

**Final Report  
to the  
National Commission on  
Science for Sustainable Forestry**

June 30, 2005

**NCSSF Research Project C8**

**Guidelines for Participatory Biodiversity  
Inventory and Monitoring of Sustainable Forest Management**

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## **Abstract**

Monitoring biodiversity is inherently difficult because life is so diverse and budgets for monitoring are limited. This NCSSF 2005 project C8 provides managers and scientists with another tool for addressing this challenge, namely guidelines for involving the public in participatory monitoring projects. Participatory monitoring is a process that has increased in popularity and use in both developing and industrialized societies during the last several decades. It reflects the understanding that natural resource decisions are less controversial and more effective when stakeholders who have an interest in the results are involved in the process. An adequate number of participatory projects have now been implemented and evaluated to recommend a comprehensive approach to successful participatory monitoring. The guidelines we developed will help managers and scientists in the United States plan, design, document, and implement such ventures. The guidelines are designed as a how-to manual with discussions of relevant topics, checklists of important considerations to address, resources for further information, and a workbook for developing a monitoring plan and documenting its implementation. Topics are outlined in the modules that can be used in any sequence in an on-going basis. Collaboration always involves co-learning, so documenting choices, plans, and activities in the appended workbook section is integral to the guidelines' effectiveness. We also developed a modular training curriculum to familiarize managers and scientists with best use of the guidelines by providing case studies of actual participatory monitoring projects to analyze. As follow-up to this project, we intend to publish the guidelines and curriculum and then work with NCSSF and other interested parties to implement their use.

## Introduction

In June 2002, the Institute for Culture and Ecology (IFCAE) received a grant from NCSSF to study the relationship between nontimber forest products (NTFP) and biodiversity in the United States. A key finding was that national forest managers and state forestry departments currently lack the capacity to develop and implement adequate monitoring programs, but that precedents exist in other natural resource management arenas, as well as in NTFP management, for involving harvesters in participatory inventory and monitoring. Through a series of meetings with NTFP harvesters and managers, IFCAE enumerated recommendations for the establishment of participatory inventory and monitoring processes. Challenges to monitoring the vast array of NTFPs that are harvested from forests in the United States mirror the challenges of monitoring the even greater number of species (biodiversity) in any given forest ecosystem. In both cases, however, managers have a resource they can tap to help them in their task, namely other interested parties or stakeholders.

As a follow-up to IFCAE's recommendations regarding participatory monitoring, NCSSF sponsored development of these guidelines (NCSSF 2005 Project C8) as a practical tool for managers and scientists to use in their quest to sustain forest biodiversity through effective monitoring. As a companion product, these guidelines are accompanied by a teaching curriculum that training or outreach personnel can use to instruct practitioners on effective use of the guidelines for planning, designing, implementing, and documenting participatory monitoring projects.

## Purpose

Our purpose and focus in conducting this work was to provide practitioners of sustainable forestry (forest managers and scientists) with practical guidelines for how to organize public or stakeholder participation in monitoring activities. Our primary focus was on biological diversity monitoring, but the guidelines and curriculum also will be widely applicable to other forms of biological resource monitoring. We defined "participants" broadly to include individual volunteers, community groups, organizations, associations, clubs, interest groups, businesses, non-timber forest product harvesters, and any other interested stakeholders, regardless of affiliation. Likewise "participation" included the spectrum of involvement from volunteer field personnel through advisors to full collaboration and joint ownership of a monitoring project. We focused our materials on managers or scientists developing a discrete monitoring *project*, rather than larger monitoring *programs*, but many of the principles apply to the later purpose as well. Because our target managers and scientists are familiar with monitoring per se, we focused on unique aspects of involving participants in monitoring projects. Special emphasis was placed on successful collaboration and ensuring data credibility.

## Summary of Results

By soliciting feedback at four workshops and conducting an extensive literature review we developed two major documents and supporting materials.

This first document is entitled “Broadening participation in biological monitoring: guidelines for scientists and managers” (referred to as “**Guidelines**” in the remainder of this final report). In essence, it is a “how-to” manual that will help managers and prospective participants plan, design, document, and implement participatory biological monitoring projects.

The second document is entitled “Training curriculum for scientists and managers: broadening participation in biological monitoring” (referred to as “**Curriculum**” in the remainder of this final report). Units of this curriculum can be used as needed to familiarize managers and scientists with the use of the guidelines through analyses of case examples of actual participatory monitoring projects.

The content of both documents is described below. These documents will be posted on the web site of the Institute for Culture and Ecology (IFCAE) along with PowerPoint slides to introduce the importance, use, and focus of the materials. We also plan to publish the documents (see discussion of our publishing plans in Appendix 3: List of Publications). IFCAE welcomes suggestions for follow-up programs, outreach, training sessions, or activities to ensure their future use. We will be announcing the availability of these materials widely.

### Design of Guidelines

In designing the Guidelines, our approach was to:

- Divide topics in a modular format that could be used in any sequence tailored to individual needs
- For each topical module, provide sufficient discussion of the salient issues to familiarize the user with all relevant considerations
- Provide a checklist of these considerations for quick reference
- Provide source materials and links to organizations that will allow users to further investigate relevant topics
- Append a workbook formatted for developing a project plan using our guidelines to insure all important issues are addressed and documented

## Overview of Guideline topics

The following table presents our topical modules, divided into stages of a participatory monitoring project.

<b>Project Stage</b>	<b>Module name</b>	<b>Type of Information</b>
PLANNING	Documentation	Documenting a participatory monitoring project
	Goals	Determining monitoring goals
	Indicators	Selecting biological indicators
	Collaboration	Evaluating the usefulness and goals of collaboration
	Decisions	Making systematic and collaborative decisions
	Context	Evaluating the context of a participatory monitoring project
	Organization	Organizing the structure of a participatory monitoring project
	Participants	Recruiting, selecting, authorizing, and dismissing participants
	Communication	Developing good understandings and agreements
	Incentives	Understanding motivations, concerns, and anticipated benefits
	Design	Involving participants in project design
	Resources	Obtaining and allocating funds, resources, and support
IMPLEMENTATION	Training	Providing participants with requisite training
	Safety	Ensuring safety and planning for emergencies
	Field	Planning field activities
	Sampling	Developing sampling designs and data collection procedures
	Quality	Ensuring the quality and credibility of collected data
	Data	Making arrangements for handling, storing, and using data
FOLLOW- THROUGH	Analysis	Arranging for periodic data analysis
	Reporting	Arranging for reporting results
	Evaluation	Evaluating and improving the project
	Celebrations	Ensuring the project is rewarding and appreciated

## **Design of Curriculum**

Although participatory monitoring is becoming more widespread, it is unexplored territory for many managers and scientists. Given that lack of experience with participatory monitoring is common, we developed a curriculum that can be used in a one-day workshop to familiarize individuals with the full range of relevant considerations and the best use of our guidelines. This workshop is designed for use by cooperative extension, public relations, outreach, or training personnel. Intended audiences are managers and scientists interested in developing local participatory monitoring projects. The workshop helps attendees to explore the reasons for, and logistics of, participation in more detail. It also provides an opportunity for networking about projects within a specific region. In designing the curriculum our approach was to:

- Allow users to tailor the use of the curriculum to a given audience
- Provide examples of actual participatory monitoring projects for analysis, and to illustrate topics discussed in the guidelines
- Provide exercises (in small groups) to elicit audience experiences, concerns, discussion, and problem-solving strategies

## **Curriculum Units**

- Unit 1 - Introduction to participatory monitoring
- Unit 2 - Essential considerations of a participatory biological monitoring project
- Unit 3 - Participants and incentives
- Unit 4 - Building skills for a participatory monitoring project
- Unit 5 - Peer-learning for next steps

## **Approach**

### **Development of products**

To develop our products we combined an extensive literature review with feedback from individuals who have experience with participatory projects. In doing so, we included participatory projects that involved foci other than monitoring (such as resource management) and projects initiated by groups other than managers or scientists (such as community or worker organizations). Most of our research focused on literature and experiences from North America, especially the United States, but we also included a few highly relevant international organizations and publications. We did not review most of the extensive literature on the use of participatory methods in rural development programs in developing nations

because few of the publications were especially germane to NCCSF goals. We concentrated our literature search and questions for knowledgeable individuals on analyses of actual participatory projects, especially asking what worked and what did not, why, and how to make participatory projects successful.

### **Overview of contributions**

David Pilz did much of the literature review and wrote the first draft of the guidelines. Heidi Ballard and Eric Jones attended and presented at workshops where they solicited feedback. Heidi wrote the curriculum. Eric Jones provided resources, literature review, editing and writing. Heidi and Christina Getz organized the workshop in Redding CA, April 29, 2005 to obtain feedback from managers and practitioners of participatory monitoring. Heidi incorporated review comments into both documents. Dave and Eric edited the final version of the Guidelines and Christina edited the curriculum. Heidi incorporated the editorial changes.

### **Details**

in September of 2004, Heidi attended the Ford Foundation and Aspen Institute-sponsored workshop in Silver City, NM entitled "Community-Based Forestry Demonstration Program. The Many Faces of Ecological Monitoring: Purpose, Plans, and Partners." Although the workshop focused on community action groups and ecological monitoring, most of the audience and the organizations they represented were involved with collaborative monitoring with agencies or other forest managers. Heidi was able to inform this select group about our project, meet key individuals and receive feedback on the draft outline of the manual based on the lessons learned by this experienced group.

In August of 2004 Eric drafted a detailed outline of our Guidelines. In October 2004, he attended the National Network of Forest Practitioner annual meeting in Ouray, Colorado. Eric met with project advisors Ajit Krishnaswamy and Colin Donohue to update them on the project and describe our upcoming activities. He attended a panel discussion on participatory monitoring and made an announcement about the project and invited interested participants to get on our mailing list.

In November 2004, Heidi participated in the Rural Action conference entitled "Citizen Environmental Monitoring in Appalachia: Building Environmental Programs for Validity, Impact and Sustainability" held in Bristol, VA. This was the workshop we specified in our Statement of Work. Colin Donohue arranged for Heidi to lead a Roundtable session as well as present work on participatory research with nontimber forest product harvesters (at the request of Rural Action). Heidi described our project to the fifteen session attendees, all of whom have participated in or lead citizen monitoring programs. She received feedback through the discussion and via forms we had prepared to solicit lessons-learned that were relevant to our project. Attendees at this entire conference gave especially useful feedback because most were

volunteers, agency staff, or non-profit organizations that had actual experience with conducting collaborative or volunteer monitoring projects. We are following up on this workshop by contracting with Rural Action to obtain participant surveys and pertinent resource information.

In the autumn of 2004 Eric conducted a number of comprehensive interviews with representatives of key organizations and compiled much of the literature that was reviewed. In December, David, Eric, and Heidi submitted our interim report. Dave wrote the first draft of the Guidelines. On March 18, 2005 we distributed this draft copy of our Guidelines to the reviewers listed in Appendix 1 and asked them to return comments by the end of April.

Heidi, Christina, and staff members of the Extension Service, University of California organized and hosted a one-day pilot workshop (April 29, 2005) in Redding, CA. It focused on getting feedback on our Guidelines and Curriculum from public and private forest managers, agency specialists, and extension foresters, all of whom who were interested in using the products. The audience also included representatives of community groups that had experience with participatory projects. The activities and case studies in the Curriculum were also pilot-tested with this group. Attendees of this workshop also are listed in Appendix 1. Review comments were favorable and included constructive suggestions for improvement. Based on both written reviews and oral comments we have revised the draft Guidelines and Curriculum into the deliverables described in the Summary of Results and Deliverables sections of this report.

## **Deliverables**

The following items were listed as deliverables in our Statement of Work. All will be (or have been) provided in hard copy and electronic format (or both) as appropriate by June 30th.

### Deliverables and Due Dates

PowerPoint presentation and handout, Boulder meeting	June 5, 2004
Letter of Agreement (LOA) and Statement of Work (SOW)	June 30, 2004
Progress report	December 17, 2004
PowerPoint presentation of Project Results	June 4, 2005
Manual and Implementation Handbook—"Guidelines" Train the Trainer Curriculum—"Curriculum" Web Site— <a href="http://www.ifcae.org/projects/ncssf3/">http://www.ifcae.org/projects/ncssf3/</a> PowerPoint presentation about deliverables—Introduction to the Guidelines, Curriculum, and their use, to be posted on the web site along with the documents Final Report	June 30, 2005

## References

- Abbot, Joanne; Guijt, Irene. 1998.** Changing views on change: participatory approaches to monitoring the environment. Sustainable Agriculture and Rural Livelihoods (SARL) Discussion Paper 2. London: International Institute for Environment and Development. 96 p.
- Atlantic Coastal Cooperative Statistics Program. 2002.** Program design. Washington, DC. <http://www.accsp.org/pdesign.htm> (6 January 2005).
- Adler, Peter S.; Birkhoff, Juliana E. [N.d.].** Building trust: when knowledge from “here” meets knowledge from “away”. Portland, OR: The National Policy Consensus Center. [http://www.policyconsensus.org/pubs/npcc\\_pubs.html](http://www.policyconsensus.org/pubs/npcc_pubs.html) (6 January 2005).
- Baker, Nell. 2001.** Developing needs-based inventory methods for non-timber forest products: application and development of current research to identify practical solutions for developing countries. [Report on workshop organized by the European Tropical Forest Research Network, 4-5 May 2000. FAO, Rome, Italy]. London: United Kingdom Department for International Development (DFID). 95 p. <http://www.etfrn.org/etfrn/workshop/ntfp/> (6 January 2005).
- Balcazar, Fabricio E.; Keys, Christopher B.; Kaplan, Daniel L. [and others]. 1998.** Participatory action research and people with disabilities: principles and challenges. Canadian Journal of Rehabilitation. 12(2). <http://home.interlog.com/~krogh/Krogh/Pg105.html> (6 January 2005).
- Ballard, Heidi L. 2004.** Impacts of harvesting salal (*Gaultheria shallon*) on the Olympic Peninsula, Washington: harvester knowledge, science, and participation. Berkeley, CA: University of California. 213 p. Ph.D. dissertation.
- Ballard, Heidi; Kraetsch, Ralph; Huntsinger, Lynn. 2002.** Collaborative monitoring in Walnut Creek, California. In: Sandiford, R.B.; McCreary, D.; Purcell, K.L., eds. Proceedings of the fifth symposium on oak woodlands: oaks in California’s changing landscape, 22-25 October 2001. PSW-GTR-184. San Diego, California: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 617-624. <http://www.fs.fed.us/psw/publications/documents/gtr-184> (6 January 2005).
- Balmford, Andrew; Bennun, Leon; Brink, Benten [and others]. 2005.** The convention on biological diversity’s 2010 target. Science. 307: 212-213.
- Barney, Gerald O. 1980.** The global 2000 report to the President of the U.S., entering the 21st century. Volume I: The summary report special edition with the environmental projections and the government’s global model. New York: Pergamon Press. 360 p.
- Behar, Sharon. 1996.** Building a sustainable organization. Promoting watershed stewardship, Fifth National Volunteer Monitoring Conference, 3-7 August 1996, University of Wisconsin, Madison, WI. EPA 841-R-97-007. Washington, DC: Environmental Protection Agency: 3 p.
- Berg, Joy; Bradshaw, Bill; Carbone, Joe [and others]. 1998.** Decision Protocol: roadmap to the US Forest Service Decision Protocol Version 2.0. November 12, 1998. Washington, DC: Ecosystem Management Coordination, US Department of Agriculture Forest Service. <http://www.fs.fed.us/emc/nepa/includes/dp2roadmap.htm> (6 January 2005).
- Bliss, John; Aplet, Greg; Hartzell, Cate [and others]. 2001.** Community-based ecosystem monitoring. In: Gray, G.J.; Enzer, M.J.; Kusel, J., eds. Understanding community-based forest ecosystem management. New York: The Hawthorn Press: 143-167.

**Brechin, Steven R.; Wilshusen, Peter R.; Fortwangler, Crystal L. [and others]. 2002.** Beyond the square wheel: toward a more comprehensive understanding of biodiversity conservation as social and political process. *Society and Natural Resources*. 15: 41-64.

**Bramson, Robert M. 1981.** Coping with difficult people. Garden City, NY: Anchor Press/Doubleday. 226 p.

**Brinkman, Rick. 2002.** Dealing with people you can't stand: how to bring out the best in people at their worst. Revised and updated edition. New York: McGraw-Hill. 226 p.

**Canadian Information System for the Environment. 2001.** Sharing environmental decisions: final report of the Task Force on a Canadian Information System for the Environment. Hull, QC. 48 p.  
[http://www.cise-scie.ca/english/library/library\\_reports.cfm](http://www.cise-scie.ca/english/library/library_reports.cfm) (9 February 2005).

**Christoffersen, Nils D. 2003.** Rural community realignment with adjacent public lands: the case of Wallowa Resources. Turning Natural Resources into Assets Strong Communities – Sustained Livelihoods – Restored Environments, Savannah, Georgia, 14-17 October 2003. Unpublished document. On file with: Wallowa Resources, P.O. Box 274, 200 W. North St., Enterprise, OR 97828. 13 p.  
<http://www.wallowaresources.org/publications.htm> (24 January 2005).

**Collaborative Forest Restoration Program. 2003.** Multiparty monitoring and assessment guidelines for community based forest restoration in southwestern ponderosa pine forests. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwest Region, State and Private Forestry. 94 p.  
<http://www.fs.fed.us/r3/spf/cfrp/monitoring/> (6 January 2005).

**Collaborative Forest Restoration Program. 2004a.** Handbook 1 – What is multiparty monitoring? The multiparty monitoring handbook series. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwest Region, State and Private Forestry. 13 p.  
<http://www.fs.fed.us/r3/spf/cfrp/monitoring/> (6 January 2005).

**Collaborative Forest Restoration Program. 2004b.** Handbook 2 – Developing a multiparty monitoring plan. The multiparty monitoring handbook series. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwest Region, State and Private Forestry. 13 p.  
<http://www.fs.fed.us/r3/spf/cfrp/monitoring/> (6 January 2005).

**Collaborative Forest Restoration Program. 2004c.** Handbook 3 – Creative budgeting for monitoring projects. The multiparty monitoring handbook series. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwest Region, State and Private Forestry. 17 p.  
<http://www.fs.fed.us/r3/spf/cfrp/monitoring/> (6 January 2005).

**Collaborative Forest Restoration Program. 2004d.** Handbook 4 – Monitoring Ecological Effects. The multiparty monitoring handbook series. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwest Region, State and Private Forestry. 71 p.  
<http://www.fs.fed.us/r3/spf/cfrp/monitoring/> (6 January 2005).

**Collaborative Forest Restoration Program. 2004e.** Handbook 5 – Monitoring Social and Economic Effects of Forest Restoration. The multiparty monitoring handbook series. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwest Region, State and Private Forestry. 35 p.  
<http://www.fs.fed.us/r3/spf/cfrp/monitoring/> (6 January 2005).

**Collaborative Stewardship Team. 2000.** Collaborative stewardship within the Forest Service: findings and recommendations from the National Collaborative Stewardship team. Washington, DC: U.S. Department of Agriculture, Forest Service, Partnership Resource Center. 62 p.  
<http://www.partnershipresourcecenter.org/resources/pubs/index.php> (7 January 2005).

**Cornwall, A.; Jewkes, R. 1995.** What is participatory research? *Social Science and Medicine* 41 (12): 1667-1676 Dec 1995.

**Coughlin, Chrissy; Hoben, Merrick; Manskopf, Dirk [and others]. 1999.** A systematic assessment of collaborative resource management partnerships. Ann Arbor, MI: University of Michigan. M.S. Thesis. <http://www.snre.umich.edu/ecomgt/pubs/crmp.htm> (6 January, 2005).

**Daly, Carol. [N.d.]a.** The collaboration handbook. Red Lodge Clearinghouse. 40 p. <http://www.redlodgeclearinghouse.org/resources/handbook.html> (6 January 2005).

**Daly, Carol. [N.d.]b.** The collaboration handbook outline. Helena, MT: Red Lodge Clearinghouse. 14 p. <http://www.redlodgeclearinghouse.org/resources/handbook.html> (6 January 2005).

**Daly, Carol. [N.d.]c.** Frequently asked questions about collaboration. Helena, MT: Red Lodge Clearinghouse. <http://www.redlodgeclearinghouse.org/resources/faq.html#a> (6 January 2005).

**Dukes, E. Franklin; Firehock, Karen. 2001.** Collaboration: a guide for environmental advocates. Charlottesville, VA: University of Virginia, The Wilderness Society, and National Audubon Society. 72 p. <http://www.virginia.edu/ien/publications.htm> (13 January 2005).

**Dvornich, Karen M.; Tudor, Margaret; Grue, Christian E. 1995.** NatureMapping: Improving management of natural resources through public education and participation. *Wildlife Society Bulletin*. 23(4): 609-614. <http://www.fish.washington.edu/naturemapping/pubs.html> (7 January 2005).

**Elzinga, Caryl L.; Salzer, Daniel W.; Willoughby, John W. [and others]. 2001.** Monitoring plant and animal populations. Malden, MA: Blackwell Science, Inc. 360 p.

**Ecological Monitoring and Assessment Network Coordinating Office and the Canadian Nature Federation. 2003.** Improving local decision-making through community based monitoring: toward a Canadian Community Monitoring Network. Ottawa, ON. 22 p. <http://www.ccmn.ca/english/library.html> (3 February 2005).

**Engel, Sarah R.; Voshell Jr., J. Reese. 2002.** Volunteer biological monitoring: can it accurately assess the ecological condition of streams? *American Entomologist*. 48(3): 164-177.

**Everett, Yvonne. 2001.** Participatory research for adaptive ecosystem management: a case of nontimber forest products. In: Gray, G.J.; Enzer, M.J.; Kusel, J., eds. *Understanding community-based forest ecosystem management*. New York: The Hawthorn Press: 335-357.

**Federal Data Quality Legislation. 2001.** P.L. 106-554, Section 515. <http://www.thecre.com/quality/PL06-554Sec515.html> (26 January 2005).

**Forest Inventory and Analysis. [N.d.].** Forest inventory and analysis: quality assurance. Program fact sheets. Washington, DC: U.S. Department of Agriculture, Forest Service, FIA National Program Office. 2 p. <http://fia.fs.fed.us/library.htm#factsheets> (7 January 2005).

**Godfrey, Paul J. 1994.** Report on the regional conference. Shared water & common goals: enhancing partnerships in water quality monitoring and decision-making, Bedford, New Hampshire, 2 November 1993. Amherst, MA: Water Resources Research Center, University of Massachusetts. 28 p.

**Guijt, Irene; Arevalo, Mae; Saladores, Kiko. 1998.** Tracking change together. *Participatory Learning and Action (PLA Notes)*. Special Issue: Participatory Monitoring and Evaluation(31): 28-36. [http://www.iied.org/sarl/pla\\_notes/pla\\_backissues/31.html](http://www.iied.org/sarl/pla_notes/pla_backissues/31.html) (7 January 2005).

- Hanson, Steve. [N.d.]b.** Volunteer monitoring quality assurance project plan review checklist. Portland, OR: State of Oregon Department of Environmental Quality. 8 p.  
<http://www.deq.state.or.us/lab/wqm/volunteermonitoringresources.htm> (7 January 2005).
- Herman, Joan; Lyons Morris, Lynn; Fitz-Gibbon, Carol T. 1997.** Evaluator's Handbook. Los Angeles, CA: Center for the Study of Evaluation, University of California. 160 p.
- Herron, Elizabeth; Green, Linda ; Stepenuck, Kris [and others]. 2004a.** Factsheet V: Training volunteer water quality monitors effectively. Washington, DC: National Facilitation of Cooperative State Research Education Extension Service (C.S.R.E.E.S.) Volunteer Monitoring Efforts. 12 p.  
<http://www.usawaterquality.org/volunteer/links.html#manuals> (7 January 2005).
- Herron, Elizabeth; Green, Linda ; Stepenuck, Kris [and others]. 2004b.** Factsheet VI: Building credibility, quality assurance and quality control for volunteer monitoring programs. Washington, DC: National Facilitation of Cooperative State Research Education Extension Service (C.S.R.E.E.S.) Volunteer Monitoring Efforts. 14 p.  
<http://www.usawaterquality.org/volunteer/> (2 February 2005).
- Hilty, Jody; Merenlender, Adina. 2000.** Faunal indicator taxa selection for monitoring ecosystem health. *Biological Conservation*. 92 (2000):185-197.
- Hunt, Margo; Mayo, Alice; Brossman, Martin [and others]. 1996.** The volunteer monitor's guide to quality assurance project plans. EPA 841-B-96-003. Washington, DC: Office of Wetlands, Oceans, and Watersheds, United States Environmental Protection Agency. 67 p.  
<http://www.epa.gov/owow/monitoring/volunteer/gappcovr.htm> (7 January 2005).
- Jones, Eric T.; McLain, Rebecca J.; Lynch, Kathryn A. 2004.** The relationship between nontimber forest product management and biodiversity in the United States. Portland, OR: Institute for Culture and Ecology. 59 p. <http://www.ifcae.org/projects/ncssf1/index.html> (7 January 2005).
- Justice, Thomas; Jamieson, David W. 1999.** The facilitator's fieldbook: step-by-step procedures, checklists and guidelines, samples and templates. Amherst, MA: (American Management Association) HRD Press, Inc. 455 p.
- Kaner, Sam; Lind, Lenny; Toldi, Catherine; Fisk, Sarah; Berger, Duane. 1996.** Facilitator's guide to participatory decision-making. Gabriola Island, BC: New Society Publisher. 255 p.
- Keddy, Paul A. 1991.** Biological monitoring and ecological prediction from natural reserve management to national state of the environment indicators. *Monitoring for Conservation and Ecology*. In: Goldsmith, F.B. ed. London: Chapman and Hall: 249-267.
- Kelly, John R.; Harwell, Mark A. 1990.** Indicators of ecosystem recovery. *Environmental Management* 14(5): 527-545.
- Kerns, B. K.; Liegel, L.; Pilz, D.; Alexander, S. J.. 2002.** Biological inventory and monitoring. In: Jones, E.; McLain, R.; Weigand, J. eds. *Non Timber Forest Products in the United States*. Lawrence, KS: University Press of Kansas: 237-269.
- Krishnaswamy, Ajit. 2004.** Participatory research: strategies and tools. *Practitioner: Newsletter of the National Network of Forest Practitioners*. 22: 17-22.  
<http://www.nnfp.org/content/newsletter.html> (16 February 2005)
- Kusel, Jonathan; Williams, Lee; Keith, Diana [and others]. 2000.** A report on all-party monitoring and lessons learned from the pilot projects. Technical Report 101-2000. Taylorsville, CA: Forest Community Research. 27 p.  
<http://www.fcresearch.org/HTML/AboutUs/Publications.html> (7 January 2005).

- Lawrence, Anna. 2003.** The unmeasurable whole: assessing forest biodiversity with multiple stakeholders. XII World Forestry Conference, 21–28 September 2003, Québec City, Canada. Québec City, QC: Food and Agriculture Organization of the United Nations.  
<http://www.fao.org/DOCREP/ARTICLE/WFC/XII/0822-B1.HTM> (7 January 2005).
- Lawrence, Anna; Ambrose-Oji, Bianca. 2001.** Participatory assessment, monitoring and evaluation of biodiversity: the art and the science. A background paper for the EFRN workshop on participatory monitoring and evaluation of biodiversity (PAMEB). Oxford, UK: Environmental Change Institute. 24 p.  
<http://www.eci.ox.ac.uk/humaneco/etfrn.html> (7 January 2005).
- Lengeler, Jane Carter [N.d.].** Theme 2: Participatory approaches to forest management. In: Earthwatch Institute. Local people's participation in forest resource assessment: a review of field experience. Oxford, UK: Earthwatch Institute.  
<http://www.earthwatch.org/europe/limbe/localpeops.html#top> (7 January 2005).
- Liegel, L.H.; Pilz, D.; Love, T.; Jones, E. 1998.** Integrating biological, socioeconomic, and managerial methods and results in the MAB mushroom study. In: Liegel, L.H. compiler. The biological, socioeconomic, and managerial aspects of chanterelle mushroom harvesting: The Olympic Peninsula, Washington State, U.S.A. AMBIO, A Journal of the Human Environment. Special Report Number 9, September, 1998. Stockholm, Sweden: Royal Swedish Academy of Sciences: 26-33.
- Lindenmayer, D.B. 1999.** Future directions for biodiversity conservation in managed forests: indicator species, impact studies and monitoring programs. *Forest Ecology and Management*. 115: 277-287.
- Lovejoy, Thomas E. 1997.** Biodiversity: what is it? In: Reaka-Kudla, M.L.; Wilson, D.E.; Wilson, E.O., eds. *Biodiversity II*. Washington, D.C.: Joseph Henry Press: 7-14.
- Lund, H. Gyde (ed.) 1998.** IUFRO guidelines for designing multipurpose resource inventories: a project of IUFRO research group 4.02.02. Vienna: International Union of Forestry Research Organizations. 216 p.
- Lynch, Kathryn A. 2004.** Workshop guide and proceedings: harvester participation in inventory and monitoring of nontimber forest products. Portland, OR: Institute for Culture and Ecology. 151 p.  
<http://www.ifcae.org/projects/ncssf1/index.html> (7 January 2005).
- Lynch, Kathryn A.; Jones, Eric T.; McLain, Rebecca J. 2004.** Nontimber forest product inventorying and monitoring in the United States: rationale and recommendations for a participatory approach. Portland, OR: Institute for Culture and Ecology. 50 p.  
<http://www.ifcae.org/projects/ncssf1/index.html> (7 January 2005).
- McNamara, Carter. [N.d.].** Developing and managing volunteer programs. Free Management Library. Minneapolis, MN: Authenticity Consulting, LLC.  
<http://www.managementhelp.org/staffing/outsrcng/volnteer/volnteer.htm#anchor140375> (25 January 2005).
- McNeely, Jeffrey A. 1995.** Expanding partnerships in conservation. Washington, DC: Island Press. 302 p.
- Montréal Process Working Group. 1999.** Criteria and indicators for the conservation and sustainable management of temperate and boreal forests. 2<sup>nd</sup> ed. Ottawa, ON: Montréal Process Liaison Office.  
<http://www.mpci.org/> (10 January 2005)
- Moote, Ann; Becker, Dennis (eds.) 2003.** Exploring barriers to collaborative forestry: report from a workshop held at Hart Prairie, Flagstaff, Arizona. 17–19 September 2003. Flagstaff, AZ: Ecological Restoration Institute. 24 p.  
<http://www.eri.nau.edu/forms/index.aspx> (10 January 2005).

**Moote, Ann; Loucks, Andrea Bedell 2003.** Policy challenges for collaborative forestry: a summary of previous findings and suggestions. Prepared for: Policy dialogue on collaborative forestry, Flagstaff, Arizona, September 2003. Flagstaff, AZ: Ecological Restoration Institute. 13 p.  
<http://www.eri.nau.edu/forms/index.aspx> (10 January 2005).

**Morrison, Michael L.; Marcot, Bruce G. 1995.** An evaluation of resource inventory and monitoring program used in National Forest planning. *Environmental Management* 19(1): 147-156.

**Moseley, Cassandra; Wilson, Lisa J. 2002.** Multiparty monitoring for sustainable natural resource management. Hayfork, CA; Watershed Research and Training Center and Eugene, OR: Ecosystem Workforce Program, University of Oregon. 13 p.  
<http://ewp.uoregon.edu/guidebook/> (10 January 2005).

**Mueller, Gregory M.; Bills, Gerald F.; Foster, Mercedes S., eds. 2004.** Biodiversity of fungi: inventory and monitoring methods. New York: Elsevier Academic Press. 777 p.

**National Commission on the Science for Sustainable Forestry (NCSSF). 2005.** Science, biodiversity, and sustainable forestry: a findings report of the National Commission on the Science of Sustainable Forestry (NCSSF). Washington, DC. 52 p.

**National Forest Foundation. [In preparation].** Partnership Guide. On file with: National Forest Foundation, Building 27, Suite #3, Fort Missoula Road, Missoula, MT 59804.  
[http://www.natlforests.org/about\\_us\\_pub.html](http://www.natlforests.org/about_us_pub.html) (10 January 2005).

**Natural Resources Conservation Service [N.d.].** Title 360 – Human Resources, Part 428 – National NRCS Volunteer Services – Earth Team. Unpublished document. On file with: Natural Resources Conservation Service, Conservation Communications Staff, P.O. Box 2890, Washington, DC 20013.  
[http://policy.nrcs.usda.gov/scripts/lpsiiis.dll/GM/gm\\_360\\_428.htm](http://policy.nrcs.usda.gov/scripts/lpsiiis.dll/GM/gm_360_428.htm) (24 January 2005).

**North-South Environmental, Inc. 2004.** Enhancing community based monitoring in Canada: the role of Environmental Canada. Burlington, ON: Ecological Monitoring and Assessment Network-Coordinating Office. 30 p. <http://www.eman-rese.ca/eman/reports/publications/2004/ecbm/intro.html> (3 February 2005).

**Noss, Reed F. 1990.** Indicators for monitoring biodiversity: a hierarchical approach. *Conservation Biology* 4(4): 355-364.

**Noss, Reed F.; Cooperrider, Allen Y. 1994.** Saving nature's legacy: protecting and restoring biodiversity [Defenders of Wildlife]. Washington, DC: Island Press. 416 p.

**Office of Management and Budget. 2002.** Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies; notice; republication. *Federal Register*. 67(36): 8452-8460.  
<http://www.whitehouse.gov/omb/inforeg/infopoltech.html#dq> (26 January 2005).

**Ottke, Christian; Kristensen, Peter; Maddox, David [and others]. 2000.** Monitoring for impact: lessons on natural resources monitoring from 13 NGOs. Washington, DC: World Resources Institute. 90 p.  
[http://biodiv.wri.org/pubs\\_description.cfm?PubID=3003](http://biodiv.wri.org/pubs_description.cfm?PubID=3003) (10 January 2005).

**Pollard, J.E.; Smith, W.; Palmer, C.E. 1999.** Forest Health Monitoring 1999 plot component quality assurance implementation plan. Research Triangle Park, NC: U.S. Department of Agriculture, Forest Service, National Forest Health Monitoring Program. 66 p.  
[http://www.fs.fed.us/institute/about/design\\_qual.html](http://www.fs.fed.us/institute/about/design_qual.html) (10 January 2005).

**Resolve [N.d.].** US Forest Service: Partnership capacity assessment tool. Washington, DC: Resolve, Inc. 23 p. <http://www.partnershipresourcecenter.org/resources/tools/index.php> (25 January 2005).

**Russo, J. Edward; Schoemaker, Paul J.H. 1989.** Decision traps: the ten barriers to brilliant decision-making and how to overcome them. New York: Simon and Schuster. 280 p.

**San Bernardino National Forest. 2002.** Volunteer safety program desk guide. Unpublished document. On file with: San Bernardino National Forest, 1824 S Commercenter Circle, San Bernardino, CA 92408.

**Savan, Beth; Morgan, Alexis J.; Gore, Christopher 2003.** Volunteer environmental monitoring and the role of the universities: the case of Citizens' Environment Watch. *Environmental Management*. 31(5): 561-568.

**The Secretariat of the Convention on Biological Diversity. 2001a.** Handbook of the convention on biological diversity. London: Earthscan.

**The Secretariat of the Convention on Biological Diversity. 2001b.** Sustainable Management of Non-Timber Forest Resources. (CBD Technical Series no. 6). Montreal  
<http://www.biodiv.org/doc/publications/cbd-ts-06.pdf> (15 January 2005).

**The Secretariat of the Convention on Biological Diversity. [N.d.].** Sustaining life on Earth. Convention on biological diversity. Montreal, QC.  
<http://www.biodiv.org/programmes/outreach/awareness/publications.asp> (6 January 2005).

**Schmoldt, Daniel L.; Peterson, David L.; Smith, Robert L. 2001.** The analytic hierarchy process and participatory decision-making. In: Power, J.M.; Strome, M.; Daniel, T.C., eds. Proceedings: Decision Support - 2001, Volume 1, Combined events of the 17th Annual Geographic Information Seminar and the Resource Technology '94 Symposium. Delta Chelsea Inn, Toronto, Ontario, 12-16 September 1994. Bethesda, MA: American Society for Photogrammetry and Remote Sensing.

**Schreuder, Hans, T.; Ernst, Richard; Ramirez-Maldonado, Hugo. 2004.** Statistical techniques for sampling and monitoring natural resources. Gen. Tech. Rep. RMRS-GTR-126. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 111 p.  
[http://www.fs.fed.us/rm/main/pubs/electronic/rmrs\\_gtr.html](http://www.fs.fed.us/rm/main/pubs/electronic/rmrs_gtr.html) (10 January 2005).

**Sirmon, Jeff M.; Rana, N.; Kostishack, P. 2002a.** Report to the USDA Forest Service on Phase I of the Partnership Development Program, Contract #: 43-9138-2-3120. Washington, DC: Pinchot Institute for Conservation. 20 p. <http://www.partnershipresourcecenter.org/resources/npo/index.php> (10 January 2005).

**Sirmon, Jeff M.; Rana, N.; Kostishack, P. 2002b.** Report to the USDA Forest Service on Phase II Of The Partnership Development Program "learn while doing:" a model for working in collaboration and through partnerships, Contract #: 43-9138-2-3120. Washington, DC: Pinchot Institute for Conservation. 35 p. <http://www.partnershipresourcecenter.org/resources/npo/index.php> (10 January 2005).

**Sithole, Bevyne. 2002.** Where the power lies: multiple stakeholder politics over natural resources. Jakarta, Indonesia: Center for International Forestry Research. 87 p.

**Stockdale, M.C.; Corbet, J.M.S. 1999.** Participatory inventory: a field manual written with special reference to Indonesia. Tropical Forestry Papers No. 38. Oxford, UK: Oxford Forestry Institute, Department of Plant Sciences, University of Oxford. 383 p.

**Sullivan, Patrick (chair). 2000.** Improving the collection, management, and use of marine fisheries data. Committee On Improving The Collection And Use Of Fisheries Data. Washington, DC: National Academy Press. <http://www.nap.edu/books/0309070856/html/> (6 January 2005).

**The Volunteer Monitor. [N.d.]** The National Newsletter of the Volunteer Water Quality Monitoring Program. <http://www.epa.gov/owow/monitoring/volunteer/issues.htm> (10 January 2005).

**University of Maine Cooperative Extension and Sea Grant Program, Maine Coastal Program of the Maine State Planning Office. [N.d.].** Environmental stewardship in the Gulf of Maine: a coordinator's manual for volunteer monitoring. Waldoboro, ME. 79 p. & appendices. Unpublished document. On file with: University of Maine Cooperative Extension, Know-Lincoln County Office, 377 Manktown Road, Waldoboro, ME 04572.

**U. S. Department of Agriculture. [N.d.].** Quality of information guidelines. Washington, DC: Office of the Chief Information Officer. [http://www.ocio.usda.gov/qi\\_guide/index.html](http://www.ocio.usda.gov/qi_guide/index.html) (25 January 2005).

**U. S. Department of Agriculture, Forest Service. 2004.** Managing volunteers: a field guide for USDA Forest Service volunteer coordinators, R6/PNW. Unpublished document. On file with: The Volunteer Program, USDA Forest Service, Human Resources Staff, P.O. Box 3623, Portland, OR 97208. <http://www.partnershipresourcecenter.org/resources/volunteers/index.php> (16 February 2005)

**U.S. Environmental Protection Agency. 2001a.** EPA requirements for quality assurance project plans. In: EPA QA/R-5 Quality System Series. Washington, DC: Office Of Environmental Information. 40 p. <http://www.epa.gov/quality/qmps.html> (7 January 2005).

**U.S. Environmental Protection Agency. 2001b.** Checklist for reviewing EPA quality management plans. Washington, DC: Office Of Environmental Information. 13 p. <http://www.epa.gov/quality/qmps.html> (7 January 2005).

**U.S. Environmental Protection Agency. 2002.** Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity, of information disseminated by the Environmental Protection Agency. EPA/260R-02-008. Washington, DC: Office Of Environmental Information. 61 p. <http://www.epa.gov/quality/informationguidelines/> (7 January 2005).

**Voluntary Sector Initiative. 2001.** An accord between the government of Canada and the voluntary sector. Ottawa, ON. 16 p. <http://www.vsi-isbc.ca/eng/relationship/accord.cfm> (9 February 2005).

**Voluntary Sector Initiative. 2002a.** A code of good practice on policy dialogue. Ottawa, ON. 16 p. <http://www.vsi-isbc.ca/eng/relationship/accord.cfm> (9 February 2005).

**Voluntary Sector Initiative. 2002b.** A code of good practice on funding. Ottawa, ON. 26 p. <http://www.vsi-isbc.ca/eng/relationship/accord.cfm> (9 February 2005).

**Whitman and Hagan. 2004.** Biodiversity indicators for sustainable forestry: final report to the National Commission on the Science for Sustainable Forestry. Bruswick, ME: Manomet Center for Conservation Sciences. <http://www.manometmaine.org> (9 February 2005).

**Wilson, E.O. ed., Peter, Frances M. assoc. ed.** 1988. Biodiversity. Washington, DC. National Academy Press. <http://books.nap.edu/books/0309037395/html/R1.html> (10 January 2005)

**Wondolleck, Julia; Yaffee, Steven L. 2000.** Making collaboration work: lessons from innovation in natural resource management. Washington, DC: Island Press. 277 p.

**Wong, Jennifer L.G. 2000.** The biometrics of non-timber forest product resource assessment: a review of current methodology. [Background paper for the European Tropical Forest Research Network Workshop: Developing Needs-Based Inventory Methods For Non-Timber Forest Products, FAO, Rome, Italy, 4-5 May 2000]. London, UK: United Kingdom Department for International Development (DFID). 62 p. <http://www.etfrn.org/etfrn/workshop/ntfp/> (10 January 2005).

**Wong, Jennifer L.G.; Thornber, Kirsti; Baker, Nell. 2001.** Resource assessment of non-wood forest products. Rome, Italy: Food and Agriculture Organization of the United Nations. 109 p.

**Wong, J. L. G.; Healy, J.R.; Phillips, O.L. 2002.** Introduction to theme 2: incorporating values into biodiversity assessment and monitoring – an introduction to some current issues. Participatory Assessment, Monitoring and Evaluation of Biodiversity (PAMEB) internet workshop, 7-25 January 2002 and policy seminar 21 May 2002. University of Oxford: Environmental Change Institute.  
<http://www.etfrn.org/etfrn/workshop/biodiversity/index.html> (10 January 2005).

**Working Group on Criteria and Indicators. 2001.** Scaling national criteria and indicators to the local level. Ottawa, ON: Science Branch, Canadian Forest Service, Natural Resources Canada.  
[http://www.mpci.org/rep-pub/2001/2001scaling\\_e.pdf](http://www.mpci.org/rep-pub/2001/2001scaling_e.pdf) (25 May 2005)

**Wright, Pam. [N.d.]** Program guidance for development of a forest/grassland monitoring and evaluation program. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Inventory and Monitoring Institute, Forest Monitoring Group. 66 p. [plus Appendix F].  
[http://www.fs.fed.us/institute/lucid/final\\_report/Desk\\_Guide.htm](http://www.fs.fed.us/institute/lucid/final_report/Desk_Guide.htm) (10 January 2005).

**Yaffee, Steven L. 2002.** Benefits of collaboration. Ann Arbor, MI: Ecosystem Management Initiative, School of Natural Resources and Environment, University of Michigan. 4 p.  
<http://www.snre.umich.edu/ecomgt/lessons/why.htm> (10 January 2005).

**Yaffee, Steven L.; Wondolleck, Julia M. 2000.** Making collaboration work: lessons from a comprehensive assessment of over 200 wide-ranging cases of collaboration in environmental management. *Conservation Biology in Practice*. 1(1): 17-25.  
<http://www.snre.umich.edu/ecomgt/pubs/articles.htm> (10 January 2005).

## Organizations

### **Appalachian Forest Resource Center (AFRC)**

#### **Rural Action**

PO Box 157

Trimble OH 45782

Phone: 740.767.4938

Fax: 740.767.4957

Email: [colind@ruralaction.org](mailto:colind@ruralaction.org)

URL: <http://www.appalachianforest.org/>

### **Atlantic Coastal Cooperative Statistics Program (ACCSP)**

1444 "Eye" Street NW, Ste 410

Washington, DC 20005

Phone: 202.216.5690

Fax: 202.289.7265

Email: [support@accsp.org](mailto:support@accsp.org)

URL: <http://www.accsp.org/>

### **Biodiversity Virtual Resources, Inc.**

[No street address]

Ottawa-Hull, ON

Canada

Phone: 613.294.9014

Email: [info@bvrr.com](mailto:info@bvrr.com)

URL: <http://www.bvrr.com/>

### **Canadian Community Monitoring Network (CCMN)**

*Canadian Nature Federation*

Suite 606, 1 Nicholas Street,

Ottawa, Ontario, Canada K1N 7B7

Phone: 800.267.4088.

Fax: 613.562.3371

URL: <http://www.ccmn.ca/english/>

<http://www.ccmn.ca/english/tools.html> (toolkit)

### **Canadian Information System for the Environment (CISE)**

Environment Canada

70 Crémazie, 7th Floor

Gatineau (Quebec) K1A 0H3

Phone: (819) 934-1004

Fax: (819) 994-5738

Email: [cisesecc@ec.gc.ca](mailto:cisesecc@ec.gc.ca)

URL: <http://www.cise-scie.ca/english/home.cfm>

### **Center for International Forestry Research (CIFOR)**

P.O. BOX 6596, JKPWB

Jakarta 10065

Indonesia

Phone: +62 251.622.622

Fax: +62 251.622.100

Email: [cifor@cgiar.org](mailto:cifor@cgiar.org)

URL: <http://www.cifor.cgiar.org/>

**Collaborative Forest Restoration Program  
State and Private Forestry**

U.S. Department of Agriculture, Forest Service  
Southwest Region  
333 Broadway SE  
Albuquerque, NM 87102  
Phone: 505.842.3292  
URL: <http://www.fs.fed.us/r3/spf/cfrp/index.shtml>

**Community-Based Collaboratives Research Consortium**

c/o University of Virginia  
164 Rugby Road  
Charlottesville, VA 22903  
Phone: 434.924.5041  
Email: [cbcrc@virginia.edu](mailto:cbcrc@virginia.edu)  
URL: <http://www.cbcrc.org>  
<http://www.cbcrc.org/php-bin/resources/resourceSearch.php> (bibliographic database)

**Cooperative State Research, Education, and Extension Service (CSREES)  
Volunteer Water Quality Monitoring National Facilitation Project**

U.S. Department of Agriculture  
Program Leader's Office  
Mail Stop 2210  
1400 Independence Avenue, SW  
Washington, D.C. 20250-2210  
URL: <http://www.usawaterquality.org/volunteer/>

**Earthwatch Institute (Europe)**

267 Banbury Road  
Oxford, OX2 7HT  
UK  
Phone: +44 (0) 1865.3188-38  
Fax: +44 (0) 1865.311383  
Email: [info@earthwatch.org.uk](mailto:info@earthwatch.org.uk)  
URL: <http://www.earthwatch.org/europe>

**Ecological Monitoring and Assessment Network (EMAN)  
(Citizen Science)**

Coordinating Office  
Environment Canada  
Canada Centre for Inland Waters  
867 Lakeshore Road  
Burlington, Ontario, CANADA  
L7R 4A6  
Phone: 905.336.4414  
Fax: 905.336.4499  
Email: [eman@ec.gc.ca](mailto:eman@ec.gc.ca)  
URL: <http://www.eman-rese.ca/>

**Ecological Restoration Institute (ERI)**

P.O. Box 15017  
Flagstaff, AZ 86011-5017  
Phone: 928.523.7182  
Fax: 928.523.0296  
Email: [eri-info@for.nau.edu](mailto:eri-info@for.nau.edu)  
URL: <http://www.eri.nau.edu/index.aspx>

**Ecosystem Management Initiative (EMI)**

School of Natural Resources and Environment  
University of Michigan  
Dana Building  
430 E. University  
Ann Arbor, MI 48109-1115  
Phone: 734.615.6431.  
Fax: 734.615.7100  
URL: <http://www.snre.umich.edu/ecomgt/index.htm>

**Ecosystem Workforce Program**

Institute for a Sustainable Environment  
130 Hendricks Hall  
5247 University of Oregon  
Eugene, OR 97403-5247  
Phone: 541.346.0676  
Fax: 541.346.2040  
URL: <http://ewp.uoregon.edu/guidebook/>

**Environmental Change Institute**

University of Oxford  
1a Mansfield Road  
Oxford OX1 3SZ  
UK  
Phone: +44 (0) 1865.281180  
Fax: +44 (0) 1865.281202 or 281181  
Email: [enquiries@eci.ox.ac.uk](mailto:enquiries@eci.ox.ac.uk)  
URL: <http://www.eci.ox.ac.uk/index.html>

**Environmental Protection Agency Quality System**

U.S. Environmental Protection Agency (EPA)  
Quality Staff (2811R)  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460  
Phone: 202.564.6830  
Fax: 202.565.2441  
Email: [quality@epa.gov](mailto:quality@epa.gov)  
URL: <http://www.epa.gov/quality/index.html>

**European Tropical Forest Research Network (ETFRN)**

c/o The Tropenbos Foundation  
P.O. Box 232  
6700 AE Wageningen  
The Netherlands  
Phone: +31 317.495516  
Fax: +31 317.495521  
Email: [etfrn@etfrn.org](mailto:etfrn@etfrn.org)  
URL: <http://www.etfrn.org/etfrn/>

**Food and Agriculture Organization of the United Nations (FAO)**

Forestry Department  
Viale delle Terme di Caracalla  
00100 Rome, Italy  
URL: <http://www.fao.org/forestry/index.jsp>

**Forest Community Research**

P.O. Box 11  
4438 Main Street  
Taylorsville, CA 95983  
Phone: 530.284.1022  
Email: [webmaster@fcresearch.org](mailto:webmaster@fcresearch.org)  
URL: <http://www.fcresearch.org/index.html>

**Forest Guild**

P. O. Box 519  
Santa Fe, NM 87504  
Phone: 505.983.8992  
Fax: 505.986.0798  
Email: [info@forestguild.org](mailto:info@forestguild.org)  
URL: [www.forestguild.org](http://www.forestguild.org)

**Forest Inventory and Analysis**

U.S. Department of Agriculture, Forest Service  
1400 Independence Ave., SW  
Washington, D.C.  
20250-0003  
Phone: 703.605.4177  
URL: <http://fia.fs.fed.us/>

**Four Corners Institute**

1477 1/2 Canyon Road  
Santa Fe, New Mexico  
Phone: 505.983.8515  
Email: [forests@ucla.edu](mailto:forests@ucla.edu)  
URL: <http://www.fourcornersinstitute.org/>

**Free Management Library**

Authenticity Consulting, LLC  
4008 Lake Drive Avenue North  
Minneapolis, MN 55422-1508  
Phone: 800.971.2250  
Fax: 763.592.1661  
Email: [carter@authenticityconsulting.com](mailto:carter@authenticityconsulting.com)  
URL: <http://www.authenticityconsulting.com/>

**Institute for Culture and Ecology (IFCAE)**

P.O. Box 6688  
Portland, OR 97228-6688  
Phone: 503.331.6681  
Email: [ifcae@ifcae.org](mailto:ifcae@ifcae.org)  
URL: <http://www.ifcae.org/>

**Institute for Environmental Negotiation**

164 Rugby Road  
P.O. Box 400179  
Charlottesville, VA 22904-4179  
Phone: 434.924.1970  
Fax: 434.924.0231  
Email: [envneg@virginia.edu](mailto:envneg@virginia.edu)  
URL: <http://www.virginia.edu/ien/about.htm>

**Inventory and Monitoring Institute (IMI)**

U.S. Department of Agriculture, Forest Service  
Natural Resources Research Center  
2150 Centre Ave. Building A  
Fort Collins, CO 80526  
URL: <http://www.fs.fed.us/institute/index.html>

**Montréal Process Liaison Office**

8th Floor, Sir William Logan Building,  
580 Booth Street  
Ottawa, Ontario  
CANADA K1A 0E4  
Phone: 613.947.9061  
Fax: 613.947.9033  
URL: <http://www.mpci.org/>

**National Biological Information Infrastructure (NBII)****National Program Office**

USGS Biological Informatics Office  
302 National Center  
Reston, Virginia 20192  
Phone: 703.648.6244  
Fax: 703.648.4224  
URL: <http://www.nbio.gov/index.html>  
<http://www.nbio.gov/issues/biodiversity/> (organizations working on biodiversity)  
<http://www.nbio.gov/datainfo/metadata/> (concise definition of metadata)

**National Commission on Science for Sustainable Forestry (NCSSF)**

1707 H Street N.W., Suite 200  
Washington, DC 20006-3918  
Phone: 202.207.0006  
Fax: 202.628.4311  
URL: <http://www.ncseonline.org/NCSSF/>

**National Council for Science and the Environment (NCSE)**

1707 H Street N.W., Suite 200  
Washington, DC 20006-3918  
Phone: 202.530.5810  
Fax: 202.628.4311  
Email: [info@NCSEonline.org](mailto:info@NCSEonline.org)  
URL: <http://NCSEonline.org/>

**NatureMapping Program**

University of Washington, Washington Cooperative Fish & Wildlife Research Unit  
Box 357980  
Seattle, WA 98195  
206.543.6475  
Washington Department of Fish and Wildlife, Ecosystems Education,  
600 Capitol Way N.  
Olympia, WA 98501  
Phone: 360.586.3105  
URL: <http://www.fish.washington.edu/naturemapping/>

**National Forest Foundation**

Building 27 Suite #3  
Fort Missoula Road  
Missoula, MT 59804  
Phone: 406.542.2805  
Fax: 406.542.2810  
Email: [info@natforests.org](mailto:info@natforests.org)  
URL: <http://www.natforests.org/index.html>

**National Forest Health Monitoring Program (FHM)**

USDA Forest Service  
1992 Folwell Avenue  
St. Paul, MN 55108  
Phone: (651) 649-5243  
FAX: (651) 649-5238  
URL: <http://fhm.fs.fed.us/>

**National Network of Forest Practitioners**

305 Main Street  
Providence, RI 02903  
Phone: 401.273.6507  
Fax: 401.273.6508  
URL: <http://www.nnfp.org/index.html>

**National Partnership Office  
Partnership Resource Center**

U.S. Department of Agriculture, Forest Service  
National Partnership Office  
201 14th St. SW  
PL&C - 5NW  
Washington, DC 20024  
Phone: 202.205.1072  
URL: <http://www.fs.fed.us/aboutus/partnership/index.shtml>  
URL: <http://www.partnershipresourcecenter.org/> (online resources)

**National Woodland Owners Association (NWOA)**

374 Maple Ave. E  
Suite 310  
Vienna, VA 22180  
Phone: 800.476.8733  
Fax: 703.281.9200  
Email: [info@woodlandowners.org](mailto:info@woodlandowners.org)  
URL: <http://www.woodlandowners.org/>

**Northwest Connections**

Community Based Conservation and Education  
P.O. Box 1309  
Swan Valley, MT 59826  
Phone: 406.754.3185  
Fax: 406.754.3185  
Email: [nwc@montana.com](mailto:nwc@montana.com)  
URL: <http://www.northwestconnections.org/index.htm>

**Oregon Department of Environmental Quality****Volunteer Monitoring Resources**

811 SW Sixth Avenue  
Portland, OR 97204-1390  
Phone: 800.452.4011  
Fax: 503.229.6124  
Email: [deq.info@deq.state.or.us](mailto:deq.info@deq.state.or.us)  
URL: <http://www.deq.state.or.us/lab/wqm/volunteermonitoringresources.htm>

**Pacific Northwest Research Station (PNW)**

U.S. Department of Agriculture, Forest Service  
333 SW First Avenue  
Portland, OR 97204  
Phone: 503.808.2592  
URL: <http://www.fs.fed.us/pnw/>

**Pacific Southwest Research Station (PSW)**

U.S. Department of Agriculture, Forest Service  
800 Buchanan Street  
West Annex Building  
Albany, CA 94710-0011  
Phone: 510.559.6300  
URL: <http://www.fs.fed.us/psw/>

**Participatory Learning and Action Notes**

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International Institute for Environment and Development  
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Email: [sustag@iied.org](mailto:sustag@iied.org)  
URL: [http://www.iied.org/sarl/pla\\_notes/index.html](http://www.iied.org/sarl/pla_notes/index.html)

**Pinchot Institute for Conservation**

1616 P Street  
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Washington, DC 20036  
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**Policy Consensus Initiative**

P.O. Box 1762  
Portland, OR 97207  
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**Red Lodge Clearinghouse**

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URL: <http://www.redlodgclearinghouse.org/>

**Resolve, Inc.**

Washington, DC Office  
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Washington, DC 20037  
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Fax 202.338.1264  
Email: [info@resolv.org](mailto:info@resolv.org)  
URL: <http://www.resolv.org/index.html>

**Rocky Mountain Research Station (RMRS)**

USDA Forest Service -  
Natural Resources Research Center  
2150 Centre Avenue, Building A  
Fort Collins, CO 80526-8121  
Phone: 970.295.5926  
Fax: 970.295.5927  
URL: <http://www.fs.fed.us/rm/main/headquarters.html>

**Secretariat of the Convention on Biological Diversity**

United Nations Environmental Programme  
World Trade Centre  
393 St Jacques Street, Office 300,  
Montreal, Quebec, Canada H2Y 1N9  
Phone: 514.288.2220  
Fax: 514.288.6588  
Email: [secretariat@biodiv.org](mailto:secretariat@biodiv.org)  
URL: <http://www.biodiv.org>

**Southern Appalachian Volunteer Environmental Monitoring (SAVEM)**

Southern Appalachian Man and the Biosphere  
314 Conference Center Building  
Knoxville, TN 37996-4138  
Phone: 865.974.4583  
Fax: 865.974.4609  
Email: [samab@utk.edu](mailto:samab@utk.edu)  
URL: <http://samab.org/Focus/Monitor/monitor.html>

**Voluntary Sector Initiative (VSI) - Voluntary Sector Forum**

85 Albert Street, Suite 1110  
Ottawa, K1P 6A4  
Phone: 800.821.8814  
Fax: 613 238-9300  
Email: [info@vsi-isbc.org](mailto:info@vsi-isbc.org)  
URL: <http://www.vsi-isbc.ca/eng/>

**Voluntary Sector Initiative (VSI) - Government of Canada Voluntary Sector Affairs Division**

140 promenade du Portage, 5th Floor  
Gatineau, Quebec K1A 0J9  
Phone: 819.956.6715  
Fax: 819.997.1359  
E-mail: [vsi-isbc@sdsc-dsc.gc.ca](mailto:vsi-isbc@sdsc-dsc.gc.ca)  
URL: <http://www.vsi-isbc.ca/eng/>

**Volunteer Monitor Project**

U.S. Environmental Protection Agency  
Office of Wetlands, Oceans, and Watersheds (4503T)  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460  
Phone: 202.566.1191  
Email: [ow-owow-internet-comments@epa.gov](mailto:ow-owow-internet-comments@epa.gov)  
URL: <http://www.epa.gov/volunteer/>

**Wallowa Resources**

P.O. Box 274  
200 W. North St.,  
Enterprise, OR 97828  
Phone: 541.426.8053  
Fax: 541.426.9053  
Email: [info@wallowaresources.org](mailto:info@wallowaresources.org)  
URL: <http://www.wallowaresources.org/index.html>

**The Watershed Research And Training Center**

P.O. Box 356  
Hayfork, CA 96041  
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Fax: 530.628.5100  
Email: [wrtc@hayfork.net](mailto:wrtc@hayfork.net)  
URL: <http://www.thewatershedcenter.org/>

**World Resources Institute**

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URL: <http://www.wri.org/index.cfm>

**World Wildlife Fund (WWF)**

1250 24th Street, NW  
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## Appendix 1: Lists of participants

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## Workshop Attendees

In addition to all three investigators on this project and project steward Nils Christoffersen, the following individuals attended our workshop in Redding, CA on April 29, 2005 and provided extensive comments on both the Guidelines and the Curriculum. (Individuals are listed in alphabetical order)

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**Appendix 2: Links to project websites**

All the materials developed under this project will be posted on web site hosted by the Institute for Culture and Ecology at this address:

[www.ifcae.org/projects/ncssf3/](http://www.ifcae.org/projects/ncssf3/)

### **Appendix 3: List of publications**

We intend to publish both of the written products developed for this project. Ideally the training curriculum would be published in conjunction with the Guidelines as companion-pieces. Our first choice for publication is as General Technical Reports by the USDA Forest Service Pacific Northwest Research Station, Portland, OR. We are currently negotiating with Randy Molina, Biodiversity Initiative Program to do so. Our second choice would be another program within the PNW Research Station. Alternately, we might choose independent publishing as books. Although we have not asked yet, we developed good relations with Patricia Janiga, Assistant Director for Inventory and Monitoring - Information Collection, USDA Forest Service, Inventory and Monitoring Institute, Fort Collins, CO, and this institute might also be willing to cooperate in publication of the document. The Extension Service, University of California, Berkeley, is another possibility. We also welcome recommendations of the NCSSF staff.

**Guidebook** (File name: NCSSF C8 2005 Guidebook.pdf)

Pilz, D.; Ballard, Heidi L.; Jones, Eric T. 2005. **Broadening participation in biological monitoring: guidelines for scientists and managers**. Portland, OR: Institute for Culture and Ecology. 153 p.

**Training Curriculum** (File name: NCSSF C8 2005 Curriculum.pdf)

Ballard, Heidi L.; Pilz, David; Jones, Eric T.; Getz, Christy. 2005. **Training curriculum for scientists and managers: broadening participation in biological monitoring**. Portland, OR: Institute for Culture and Ecology. 65 p.