc.org/events/traditional-ecological-knowledge-training>) for more information on the last TEK workshop that took place in Sacramento in September 2014. Today's workshop is intended to build off the broad information presented there and show more direct field applications of TEK. In addition to showing applied technical aspects of TEK, this workshop aims to also broaden perspectives of forest values and provide a cultural exchange that will be useful in future discussions of forest management.

### **Introductions and hopes for the day:**

- What's being put out there in terms of what's being called TEK can't come through in just this eight hour day, you need to live it every day; relearn some of what we haven't learned in a while (Javier)
- Want to teach and tell other people how to do it themselves (Theo)
- What plants tribes are concerned about (Susan)
- Glad to see UC and local tribes working together (Gregg)
- Pepperwood Reserve is launching a local management plan and wants to include TEK (Lisa)
- Less and less interested in simple restoration of plant communities, want to know how to work with the land so it restores itself (Dave)
- How can soap root can help with poison oak (Erin)
- Want to gain new perspectives (Erica)
- Hope to apply what he's learned to his clients (Evan)
- Want to learn the perspectives of native people (Cynthia)
- Interested in how TEK applies to IPM (Jim)
- Learn how to interpret the landscape (Christopher)
- Interested in how different people do demonstrations, learn from the discussions (Emily)
- Know more about medicinal plants and restoration techniques (Sonny)
- Want to know about plants used and restoration projects (Dean)
- Sharing plant names: scientific, common, different languages
- Planting a seed for adjusting how you view the landscape

### **Soils, climate, and TEK – Gregg Young, Potter Valley Tribe**

[See slides for more details] Consider this area (Hopland) to be high rainfall because rain comes all at once in six months instead of spread through the year and in snow pack. Tribes learned to re-mineralize soils through fire to continue the production of important resources (animal herds, trees with seeds, etc). Ash elements (Ca, Si, C, S, P, K; in that order) wash into bodies of water and serve as base of food pyramid. The reduction in delivery of these nutrients to lakes and oceans (by dams and reduced burning) may be a limiting factor in fishery and other resources. TEK practices included burning, irrigating, pruning, sowing, tilling, and transplanting. Sage: this is not all in the past tense; burning is still taking place, such as with bear grass. A Frank Lake (USFS) paper shows that there were more prescribed burns than just natural lightning strikes in historic record.

**Small group exercise:** What do you see in the forest? What indicators or metrics do you use to gauge whether it is healthy or not?

### **Soap root demonstration – Theo Whitehurst, Potter Valley Tribe**

[See slides and photos for more details] Sage La Pena adds that the glue from smashed bulbs can also be used to coat the inside of berry and seed baskets so small items do not fall through the weave; also used to stun fish and aid in harvesting. Harvest only in spring because the soil is too hard and dry other times of the year.



Figure 1. Processing soap root



Figure 2. Finished soap root brush

#### **Acorn processing – Sage LaPena, Mountain Thistle Botanicals & Consulting**

- Baskets: All materials in basketry need to be uniform size – shrubs must be managed through burning or coppicing. No pots and pans were available so all of our cooking for basketry containers were baskets. Materials are plants that have to be tended. Museums preserve baskets with DEET and arsenic but lack of use can still lead to decay. The use and exposure to water and oils of the food, helps to preserve the baskets. The gathering basket [shown at meeting] is made of red willow. Second basket: Bottom of the basket is pine root (sugarpine ephemeral roots can easily be harvested in the spring), the hazel is only one to three years old, redbud is the overlay. How long to make a basket? Six (6) years because you're waiting for the materials to grow and be the correct sizes, a couple of hours to several weeks to actually weave, depending on the size. Differences when you're using green wood versus seasoned, debarked wood. Keep bay leaves in all baskets in storage to keep pests out. The basket cap – you know it's for your head if your hand fits just inside the bottom. First thing you make is a gift, back to the forest or to another person – this keeps your ability to make

more items.



Figure 3. Selection of baskets

- Acorns: Tanoak is not a true oak but we know that tanoak is good food. Acorn stir sticks are made out of big leaf maple wood. The bend in the stick is ergonomic to cope with the long time stirring. Cooking rocks heat from the inside out instead of stove cooking coming from the bottom up. Cooking rocks removed from the acorn mush have a thin layer that you can peel off and eat like a potato chip. Black oak acorns have more fat, just as marbled steak” tastes better. Gather acorns before the first rains, once it’s rained there is mold. Clean out any bad nuts, can use a mix of older and fresh acorns. Do not store any acorns with pinholes in them. Crack shells on a flat rock with a small indentation, take off red paper (like a peanut; also very tannic), pound into flour using a mortar and pestle Leach flour in a leaching pit = sand basin near running water source, create water break with natural materials – these impart flavor to the acorns as well depending on what you use (willow, bay, etc.). Pour water over acorn flour and leaching water stays in the sand and washed flour is left (opposite of coffee!). Can keep unprocessed acorns for years because tannic acid keeps pests away, keep processed flour in the freezer. Bland flavor, a bit nutty – the worse your diet (more processed foods) the worse this will taste because



your taste buds have become conditioned to processed foods and flavors.



Figure 4. Acorn meat being ground with mortar and pestle



Figure 5. Finished acorn mush for tasting

- Stone tools are more than just a rock. Cooking rocks are put into the fire, taken out of fire with two long sticks or antlers, then put into a cooking basket.
- Started losing heritage trees as far back as the Russian and Spanish settlers when they would peel tanoaks and other large oaks for bark. The tannic acid in tanoak, redwood, and cedar makes them perfect for building materials – learned this through thousands of years of trial and error.
- Burning is not just for soil and vegetation; it opens up animal trails to help the health of the herd and aid in hunting (salmon, deer, sheep).
- California has many bioregions and you used what was in your area, and then traded among many tribes. Olivella, abalone, Washington clam – collected near ocean but used as money for thousands of years. Still traded today. Take the Olivella shell and cut into beads, pieces used as money pieces. Trade is in natural materials that need to be continued and maintained.
- Baylaurel/Pepperwood is used in ceremonies on the fire – it clears the air, opens up the ceremony, sings and starts the fire. It literally and figuratively cleans the house. Nuts are used for beads after insects hollow them through.
- Game bag items made from big leaf maple (staves), elderberry (clapper sticks and whistles), redwillow (counting sticks).



Figure 6. Animal hide bag storing game pieces

- Deer bones used as needles, awls, scrapers, rattles, ornamentation, ceremonies. Madrone berries are good to eat right off the tree. Usually roasted Manzanita berries are made into cider. Manzanita leaves used for skin ailments, it is an astringent; make a tea or cider, pulverize fruit but do not crush the seeds. Grey

pine pitch is cooked down and added to charcoal to make asphaltum. Soap root brushes can also be made with inner fibers, results in a much stiffer brush material. Manzanita stick used as a whisk. Baby baskets and rattles = putting willow into their mouth, the smell and taste of plants. Seed beaters also used in games. Usnea lichen grows on oak trees, has elastic bands of fiber.

- All native wildflower seeds edible except white flowers and known poisonous plants such as hemlock – white = death (death caps, white camas = poison). Oak galls used for toys, powdered antibacterial when they are still blonde and fresh. Carry with natural honey for a first aid kit. Black walnut – paint, dye; medicine for fungi and expels intestinal parasites. Medicine's colors match human health needs: yellow (Oregon grape root) = liver health; red= blood; blue elderberry = immune function.

More about Pomo people and traditions in short video series from UC Berkeley:

<http://www.youtube.com/watch?v=Um1jpRqy1-l>

<http://www.youtube.com/watch?v=OFwNomKqAbc>

<http://www.youtube.com/watch?v=jFMPlaMNfb4>

<http://www.youtube.com/watch?v=BMHnCXi0rgM>

Nature walk to sag pond – Bob Keiffer, HREC

Walk highlights (see photos for more detail): Shreve oak, acorn woodpecker-safe structure, black oak, California white (valley) oak, blue oak. Sag ponds formed along the fault line, there for thousands of years; burn the tule reeds in the winter after all the birds have left their nests; old Pomo site near ponds and close to natural migration corridor between coastal hills and Clear Lake.





Figure 7. Shreve oak leaves



Figure 8. California white (valley) oak leaves





Figure 9. Sag pond and tule reeds

**Small group exercise:** How did what you learn today influence how you see the forest?  
[comments from notecards]

- I've seen the forest through indigenous eyes my whole life. It was good to see part of this indigenous way passed on to others who also care about the forest and can see it differently; as I see it.
- What I see in the forest differently is the manzanita and madrone berries are edible. I see soap root brushes and moss diapers. A gift I get from a tribal friend.
- How to distinguish oaks (live vs. blue, vs. valley)
- Lots of thoughts about time – time it takes to grow plants/trees; time of year to harvest to ensure reproduction; time to leach and clean materials.
- A landscape with amazingly useful natural features (sag ponds, oaks) which in turn influenced Pomo site placement.
- When learning how to make products, give your first away to retain the gift of making.
- Fire and coppicing make uniform materials for basketry, etc.
- Fire essential management tool.
- I learned about and was very interested in the soil science and in the importance of ash for soil fertility.
- A lot of oak types. Recycling in the land management. Include non-tribal people more. More presenters.

- Individual Mendocino/Lake tribal presentations of: their land bases and resources; their resource programs; their resource management needs.
- Invite Dr. Frank Lake, USFS for general 2-hour TEK presentation. The BEST TEK and western science based land management relationship presentation available. Is fire focused.
- Future TEK – GIS outreach, native plant propagation, archeology/geo arch, soils.
- Incredible amounts of resources in uplands (and wetland) otherwise untapped. To tap, must be managed sustainably and also as a whole system. We need to learn (re-learn? un-learn?) the practices that will sustain both the resources and communities (the diverse communities) that use them.

### **Moving forward, next steps – Nina and Janice**

*[discussion notes from flip chart]*

- Burning demo
- Native plant garden
- Incorporate recycling into land management
- More time with Sage, hands-on teachings
- Interface with agencies to encourage their involvement with TEK (CalFire, Fire Council, CIBA, DWR, CaF&W, WRCB) = Face time
- Who are the tribal liaisons in the agencies?
- <http://www.norcalrxfirecouncil.org/> - Fall conference December 2-3, 2014 in Sacramento
- Meetings that allow agencies to have some time on the agenda

**Online meeting evaluation available at:**

<http://ucanr.edu/survey/survey.cfm?surveynumber=14300>