BEST PRACTICES FOR
RIVERFRONT COMMUNITIES
TRAINING SERIES

STREAMBANK SOIL BIOENGINEERING & ENVIRONMENTAL BEST PRACTICES

How to Build and Install Vegetative Structures
for Reducing Streambank Erosion

March 25-27, 2014
Utah Cultural Celebration Center

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TRAINING SERIES

Environment Best Practices Workshop

STREAMBANK SOIL BIOENGINEERING & ENVIRONMENTAL BEST PRACTICES

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March 25-27, 2014 - Utah Cultural Celebration Center

AGENDA

TUESDAY MARCH 25, 2014

8:30 – 8:45 Scope of Workshop

8:45-12:00 Best Practices for Riverfront Communities

- Environmental Best Practices
- Improving natural river function
- Improving bank stability
- Managing invasive and nuisance species
- Enhancement of habitat connectivity
- Native plant diversity

Principles of Streambank Bioengineering

- History of Streambank Bioengineering
- Basic principles
- Limitations to vegetation
- Advantages of Streambank Bioengineering

General Riparian Vegetation Concepts
- Vegetation/moisture gradients
- Structure and diversity
- Plant Succession
- Planting zones

Fluvial Geomorphology and Stream Mechanics
- Hydraulics
- Hydrology
- Channel Size and Shape
- Sediment Transport

12:00-12:45 Lunch

12:45-4:30 Stream and Riparian Zone Inventory

Riparian Zone Vegetation Propagation
- Propagation of herbaceous and woody riparian plants

Streambank Erosion Control Measures

Toe Zone Bioengineering Treatments
- Fascine
- Coir log
- Brush Revetment
- Brush Box
- Root Wads
- Log Cribwall
- Lunker

Bank Zone Bioengineering Treatments
- Brush Mattress
- Brush Layer
- Vertical Bundles
- Poles
- Vegetated Geogrid

Overbank Zone Bioengineering Treatments
- Clump Plantings
- Erosion Control Fabric
- Brush Trench
- Containerized Plants

4:30-4:40 Homework Assignment
(review for field exercise)

4:40-5:00 Summary, Questions, Comments, Discussion, Description of field day

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WEDNESDAY MARCH 26, 2014

8:00-12:00 Greetings, Questions and discussion from previous day

Streambank Erosion Control Measures (Continued)

Bioengineering treatments and rock
- Deflectors,
- Brush spurs,
- Vertical bundles behind rock,
- Brush mattress with rock toe,
- Brush Layer with rock toe

Retrofit established rock riprap
- Cuttings with ecosoil
- The Stinger

Vegetation and new rock riprap
- Willows underneath rock
- 45 degree bundles

What were they thinking?
- Various slides that show actual installations with mistakes
- This is a good review of the treatment installation procedures

12:00-12:45 Lunch

12:45-2:30 Riparian Zone Vegetation Identification
- Different types of vegetation
- Identification of most common species
- Invasive and nuisance species

Keys to Successful Streambank Soil Bioengineering
- Inventory
- Accurate Planning
- Deciding Objectives
- Species Selection
- Season of Planting
- Handling Plant Materials

THURSDAY MARCH 27, 2014

9:00-3:00 Field Exercise
- Installation of bioengineering treatments at project site

Bring warm clothes, gloves, extra water, and the Streambank Soil Bioengineering Field Guide for Low Precipitation Areas

ABOUT THE INSTRUCTORS

J. Chris Hoag

Principal, Hoag Riparian & Wetland Restoration, LLC.

Chris Hoag has recently retired from the USDA NRCS as a riparian plant ecologist and the project leader of the Interagency Riparian/Wetland Plant Development Project at the Plant Materials Center in Aberdeen, Idaho. He has been working on riparian systems and wetlands for over 30 years. Chris has been training conservationists, professionals, consultants, and landowners in riparian dynamics, stream bank erosion control techniques, wetland restoration techniques, and wetland plant propagation techniques since 1991. He is currently the principal with Hoag Riparian & Wetland Restoration, LLC, a consulting firm specializing in riparian and wetland restoration projects.

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Eric McCulley
Senior Scientist and Watershed Ecologist, Intermountain Aquatics, Inc.
Eric is currently pursuing a M.S. Watershed Science from Utah State University, and he holds a B.S. Geology from James Madison University. He has experience planning, implementing, and following up on numerous ecological restoration and wetland mitigation projects. His experience ranges from assessment of ecological integrity of wetlands to migratory bird inventory to zooplankton biomass evaluation. He provides guidance to decision makers and their staff on optimizing use of project funds for maximum ecological and societal benefit. He has completed projects related to mapping of hydrology, soils and vegetation; analysis of data on water, plants and birds; monitoring for adaptive management of open spaces, ranches and nature preserves; and restoring wildlife, stream and wetland habitats. He is currently helping several large land owners in the Intermountain West develop sustainable land management programs and regularly provides training and guidance to land stewards and habitat managers. He has provided input on design and oversight for implementation of many stream and wetland restoration projects and currently assists with upland and wetland habitat management on thousands of acres throughout the Rocky Mountain Region.

Ty Harrison, PhD
Professor Emeritus, Westminster College
Ty Harrison is a local professional ecologist, and professor at Westminster College. His research background is in plant physiological ecology, with an area of specialization in grassland ecology and restoration ecology. Ty is a certified member of the Ecological Society of America, and was a botanical consultant for the recent, multi-volume University of Nebraska Press editions of the Lewis and Clark Journals. His teaching experience has included Westminster College, the University of Wyoming, the University of Nebraska, and San Diego State University 1983. Ty is an ecological consultant for a number of Salt Lake City metro area environmental and educational organizations, including the Great Salt Lake Audubon Society, which is managing a large restoration site along the Jordan River in South Jordan. He is also an ecologist in residence working with local high school students throughout the Jordan River Watershed in conjunction with the Center for Documentary Expression and Art. Ty holds a B.S. in Botany from University of Utah, 1964; an M.S. in Botany from UCLA, 1966; and a Ph.D. in Biology from Stanford University, 1971.

Jason Roper
Environmental Engineer, USDA-Natural Resource Conservation Service
Bio coming soon!

Nathaniel Todea
Hydraulic Engineer, USDA-Natural Resource Conservation Service
Bio coming soon!

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REGISTRATION FORM

NAME _____

ORGANIZATION OR AFFILIATION _____

ADDRESS _____

_____

CITY, STATE, ZIP _____

EMAIL _____ **TEL** _____

REGISTRATION

Tier One _____ **$100**

Jordan River Commission member governments, JRC TAC members, non-profits, students, and partner agencies

Tier Two _____ **$250**

All other local, state or federal governments

Tier Three _____ **$400**

Private individuals and companies

Call: (801) 536-4158
Email: lahanson@utah.gov
Jordan River Commission
195 North 1950 West, SLC, Utah 84116

PAYMENT

1. Please make checks payable to:

Jordan River Commission
P.O. Box 91095
Salt Lake City, Utah 84109

2. Charge To: Visa MC AmEx Disc
Circle one

Account # _____

Exp. Date _____ **Security Code** _____

3. Register Online:

www.jordanrivercommission.com/training

WORKSHOP LOCATION

This three-day workshop will be held at the Utah Cultural Celebration Center in West Valley City. 1355 West 3100 South, West Valley City, Utah 84119 Directions are available by calling (801) 965 -5100.

REGISTRATION DETAILS

The registration fee includes a book of speaker materials, lunches and refreshments. The Jordan River Commission's Tax ID is 27-3718105. No refunds or cancellations after March 18, 2014, but substitutions are welcome.

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Jordan River Commission
195 North 1950 West
Salt Lake City, Utah 84116