

# **Applied Watershed Restoration Curriculum Outline**

Craig Sponholtz, Dryland Solutions, Inc.

## **Watershed Patterns and Processes**

- I. Reading Watershed Patterns and Processes
- II. Forms of Runoff and Sediment Transport
- III. Erosion Processes and Deposition Dynamics
- IV. Disturbance Regimes and Regenerative Cycles
- V. Watershed Health, Degradation and Desertification
- VI. Landscape Evolution and Ecological Change

## **Introduction to Watershed Restoration Methodologies**

- I. Restoration Philosophy
- II. Watershed Restoration Principles and Priorities
- III. Natural Channel Design, Induced Meandering and Other Methods
- IV. Agro-Ecological Restoration
- V. Watershed-Scale vs. Reach-Scale Applications
- VI. Restoration Site Selection Criteria

## **Landscape-Scale Passive Water Harvesting**

- I. Source and Sink Relationships
- II. Natural Passive Water Harvesting Features
- III. Traditional Runoff Farming
- IV. Water harvesting Earthworks

## **Restoration Treatments and Structures**

- I. Land Management Improvements
- II. Sheet Erosion Treatments
- III. Rill and Gully Erosion Treatments
- IV. Headcut Treatments
- V. Channel Pattern Adjustments
- VI. Floodplain Access and Expansion
- VII. Restoration Project Case Studies

## **Watershed Restoration Practicum**

- I. Site Assessment and Survey Skills
- II. Restoration Project Design
- III. Project Planning and Logistics
- IV. Site Layout
- V. Hands-on Construction of Structures

## **Course Description**

Increase your working knowledge of **passive waterharvesting, erosion control** and **stream restoration practices** with this intensive, hands-on workshop. Applied Watershed Restoration is designed for landowners and land managers, as well as practitioners, farmers, ranchers, restorationists and advanced students of permaculture. It emphasizes working with, rather than against, nature and will establish the foundational knowledge needed to work effectively with our most precious resource, water. Acquire the critical skills needed to recognize the root-causes of watershed problems and identify the best opportunities to make improvements. Learn how to assess, design, plan and implement projects that utilize runoff as a resource. In addition, gain exposure to cutting-edge watershed restoration methods including natural channel design, induced meandering and agro-ecological restoration. Directly apply these new skills during the watershed restoration practicum portion of the course and graduate with confidence to evaluate the pros and cons of any waterharvesting, erosion control and restoration techniques.