

November 4, 2004

Primary and Secondary Benefits Associated with Citizen Environmental Monitoring

Linda Randolph, U.S. Forest Service, Appalachian Ranger District

In 2005, the Appalachian Ranger District will complete a management plan for the Forest Service land near the town of Hot Spring, NC. This presentation will cover how volunteer data collected in 2004 and 2005 will be used in the planning effort. The presentation will include visual and graphical summarization of the data.

Kristine Stepenuck, University of Wisconsin Extension and Wisconsin Department of Natural Resources

Kris Stepenuck, Christine Overdeest, and Cailin Huyck Orr performed a study of volunteer stream monitoring and local participation in natural resource issues. They evaluated whether increased learning, local political participation, and more extensive social networks were related to participation in a volunteer stream monitoring project in Wisconsin. Their objectives were to learn if participation in volunteer monitoring led to increased factual learning among experienced volunteers compared to inexperienced volunteers, if it was associated with increased political participation in community natural resources management, or if it was associated with increased size of personal action networks. To accomplish these, they surveyed new and experienced volunteers from Wisconsin's Water Action Volunteers (WAV) stream monitoring program, to assess their knowledge of water resources topics, and their level of participation in a variety of community natural resources political activities. It was found that participation did not significantly increase factual learning; rather, new volunteers and experienced volunteers were equally knowledgeable about stream-related topics. However, participation did significantly increase the political participation, personal networks, and feelings of community connectedness among volunteers. Findings were considered in light of the possibility for using volunteer monitoring to enhance local social capital and contribute to the adaptive management of water resources.

William Deutsch, Auburn University

Alabama Water Watch (AWW) is a program with nearly 255 citizen groups dedicated to developing citizen volunteer monitoring of Alabama's lakes, streams and coasts. These citizens have sampled over 25,000 chemistry and 4,000 bacteriological data forms. This water information has had positive impacts on education, restoration and local-to-state water policy. This presentation will also discuss global use of citizen environmental monitoring. International experiences will be shared from Bill's work with Global Water Watch, which is an affiliation of community-based water monitoring projects in the Philippines, Ecuador, Brazil and Thailand.

Keynote Address

Community-based Environmental Monitoring: Enhancing the Effectiveness of Institutional Science and Delivering Information to Decision-Makers

Hague Vaughan, EMAN

Issues addressed by ecological science increasingly involve the need to inform the decisions of others: to deliver scientific information suited to particular needs rather than to only make it available or accessible to those with the capacity to seek it out. This requires enhancements to the way environmental monitoring and research are conducted and the manner in which their success is measured. EMAN coordinated studies in 31 diverse Canadian communities into how to engage local groups in environmental monitoring using standardized protocols and deliver the resulting information effectively to local decision-makers. Standardization allows such information to be rolled up to higher scales. In order to pursue adaptive

management, community decision-makers require information, which is relevant, comprehensible, place-based and integrated: these can be accomplished through communication strategies. But environmental information must also be timely and allow them to weigh choices and consequences. These requirements suggest that risk-based, early indications of change in locally valued attributes derived from a shared vision and generated through community-based programs can be effectively linked to adaptive responses. These responses might include repeating the monitoring, seeking expert advice or undertaking remediation. Characteristics of community decision-systems make these lessons applicable to Parks and protected areas but less readily applicable to multi-community, multi-sectoral watersheds where further investigation is needed.

Goals and Approaches

Jay Gilliam, Virginia Save-Our-Streams

This presentation will discuss the 8-year history of Virginia Save-Our-Streams, specifically related to experiences gathering information on volunteer-collected water quality for use by the state of Virginia and participation in a two-year study of data validity related to professionally collected data.

Steve Brooks, Virginia Forest Watch

Neighborhood Forest Watch: Through this monitoring program Virginia Forest Watch (VAFW) members and friends from across the state notified VAFW of logging jobs that they found in their neighborhoods and surrounding communities. VAFW then informed the Virginia Department of Forestry of these jobs and they in turn sent out staff to inspect them to make sure Best Management Practices were being used. As a result of this program state legislation was introduced and the notification law was changed.

Robert Gable, Stream Quality Monitoring Project, Ohio

Approximately 8,000 individuals participate in Ohio's Stream Quality Monitoring Project annually. This valuable educational tool provides conservation organizations, businesses, families and students of all ages with an opportunity to discover the ecology of their local scenic river. Volunteers monitor reference stations, which have been established on all 20 of the state's designated Wild and Scenic Rivers. Reference stations are monitored three times a year and data is submitted to the Scenic Rivers Program staff. This data is used to monitor trends in the long term ecological health of Ohio's Scenic Rivers and identify improvements to water quality or negative impacts.

Thomas Benjamin, Environmental Alliance for Senior Involvement

Discussion will focus on citizen environmental monitoring as an environmental education modality. Tom will share his experience as an environmental educator, past advisor to the National Environmental and Education Training Foundation, commissioner for environmental education for the state of Virginia and founder of the Environmental Alliance for Senior Involvement.

Breakout Sessions I (2:45-4 pm)

The Clean Water Act and Monitoring Water Quality: Engaging Citizens in the 303 (d) and other CWA programs

Abby Markowitz, Tetra Tech

The Clean Water Act is like a train..."and citizens should be in every car." (Georgia Legal Watch). In this interactive presentation and discussion session we will explore the ways volunteer monitoring programs can be involved in CWA. Focusing on the 303(d) listing process we will discuss: data needs and requirements (QA/QC, metadata, formats); volunteer credibility; the language and processes of the CWA and water quality management; and building an active and educated citizen constituency for water quality.

State of Invasive Plant Monitoring & Prioritizing Next Steps

Jack Ranney, SAMAB

Initial monitoring of invasive plants usually involves identifying what is where. If conducted appropriately, this important first step helps reveal the status of invasions usually requiring many assumptions. It is a prelude to more detailed, focused, and systematic monitoring to help understand threats and strategize management responses. Follow-on monitoring usually involves making hard decisions on next steps. This means utilizing more rigorous guidelines and thus more training of volunteers. Such investment requires careful consideration in use of limited resources.

State of Forest Health Monitoring: How to measure forest health, challenges faced and what can volunteers measure?

Ken Stolte, U.S. Forest Service Southern Research Station

The Forest Health Monitoring program is a system of methods to monitor forest ecosystem health and sustainability at multiple spatial scales (remote sensing to ground monitoring). The ground monitoring component is a fixed-area plot system that collects data on trees (growth, reproduction, mortality, crown condition, and damage), understory vegetation (native and exotic plants), lichen communities, soils (chemistry, physical structure, erosion, and compaction), down woody debris (coarse and fine), fuel loading, and ozone bioindicators. This system is amendable to collection of data for a variety of purposes and in a variety of habitats (forests, riparian forests, urban forests, trails, etc.). Because of the broad suite of indicators used, the system provides information to assess insect and disease damage, air pollution impacts, climate change, effects of urbanization, spread of exotic species, fuel loading and fire risk, timber harvest effects, etc. This system can be adapted for use to monitor the health of forests along the Appalachian Trail. These methods have been transferred to other countries, and can be taught to citizen-scientists for use in monitoring the impacts of exotic plant species on forest ecosystems, monitoring the health of forests along the AT, etc. What is important in this technology transfer is that citizen scientists receive the same level of training as foresters establishing FHM plots, and then are tested to see that the methods are successfully transferred and used to establish monitoring plots.

Monitoring Non-Timber Forest Products

Gary Kauffman, U.S. Forest Service
Heidi Ballard, University of California at Berkeley

Collection of non-timber forest products (NTFPs) can be a significant resource extraction from our public lands. Sustainable yield information is unavailable for most of these NTFPs. For the past five years the National Forests in NC have worked with volunteers from the Garden Clubs of America and the plant Conservation Committee of the Medicinal Plant Working Group to compile information on black cohosh (*Actaea racemosa*). Black cohosh was selected because of the continued increase in the demand, both international and domestic for roots of this species in the medicinal herb market. The volunteers were utilized to monitor an experimental harvest study. This data collection was always completed during a 2-day period and varied from 20-50 participants. The presentation will investigate the lessons learned and contrast this project with other projects completed with fewer volunteers and over longer time periods.

Breakout Sessions II (4:15-5:30 pm)

Down the River: Why we use citizens to monitor water quality? Challenges of continuing funding, data acceptance and difficulty with the state and next steps in volunteer water quality monitoring

Jay Gilliam, Virginia Save-Our-Streams
Linda Green, University of Rhode Island Extension

Jay will discuss why citizen monitoring is necessary and important, the actions that produced progress in Virginia, and the obstacles that Virginia Save-Our Streams has encountered. Volunteer monitoring is most assuredly an active, vital and essential component of the vast field of water quality (and quantity) monitoring. In the three-plus decades since the first volunteer water quality monitoring programs began, volunteer monitoring is not only moving into the mainstream, it is an essential element of the mainstream.

Many, many organizations are involved from national to local, each with a unique contribution. As our programs have matured and indeed as the next generation of monitoring coordinators arrives what changes are coming? In this workshop Linda will discuss some new tools from national programs, state-based tiered approaches to monitoring, the next generation of monitoring kits, instruments, and probes, adding the local "flavor" to probabilistic monitoring efforts, and the importance of local uses of locally generated data.

Appalachian Trail Environmental Inventory and Monitoring Web Community

John Peine, SAMAB

The goal of the USGS NBII Portal Community for Appalachian Trail Corridor Environmental Inventory & Monitoring is to establish a 2,167 mile continental transect dedicated to environmental inventory and monitoring (I&M) via the Appalachian Trail (AT) corridor. This is mainly being done through collaboration among willing partners. The objectives of the community are as follows:

1. Along the AT corridor, identify I&M related scientists, organizations, programs, databases, documents, activities and Websites.
2. Provide a forum for discussion among these leaders focusing on collaboration.
3. Provide an updatable overview of environmental conditions along the AT corridor utilizing secondary Web accessible data sources from USGS, USEPA, TNC-NatureServe and the National Geographic Society
4. Devise a strategy to establish and apply selected 'core' I&M protocols among like-minded partners systematically throughout the entire AT corridor.

John will show application to citizen monitoring projects via the efforts of SAMAB to manage their citizen science projects concerning water quality and invasive species.

Delivering Science to Society

Hague Vaughan, EMAN

Hague will discuss EMAN's experience in partnerships, networks, boundary organizations and the delivery of science to society in support of sustainability processes.

A primer for selecting forest biodiversity indicators

Andy Whitman, Manomet Center for Conservation Sciences

Selecting indicators can be a frustrating process. Andy Whitman will present a framework for thinking and selecting forest biodiversity indicators for decision making. It will include a discussion about different types of indicators, selecting and evaluating indicators, and a group exercise to give participants some practice with a Manomet's indicator selection framework. This information will be relevant to groups using indicators across watershed to regional scales.

November 5, 2004

Breakout Sessions I (9:10-10:25 am)

Creating Partnerships: Building on One Another's Strengths

Alan Raflo & Michele James-Deramo, Virginia Tech
Kristine Stepenuck, University of Wisconsin Extension

Alan and Michele will discuss using service-learning in citizen monitoring efforts. This workshop introduces participants to the practice of service-learning, the integration of community service and academic coursework, as a means for engaging college-aged students in citizen monitoring efforts. The session offers guidelines for accessing the university to build partnership, as well as provides examples, like the Virginia STEP program, of successful collaborations between community organizations and university students.

Kris Stepenuck will discuss partnering with Extension for volunteer water quality monitoring. Cooperative Extension programs in the Land-Grant University System of each U.S. state and territory may be able to sponsor or provide assistance to such volunteer monitoring programs. The Extension network has community-based educators carrying out public outreach education. It can reach a very large audience with its message of how local citizens can improve water quality due to its local contacts and collaborations with numerous agencies, organizations, and citizen groups. Volunteer monitoring can easily grow in this environment. Currently Extension sponsors or co-sponsors 38 programs in the U.S. and islands. By partnering with Extension, volunteer water quality monitoring programs can gain valuable water quality data, help educate the public, encourage citizens to adopt "water resources-friendly" behaviors, and bring university science to the community and community science to the university.

Apples and Oranges: Data Comparability and Standardization

Hague Vaughan, EMAN
Linda Green, URI Extension

There are many, many organizations and individuals engaged in water monitoring. Everyone wants their data to be used, whether for education, baseline information, detecting trends, documenting problems, or showing that improvements are really working. For far too many years organizations championed their methods and often viewed others' with distrust, and even disdain. Fortunately that is changing, as efforts across the country are underway to not only communicate, but to coordinate and collaborate in water quality monitoring. Linda Green will briefly describe some national efforts to promote data comparability, including the National Water Quality Monitoring Council's *Framework for Monitoring*, illustrate the use of the National Environmental Methods Index (NEMI) to find a method that's right for your organization, go over the USDA Volunteer Water Quality Monitoring project's *Matrix of Monitoring Activities* and finish with some steps to enhance data comparability. Hague Vaughan will discuss the limits on discovery, access, integration and delivery of data created by the lack of standardization and comparability. Bring your concerns and ideas to discuss with other participants.

Engaged Citizens and Sophisticated Technology Working in Concert to Deal with the Invasive Plant Impact on Biodiversity

Kristin Sewak, Natural Biodiversity

The mission of Natural Biodiversity is to develop and implement a strategy for conserving the diverse natural heritage of the landscape, ensuring harmonious interactions within populations, communities and ecosystems of southwestern and south central Pennsylvania watersheds. The presentation will take a look at the early development of a southwestern PA volunteer corps and their vital role in a comprehensive, innovative approach to restoring ecosystems and their habitats. Of particular interest is the aerial hyperspectral survey of invasive plants in riparian areas Kristin will discuss the ACE (Assessment,

Conservation and Engagement) comprehensive approach, recruitment, training and retention strategies and the mutual benefit of using citizens to verify sophisticated technology.

Get Down on your Knees and Count! Monitoring to Promote Healthy Forests

Gigi La Budde, Community Forestry Resource Center (CFRC)
Harry Groot, Blue Ridge Forest Cooperative

Private forest landowner groups are proving to be an effective way for forest owners to proactively pursue good forest management. Whether the aim is to provide better wildlife habitat, increase tree growth and regeneration, or restore native ecosystems, monitoring (measuring and evaluating changes that occur over time) can help assess the effectiveness of current activities and reassess management options. Monitoring can also provide an early warning of potential problems in the forest, from the negative impacts of insects, disease, pollutants or invasive species.

This session will focus on how to determine the monitoring needs of private forest landowners by discussing the CFRC Monitoring Project and the Blue Ridge Forest Cooperative's Landowner Monitoring program. Harry and Gigi will discuss some monitoring indicators and techniques that are scientifically sound, require limited technical knowledge and equipment, are not unduly time-consuming, yet generate accurate and useful information about the land. They will discuss the best (and most fun) ways to teach Photo Reference Points, Transects and Quadrants, Non-Timber Forest Products, Invasive Species, and Frog/Toad Surveys, Tree Diameter Growth, Sugar Bush evaluation methods, and more...

Zikuas, Smog, and You

Jane Forrest-Redfern, Rural Action
Carol Andress, Environmental Defense

For several summers, Ohio Citizen Action and Environmental Defense teamed up with citizens to monitor ground-level ozone in several key counties in Ohio. Data from the community monitoring effort were used to persuade the state and US EPA to include some new areas as "non-attainment"—a regulatory designation that triggers a cascade of measures to reduce smog. This workshop will describe what was done, the outcomes of the effort, and lessons learned along the way.

Breakout Sessions II (10:40-11:55 am)

Getting to the Waters Edge: Mapping Your Monitoring Strategy for Credible Monitoring and Data Use

Ken Cooke, Kentucky Water Watch
Cheryl Snyder, Pennsylvania Department of Environmental Protection

The study design drives monitoring projects. It explores the who's, what's, when's, where's, and why's of monitoring and prompts monitors to determine, up front, important things like data use, data users, equipment and QA/QC. This presentation will cover the 10-step study design process, its importance to volunteer monitors and how the study design helps volunteers document their project and increase credibility.

Faith Based Monitoring Workshop

William Deutsch, Alabama Water Watch

This workshop will provide principles and case studies of groups who care for the environment and participate in water monitoring activities as an outgrowth of their faith. An emphasis will be given to "care of creation" or "earth stewardship" concepts of the Christian faith, but an example from a tribal community

in the Philippines will also be presented. Participants will have the opportunity to discuss a three-fold approach (expressed as questions) to protecting the earth: 1) How does the world work? (science), 2) What ought to be? (ethics, faith-based values), and 3) What should we do (practice, such as monitoring).

Zip Code 97630: Citizens Save Their Jobs and Learn to Care for Their Forest

Richard Hart, Chewaucan Biophysical Monitoring Project

This is the story of how an isolated timber town learned to care for the public forests that surround it by doing something unprecedented...

Roundtable: Handbook Design for Participatory Biodiversity Monitoring

Heidi Ballard, University of California at Berkley

This session provides an opportunity for participants to learn about, and improve the initial design of, a national handbook that is intended to help forest managers and scientists involve local people and organizations in biodiversity inventory and monitoring. One aspect of biological monitoring is to better understand the diversity of living forest organisms and their role in ecosystem sustainability. Understanding biodiversity has become increasingly important in federal, state and private management of forests, creating numerous opportunities for citizens to participate in the inventory and monitoring of local forests. The many facets of biodiversity monitoring will be discussed, as well as the scope of the forthcoming handbook. Most importantly, participants will have the opportunity to share their experiences to inform the design of the handbook.

Citizen Science: Preservation of the Upper Little Tennessee River

Paul Carlson, The Land Trust for the Little Tennessee

The upper Little Tennessee River in western NC is the most biologically intact river in the southern Blue Ridge. The Little Tennessee watershed upstream of Fontana Reservoir has the most extensive bio-monitoring data set of any watershed of its size on earth. The biomonitoring program has run on citizen volunteers since its inception in the early 1990's. Over the past five years about one third of the 55 miles of free-flowing river has been conserved through land and easement acquisition, in rural counties where land conservation was thought to have little political support. This presentation will discuss the role of citizen-based aquatic biomonitoring in the development of a conservation strategy and a local constituency for the river.

Building Capacity of E. coli Monitoring by Volunteer Networks: A Multi-State Effort

Jerry Iles, Ohio State University Extension

The public is demanding increased water quality monitoring to ensure our waters are protected from agricultural and urban runoff that leads to elevated pathogen and bacteria levels in the water. This presentation will describe early ongoing efforts of a three year study being conducted by Cooperative Extension Volunteer Monitoring programs in six states: Minnesota, Wisconsin, Iowa, Michigan, Indiana and Ohio. Goals include training volunteers in the collection of water samples for bacteria as well as training volunteers in data interpretation using test kits.

Over the three year study this project will evaluate several types of test kits with respect to their usability and reliability. Test kit results will be compared to analytical lab results using approved EPA methods. The multi-state project team will evaluate results, build in-state support and create training materials in order to build the capacity of Volunteer Monitoring networks to properly collect bacteria water quality data.

Show Me the Money

Private Grants

Alexandra Kenny, the Grants Program Director for the National Forest Foundation (NFF), will provide a short overview of the National Forest Foundation's grants programs and the various types of funding opportunities available through each. She will describe projects NFF has funded in the past and how they fit into the NFF's overall strategic goals. Information will be provided on the NFF's new "Friends of the Forest" communications program, which provides free customized information nationwide based on members' diverse interests related to our National Forests and Grasslands.

Local Fundraising

Jane Forrest-Redfern, Executive Director of Rural Action, will discuss sustainable fundraising strategies, particularly focused on involving local donors and fundraising events. Jane has extensive experience in community organizing having spent 17 years with Ohio Citizen Action before coming to Rural Action in 2004.

People Power

Tom Benjamin, EASI

Tom will draw on his 13 years of experience with the Environmental Alliance for Senior Involvement and discuss how to engage senior volunteers in your monitoring efforts as well as aspects of Senior Leadership Training.

Courtney Crabtree, Student Conservation Association

Courtney will give an overview of the Student Conservation Association (SCA), and will discuss how citizen environmental monitoring programs can benefit by partnering with SCA.

Breakout Sessions III (2:55-4:10 pm)

Turning Your Dreams into Reality by Engaging Volunteers

Cathy Sutphin, Virginia Tech

Nearly all volunteer development programs begin with recruitment, but in reality we should spend more time and effort prior to recruitment. This workshop focuses on developing a vision for volunteer involvement, discovering meaningful volunteer roles, and then developing volunteer service description. With description in hand, you will be ready to recruit, place, and manage your volunteers and your dreams are a step closer to becoming reality. Hands-on and small group work will be used in combination with a power point presentation.

Web Applications for Empowering Community Monitoring

PJ Nabors, National Biological Information Infrastructure-Southern Appalachian Information Node

The mission of the National Biological Information Infrastructure (NBII) is to provide increased access to data and information on our nation's biological resources. The NBII network is being developed through regional and thematic web-based 'nodes.' Our region is fortunate enough to have one of these regional nodes – namely the Southern Appalachian Information Node (SAIN). The NBII Southern Appalachian Information Node (SAIN) facilitates partnerships and creates applications that improve information exchange for research, education, and environmental decision-making in the Southern Appalachian region. This presentation introduces web-based information products created by NBII-SAIN for the SAMAB Southern Appalachian Volunteer Environmental Monitoring (SAVEM) program. These web applications include data entry forms, tabular reporting, and static and interactive maps. The presenter will show the

audience how to use these new on-line resources for invasive plant and aquatic monitoring and discuss plans for additional capability.

Volunteer Monitoring of Invasive Forest Pests: the Hemlock Woolly Adelgid

Buzz Williams, Chattooga Conservancy

Buzz Williams' Hemlock Woolly Adelgid (HWA) workshop will discuss the methodology and challenges of organizing an effective volunteer monitoring program for the HWA. The presentation will focus on the Chattooga Conservancy's practical experience gained as a principal partner in the Chattooga River Watershed HWA Biological Control Project. The workshop will include time to discuss topics such as monitoring for the presence and/or absence of HWA, versus monitoring to identify prime predator beetle release sites, and follow-up monitoring of impacts. Also included will be a discussion of a strategy for organizing citizens to support and/or raise funds for creating a biological control laboratory in HWA affected areas. Handouts will be a sample citizens monitoring data sheet, and the Conservancy's GIS map showing predator beetle release sites to date in the Chattooga River watershed.

Volunteer Monitoring of Old Growth Forests

Norma Ivey, Western North Carolina Alliance

Norma will give an overview of the reasons for, the formation of, and the execution of the Old Growth Project that the WNC Alliance pursued from 1994-2000. This was not a monitoring project, but rather a location, delineation, and classification project. It grew out of a need to know where the older forest patches were located on our local national forests in order to protect them. The information uncovered through the project is now being used to monitor timber sales on our national forests and to protect the old growth.

Mechanics of Monitoring

Richard Hart, Chewaucan Biophysical Monitoring Project

Discover a remarkable way to look close enough at the forest that it reveals its condition and possibly where it is headed. By measuring and faithfully recording a series of related indicators within permanent plots, a group or community gathers real knowledge to analyze trends, the effects of treatments and natural events, and to adapt the stewardship to enhance the forest.

Monitoring Abandoned Mine Drainage

Tom Grote, Kiski- Conemaugh Stream Team

The Kiski- Conemaugh Stream Team was founded to monitor and assess abandoned mine drainage in the 1,887 sq. mi. Kiski-Conemaugh River Basin. Tom will present the current organizational structure, goals and objectives, sampling procedures, data storage and dissemination, users of data, educational and community outreach components, and future plans for the K-C Stream Team. Coordination problems and solutions for working in a large basin will also be addressed.

Breakout Sessions IV (4:25-5:35 pm)

Developing Communication Strategies that Work

Abby Markowitz, Tetra Tech

The ability to express an idea is as important as the idea itself. Successful and sustainable environmental protection requires community-based, inclusive, and collaborative solutions. Connecting environmental protection efforts to local realities leads to greater public support and involvement, and ultimately, to more

far reaching and sustainable environmental protection. Communication to a wide audience (from elected officials and managers to local citizens) is an integral part of successful environmental protection. However, just because we know it is important doesn't mean we know HOW to communicate.

In this interactive session we will explore a framework—and the skills needed—for crafting and implementing effective communication and outreach strategies. Bring an example from your own organization of a project, message, or activity you need to communicate.

A look at multigenerational volunteer monitoring programs lead by senior volunteers

Tom Benjamin, Environmental Alliance for Senior Involvement

EASI Senior Environment Corps has many volunteer monitoring projects across the country. Tom will introduce existing monitoring projects that multigenerational volunteers are participating in under the leadership of senior mentors. Monitoring programs include:

- Water monitoring – from basic community education to QA/QC EPA approved volunteer projects;
- Invasive species – search and destroy volunteer programs;
- Urban forestry – mapping in order to develop a baseline of information for forestry management;
- Monitoring acid mine drainage (AMD) mitigation projects
- Monitoring the impact of best management practices on non-point pollution

Tom will then open the presentation to a discussion to create dialogue around how volunteers can build local partnerships and support for environmental work and education in their communities.

Cleaner Water, Closer World

Ed Moyer, America's Clean Water Foundation

Learn how “World Water Monitoring Day” is building a growing network of individuals and groups from around the world representing all ages, backgrounds, creed, faiths and ethnicities who are willing to invest in the protection of their community waterways. Discussion will include a report of 2004's WWMD event and an example of how to introduce younger students to water quality monitoring.

Citizen Monitoring of Fire Projects in the Southern Appalachians

Hugh Irwin, Southern Appalachian Forest Coalition

Prescribed fire projects are increasing on national forests in the Southern Appalachians. The goals and design of these projects will be described along with a description of current and planned national forest monitoring efforts. A citizen monitoring and analysis effort whose goal is to better understand the natural behavior of fire and the effects of these projects will also be described. We will launch the discussion phase of this session with a series of currently unanswered questions related to the role of fire in the region and the appropriate role of prescribed burns in establishing natural fire regimes.

Appalachian Trail Conference and “Keeping Track”

Matt Stevens, Appalachian Trail Conference

Through its Appalachian Trail Environmental Monitoring Initiative (ATEMI), the Appalachian Trail Conference connects citizen volunteers, university and other professional scientists, and its trail managers. Their common effort collects information about the status of the Appalachian mountain environment using the protected A.T. corridor as a laboratory. Volunteers monitor at set periods the visible and invisible quality of the air, water quality, wildlife habitat and activity, invasive plants, migratory birds, and rare, threatened, and endangered species. This information not only helps direct land management but changes also serve as an "early warning" of incoming harm to the physical environment.

November 6, 2004

Muddy Boots – Field Trips (8:30 – 1:30)

Invasive Alien Species Monitoring

Jack Ranney of the University of Tennessee and SAMAB will take you on a field trip to Mt. Rogers National Recreation Area to provide instruction on, and field application of protocols used by volunteers with the SAMAB Volunteer Invasive Plant Monitoring effort. The protocol is based on identification of approximately 15 invasive plant species and locating them using GPS units. A datasheet will be available. This is for monitoring along trails, roads, etc. and is not a systematic or random sampling approach. The protocol calls for identifying the start and end point for a monitored section, the GPS location of located invasive plants, notes on proximal location and size of infestation, and indications of other species occurring with the one identified. It is a first run method at identifying what is where. The approach has been used by many trail/hiking clubs, university volunteer groups, the Forest Service and National Park Service to monitor for invasive alien plants near significant natural areas along the Appalachian Trail. Cecil Thomas, biologist, will also speak on the practical use of monitoring data for management of high elevation “balds” (mountaintop prairies) and keeping invasive plants from encroaching on rare plant populations.

Forest Health Monitoring

Get your hands dirty in the field with Ken Stolte of the U.S. Forest Service to learn about their rigorous new protocols for volunteer monitoring of forest health. The Forest Health Monitoring program is a system of methods to monitor forest ecosystem health and sustainability at multiple spatial scales (remote sensing to ground monitoring). The ground monitoring component is a fixed-area plot system that collects data on trees (growth, reproduction, mortality, crown condition, and damage), understory vegetation (native and exotic plants), lichen communities, soils (chemistry, physical structure, erosion, and compaction), down woody debris (coarse and fine), fuel loading, and ozone bioindicators. This system is amendable to collection of data for a variety of purposes and in a variety of habitats (forests, riparian forests, urban forests, trails, etc.). Because of the broad suite of indicators used, the system provides information to assess insect and disease damage, air pollution impacts, climate change, effects of urbanization, spread of exotic species, fuel loading and fire risk, timber harvest effects, etc. This system can be adapted for use to monitor the health of forests along the Appalachian Trail. These methods have been transferred to other countries, and will be taught Saturday to you citizen-scientists for use in monitoring the impacts of exotic plant species on forest ecosystems, monitoring the health of forests, etc. What is important in this technology transfer is that citizen scientists receive the same level of training as foresters establishing FHM plots, and then are tested to see that the methods are successfully transferred and used to establish monitoring plots. In the field you will see the layout of an FHM plot, be shown how some of the indicators work, and show how the data are analyzed and used in assessments of forest health.

Water Quality Monitoring

Join Jay Gilliam of Virginia Save-Our-Streams (VA SOS) and members of the Upper Tennessee River Roundtable (UTRR) in getting your feet wet at the Riverside Community Center monitoring station located in Chilhowie, Virginia on the south fork of the Holston River. Virginia Save-Our-Streams volunteer monitors use a variety of water quality monitoring methods depending upon their location within Virginia and the questions they want to answer. Data collected by VA SOS certified monitors is used by a variety of data users including the Virginia Department of Environmental Quality. The VA SOS Program wants to help as many citizens as possible to participate in the process and become local leaders in the quest for clean water. Volunteers with the UTRR have been using a VA SOS protocol to monitor aquatic “bugs” using a kick seine to gauge stream health and water quality. Research to validate and improve the western Virginia method has been carried out at Virginia Tech.

This water quality monitoring field trip is sponsored by the Upper Tennessee River Roundtable.