

NCSSF Project A3: Survey the Lessons Learned About Managing Forests for Biodiversity and Sustainability Based on Practical Experiences—a project sponsored by the:



Since 1995, the SFP mission is to “... document and promote innovation in sustainable forestry and help others integrate this innovation broadly into both policy and practice.”



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NCSSF A3 Project: General Approaches and Timeline

Timeline	Project Activity				Deliverables
	Phase I	Phase II	Phase III	Phase IV	
					Phase I: Data Collection
Jul 1, 2002	X	X			 Deliverable 1  A systematic survey of biological conservation programs nationwide
	X	X			
	X	X			
	X	X	X		
	X	X	X	X	
Jan 1, 2003	X	X	X	X	Phase II: Database Development, Hypothesis Testing
					Deliverable 2
					  A multilayer database of program elements based on Montreal criteria and indicators
		X	X	X	
		X	X	X	
		X	X	X	
		X	X	X	
Jul 1, 2003			X	X	Phase III: Pilot Study: Do Forest Management Systems, Sustain Current and Future Biodiversity
					Deliverable 3
					  Critical evaluation of the efficacy of programs to provide useful information to address biodiversity
			X	X	
			X	X	
			X	X	
			X	X	
Dec 31, 2003				X	Phase IV: Information Reporting and Dissemination
					  Report and disseminate findings to diverse audiences
			X	X	
			X	X	

Phase I, Systematic Data Collection, July - Dec 2002

Describe forest biodiversity strategies used across the U.S.

- Survey major National Federal programs and NGOs, *Liegel*
- Regional assessments of State programs on public/private lands, *Fletcher-WEST, Dubois-SOUTH, Jacobson-NORTH*
- Assess how Federal, State, and other programs follow Montreal, FSC, SFI, and Heinz Criteria and Indicator systems, *Regional Coordinators*
- Develop questionnaire for regional informants that a) provides feedback on matrix table information for each organization/agency and b) evaluates effectiveness of indicator-based forest biodiversity management systems, *Kerkvliet, Luloff, Liegel, and Regional Coordinators*

Table 1. A tentative summary table characterizing key indicator elements of a database matrix for four biodiversity strategies (Montreal C&I, FSC, SFI, Heinz) implemented across four general land ownerships.

Montreal Criteria 1: Indicators	Scale and relevancy*		Data Coverage**	FSC	SFI	Heinz	Federal: FS,BLM,NPS, BIA,TVA,military	State	Local	Tribal, Other
	(S)	(R)								
Ind.1: Extent by type rel. to total area										
Ind.2: Habitat diversity (type, age, class, succ.)										
Ind.3: Protected as classified by IUCN										
Montreal Indicators 4-9 ↓ ↓										
Other ind. not specified in Montreal C&I e.g., Exotic sp.										

* (S) Scale: L, landscape; O, ownership; S, Stands

(R) Relevancy: P, policy oriented; M, management oriented; L, legally required; H, hybrid approach

** Data coverage or monitoring: 1 = Good, 2 = Moderate, 3 = Poor, and 4 = currently unavailable

Phase II, Database Development/Hypothesis Testing

Sept 2002 - May 2003

- Hire database manager, Sept 2002; *Radosevich et al.*
- Organize national and state information according to Montreal C&I, management strategies, and operational objectives for State, Federal, NGO, industry, and other forest ownerships; *Regional Coordinators, ALL review*
- Teleconference calls/e-mail correspondence with Regional expert panels and agency/organization informants to review/validate database results
Regional Coordinators, ALL review
- Examine database for differences, overlaps, and unique features:
 - H_1 : Identified forest biodiversity strategies are biologically driven
 - H_2 : Identified strategies are externally driven by factors other than biology such as economics, proximity to development, etc.
 - H_3 : Identified strategies are both biologically and externally driven
ALL review

Phase III, GIS Analyses: Can select indicators sustain current and future forest biodiversity?

Oct 2002 - Oct 2003

Hulse, Univ of Oregon + Radosevich et al. from OSU

- Define study area extent in Willamette Valley, Oct-Nov 02
- Develop “Plan Trend 2050” (present) assumptions, Nov 02
- Define “Standard Certification 2050” assumptions, Dec 02
- Define “Enhanced/Altered Certification 2050” assumptions, Jan/Feb 03
- Web-based visualizations of 3 alternatives, March-Aug 03
- Deliver Willamette Valley GIS base maps to White, Aug 03
- Explore pilot futures work in Poconos Mountains, PA, Sept-Oct 03

White, EPA-Corvallis + Radosevich et al. from OSU

- Evaluate/interpret changes in Willamette Valley vertebrate and forest species to certification standards, Sept 03
- Prepare tables/graphics of species responses, Oct 03
- Explore pilot futures work in Poconos Mountains, PA, Sept-Oct 03

Landuse and Landcover Categories

Land Use / Land Cover ca. 1990

C. Enright M. Aoki D. Oetter D. Hulse W. Cohen

Mapping LULC ca. 1990 in the WRB

The map at right represents land use/land cover in the WRB circa 1990 using 67 legend classes in five categories: built features, agriculture, natural and native vegetation, water and physiographic features, and unknown. We use the term "land use" for features of the built environment such as roads, railroads, residential, and commercial structures. The term "land cover" is used for features such as grasslands, rivers and streams. For modeling and data interpretation, the Willamette Valley Ecoregion (WVE) is used to distinguish the valley or Lowland portion of the basin from the Upland areas (pp. 48-49). This map and its legend serve as reference points for conditions in depicting the past and evaluating the alternative futures.

Mapping land use/land cover requires an abstraction of what actually exists in the landscape. The map represents each legend class as a single land use or land cover with definitive boundaries. However, any given location in the landscape may actually contain more than one land use/land cover with boundaries that are not distinct. To determine land use/land cover representation and level of detail for the map, the PNW-ERC considered both the needs of its researchers and the accuracy of available data.

The land use/land cover patterns that appear ca. 1990 are the result of both natural and cultural influences. Since the mid 19th century, Euro-American settlement of the Willamette Valley has played a major role in establishing the patterns seen in Map 24. Settlers were attracted to the Willamette Valley's mild climate, fertile soils, and abundant natural resources. The locations of early settlements were determined primarily by environmental factors, kinship affiliation and farming suitability. People settled near major rivers for transportation, on hill slopes for safety from recurrent valley floods and access to fuel and building materials, and in open areas for livestock forage and easier clearing of the land.

Establishment of communities and transportation networks as well as clearing of forests and draining of wet prairies for commercial scale agriculture have resulted in significant changes in the landscape. Much of the land cover seen in the Presettlement Vegetation ca. 1851 Map (p. 39) had been converted to land use ca. 1990. Figure 94 shows the extent of this conversion in the WVE. The land cover types listed on the horizontal axis are ca. 1851, with the colored bar above each 1851 type representing conditions ca. 1990. A notable example is an 80% conversion of the land cover area ca. 1850 in wet and dry prairie to built and agricultural land use ca. 1990.

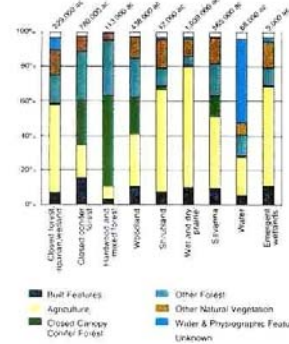


Figure 94. Conversion of land cover from ca. 1851 to ca. 1990 within the Willamette Valley Ecoregion (WVE). Labels on the horizontal axis represent land cover classes ca. 1851; the bars above represent conditions ca. 1990. Each bar represents the percentages of the 1851 class that were converted to the various ca. 1990 classes with the sum of the segments totaling 100%. Numbers at the top of each bar represent the total number of acres of each ca. 1851 land cover in WVE (rounded to the nearest thousand). Note: 2.47 acres equal 1 Hectare.

Built features

- Residential C - 4 DU ac
- Residential 4 - 9 DU ac
- Residential 9 - 16 DU ac
- Residential + 16 DU ac
- Commercial
- Commercial/Industrial
- Industrial
- Residential & commercial
- Rural structures
- Railroad
- Primary roads
- Secondary roads
- Light duty roads



Built (black)

Agriculture

- Hydro-pollar
- Grass seed rotation
- Irrigated annual rotation
- Grains
- Hay
- Barley & vernalis
- Double cropping
- Hay
- Mix
- Rubber seed
- Sugar beet seed
- How crop
- Grass
- Burned grass
- Field crop
- Hayfield
- Late field crop
- Pasture
- Rain shadow
- Irrigated perennial
- Lupinus
- Urban tree overstory
- Ostrant
- Christmas trees
- Conifer Woodlot



Agriculture (black)

Natural & native vegetation

- Upland Forest open
- Upland Forest semi-closed mixed
- Forest closed hardwood
- Forest closed mixed
- Upland Forest semi-closed conifer
- Conifers 0 - 20 yrs
- Forest closed conifer 21 - 40 yrs
- Forest closed conifer 41 - 60 yrs
- Forest closed conifer 61 - 80 yrs
- Forest closed conifer 81 - 200 yrs
- Forest closed conifer older than 200 yrs
- Upland Forest semi-closed hardwood
- Natural grassland
- Natural shrub
- Flooded marsh
- Ox. Savanna
- Wet shrub
- Wet prairie



Natural and native vegetation (black)

Water & physiographic features

- Main channel non-vegetation
- Stream outers 5 - 7
- Permanent lens water
- Topographic shadow
- Snow
- Burnt

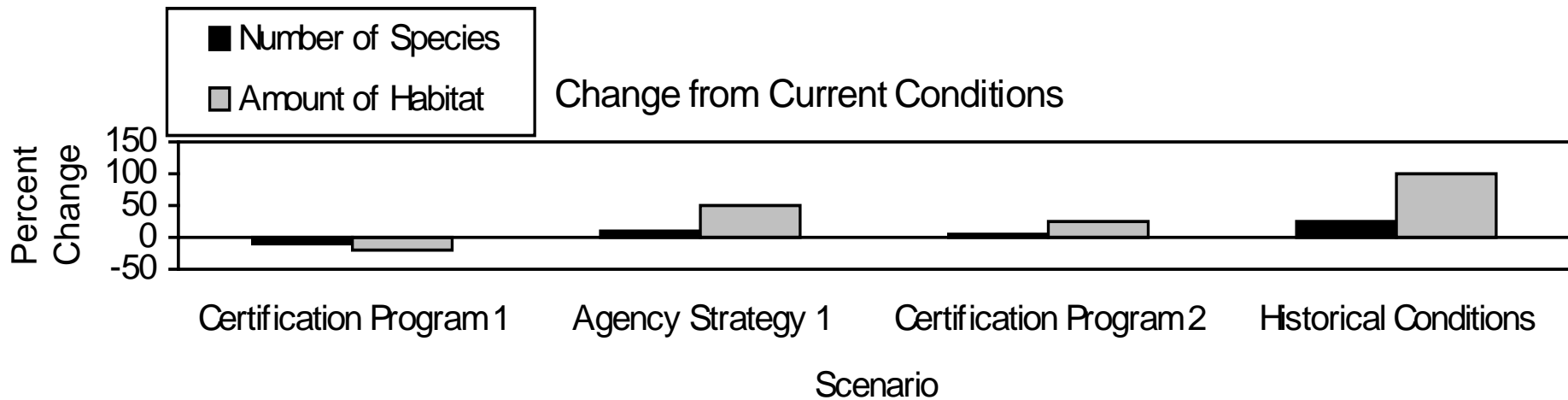


Water (black) and Unknown (black)

Unknown

- Urban non-vegetated unknown
- Rural non-vegetated unknown
- Unknown

A hypothetical example of possible biodiversity outcomes at a pilot project watershed, using two forest certification, one forest management, and historical scenarios.



Phase IV, Project Reports, Outcomes, and Information Dissemination, Sept 2002 - Dec 2003

- Post project summary/goals on National SFP web site, Sept 02
- **Phase I** Distribute Criteria and Indicator results via National SFP web site and talks by Project PI and Regional coordinators, Dec 02 – Jan 03
- **Phase II** Share results of multi-layered database and effectiveness questionnaire: Regional expert and organization informant reviews, National SFP web site, spring 03; NCSSF progress presentation May 03
- **Phase III** Distribute Willamette Valley landscape futures analyses via National SFP and Univ of Oregon web sites, October 03
- **Phase IV** Synthesis of overall project findings via a written final report and database for NCSSF, Dec 03; Regional presentations, meetings, journal, and other reports plus National SFP web site, Nov 03 – spring 04

Detailed Deliverable plan for the NCSSF-A3 project.

	Phase I- Data Collection	Phase II-Data Summary and Analysis	Phase II-Data Summary and Analysis	Phase II-Data Summary and Analysis
Expected Outcomes/Results	<ol style="list-style-type: none"> 1. List of biodiversity criteria and indicators most commonly used by various programs across the USA. 2. List of criteria and processes appropriate for evaluating impacts of forest centered biodiversity programs. 	<ol style="list-style-type: none"> 1. Multi-layered database of forest biodiversity programs and strategies in the USA. 2. Matrix summary of correlations between program criteria and survey responses. 	Computer simulations (maps, and summary tables) portraying the impact on biodiversity at the landscape scale by applying different management practices and programs associated with various owners within the landscape.	Synthesis of project findings into a published research report and several associated educational products and meetings.
Communication Methods	<ol style="list-style-type: none"> 1. Presentations at professional meetings by project P.I.'s 2. Data summary on SFP website, with announcements via e-mail 	<ol style="list-style-type: none"> 1. Database on SFP website and advertised broadly. 2. Matrix available on website and used in presentations. 	<ol style="list-style-type: none"> 1. Web-based summary of futures simulations available on SFP website. 2. Results from simulations shared at professional meetings. 	<ol style="list-style-type: none"> 1. Final report distributed via OSU- College of Forestry publications. 2. Publications: journal articles, web-based summary. 3. Regional meetings of managers and landowners 4. Professional presentations.
Audiences	<p><i>Primary:</i> Policymakers, Resource Managers</p> <p><i>Secondary:</i> Agencies, Educators</p>	<p><i>Primary:</i> Resource managers</p> <p><i>Secondary:</i> Policymakers, NGO's, Agencies, Educators</p>	<p><i>Primary:</i> Policymakers/agencies</p> <p><i>Secondary:</i> NGO's, Educators, Resource Managers</p>	<p><i>Primary:</i> NCSSF Board (final report); Resource Managers, Practitioners, Policymakers</p> <p><i>Secondary:</i> NGO's, Educators, General Public</p>
Responsibilities	<ol style="list-style-type: none"> 1. OSU will summarize criteria and place on website. 2. Program P.I.'s will make presentations in their home regions. 	OSU data manager, with input from PSU and AU.	<p><i>Content:</i> Hulse/UO team with input from AU and PSU.</p> <p><i>Production:</i> OSU and SFP webmaster.</p>	<p>Final report- Radosevich et al.</p> <p><i>Publications:</i> P.I.s and webmaster</p> <p><i>Presentations:</i> P.I.s</p> <p><i>Meetings:</i> AU-Dubois; PSU-Jacobsen; OSU-Fletcher</p>
Delivery Date(s)	January 2003	<ol style="list-style-type: none"> 1. Database and matrix- May 2003 2. PowerPoint talk for NCSSF- May 2003 	October 2003	<p>Final report- December 2003</p> <p>Publications-December 2003 and beyond</p> <p>Meetings-Winter or Spring 2004</p> <p>Presentations- Fall 2003 and beyond</p>

What's next?

- BIG project
- LOTS of people
- SHORT timeline
- Institutional ENTHUSIASM-
a National SFP research
project

