

The Cultural Ecology of Multiproduct Silviculture

Social Forestry in the Shasta Bioregion

Tom Ward

THE FOREST IS THE SOURCE of unlimited benefits. Societies that understand the value of the forest will be more sustainable. Social Forestry therefor is the culture of forest people. The culture that embraces social forestry lives in close identity with the local slopes, glens and drainages.

Social Forestry is a woven cultural fabric. The well-managed ecoforest delivers a surplus of multiple products to a culture that uses those benefits in daily life. The economic life is as diverse as the ecological mosaic of the forest. The community of humans organizes a flow of festivals, rituals and household practices around seasonal work and materials. The culture's ethics and principles support a sustainable interaction with the forest.

Developed social forestries exist within traditional villages. Such seasonal celebration and product-rich life grow over generations. The practices are learned in context and taught by stories and apprenticeship. Both the human culture and the forest context are stable, resilient and healthy. Modern ecological sciences have taught us how the forest works. Can we learn to apply the same principles to our economic and community lives? The possibilities are both culturally enchanting and rationally intriguing.

The vision

Imagine how it could be. As we learn to live with a forested region we find the best life in celebrating the multiple wonders of local knowledge. Our domestic life is rich with goods from the woods; our community life is full of festival and celebration. Most of our building materials, food, medicine, crafts and decoration are supplied by forest workers, local farmers, land stewards, materials brokers, crafts guilds and markets. This forest culture integrates forest, towns and farms. Travelers delight in passage through regions each different in style relative to the drainage basin culture based on local technologies and resources.

We live in small, well-designed and fire-resistant cottages built with poles, sticks, straw, rock and clay.

We use kitchen implements and furniture from the forest. We eat a diet high in seeds, nuts and fruit, fish and game. We drink tonics and brew beverages from flowers, fruit, bark, twigs and roots. Our local costume is colored with our favorite natural dyes. The well-tended forest co-evolves with our stewardship. The human-integrated forest reaches the highest levels of diversity, resilience and stability – clear cuts, plantations and wilderness have simplified floras and faunas in comparison. The springs and creeks are year round again and the water tables are refilling – we have drought proofed our watersheds. Wildlife is plentiful and managed for over population. Our children love the stories and pilgrimages of the special seasons

Every mansion in the forest/farm interface employs and houses a small seasonal village of itinerant bodgers and herb and seed folks (bodgers are craftspeople who make turned and carved furniture parts from small wood and coppice sprouts. Resident rangers and to the covenants of perennial stewardship and repeatedly practice remembering through ritual and celebration.

Evolving social forestry in the Shasta bioregion

In the mid 1980s Guy Baldwin, Michael Crofoot and myself talked extensively in Davis, California (near the mouth of the Sacramento River), about prospects for social forestry in Shasta. We imagined a "necklace" of mid elevation forest properties strung around the headwaters of the Sacramento River. These could be occasional access areas without permanent development. An itinerant crew would rotate through the properties with seasonal work called for by the specific circumstance. Ultimately these discussions led Michael to publish a pamphlet about inoculation strategies for nursery and farm and Guy (then publisher of the PC Activist) to write a seminal article about seasonal and long-term opportunities for social forestry (Volume IV, No. 3, August 1988). Guy managed to settle in a foothills olive orchard and Michael went off to New Zealand. I went back

to Ashland after leaving D-Q University (1986) and finishing my book, *Greenward, Ho!* (1990).

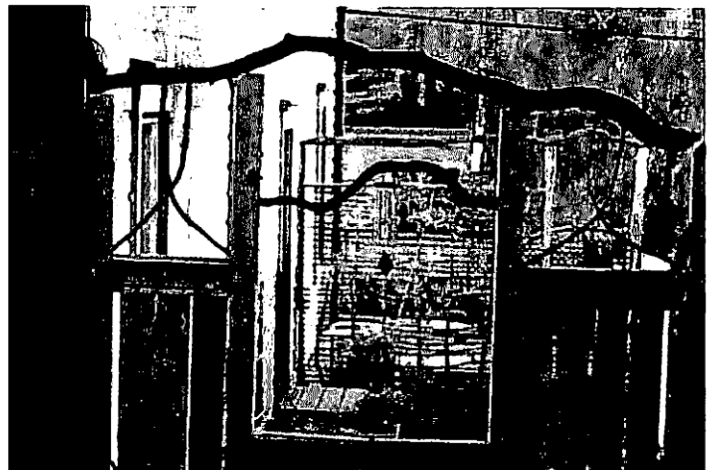
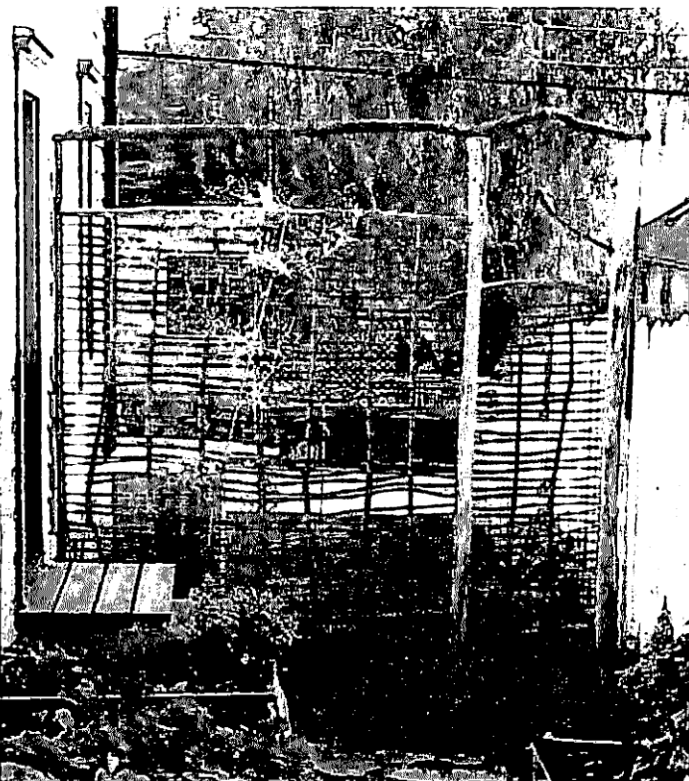
In the early 90's, I sat in on discussions with the Ashland Watershed Stewardship Alliance about watershed restoration and management possibilities. A unique 1929 memorandum of understanding that gives say in US Forest Service management of the almost 10,000 acres. However, the political process was slow. process was slow. The unemployed scientists at AWSA looking for grants had more patience for endless meetings than I. Yet, watershed councils in Oregon, with the support of the Governor's office, have improved salmon habitat with streamside shade plantings and riparian corridor assessment.

We had better luck with the Siskiyou Permaculture Resources Group (SPRG, "*sprig*," our local club), with the apprenticeship program at Tom's Garden Cottage (TGC) and with the Wilderness Charter School (WCS) at the Ashland High School. SPRG applied to the Ranger District and took stewardship arrangement for up to 8 miles of Upper Tolman Creek Road near Ashland. Up to six TCG apprentices learned woodcrafts, built prototypes, did assembly at a local bird house and feeder factory and

worked the Tolman roadside with the WCS. The WCS used permaculture as a core curriculum (still going strong) and designed and developed the straw bale classroom grounds with a vernacular aesthetic created by fencing and natural building using Douglas fir poles and willow wands harvested to reduce fire hazards along Tolman Road. A Southern Oregon University intern also documented Permaculture at the WCS during this period (Chris Runge, 2002).

In the late '90s we installed a semiformal garden at 117 High Street with woven Scouler willow gates and fences and with madrone and Douglas fir arbors and other classic Permaculture elements. (See photos below.) The Oregon State Univ. Master Gardeners Program toured the site twice. TCG (0.2 acres near downtown) developed for seven years and is documented by a master apprentice's thesis (TGC, Jacob Squirrel, 1999), a half hour made for TV video, and an instructional slide show. In addition, 80 acres on Elk Creek above Trail, OR was documented for government forestry subsidy with an ecological forestry plan containing social forestry elements (*Elk, Dancing!*, 1999). Organic farms in

Scouler willow fence at 117 High Street



southwest Oregon have increased their use of windbreaks, woodlots and hedgerows. The Southern Oregon Woodcrafters Guild has annual shows with many native woods cut, turned, joined and polished.

Wildcrafters and cattle

Wildcrafters have continuously harvested medicinal herbs from the forest. The best aboriginal digging grounds were quickly cultivated or grazed by colonists, leaving only tattered stands of edible and medicinal native plants. Back country ridges where large mining camps sat are still empty of all wild foods, medicinals and teas. In the mid '70s, Southwest Oregon Herb Association (SWOHA) organized many organic herb business pioneers and set a tone of discussion that invited ethical wildcrafters to the region.

Unfortunately, in the early 90's, after two decades of renewed harvesting, traditional and family patches were increasingly found stripped by uninformed, unsustainable takings. A local herbalist in Grants Pass had trained folks to harvest big and sell wholesale on the global market. This most often meant less than one dollar a pound to the harvester and led to voracious harvesting. Many native plants are endangered in this region so very careful stewardship of harvesting is necessary. Only sacred traditional practices are appropriate in wilderness. Almost all medicinal herbs should be farmed. We have many successful herb farms in southern Oregon.

Invasive annuals are most often Mediterranean endemics and although potentially useful for colonizing disturbed soils should eventually be replaced with well-implicated native perennials (i.e., those having multiple inter-species connections). On the other hand, not only are these European "weeds" readily available, but there is long knowledge of their use. Thus we are looking at harvesting yarrow, mullein and St. John's Wort on the Tolman roadside. By principle (see below), we might stick to value-added herb processing (leaving most carbon and nutrients in the forest) and to transitional farming on degraded lands with pioneer herb crops such as these useful "invasives".

Of course, the cattle consume the most forage. Federal grazing leases are notoriously cheap and usually destructive, but cattle can serve ecological pur-

poses. If we gave all cattle full-time human oversight, constantly moving them to prevent overgrazing and water-source fouling, their grazing could be beneficial. The herbalists could precede the grazers and high-grade for seeds, flowers and herbs. Rangers could monitor use and flag areas to be left alone.

Nonprofits and – Profits?

Meanwhile, several local nonprofit entities have emerged. Lomakatsi Restoration Forestry has done major tree and shrub plantings and has done industrial forest work in slash-and-burn fuel reduction (necessary emergency procedures, government subsidized). They also have a natural-built housing demonstration on a covenanted land trust. Their tightly-knit crew does public fundraising, but their promised federal program funds were recently cut. Their ongoing training in indigenous fire management and proscribed burning is heroic and inspiring. They demonstrate big success by still being together and busy after at least a decade.

The wilderness preservationist nonprofits used to dismiss utilitarian and indigenous interests and protested all harvesting, but have come around recently. The interesting but now defunct Rouge Institute for Ecology and Economy made a brave attempt to organize and publicize green certification, endangered species management, forest industry displaced worker retraining and alternative forest products. The lack of a good sorting-yard system and efficient brokerage proved economically crippling, but mixed-species log-truck loads were sorted to single-species long-distance loads taken to special mills up north. Manzanita bird perches (twisty, smooth red branches) were sent nationwide to zoos and collectors. Portable computer-aided sawmills were demonstrated. Locally-processed flooring from various species is still brokered in region with green certification.

Early in this decade there was a stir of interest in business approaches to Social Forestry. First a team associated with the University of San Francisco tried to organize a group of local social foresters to manage fuel reduction crews in Southern Oregon (we refused). There was federal money promised and we might have found economic rewards through subsidy. This new business eventually ended up hiring displaced workers at low wages, undercutting

already-existing local crews. Then there were meetings with a lawyer and a CEO-in-waiting to form a company (Willow Works) and finance multiple-products forestry with venture capital. Willow coppice for furniture, basketry, fencing and privacy screens was our best shot, with other products to be developed. However, much upfront research and business planning is necessary for such an enterprise, especially if one does not have an immediate moneymaker to fund business expansion. The CEO quickly pulled out.

The sociopolitical realm is now oriented toward conservative rights of primogeniture (e.g., first come first serve water rights) and private property to the detriment of general community health. A helpful transition might be to declare ecological opportunity zones and enable them with eco-rational covenant development codes, tax-free barter, local currencies, catastrophic health care coverage, social arrangement tolerance and local oversight of forest planning. As so much of the Shasta region is in public or absentee landlord ownership the initial arrangements might be by stewardship contracts with rights and restrictions enumerated.

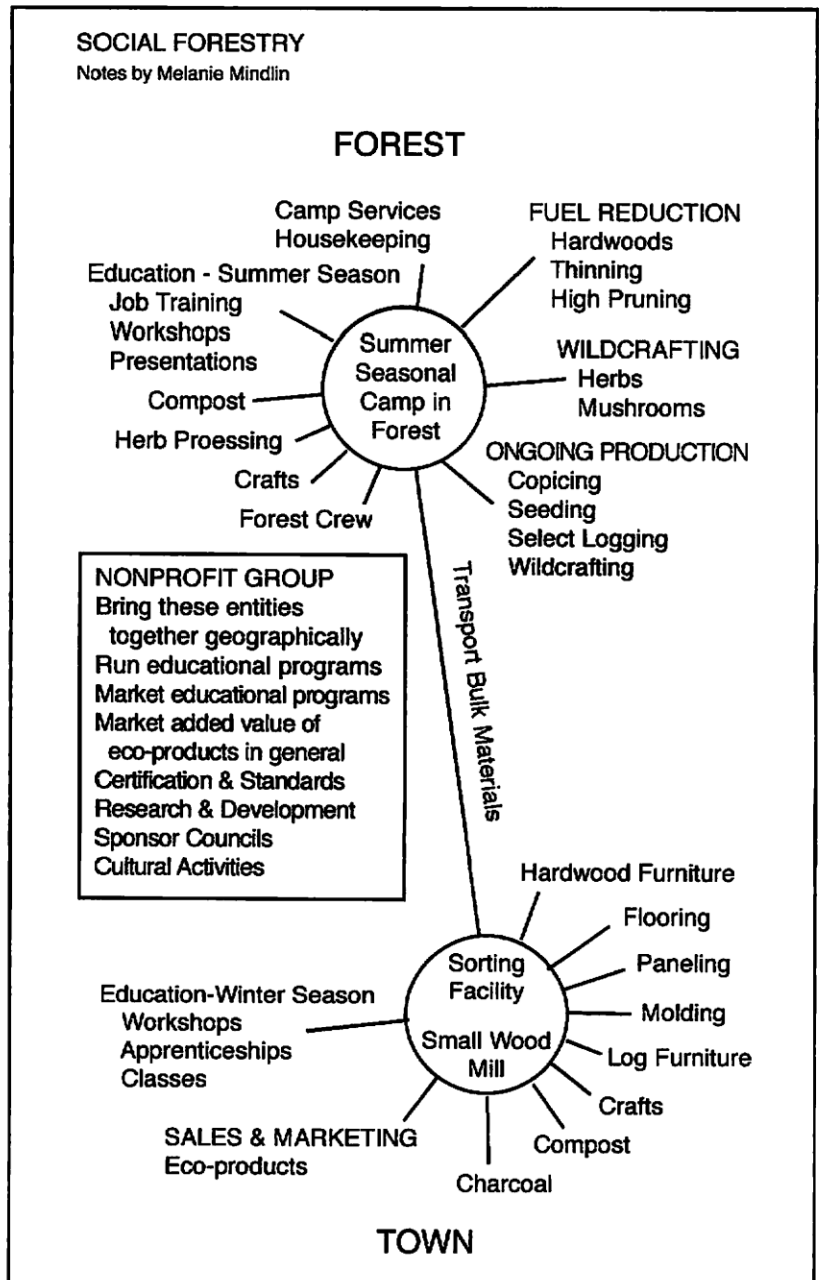
A slow and piecemeal buildup of local entrepreneurial businesses is proceeding and this would benefit from a more coordinated economic development. The State of Oregon has a buy-in-state website to connect commerce. A Shasta region organization could facilitate trade and certification of ecologically-harvested multiple products. For social forestry to be better established around Shasta, a coordinated effort will be necessary. The inter-institutional meetings so far have only opened the discussion. The next step would be a conference with a call for papers and documented experience. An arena for such a conference could be prepared with the display of maps, posters and story boards to support a design process. Good facilitation is increasing available as folks learn whole-systems approaches. The support of various NGOs and activists is available if asked and directed. Indigenous peoples can offer tremendous knowledge and example.

The challenge is to positively envision a

social forestry in present and future times. We must study the traditional human forest cultures and use ecological and whole systems sciences to map the possibilities. Then we can inspire the various modern institutions and interests to arrange a new/old forestry that feeds the needs of the forest and the human culture.

Spokes Chart for Willow Works Proposal

The social forestry bubble diagram below shows possible resource streams between forest, town, and associated educational, commercial, cultural, and woodcraft entities. It is a map of possibilities.



The Field Workflow and Products tableat rioht shows a sequence of work in the forest over two years and illustrates the products and timing involved in manifesting these possibilities on the forestry side. Workers in the woods must deliver harvested materials seasonally to craftspeople and small manufacturers. To work on the social side, business and education must inform and support both consumers and workers. To set something like this in motion is logistically daunting. Parts may stand for a while as separate businesses, but not sustainably. Mashalling such a system to task would take unanimous consent through counsel and dedication of all parties. All entities meet in council to share information and administer certification of sustainable practices. Local culture celebrates seasonal specialties and vernacular aesthetics (the beauty, color, pattern and tastes of the place where you live).

Willow Works Project Field Workflow And Products

Notes by Tom Ward 29n September 2002, Ashland Oregon

PROJECT AREA—Private and public lands in the "INTERFACE", especially along roads and firebreaks

PROJECT GOAL—Stable and productive "old grpwth" canopy or overstory, able to be underburned and/or intensively managed

WORKFLOWPRODUCTS

A. INITIAL ENTRY—after scoping and flagging (first early winter)

1. remove ladder fuels—high pruning
2. lop and scatter fine dry fuels
3. thin Douglas fir stakesSAILS, SHORES FOR HURDLES
4. prep hardwood stools for coppice
5. select small hardwood logsFURNITURE, BUILDING MATERIALS
6. shred greenwoodCOMPOST
7. select mushroom inoculation logsMUSHROOM INOCULATION LOGS
8. select culls from 4,5 and 7CHARCOAL
9. inventory threatened & endangered speciesSEEDS

B. SECOND ENTRY (first summer and fall)

1. inventory pharmaceuticalsHERBS
2. thin coppice sproutsBASKETS, FENCES
3. build trails, sort pads, camps, pondsINFRASTRUCTURE
4. harvest from mushroom logsMUSHROOMS

C. THIRD ENTRY (second early winter)

1. thin understory treesSMALL DIMENSIONAL LUMBER
2. shred green slashCOMPOST
3. seed natives for future cropsEROSION CONTROL
4. wildcraft various speciesHERBS, BARKS, SEEDS
5. select culls from onsite millingCHARCOAL, COMPOST

D. FOURTH ENTRY (second summer and fall)

1. ongoing coppice sprout harvestBASKETS, FENCES, FURNITURE
.....ESSENCES, COMPOST, BROWSERS
2. single tree select loggingTIMBER, ONSITE MILLING LUMBER
3. wildcraft various speciesMULTIPLE PRODUCTS

Some Principles for Shasta Social Forestry

I recommend the following specific ecological and process principles for sustainable forestry around Shasta. Include these guidelines as covenants in stewardship contracts, as priorities in research and education and as requirements for certification of products that claim sustainable origins and processes. Below each principle are examples of compatible actions and ideas.

- ❖ Export at most the net yearly solar income in carbon. We need all forests accumulating carbon because of global warming. We can improve almost any soil by increasing the humus content. Forests are more stable with carbon sinks in the form of big logs that hold water and soil life during dry times. Some forests cycle carbon into the soil with fungi and soil life (those with steady

seasons of moisture) and some forests are fire dependent, where the excess carbon is periodical-ly burned off into the atmosphere. If the fire is not catastrophic and stays on the ground, in the understory, many nutrients are cycled back into the soil and only some are lost to the air. This is referred to as a "cool burn".

~ Export as little carbon as possible. Single tree harvesting for high value and milling on-site with portable saw mills to helps us export less carbon than the yearly solar income replaces. This supports water sponging and mushroom cultivation with the sawdust and off cuts. Export products such as extracts, seeds, mushrooms, flowers, resins, fruit and value-added fine woodworking from the forest. Import clean carbon from market visits back to the woods for forest composting.

- ~ Instead of firwood or charcoal, consider methane gas from Basidiomycetal shredded wood moldering piles.
- ~ After high-grading for specialty wood products, mushroom logs and millable logs, some knurly short pieces may be usefully kiln-burned for charcoal production, resin distillation and to capture the heat and steam – in seasons with good air-circulation. Charcoal is easy to handle, is light-weight to transport (for fuel value), and burns cleanly for cooking and spot heating (helpful in the smog-challenged winter valleys).
- ~ Move towards “cool” broadscale burning to recycle nutrients and keep high species diversity. Small burn piles may be the first step while explosive fuel load is reduced.
- ❖ Close the phosphorus loop – The old soils of western Shasta are severely leached of this critical water-born nutrient. The phosphorous returned by spawning salmon is vital to forests. We must create phosphorous-holding ecosystems to retain as much as possible.
 - ~ Cool broadscale burning will help cycle some of the phosphorous held in organic matter.
 - ~ Take down hydroelectric dams that block spawning and raise late-season water temperatures.
 - ~ Maintain wildlife corridors from ridge to river for nutrient dispersal.
 - ~ Capture town and farm effluent and keep the net tight.
 - ~ Keep plant ramial (twig and tip) and bark tissues on site (these are high in phosphorous). Composting nutrient rich forest materials for export can only be an emergency plan while valley farms close their nutrient loops and replace imported fertilizers.
- ❖ Close value and currency loops locally.
 - ~ Local currencies and barter recycle value in the community. Dollars spent at global corporate outlets leave the community without reuse. Reappraising true value reduces addictive consumerism and promotes real living. A life based securely in family, place and social capital earned through relationship is the universal and natural human wish.
 - ~ Trade with other regions by barter also. Global infrastructure that supports knowledge-sharing and communication as well as necessary exchange of goods should be built with new taxes on speculative currency exchanges and other non-productive gambling such as presently dominates empires.
- ~ Encourage travel for service and education, as it loops back to intercultural exchange and global biological cooperation.
- ❖ The secret to effective farming and forestry is perfect timing. Part-time remote stewardship often misses important windows of opportunity as the workers are not there at the right moment and ongoing observation is weak.
 - ~ Willow and other hardwood coppicing is best done December through February. Stumps sprout in the spring from nutrients stored over winter in the root mass. The right tools and the proper thinning choices will make for better and better wand quality and longer lasting stools.
 - ~ Wildflower emergence and songbird nesting happen in spring and we should minimally disturb the woods then – no chainsaw work. Leave plenty of wildlife trees and no-go thickets in a clumped pattern in any woodlot.
 - ~ Burn timing is critical in Shasta. Broadscale burning is best done in mid-winter after sufficient rain and before early flowering in February. The art of proper burn timing is complex; it was once the province of aboriginal women’s societies.
 - ~ Compaction of delicate soils is also critical. The use of heavy machinery in the forest reduces reproduction success and recovery time. Pond and road building is best done in the fall after fire hazard is lowered by early rains but before the ground becomes soft. Woodlots and whole drainage basins need road and skid trail systems laid out on keyline principles with log landings doubling as detention ponds over winter. Snake single-tree selection logs out of the woods with long cables and breakaway pulley blocks. Take bundled materials to roads with temporary chutes downslope. Animal and human-drawn carts are a good use of biological intelligence. Bicycles and carts as well as small walking tractors can be appropriate-scale technology on roadsides and along fire break trails. All construction in the forest needs to be justified and stacked with multiple functions.

❖ Use the right tool for the job.

~ Broad knives in England vary considerably in shape from shire to shire. There are many tool designs that are specific to the species worked and the products to be created.

~ Most wood chippers are hammer mills that cut across the grain and leave chips that do not compost easily. Drum shredders whose teeth drag small limbs across knives produce long fiber shreds and are best for fungal moldering (as per Jean Pain; www.motherearthnews.com/arc/2032/ or journeytoforever.org/biofuel_library/methane_pain.html).

~ Basidiomycetal (gilled fungi, especially *Pleurotus* spp.) moldering piles are great for long term water heating from coils embedded in the compost, and for methane production with hooded piles. Bacterial composting is hot and needs turning and attention. The US Forest Service does not allow "mulch piles" after having experienced spontaneous combustion. Forest composting is best done by broadscale lop and scatter slash layout (the soil life gets it) or on fire safe landings near worker housing and craft shops. Finished compost is best used in restoration plantings and in forest nursery work or camp gardening.

~ Japanese draw saws have proven very useful in falling and in uplimbing to remove fire ladders. Chainsaws are mostly useful for very large tree falling and log bucking and for fire wood bucking. Hatchets (short handled axes) are very dangerous and are replaceable with broad knives and drawknives for small pole limbing and debarking. An industrial debarker leaves a rough surface on a pole that reduces the useable life, while a drawknife leaves a smoother surface that sheds water better (especially necessary in tipi poles).

Meanwhile, Back at the Big Picture

This is a Taoist moment. The wise person preserves knowledge while the empire falters. There is much work to do. The most promising economic opportunities are entrepreneurial and include intelligent use of waste or byproducts. Local natural building demonstrations that permanently house workers who are then stable enough to live culture-in-place are fantastic. Permaculture courses build some worknets and have supported some exciting

design experiments. On-going learning, library building, tool collecting, seed propagation, natural art, Ecotopian cultural (and economic) fairs and festivals, local clubs and other emerging knowledge of place already point toward a green future.

The social imperative is to cooperate in resource stewardship. Many cultures have managed this for centuries or millennium but many settlements have failed for want of imagination or by reason of cultural taboo – the Norse in Greenland evidently died out for want of eating fish! There is much hope for some regions of Turtle Island if left largely alone or supported by trade and knowledge sharing. All regions that have been left destroyed or diminished by civilization are eligible for restoration to some sort of green productivity or stability. Some brown lands will heal themselves and some will be poison for a very long time. Intact forest lands are especially valuable and communities of the forest can talk about sustainability and trade within the emerging Precautionary Principle and the Natural Step business ethics.

Never before have so many trained and educated non-violent social change activists been embedded so widely. Never have so many international and local progressive campaigns existed. Information accumulation and display along with skilled facilitation is increasingly available to the conversation of bioregional governance. Deep ecologists insist that the counsel include all beings. Many parts of this big conversation are in practice.

Modern ecological sciences teach us how the forest works. Can we learn to apply the same principles to our economic and community lives? The science for assessment and interpretation is broad and the necessity is upon us. The possibilities are both culturally enchanting and rationally intriguing as we consider the challenges of global warming and the decline of cheap petroleum. If we fail to engage this challenge, the present business model (with lots of capital upfront and the vagaries of global trade) will gladly step in as resources continue to be squandered for a quick flush and then — goodbye to the promise of forever. However, many interests may soon merge to push cultural development towards regional self-reliance. With the support of existing local institutions, we can nurture social forestry for the longterm benefit of forest and forest people.