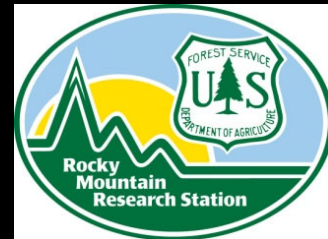


Culturally important native plants: considerations for agroforestry systems

Jeremiah R. Pinto



17 September 2019
Agroforestry in the Pacific Northwest Workshop, Spokane, WA



Context and Objectives

1. Indigenous peoples, native plants, and nurseries
2. Intertribal Nursery Council
3. TEK, the Target Plant Concept, and Western Science
4. Considerations for agroforestry
5. Examples*



Indigenous Traditional Ecological Knowledge in Agroforestry

Introduction

Communities around the world have practiced diverse and evolving forms of agroforestry for centuries.¹ While both indigenous and non-indigenous practitioners have developed agroforestry practices of great value, in this publication, we focus on the role of indigenous, traditional ecological knowledge. Indigenous communities include American Indians, Alaska Natives, Caribbean and Pacific Islanders, and others. Because indigenous groups have lived in the same areas for long periods of time, each generation has built on the knowledge of the previous generation through observation and experimentation. In this manner, indigenous groups have evolved intricate ways to manage *biosculturally diverse* ecosystems.² These ecosystems are managed to provide food, fuel, building materials, agricultural and plant-tending tools, hunting and trapping equipment, baskets, and ceremonial spaces essential to life and maintaining cultural traditions. Many agroforestry practitioners in the United States are learning from these complex systems.

A Changed Landscape

Within the United States, many indigenous communities and practitioners continue to carry on traditional management practices, but others struggle to do so. While some indigenous communities have been able to continue managing their ancestral homelands, altered political boundaries, laws, regulations, economic incentives, and socio-cultural practices mean that most indigenous and tribal communities' ancestral homelands have not been managed in their traditional ways for over a hundred years. This has made it difficult—if not impossible—to continue traditional management practices. Some ancestral homelands have become cities, towns, and subdivisions. Others are managed by state and federal agencies or private individuals and companies whose management goals are different from the indigenous peoples'. Even when tribes and indigenous communities have been able to retain or secure management rights to land, they may need to do a significant amount of management (e.g. thinning, burning, pruning, planting) in order to restore relevant functions to the landscape (e.g. to provide food, medicine, basketry materials, etc.).

Additionally, climate change is altering storm, fire, disease, drought, and flooding patterns as well as the suitable ranges for many of the species upon which indigenous people traditionally rely. On top of this, invasive species continue to cause dramatic ecological changes. Thus, traditional practitioners are adapting their practices to suit the new conditions of today and to prepare for tomorrow. Many of these practices can inform climate adaptation strategies.³

Learning from Traditional Ecological Knowledge

At the same time that indigenous practitioners are adapting to changing conditions, there is a burgeoning interest among landowners and land managers to manage their lands as more complex ecosystems. Whether they have a small woodlot, a large farm, or manage public lands, many people wish to meet several objectives on one piece of property. These objectives are often similar to the objectives for which indigenous communities traditionally managed, which including:

- ▲ food
- ▲ firewood
- ▲ basketry and building materials
- ▲ culinary and medicinal herbs
- ▲ clean and abundant water
- ▲ wildlife habitat
- ▲ privacy
- ▲ reduction of hazardous fuels around the home and valued resources
- ▲ beauty
- ▲ recreation spaces
- ▲ cultural values
- ▲ sacred and historic sites
- ▲ educational opportunities

¹ Perreault and Thayer 2012; Barker et al. 2000; and Naele 1989.

² Maffi 2007.

³ Lyons, et al. 2013.

Colleen Rossier and Frank Lake Agroforestry Note 44

Propagating native plants for restoration using western science and traditional knowledge

Jeremiah R. Pinto



25 July 2019, Tribal Alliance for Pollinators, webinar



Native Americans and Plants

History of:

- Food
- Shelter
- Textiles
- Medicine
- Ceremony



Native Plants on Indigenous Lands

Contemporary Management Needs:

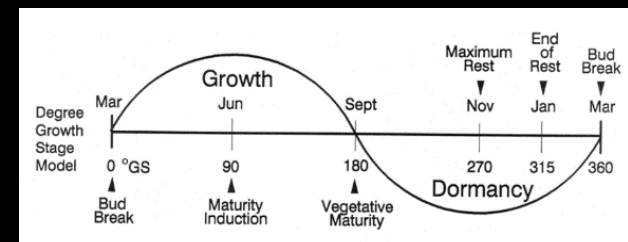
- Reforestation
- Restoration
- Wildlife
- Bioengineering
- Invasive Species
- Disturbance
- Climate Change
- Landscape



Contemporary Management

Assisted with Modern Tools and Concepts:

- Greenhouses
- Climate control
- Irrigation systems
- Mechanical equipment
- Plant physiology
- Fertilizers
- Target plants
- Etc.



(Fuchigami and Nee 1987; Burr 1990)

Native Plants on Native Lands

Additional Needs

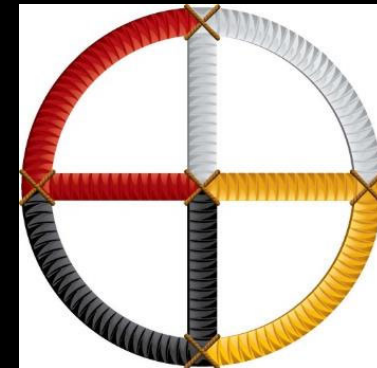
- Cultural
 - Preservation
 - Education
 - Availability
 - Economic
 - Food
 - Medicine
 - Textiles



Potential Conflicts with Traditional Ideals

Plant Production Concerns:

- Artificial
 - Spirituality
 - Connectedness
- Trophic levels
 - Medicine
 - Textiles
- Genetics



Interesting start

2001 Invitation to discuss tribal nurseries

- All tribes invited
- Existing nurseries
- Interested

Formalized a nursery group





Intertribal Nursery Council



The INC is a USDA Forest Service run, tribally guided, organization for advancing the interests of native peoples involved with plant production in nurseries



Intertribal Nursery Council



Special emphasis nursery topics include:

- Technology transfer and information sharing
- Conservation education
- Preservation of Traditional Ecological Knowledge
- Reforestation
- Restoration
- Nursery training



Finding a Balance

Goal:

- Successful use of plant materials on Indigenous lands

Means:

- Use both science and Traditional Ecological Knowledge
- *Build trust*
- *Engage community*



Not an Easy Task

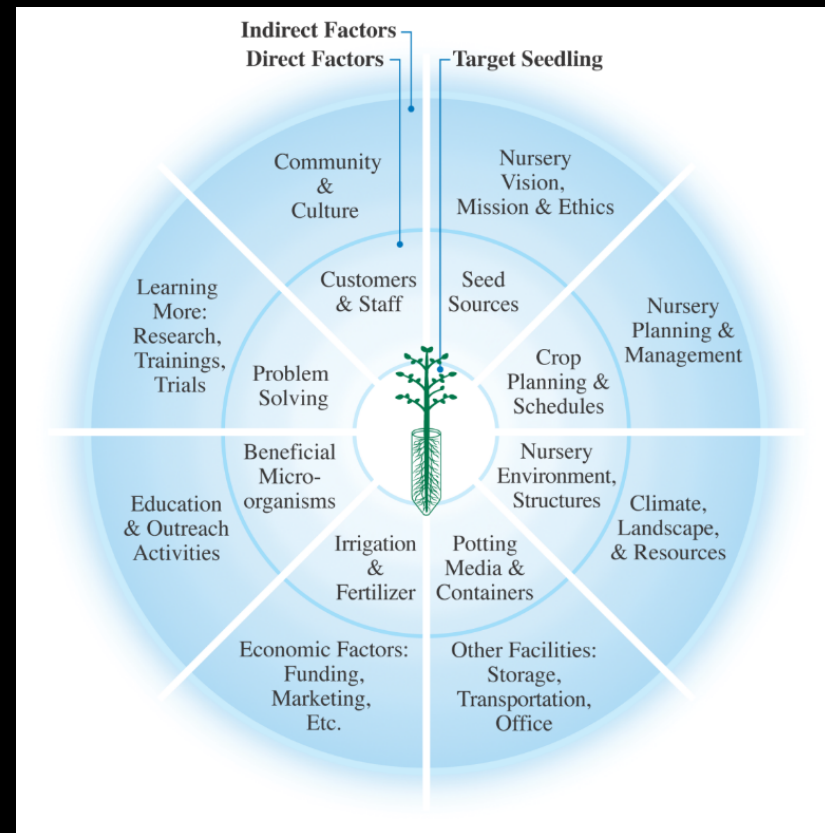
“Successful integration will require a thorough and thoughtful synthesis where concepts are considered within their cultural context and not as bits of knowledge or information to be inserted into the prevailing scientific framework.”

From: Indigenous peoples restoration network (SER online)

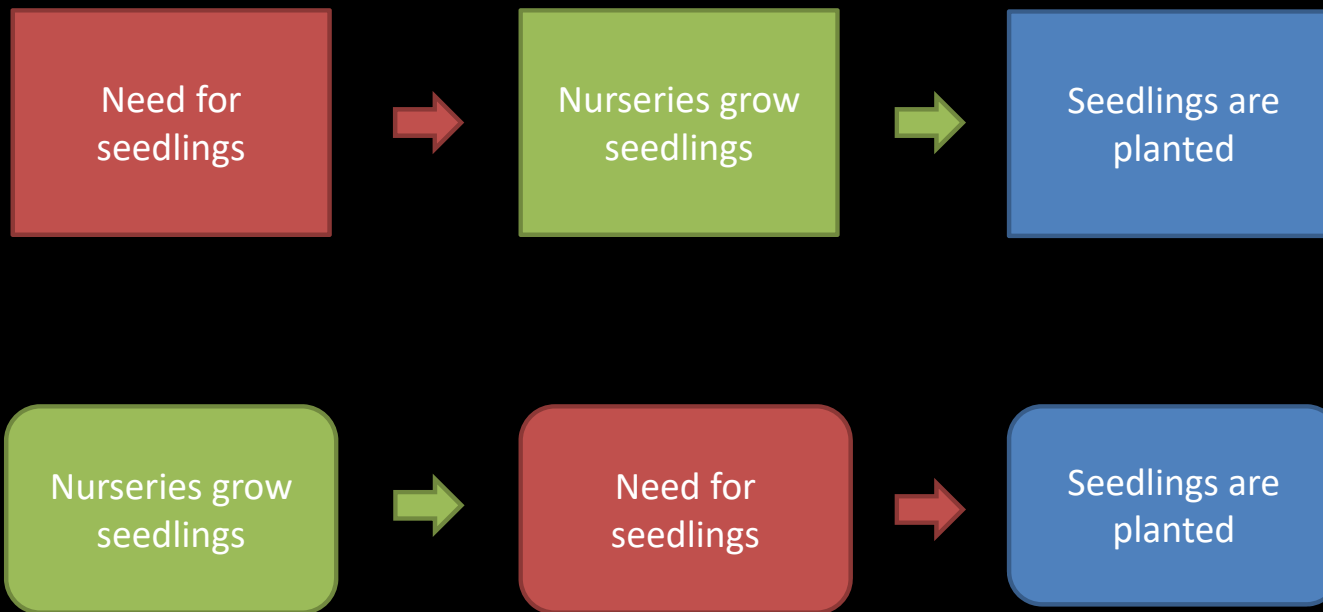
Acknowledging There Is No “One Size Fits All” Approach

Create space for:

- Creativity
- Adaptability
- Expansion
- Inclusion

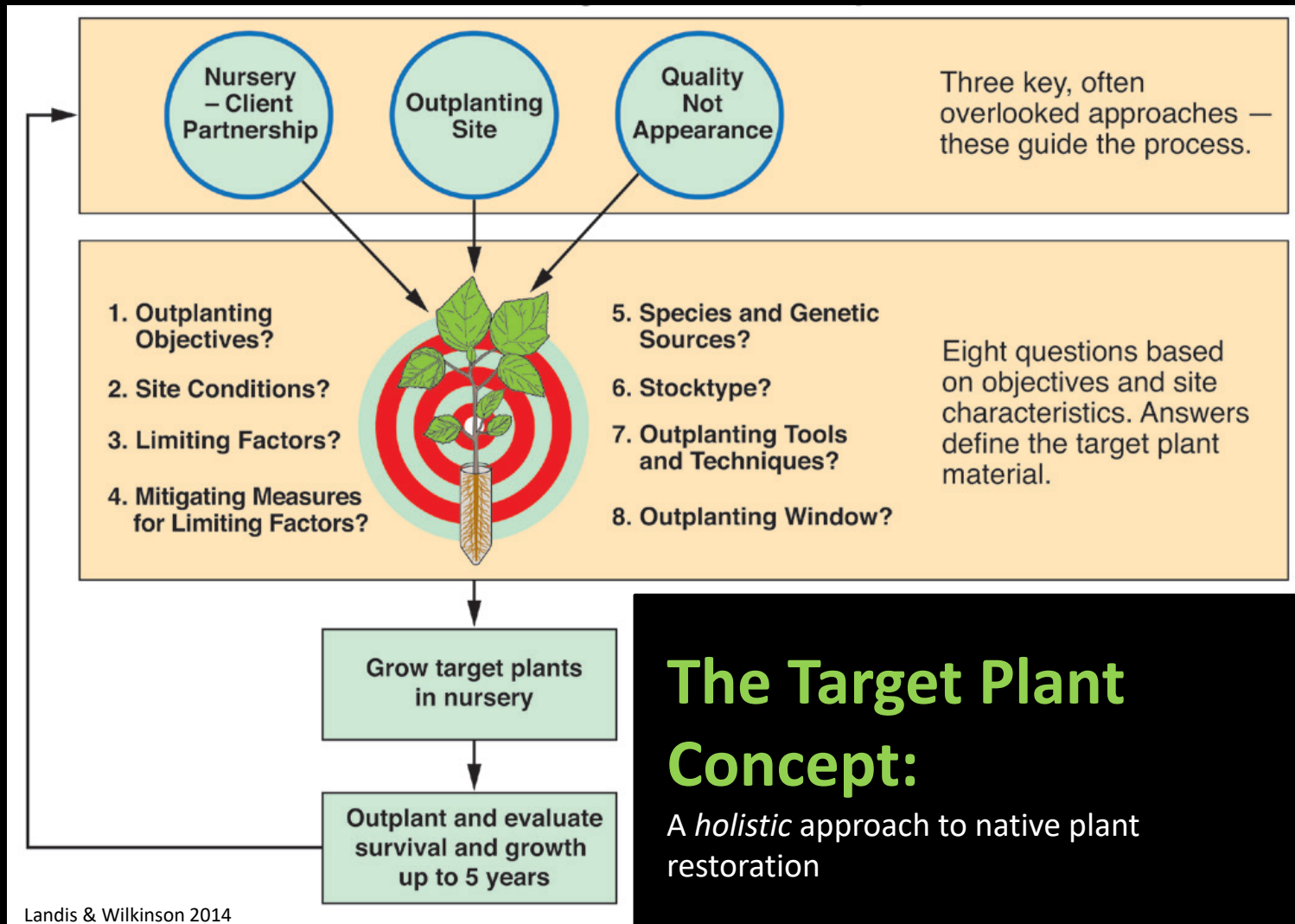


Traditional models



New model





Incorporating TEK in the TPC

- An *opportunistic* approach to native plant restoration and reforestation

Concept attributes:

1. Objectives
2. Site evaluation
3. Limiting factors
4. Mitigating measures
5. Genetics
6. Plant material
7. Tools & techniques
8. Outplanting window

Indigenous inputs:

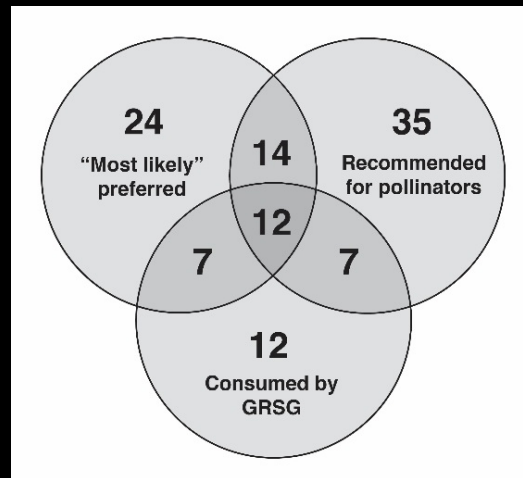
- Consultation
- Trophic level consideration
- Education opportunities
- Traditional plant selection
- Ceremony

Native plant production and agroforestry are highly related!

“When land managers incorporate trees with crops and or livestock in an integrated, intentional, interactive and intensive way, they are practicing agroforestry.” Agroforestry Note 44

Multi-species management

- Satisfy multiple objectives
- Leveraging resources
- Workhorse species
- Less complicated?



Native plants associated with GSG diet and pollinators (Dumroese et al. 2016).



Considerations for Agroforestry

Multi-purpose forest management:

- Food
- Firewood
- Water
- Wildlife
- Recreation
- Fuel reduction
- Education



Added benefits:

- Medicinal herbs
- Ceremonial items
- Basketry and building materials
- Accessibility



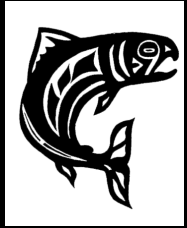
Photo credits: Jeremy Ojua

Sturgeon-nose canoe building

Traditional build with forest materials

- Artisan: Dr. Shawn Brigman
- Priest River Experimental Forest: Dr. Marcus Warwell
- Western white pine, bitter cherry, Rocky Mountain maple, ocean spray, ponderosa pine





Tribes and Their Nurseries

Stillaguamish Tribe,
Arlington, Washington

- Native plants
 - Fisheries
 - wholesale



2010 Intertribal Nursery Council



Tribes and Their Nurseries

Confederated Salish and Kootenai Tribes

- Forest and native plant nursery



Tribes and Their Nurseries

Confederated Tribes of Grand Ronde

- “Plants for people: bringing traditional ecological knowledge to restoration”
- Plant materials program
- Education
- Enhance gathering and accessibility



Photo credits: Jeremy Ojua and the CTGR

Tribes and Their Nurseries

Seneca Nation

- Native Plant Policy
- Landscaping Public Buildings
- Elder's Circle
- Youth Garden
- Community Gardens



Photo credits: Ken Parker and Seneca Nation

Tribes and Their Nurseries

Hopi Tribe

- Range restoration
- Riparian restoration
- Culturally significant plants
- Education

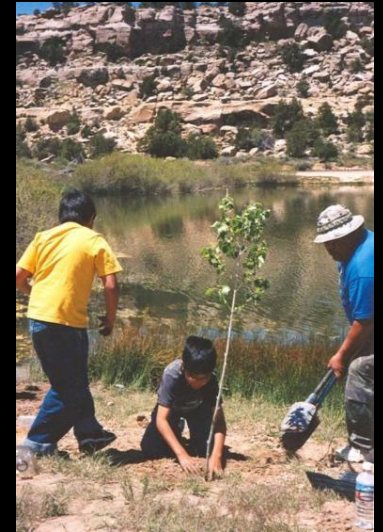


Photo credits: Steven Lomadafkie, David Steinfeld, Tom Landis, and the Hopi Tribe

Tribes and Their Nurseries

Mescalero Apache

- Forestry
- Native plants
 - Food
 - Construction materials
 - Ceremony



Photo credits: Robin Chimal and the Mescalero Apache Tribe



Tribes and Their Nurseries

Navajo

- Forest and native plant nursery



Diné Native Plants Program:
Navajo Nation Native Plant Needs
and Feasibility Assessment



Photo credits: Jesse Mike
and the Navajo Nation



Tribes and Their Nurseries

White Mountain Apache

- Forest and native plant nursery



2013 Intertribal Nursery Council



Tribes and Their Nurseries

Keweenaw Bay Indian Community

- Native plants
 - Restoration
 - Fisheries
 - Pollinators
 - Medicinal



Finding a Balance

Goal:

- Successful agroforestry practices on your land

Means:

- Use both science and Traditional Ecological Knowledge
- Research
- *Build trust*
- *Engage community*



Thank You!
Ahehee'!



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