



# **A Soil Bioengineering Guide**

**for Streambank and  
Lakeshore Stabilization**





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## *for Streambank and Lakeshore Stabilization*

U.S. Department of Agriculture Forest Service  
Technology and Development Program  
444 E. Bonita Ave.  
San Dimas, CA 91773  
<http://fsweb.sdtdc wo.fs.fed.us>

**By:**

C. Ellen Eubanks  
Landscape Architect

Dexter Meadows  
Recreation Program Leader, San Dimas Technology & Development Center

**Illustrations and Details by:**

Jill S. Cremer  
Landscape Architect, Angeles National Forest

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# CONTENTS

<b>Preface</b> .....	vii
<b>Acknowledgments</b> .....	ix
<b>Introduction</b> .....	1
Objectives .....	3
Purpose .....	4
<b>Chapter 1: Making the Connection</b> .....	7
Watersheds .....	8
Origin and Purpose .....	9
Sediment and Runoff .....	9
Ecological Integrity .....	10
Healthy Watersheds .....	11
<b>Chapter 2: The Riparian Ecosystem</b> .....	13
Riparian Integrity .....	15
A Different Planning Approach .....	16
Structure and Function .....	16
Nonfunctioning Riparian Ecosystems .....	22
Exploring Riparian Attributes .....	26
<b>Chapter 3: Rivers and Streams</b> .....	35
Distributing the Work .....	36
The Shape of Rivers .....	37
Channel Pattern .....	40
Stream Channel Morphology .....	42

<b>Chapter 4: Planning a Successful Project</b> . . . . .	45
Determine the Desired Future Condition To Set Project Goals . . . . .	46
Partners—Collaborative Stewardship . . . . .	47
Tips for Using Soil Bioengineering Techniques . . . . .	47
Tree Revetments . . . . .	47
Toe Protection . . . . .	48
Keying into the Bank . . . . .	48
Seeding . . . . .	49
Erosion Control Fabric . . . . .	50
Anchors . . . . .	50
<i>Duckbills</i> . . . . .	50
<i>Dead Stout Stakes</i> . . . . .	51
Plants and Climate . . . . .	51
Plant Materials . . . . .	51
Collecting . . . . .	51
Harvesting and Storing . . . . .	52
Planting Live Materials . . . . .	52
Protecting the Project Area . . . . .	52
Tools and Supplies . . . . .	54
Tips from the Experienced . . . . .	55
General Installation Tips . . . . .	55
Phasing Installation . . . . .	56
Planning for Shoreline Protection Measures . . . . .	56
Mean High- and Low-Water Levels . . . . .	56
Potential Wave Parameters . . . . .	56
Beach Slope and Soil Type . . . . .	57
Littoral Transport . . . . .	57
Existing Vegetation . . . . .	57
General Lakeshore Information . . . . .	57
Patching . . . . .	57
Monitoring and Maintenance . . . . .	58
Monitoring . . . . .	58
Maintenance . . . . .	58
Soil Bioengineering Case Studies—Before, During, and After Construction . . . . .	60
The Chena River, Fairbanks, AK . . . . .	61
The Russian River, Chugach National Forest . . . . .	66
Woods Ferry, Sumter National Forest . . . . .	71

<b>Chapter 5: Soil Bioengineering Techniques</b> .....	75
History .....	76
Bank Stabilization .....	77
Techniques and Applications .....	80
Branch Packing .....	80
Brush Layering .....	82
Brush Mattress .....	84
Coconut Fiber Roll .....	86
Hay Bale Breakwater .....	90
Joint Planting .....	92
Jute-mat Log .....	94
Live Cribwall .....	96
Live Fascine/Wattle .....	98
Live Post .....	100
Live Siltation .....	102
Live Stake .....	104
Log Breakwater .....	106
Plant Mat .....	108
Plant Roll .....	110
Rooted Stock .....	114
Root Wad .....	116
Snow Fence .....	119
Terraced Crib .....	120
Tree and Log Revetment .....	122
Trench Pack .....	128
Vegetated Geogrid .....	130
<b>Glossary</b> .....	132
<b>Additional Information</b> .....	140
<b>Appendixes</b> .....	142
Appendix A: Watershed Analysis .....	142
Appendix B: Great Basin Geomorphology and Plant Materials .....	146
Appendix C: Soil Bioengineering Monitoring Sheet .....	152
Appendix D: Ecological Subregions .....	153
Appendix E: Plants for Soil Bioengineering and Associated Systems .....	161
<b>Bibliography</b> .....	184



# PREFACE

A resource officer suggested that the San Dimas Technology and Development Center (SDTDC) publish a guide illustrating the many soil bioengineering techniques being used by various agencies and private industry to stabilize streambanks. That suggestion inspired the creation of this guide. In the 2+ years that it has taken to compile this document, we have learned several valuable lessons from many practicing professionals. Although often thought of as a new technology, soil bioengineering has been practiced for hundreds of years and in the Forest Service as early as the 1930's.

The application of soil bioengineering techniques to stabilize streambanks and shorelines is as effective, and sometimes more effective, than traditional engineering treatments. That is not to say it is the solution for all stabilization problems. As with any problem resolution, the problem must be clearly identified in order to design an appropriate strategy. The first few chapters of this guide are designed to assist with what to look for in assessing what is causing the streambank, riverbank, or shoreline to erode. It encourages one to analyze not only the local ecology of the water body, but also to look at the surrounding influences, natural and manmade, to determine what impacts they are having on the problem area. It is essential that one have a firm grasp of the functions of the watershed and its riparian ecosystem before executing any of the soil bioengineering techniques presented in this guide. Look at the big picture and find the cause. Treat the cause; not the symptom.

The more successful projects involve a team of specialists who understand the dynamics of the water body and the influences of the surrounding ecology. Without this interdisciplinary team of experts, it is quite possible to end up with a costly solution that has little or no impact on the problem and sometimes causes greater harm.

Finally, the management of an area may need to be changed. Sometimes this is all that is required before nature itself will reclaim its rightful ecological functions. Redirect the pedestrian traffic and give the riparian areas a rest. Selectively harvest timber rather than clearcutting it. Decommission old roads and restore old mining areas to their proper functioning condition. The overriding objective is to assure that the integrity of the ecology is protected and remains intact.

It is our desire that this guide be used as a resource for ideas and that the emphasis on discovering the bigger picture does not prevent you from taking action. It is our intent to provide enough information so that you can fix much of what is wrong with your streambanks and shorelines. Sometimes, the scope of the problem can be overwhelming. For additional assistance, contact the authors at SDTDC or other practitioners listed in the Additional Information section on page 140.



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