



United States  
Department of  
Agriculture

Forest Service



# Advancing the Fundamental Sciences— A Conference for Forest Service Physical Scientists

October 18-22, 2004 • San Diego, CA  
Shelter Pointe Hotel and Marina



# Advancing the Fundamental Sciences Committee Chairs and Members

**Steering Committee:** Bruce McCammon, Chair; Bonnie Ilhardt, Co-Chair; Steve Glasser and Russell LaFayette

**Registration:** Sherry Hazelhurst, Chair; Connie Athman, Timothy Evans, and Lori Wilson

**Posters:** Steve Howes, Chair; Jon Brazier, Connie Carpenter, Dave Dechane, Betsy Reifenberger, and Ruth Tracy

**Technical Program:** Wayne Robbie, Chair; Courtney Cloyd, Rich Fisher, Mike Furniss, Polly Hays, Jack Holcomb, Steve Howes, Mike Linden, Ivars Steinblums, and Al Todd

**Awards/Events:** Trish Carroll, Chair; Courtney Cloyd, Michael Collette, Mike Furniss, Steve Glasser, Chris Knopp, Mike McNamara, John Rector, Ken Roby, Wes Smith, Robin Stoddard, John Thornton, and Mark Weinhold

**Proceedings:** Mike Furniss, Chair, Caty Clifton and Kathryn Ronnenberg



*Planning and implementing the Advancing the Fundamental Sciences Conference is facilitated through a partnership between the USDA Forest Service and The Pinchot Institute for Conservation. Special thanks to Stephanie Kavanaugh, Jennifer Becker, and Yenie Tran of the Pinchot Institute for Conservation.*

# Welcome . . .

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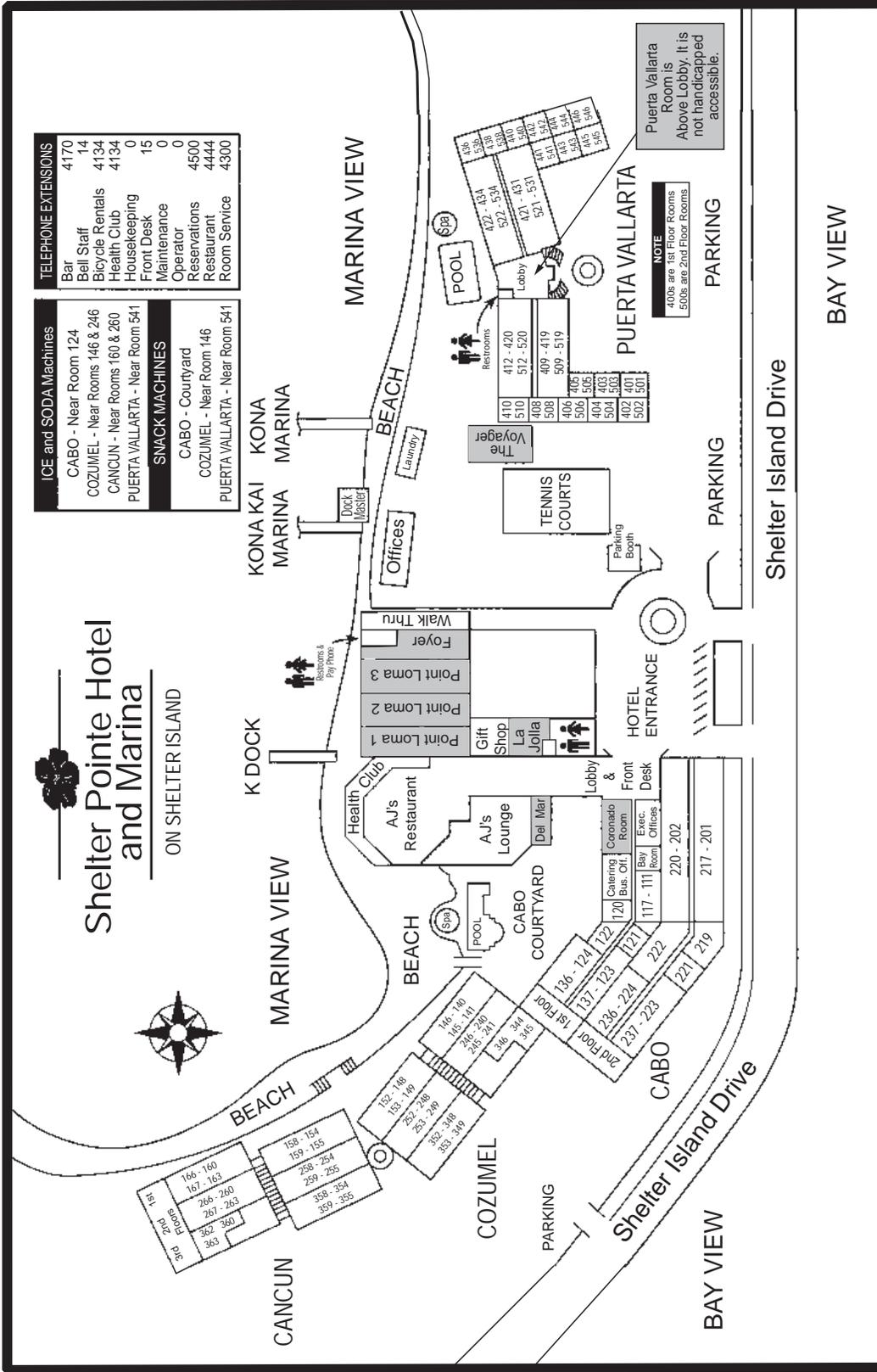
The Forest Service mission is built on wise stewardship of this Nation's fundamental natural resources: soil, water, geology and air. This National conference focuses on past contributions, current issues and future challenges facing Forest Service hydrologists, geologists, soil scientists and air resource specialists.

The conference targets both current and retired physical science Forest Service personnel in three branches of the Agency: National Forest System, Research and Development, and State and Private Forestry. Conference

goals are to honor and document the contributions of physical scientists and practitioners in the Forest Service, to strengthen Agency culture, and to enhance interdisciplinary approaches to current and future issues.

The Agency's mission and program delivery will be strengthened through exchange of technical and program information at this landmark conference, some 50 years after the first watershed management conference. Acquiring new knowledge and building new relationships are key to advancing the fundamental sciences in the future.

# Conference Facility



Rooms used during the conference are shaded for easy reference.

# Week-At-A-Glance

<b>Monday October 18</b>	<b>Tuesday October 19</b>	<b>Wednesday October 20</b>	<b>Thursday October 21</b>	<b>Friday October 22</b>
1:00 - 5:00 p.m. Registration and Poster Session I Setup	6:30 - 8:00 a.m. Registration	8:00 - 9:00 a.m. Keynote	8:00 - 9:00 a.m. The Greatest Good	Field Trip and Short Courses (Times Vary)
	8:00 - 8:15 a.m. Welcome	9:00 - 10:00 a.m. Poster Session 1	9:00 - 9:45 a.m. Panel Discussion	
	8:15 - 8:45 a.m. Agency Opening	10:00 - 10:30 a.m. Break	9:45 - 10:15 a.m. Break	
	8:45 - 9:45 a.m. Conference Keynote	10:30 - 11:30 a.m. Concurrent Session 2	10:15 - 11:15 a.m. Panel Discussion	
	9:45 - 10:15 a.m. Break	11:30 a.m. - 1:00 p.m. Lunch	11:15 a.m. - 12:15 p.m. Poster Session II	
5:00 - 7:00 p.m. Harborside Social	10:15 - 11:00 a.m. Panel Discussion	1:00 - 2:30 p.m. Concurrent Session 2 Continues	12:15 - 1:00 p.m. Lunch	
	11:00 - 11:30 a.m. Group Activity	2:30 - 3:00 p.m. Break	1:00 - 3:00 p.m. Concurrent Session 3	
	11:30 a.m. - 1:00 p.m. Lunch	3:00 - 4:00 p.m. Keynote	3:00 - 3:30 p.m. Break	
	1:00 - 3:30 p.m. Concurrent Session 1	4:00 - 4:30 p.m. Special Event "The Life and Times," Act 2	3:30 - 4:00 p.m. Special Event, "The Life and Times," Act 3	
	3:30 - 4:00 p.m. Break	6:30 - 7:30 p.m. Social	4:00 - 4:30 Conference Wrapup	
	4:00 - 4:30 p.m. Special Event "The Life and Times," Act 1	7:30 - 8:30 p.m. Dinner	4:30 - 5:00 p.m. Closing Keynote	
	7:00 - 9:00 p.m. Evening Theme Room Discussions	8:30 - 9:00 p.m. Awards	6:30 - 11:00 p.m. Optional Beach BBQ	

# Concurrent Sessions

## Concurrent Session 1 - Tuesday

Time	Del Mar	La Jolla	Puerta Vallarta*
1:00 - 1:30 p.m.	ERMiT: A Probabilistic Approach to Hillslope Erosion Modeling After Wildfires  — <i>Peter Robichaud</i>	Development of Watershed Hydrologist Research at Santee Experimental Forest, Coastal South Carolina  — <i>Devendra Amatya</i>	BMP Implementation Monitoring—Keys to Success and Pitfalls to Avoid  — <i>Jenny Fryxell</i>
1:30 - 2:00 p.m.	Evaluating the Effects of Prescribed Fire and Fuels Treatment on Water Quality and Aquatic Habitat  — <i>Robin Harris</i>	Using Multiple Fine-Sediment Size Classes to Evaluate the Condition of Trout Spawning Habitat  — <i>Pamela Edwards</i>	A Regional Protocol for Monitoring BMP Implementation and Effectiveness on Timber Harvest Operations  — <i>Karen Sykes</i>
2:00 - 2:30 p.m.	Category 4B, An Alternative to TMDL Development for Achieving Clean Water Act Water Quality Standards  — <i>Bruce Sims</i>	Water Quality Effects of Blue-Green Algal Blooms in Diamond Lake, Oregon  — <i>Mikeal Jones</i>	Watershed Restoration through Hydropower Relicensing  — <i>Mark Fedora</i>
2:30 - 3:00 p.m.	Watershed Assessment for River Stability and Sediment Supply  — <i>Dave Rosgen</i>	ResSims Model Presentation  — <i>Cheryl Mulder</i>	TRTR Funds — Successes in Watershed Restoration in the Eastern Region  — <i>Bonnie Ilhardt</i>
3:00 - 3:30 p.m.		Monitoring Exposed! WARM: A Database Tool to Share and Query Watershed Resources Monitoring Information  — <i>Sherry Hazelhurst</i>	The Alkali Creek Story: 40 Years of Gully Control  — <i>Mark Weinhold</i>

## Concurrent Session 2 - Wednesday

Time	Del Mar	La Jolla	Puerta Vallarta*
10:30 - 11:00 a.m.	An Examination of the Reference Condition Concept: Results of a Pulse Study in Redwood National and State Parks, CA  — <i>Tom Lisle</i>	Detecting Smoke Plumes and Analyzing Smoke Impacts Using Remote Sensing and GIS for the McNalley Fire Incident  — <i>Ricardo Cisneros</i>	The Role of Geology in Sediment Supply and Transport in Coarse Grained Streams  — <i>Sandra Ryan</i>
11:00 - 11:30 a.m.	Using Reference Data in Making Management Recommendations  — <i>Pete Bengelfield</i>	Sierra Nevada Smoke Monitoring: Testing Implementation Through a Pilot Program  — <i>Trent Procter</i>	*Note that the Puerta Vallarta room is not handicapped accessible.

<b>The Voyager</b>	<b>Coronado Room</b>	<b>Point Loma 1</b>	<b>Point Loma 2</b>
Sections and Subsections of the United States: Mapping and Applications — <i>David Cleland</i>	Adverse Action Declaration to Protect Air Quality Related Values in Class I Areas in the Pacific Southwest Region — <i>Saraj Ahuja</i>	It's What You Don't See that Counts! Incorporating Geology into Ecosystem Science — <i>Melody Holm</i>	Watershed Management in the Forest Service from 1897 to 2100 — <i>Steve Glasser</i>
Soil Compaction Monitoring of 20-Timber Harvest Units on the Ouachita National Forest — <i>Ken Luckow</i>	Using the Critical Load Concept to Protect Ecosystems from Acid Deposition — <i>Deborah Potter</i>	Jokulhlaup in the Wind River Mountains, Shoshone National Forest, Wyoming — <i>Liz Oswald</i>	The Forest Service Barometer Watershed Management Program, A Historic Viewpoint — <i>Larry Schmidt</i>
Monitoring to Improve the Understanding of Herbicide Fate and Transport in the Sierra Nevada, California — <i>Jerome DeGraff</i>	The Potential Effects of Acid Deposition: What is a National Forest to Do? — <i>Stephanie Connolly</i>	Business Decision Making and Utility Economics of Large Landslides within National Forest System Lands in the United States — <i>Tom Koler</i>	The Evolution of Channel Maintenance Science in the Forest Service — <i>John Potyondy</i>
Case Studies in Geobotany: Refining Our Understanding of the Influence of Substrate on Plants — <i>Scott Bailey</i>	Mercury Deposition and Cycling, and its Effects on Aquatic Resources — <i>Chuck Sams</i>	Reclamation, Remediation and Hydrologic Monitoring of the Minnie Mine and Millsite, Okanogan County, Washington — <i>Rodney Lentz</i>	The Value of Water from the National Forests: Evidence from Western Water Markets — <i>Thomas Brown</i>
Using Criteria and Indicators of the Northeastern Area of State and Private Forestry — <i>Sherri Wormstead</i>		Watershed Planning in Karst — <i>Katherine Prussian</i>	An Army of Watershed Specialists: Good Working Relationships Encourage Everyone to Value Watersheds — <i>Scott Tangenberg</i>

<b>The Voyager</b>	<b>Coronado Room</b>	<b>Point Loma 1</b>	<b>Point Loma 2</b>
FSWEPP  — <i>William Elliot</i>	Understanding the Hydrologic Consequences of Timber Harvest and Roding: Four Decades of Streamflow and Sediment Results from the Caspar Creek Experimental Watersheds — <i>Elizabeth Keppler</i>	Ecological Consequences of Post Fire Emergency Rehabilitation — <i>Jeff Bruggink</i>	Variability in Discharge and Sediment Output from Eight Small Streams in the Kings River Experimental Watershed in the Sierra Nevada — <i>Sean Eagan</i>
	Lessons Learned from Management Response to Flood Damaged Roads in the Western Washington Cascades — <i>James Doyle</i>	After the Flames Die Down— Using Regional Curves for Discharge and Channel Geometry Determinations, or How to Make Your Colleagues Think You Are Really Smart — <i>Terry Kaplan-Henry</i>	Forest Service Channel Maintenance Flows in the Klamath Basin — <i>Michael McNamara</i>

# Concurrent Sessions

## Concurrent Session 2 - Wednesday

Time	Del Mar	La Jolla	Puerta Vallarta*
1:00 - 1:30 p.m.	Sediment from a Small Ephemeral Gully in South Carolina  — <i>William Hansen</i>	Smoke Management and Prescribed Fire—Moving Toward a Solution Space  — <i>Tom Robison</i>	Chronic Misapplication of the Relationship between Magnitude and Frequency as Illustrated in Fluvial Process in Geomorphology  — <i>Tim Sullivan</i>
1:30 - 2:00 p.m.	Fields with Streams: Re-creating a Meandering Stream in a Channelized Pasture  — <i>John Hogervorst</i>	Advances in Understanding Fire-Convection Dynamics  — <i>Brian Potter</i>	A River Runs Underneath It: Geological Control of Spring and Channel Systems and Management Implications, Cascade Range, Oregon  — <i>Gordan Grant</i>
2:00 - 2:30 p.m.	Lessons Learned from Monitoring of a Couple of Stream Channel Rehabilitation Projects  — <i>Wes Smith</i>	Numerical Modeling of Vortices on Wildland Fires and Their Potential Impact on Fire Behavior and Smoke Dispersion  — <i>Scott Goodrick</i>	The Hubbard Glacier, Russell Fiord and Situk River  — <i>Robert Gubernick</i>

## Concurrent Session 3 - Thursday

Time	Del Mar	La Jolla	Puerta Vallarta*
1:00 - 1:30 p.m.	Water Quality Monitoring Program at the Watershed Level in the Upper Grande Ronde Basin  — <i>Teena Ballard</i>	The Coastal Initiative — Innovative Partnerships to Restore Watersheds  — <i>Karen Bennett</i>	Interdisciplinary Roles in the Development and Construction of an Aquatic Passage Project  — <i>David Kim Johansen</i>
1:30 - 2:00 p.m.	Beyond Boundaries: Resource Stewardship in the Skagit River Basin Communities and Public Lands in Partnership—Lessons from the Pacific Northwest  — <i>Greta Morassaghi</i>	The Pathfinder Project: A Collaboration Effort to Provide for Instream Flow Management on the GMUG National Forests  — <i>John Almy</i>	
2:00 - 2:30 p.m.	Basin-Scale Restoration Planning and Monitoring in Southwest Oregon  — <i>Mike Mathews</i>	Collaborative Decision Making in Hydropower Relicensing  — <i>Julie Tupper</i>	
2:30 - 3:00 p.m.	The Klamath Adjudication: Success and How it was Achieved by Both the Scientists and the Attorneys  — <i>Holly McLean</i>	The Cooperative Forest Watershed Management Program in Maryland: Watershed Restoration Across Land Ownerships  — <i>Anne Hairston-Strang</i>	*Note that the Puerta Vallarta room is not handicapped accessible.





**Concurrent Session 1**  
*Applied Science and Technology/  
Valuing the Physical Sciences*

**Applied Science and  
Technology I • Del Mar**

Moderator: Jennie Fischer, Clearwater NF

- 1:00 - 1:30 p.m. **ERMiT: A Probabilistic Approach to Hillslope Erosion Modeling After Wildfires**  
Pete Robichaud, W. Elliot, F. Pierson, Rocky Mountain Research Station; P. Wohlgemuth, Pacific Southwest Research Station.
- 1:30 - 2:00 p.m. **Evaluating the Effects of Prescribed Fire and Fuels Treatment on Water Quality and Aquatic Habitat**  
Robin M. Harris and Katy Clifton, Umatilla National Forest; Steven M. Wondzell, Pacific Northwest Research Station.
- 2:00 - 2:30 p.m. **Category 4B, An Alternative to TMDL Development for Achieving Clean Water Act Water Quality Standards**  
Bruce Sims, Northern Region and Chris Knopp, USDA Forest Service, Washington Office.
- 2:30 - 3:00 p.m. **Watershed Assessment for River Stability and Sediment Supply**  
Dave Rosgen, Wildland Hydrology, Fort Collins, CO

**Applied Science and  
Technology II • La Jolla**

Moderator: Eric Winthers, Bridger-Teton NF

- 1:00 - 1:30 p.m. **Development of Watershed Hydrologist Research at Santee Experimental Forest, Coastal South Carolina**  
Devendra M. Amatya and Carl C. Trettin, Center for Forested Wetlands Research
- 1:30 - 2:00 p.m. **Using Multiple Fine-Sediment Size Classes to Evaluate the Condition of Trout Spawning Habitat**  
Pamela J. Edwards, Northeastern Research Station; Thomas C. Cain, Monongahela National Forest; Charles J. Gagen, Arkansas Tech University.
- 2:00 - 2:30 p.m. **Water Quality Effects of Blue-Green Algal Blooms in Diamond Lake, Oregon**  
Mikeal Jones, Umpqua National Forest; Joseph M. Eilers, MaxDepth Aquatics; Jacob Kann, Aquatic Ecosystems Sciences.
- 2:30 - 3:00 p.m. **ResSims Model Presentation**  
Cheryl Mulder, Eldorado National Forest and Robert Hughes, California Department of Fish and Game
- 3:00 - 3:30 p.m. **Monitoring Exposed! WARM: A Database Tool to Share and Query Watershed Resources Monitoring Information**  
Sherry Hazelhurst and Ken Heffner, Intermountain Region

# Tuesday

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## Watershed Protection and Restoration • Puerta Vallarta

(Room is not handicapped accessible)

Moderator: Ann Puffer, Alaska Region

- 1:00 - 1:30 p.m. **BMP Implementation Monitoring — Keys to Success and Pitfalls to Avoid**  
Jenny Fryxell, USFS Enterprise Team and Julianne Thompson, Tongass National Forest.
- 1:30 - 2:00 p.m. **A Regional Protocol for Monitoring BMP Implementation and Effectiveness on Timber Harvest Operations**  
David J. Welsh and Karen J. Sykes, Northeastern Area State and Private Forestry; Roger Ryder, Maine Forest Service and Tim Post, Maine Forest Service.
- 2:00 - 2:30 p.m. **Watershed Restoration through Hydropower Relicensing**  
Mark Fedora, Ottawa National Forest
- 2:30 - 3:00 p.m. **TRTR Funds – Successes in Watershed Restoration in the Eastern Region**  
Bonnie Ilhardt and Kristine Smith, Eastern Region
- 3:00 - 3:30 p.m. **The Alkali Creek Story: 40 Years of Gully Control**  
Mark Weinhold, White River National Forest

## Valuing the Physical Sciences—Soil • The Voyager

Moderator: Penny Luehring, Southwestern Region

- 1:00 - 1:30 p.m. **Sections and Subsections of the United States: Mapping and Applications**  
David T. Cleland and James E. Keys, USDA Forest Service, Washington Office
- 1:30 - 2:00 p.m. **Soil Compaction Monitoring of 20-Timber Harvest Units on the Ouachita National Forest**  
Ken Luckow, Ouachita National Forest and James M. Guldin, Southern Research Service.
- 2:00 - 2:30 p.m. **Monitoring to Improve the Understanding of Herbicide Fate and Transport in the Sierra Nevada, California**  
Jerome DeGraff, Southern Sierra Province; Brent Roath, Pacific Southwest Region; and Earle Franks, Sierra National Forest.
- 2:30 - 3:00 p.m. **Case Studies in Geobotany: Refining Our Understanding of the Influence of Substrate on Plants**  
Scott W. Bailey, Northeastern Research Station
- 3:00 - 3:30 p.m. **Using Criteria and Indicators of the Northeastern Area of State and Private Forestry**  
Sherri Wormstead and Constance Carpenter, Northeastern Area Research Station



## Valuing the Physical

### Sciences—Air • Coronado Room

Moderator: Bill Jackson, National Forests of North Carolina

- 1:00 - 1:30 p.m. **Adverse Action Declaration to Protect Air Quality Related Values in Class I Areas in the Pacific Southwest Region**  
Suraj Ahuja, Pacific Southwest Region; Mike Arbaugh, Riverside Research Laboratory; Ken Bowers, CARB, Sacramento, CA; Mike McCorison, Beth Plymale, Trent Procter, and Judy Rocchio, Pacific Southwest Region.
- 1:30 - 2:00 p.m. **Using the Critical Load Concept to Protect Ecosystems from Acid Deposition**  
Cindy Huber, Eastern and Southern Regions and Deborah Potter, Southwestern Region
- 2:00 - 2:30 p.m. **The Potential Effects of Acid Deposition: What is a National Forest to Do?**  
Stephanie J. Connolly, Thomas Cain, and Jeremy S. Vestal, Monongahela National Forest; Pamela J. Edwards, Northeastern Research Station.
- 2:30 - 3:00 p.m. **Mercury Deposition and Cycling, and its Effects on Aquatic Resources**  
Chuck Sams, Eastern Region

## Valuing the Physical

### Sciences—Geology • Point Loma 1

Moderator: Pete Peters, Salmon-Challis NF

- 1:00 - 1:30 p.m. **It's What You Don't See that Counts! – Incorporating Geology into Ecosystem Science**  
Melody R. Holm and Jerry Freeouf, Rocky Mountain Region; Klara Varga, Grand Teton National Park.
- 1:30 - 2:00 p.m. **Jokulhlaup in the Wind River Mountains, Shoshone National Forest, Wyoming**  
Liz Oswald, Shoshone National Forest, and Ellen Wohl, Colorado State University.
- 2:00 - 2:30 p.m. **Business Decision Making and Utility Economics of Large Landslides within National Forest System Lands in the United States**  
Tom Koler, Eldorado National Forest
- 2:30 - 3:00 p.m. **Reclamation, Remediation and Hydrologic Monitoring of the Minnie Mine and Millsite, Okanogan County, Washington**  
Rodney Lentz, Okanogan and Wenatchee NF
- 3:00 - 3:30 p.m. **Watershed Planning in Karst**  
Katherine Prussian and Jim Baichtal, Tongass National Forest





## Wednesday, October 20 Science Day

### Plenary

Moderator: Doug Ryan, Pacific Northwest Research Station

- 8:00 - 9:00 a.m. **Keynote: Taking a Long and Broad View in a Changing (Crazy) World • Point Loma 1 & 2**  
Fred Swanson, Geologist, Pacific Northwest Research Station
- 9:00 - 10:00 a.m. **Poster Session I • Point Loma 3**  
Steve Howes, Poster Committee Chair
- 10:00 - 10:30 a.m. **Break**

### Conference Vendors

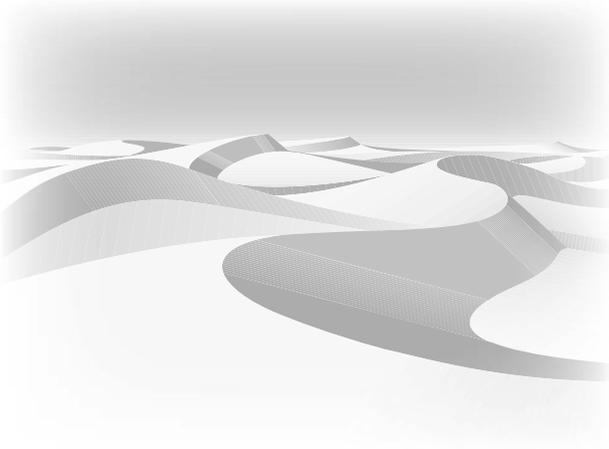
Eureka Environmental Engineering  
Bantec Corporation, Rocky Mountain Bio Products  
Air Resource Specialists, Inc.  
Rivermorph, LLC  
Met One Instruments  
Terra Novo Inc.

## Concurrent Session 2 State of Our Knowledge/Applied Science and Technology

### State of Our Knowledge—Water Management • Del Mar

Moderator: Cal Joyner, Pacific Northwest Region

- 10:30 - 11:00 a.m. **An Examination of the Reference Condition Concept: Results of a Pulse Study in Redwood National and State Parks, CA**  
Tom Lisle, Pacific Southwest Research Station; Ken Cummins, Humboldt State University; and Mary Ann Madej, U.S. Geological Survey.
- 11:00 - 11:30 a.m. **Using Reference Data in Making Management Recommendations**  
Pete Bengelfield, Beaverhead-Deerlodge National Forests
- 11:30 a.m. - 1 p.m. **Lunch**
- 1:00 - 1:30 p.m. **Sediment From a Small Ephemeral Gully in South Carolina**  
William Hansen and Dennis Law, Francis Marion and Sumter NFs
- 1:30 - 2:00 p.m. **Fields with Streams: Re-creating a Meandering Stream in a Channelized Pasture**  
Johan B. Hogervorst, Siuslaw National Forest
- 2:00 - 2:30 p.m. **Lessons Learned from Monitoring of a Couple of Stream Channel Rehabilitation Projects**  
Wes Smith, Bridger-Teton National Forest



# Wednesday

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**Applied Science and Technology—Fire and Smoke • La Jolla** —  
Moderator: Pete Lahm, Southwestern Region, Arizona

10:30 - 11:00 a.m. **Detecting Smoke Plumes and Analyzing Smoke Impacts Using Remote Sensing and GIS for the McNalley Fire Incident**  
Ricardo Cisneros, Sierra National Forest; Andrzej Bytnerowicz, Pacific Southwest Research Station; Brad Quayle, Remote Sensing Application Center; and Trent Procter, R5 Air Program Manager.

11:00 - 11:30 a.m. **Sierra Nevada Smoke Monitoring: Testing Implementation Through a Pilot Program**  
Trent Procter, R5 Air Program Manager, Porterville, CA; Beth Plymale, Air Specialist, Santa Maria, CA; Andy Trent, Engineer, Missoula, Montana; Suraj Ahuja, Air Specialist, Willows, CA; Mike McCorison, Air Specialist, Arcadia, CA; Ricardo Cisneros, Ecologist, Clovis, CA; and Brent Scaggs, Fire Management, Porterville, CA.

11:30 a.m. - 1 p.m. **Lunch**

1:00 - 1:30 p.m. **Smoke Management and Prescribed Fire—Moving Toward a Solution Space**  
Tom Robison, Okanogan-Wenatchee National Forests

1:30 - 2:00 p.m. **Advances in Understanding Fire-Convection Dynamics**  
Brian E. Potter, Joseph J. Charney, Warren E. Heilman, and Xindi Bian, North Central Research Station.

2:00 - 2:30 p.m. **Numerical Modeling of Vortices on Wildland Fires and Their Potential Impact on Fire Behavior and Smoke Dispersion**  
Scott Goodrick, Southern Research Station, and Phil Cunningham, Florida State University.

**State of Our Knowledge—Geology, Geomorphology • Puerta Vallarta** —  
Moderator: Melody Holm, Rocky Mountain Region

10:30 - 11:00 a.m. **The Role of Geology in Sediment Supply and Transport in Coarse Grained Streams**  
Sandra Ryan, Rocky Mountain Research Station

11:30 a.m. - 1 p.m. **Lunch**

1:00 - 1:30 p.m. **Chronic Misapplication of the Relationship between Magnitude and Frequency as Illustrated in Fluvial Process in Geomorphology**  
Tim Sullivan, Northern Region Water Team and Walt Lucas, Pacific Northwest Water Resources Team

1:30 - 2:00 p.m. **A River Runs Underneath It: Geological Control of Spring and Channel Systems and Management Implications, Cascade Range, Oregon**  
Gordan E. Grant, Pacific Northwest Research Station; Christina Tague, Dept. of Geography, San Diego State University; Anne Jefferson, Dept. of Geosciences, Oregon State University; and Peter Wampler, Dept. of Geosciences, Oregon State University.

2:00 - 2:30 p.m. **The Hubbard Glacier, Russell Fiord and Situk River**  
Robert Gubernick and Steven Paustian,  
Tongass National Forest.

## Short Course - FSWEPP • The Voyager —

10:30 a.m. - Noon **FSWEPP**  
William J. Elliot, Rocky Mountain  
Research Station

12:00 - 1:00 p.m. **Lunch**

1:00 - 2:30 p.m. **FSWEPP Continued**  
William J. Elliot, Rocky Mountain  
Research Station

## Forest Roads

### Symposia • Coronado Room —

Moderator: Mike Furniss, Pacific Northwest  
Research Station

10:30 - 11:00 a.m. **Understanding the Hydrologic Consequences of Timber Harvest and Roding: Four Decades of Streamflow and Sediment Results from the Caspar Creek Experimental Watersheds**  
Elizabeth Keppeler, Jack Lewis, and  
Tom Lisle, Pacific Southwest Research  
Station

11:00 - 11:30 a.m. **Lessons Learned from Management Response to Flood Damaged Roads in the Western Washington Cascades**  
James Doyle and Gary Ketcheson, Mt.  
Baker-Snoqualmie National Forests

11:30 a.m. - 1 p.m. **Lunch**

1:00 - 1:30 p.m. **Erosion and Runoff from Forest Roads – A Review of Knowledge and Tools**  
Charlie H. Luce, Rocky Mountain  
Research Station

1:30 - 2:00 p.m. **Forest Road Erosion Research at the Coweeta Hydrologic Laboratory**  
Mark S. Riedel, James M. Vose, USDA  
Forest Service, Coweeta Hydrologic  
Laboratory, and David S. Leigh,  
University of Georgia, Department of  
Geography

2:00 - 2:30 p.m. **Controls on Sediment Production and Delivery Forest Roads: Lessons from the Sierra Nevada and the Colorado Front Range**  
Lee H. MacDonald, Colorado State  
University; Drew Coe, Nooksack  
Tribe, Bellingham, Washington;  
Zamir Libohova, NRCS, Tuscaloosa,  
Alabama; and Ethan Brown, Colorado  
State University.

## State of Our Knowledge—

### Fire Effects • Point Loma 1 —

Moderator: Brent Roath, Pacific Southwest  
Region

10:30 - 11:00 a.m. **Ecological Consequences of Post Fire Emergency Rehabilitation**  
Jeff Bruggink, Intermountain Region

11:00 - 11:30 a.m. **After the Flames Die Down—Using Regional Curves for Discharge and Channel Geometry Determinations, or How to Make Your Colleagues Think You Are Really Smart**  
Terry A. Kaplan-Henry, Sequoia  
National Forest

11:30 a.m. - 1 p.m. **Lunch**

1:00 - 1:30 p.m. **The Entitit Experimental Forest: A Unique Opportunity to Examine Hydrologic Response to Wildfire**  
Richard D. Woodsmith, Pacific  
Northwest Research Station; Kellie  
B. Vache and Jeffrey J. McDonnell,  
Dept. of Forest Engineering, Oregon

# Wednesday

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- State University; Jan Seibert, Swedish University of Agricultural Sciences, and J. David Helvey, Wenatchee, WA.
- 1:30 - 2:00 p.m. **The Effects of Selected Post-fire Emergency Rehabilitation Techniques on Small Watershed Sediment Yields in Southern California**  
Peter M. Wohlgemuth, Pacific Southwest Research Station and Peter R. Robichaud, Rocky Mountain Research Station.
- 2:00 - 2:30 p.m. **Debris-Flow Hazard Assessments for Basins Burned by 2003 Wildfires, Southern California**  
Susan Cannon, J. E. Gartner, M. Rupert, and J. A. Michael, U.S. Geological Survey.

## State of Our Knowledge—Ground Water and Channel Flows • Point Loma 2

Moderator: Pat Fowler, Huron-Manistee NF

- 10:30 - 11:00 a.m. **Variability in Discharge and Sediment Output from Eight Small Streams in the Kings River Experimental Watershed in the Sierra Nevada**  
Sean Eagan, Carolyn Hunsaker, and Marie Lynch, Sierra Nevada Research Center, Pacific Southwest Research Station.
- 11:00 - 11:30 a.m. **Forest Service Channel Maintenance Flows in the Klamath Basin**  
Michael L. McNamara, Wallowa-Whitman National Forest and Tim Sullivan, Northern Region
- 11:30 a.m. - 1 p.m. **Lunch**
- 1:00 - 1:30 p.m. **Keeping Our Streams Flowing – Tonto National Forest Ground Water Policy**  
Rich Martin (ret.) and Grant Loomis, Tonto National Forest

- 1:30 - 2:00 p.m. **New Forest Service Technical Guides for Ground Water Resources Management, Inventory, and Monitoring**  
Joe Gurrieri, Beaverhead-Deerlodge National Forest; Steve Glasser, USDA Forest Service, Washington Office; and Jim Gauthier-Warinner, USDA Forest Service, Washington Office.
- 2:00 - 2:30 p.m. **New Forest Service Policy for Managing Ground Water**  
Steve Glasser, USDA Forest Service, Washington Office
- 2:30 - 3:00 p.m. **Break**

## Plenary

Moderator: Doug Ryan, Pacific Northwest Research Station

- 3:00 - 4:00 p.m. **Keynote: Forests and Water in Light of Scientific Investigation: Redux and Retrospective • Point Loma 1 & 2**  
Dr. Paul Barten, Co-Director, Watershed Exchange and Technology Partnership, University of Massachusetts, Amherst
- 4:00 - 4:30 p.m. **Special Event, “The Life and Times . . .,” Act 2 • Point Loma 1 & 2**
- 6:30 - 7:30 p.m. **Social • Point Loma 1 & 2**
- 7:30 - 8:30 p.m. **Dinner • Master of Ceremonies, Al Todd, Northeast Area State and Private Forestry**
- 8:30 - 9:00 p.m. **Awards • Presentation of Awards by Dr. Ann Bartuska, Deputy Chief, Research and Development**

## Thursday, October 21

### *People Day*

### Plenary

Moderator: Polly Hays, Rocky Mountain Region

8:00 - 9:00 a.m. **The Greatest Good: 100 Years of Forestry in America • Point Loma 1 & 2**

Char Miller, Trinity University

9:00 - 9:45 a.m. **Panel: Leadership Perspectives for Advancing the Fundamental Sciences • Point Loma 1 & 2**

Moderator: Bob Davis, Southwestern Region

Randy Moore, Regional Forester, Eastern Region; Skip Underwood, Director, Minerals and Geology Management, Washington Office; and Gloria Brown, Forest Supervisor, Los Padres NF.

9:45 - 10:15 a.m. **Break**

10:15 - 11:15 a.m. **Panel: The Next Generation's Perspective • Point Loma 1 & 2**

Moderator: Brian Staab, Pacific Southwest Region

Francisco Escobedo, Arapahoe-Roosevelt NFs; Joe Gurrieri, Beaverhead-Deerlodge NFs; Jeff Sorkin, Rocky Mountain Region; and Traci Sylte, Lolo NF.

11:15 a.m. - **Poster Session II • Point Loma 3**

12:15 p.m. Moderator: Steve Howes, Poster Committee Chair

12:15 - 1:00 p.m. **Lunch**

### Concurrent Session 3 *Partnership and Collaboration/ Forest Planning*

#### Partnership and Collaboration I • Del Mar

Moderator: Chris Knopp, USDA Forest Service, Washington Office

1:00 - 1:30 p.m. **Water Quality Monitoring Program at the Watershed Level in the Upper Grande Ronde Basin**

Teena M. Ballard and Paul L. Boehne, Wallowa-Whitman National Forest

1:30 - 2:00 p.m. **Beyond Boundaries: Resource Stewardship in the Skagit River Basin Communities and Public Lands in Partnership—Lessons from the Pacific Northwest**

Greta Movassaghi, Mt. Baker Snoqualmie National Forest

2:00 - 2:30 p.m. **Basin-Scale Restoration Planning and Monitoring in Southwest Oregon**

Mike Mathews, Bureau of Land Management, Oregon and Debra Whittall, USDA Forest Service, Washington Office

2:30 - 3:00 p.m. **The Klamath Adjudication: Success and How it was Achieved by Both the Scientists and the Attorneys**

Holly R. McLean, Office of General Counsel, Portland, Oregon; Tim Sullivan, Program Manager, R1 Water Team, Forest Service, Missoula, Montana; Rich Ford, Fremont-Winema NF

3:00 - 3:30 p.m. **Break**

# Thursday

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## Partnership and

### Collaboration II • La Jolla

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Moderator: Scott Ludwig, Rocky Mountain Region

- 1:00 - 1:30 p.m. **The Coastal Initiative—Innovative Partnerships to Restore Watersheds**  
Karen Bennett, Siuslaw National Forest
- 1:30 - 2:00 p.m. **The Pathfinder Project: A Collaboration Effort to Provide for Instream Flow Management on the GMUG National Forests**  
John Almy and Gary Shellhorn, GMUG National Forests
- 2:00 - 2:30 p.m. **Collaborative Decision Making in Hydropower Relicensing**  
Julie Tupper, Pacific Southwest Region, Regional Hydropower Assistance Team
- 2:30 - 3:00 p.m. **The Cooperative Forest Watershed Management Program in Maryland: Watershed Restoration Across Land Ownerships**  
Anne Hairston-Strang, Maryland Department of Natural Resources
- 3:00 - 3:30 p.m. **Break**

### Puerta Vallarta

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(Room is not handicapped accessible)

- 1:00 - 1:30 p.m. **Interdisciplinary Roles in the Development and Construction of an Aquatic Passage Project**  
David Kim Johansen, Willamette-Siuslaw National Forests
- 3:00 - 3:30 p.m. **Break**

## Forest Roads

### Symposia • The Voyager

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Moderator: Mike Furniss, Pacific Northwest Research Station

- 1:00 - 1:30 p.m. **Erosion and Channel Adjustments Following Forest Road Decommissioning, Six Rivers National Forest**  
Carolyn Cook and Adam Dresser, Six Rivers National Forest
- 1:30 - 2:00 p.m. **Evaluation of National Forest System Road Storage and Decommissioning Techniques: Getting the Most Bang for the Watershed Buck**  
Jessica Gould, Kootenai National Forest
- 2:00 - 2:30 p.m. **Roads in the River: Encroachment, Implications, and Solutions**  
Bill Shelmerdine, Olympic National Forest
- 2:30 - 3:00 p.m. **Effectiveness Monitoring for Road Decommissioning Projects**  
Carolyn Napper, San Dimas Technology and Development Center

## SHORT COURSES

### Forest Plan Revision Multiscale Integration and Prioritization of the Biophysical, Social and Economic Components of Ecosystems within the Southwest Idaho Group • Coronado Room

- 1:00 - 3:00 p.m. John Thornton, John Chatel, Michael Kellett, Kerry Overton, Carey Crist, Steve Trulove and Diana Wall, Southwest Idaho Ecogroup, Boise, Payette, and Sawtooth National Forests

# Thursday and Friday

## Geomorphic Response of Rivers to Dams and Dam Removal • Point Loma 1

1:00 - 3:00 p.m. Gordon Grant, Pacific Northwest Research Station; Peter Wampler and Sarah Lewis, Oregon State University.

## Introduction to Air Quality • Point Loma 2

1:00 - 3:00 p.m. Rich Fisher, Washington Office; Bill Jackson and Cindy Huber, Southern Region; Deborah Potter, Southwestern Region; Trent Wickman, Eastern Region; Scott Copeland, Washington Office; and Jeff Sorkin, Rocky Mountain Region.

3:00 - 3:30 p.m. **Break**

## Plenary

Moderator: Polly Hays, Rocky Mountain Region

3:30 - 4:00 p.m. **Special Event, “The Life and Times...,” Act 3 • Point Loma 1 & 2**

4:00 - 4:30 p.m. **Conference Wrapup • Point Loma 1 & 2**  
Bonnie Ilhardt, Conference Co-chair

4:30 - 5:00 p.m. **Closing Keynote • Point Loma 1 & 2**  
Randy Moore, Regional Forester, Eastern Region

6:30 - 11:00 p.m. **Optional Beach BBQ**

## Friday, October 22

### Conference Events

**FIELD TRIP to 2003 Southern California Fires**

### SHORT COURSES

**Incorporating the Fundamental Sciences into Collaborative Decision Making • Del Mar** \_\_\_\_\_

8:00 a.m. - Noon Janice Staats, USDA Forest Service, National Riparian Service Team

**What You Always Wanted to Know**

**About Water Rights but Were**

**Too Afraid to Ask • Puerta Vallarta** \_\_\_\_\_

(Room is not handicapped accessible)

8:00 - 10:00 a.m. Steve Glasser, USDA Forest Service, Washington Office and Lois Witte, Office of General Counsel, Golden, CO

**The Role of the Physical Scientist**

**as an Expert in Litigation • Puerta Vallarta** \_\_\_\_\_

(Room is not handicapped accessible)

10:00 a.m. - Noon Randall Bramer, Office of General Council, Golden, CO

**Assessing, Predicting, and Modeling**

**Cumulative Watershed Effects • Voyager** \_\_\_\_\_

8:00 a.m. - Noon Dr. Lee H. MacDonald, Colorado State University

**GeoWEPP • La Jolla** \_\_\_\_\_

8:00 a.m. - Noon William J. Elliot, Rocky Mountain Research Station and Chris Renschler, University at Buffalo, Buffalo, NY.





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