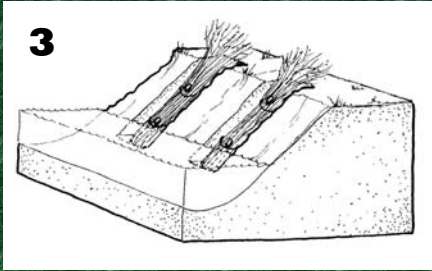


BIOENGINEERING TREATMENTS AND ROCK



BRUSH BOXES



BRUSH BOX BREAKWATER



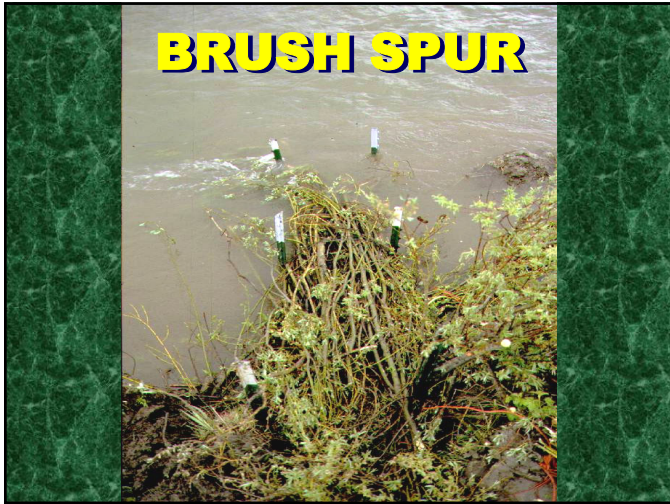
Brush Boxes along the Rhine River in Germany.

Built to protect the *Phragmites* along the shoreline from barge generated waves.



Brush Box on the Coeur d'Alene River







Treatments that support Rock Work



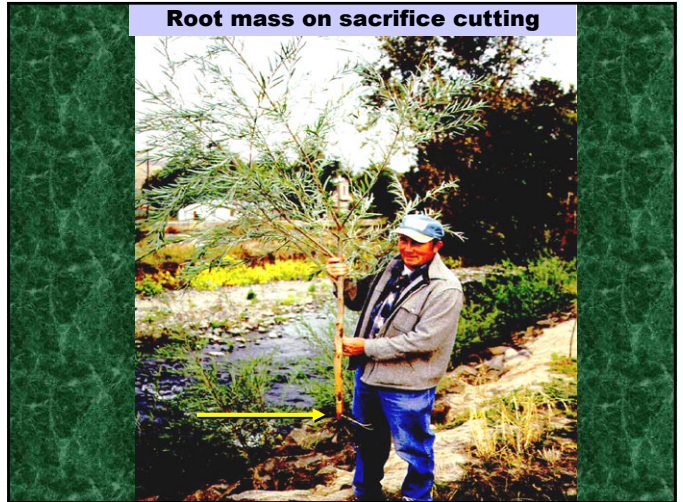
Vertical Bundles behind rock rip-rap

- Grass mowed not removed
- Vertical Bundles placed against bank and tock pulled up to cover them and the bank

Poles in existing rock rip-rap on Lapwai Creek, Idaho



Root mass on sacrifice cutting





Rock rip-rap area with poles in ecosoil as of 2000, planted in 1998

WILLOWS UNDER RIPRAP



Snake River, ID 1998

Willow bundles placed before being covered with rock on the Snake River, ID in March, 1998

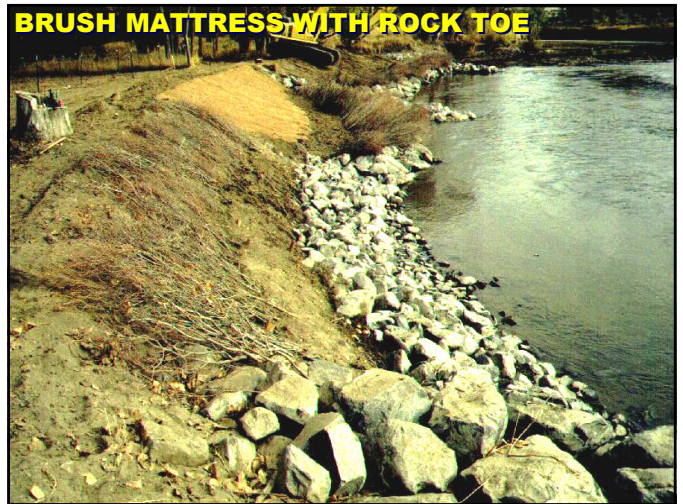


Oct. 1998

Vertical Bundles placed under rock Henry's Lake, Idaho

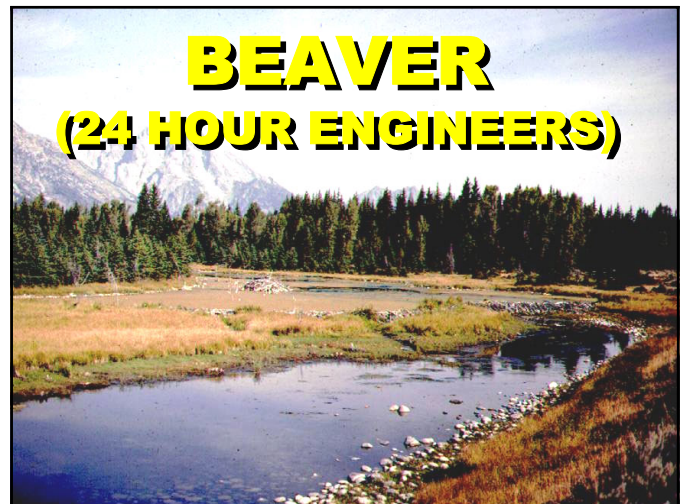


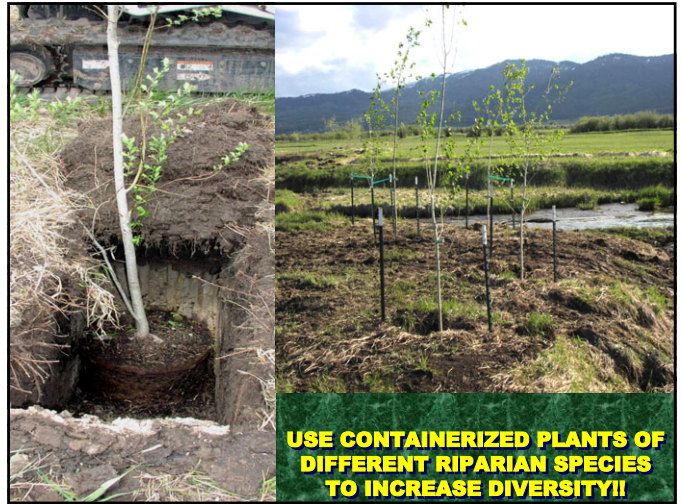
Planted 1999, Eval. 2001





Ending Thoughts on Rivers





What were they thinking?

These are actual streambank soil bioengineering treatments that were installed incorrectly and they subsequently failed. What did they do wrong?





Willow Clump plantings at the end of Brush Box Barbs



Rock Riprap Design

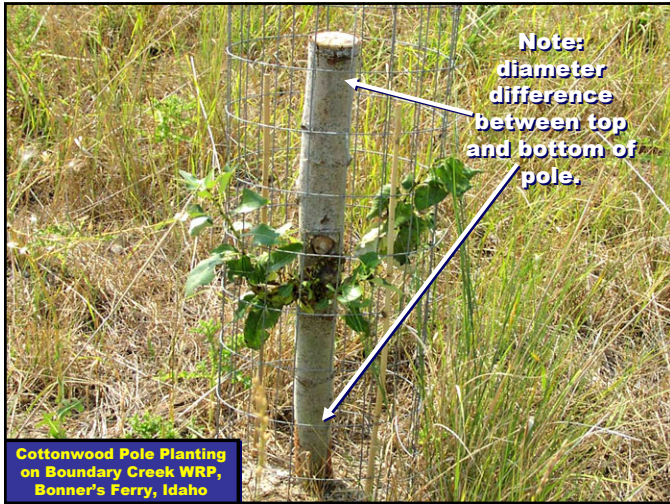


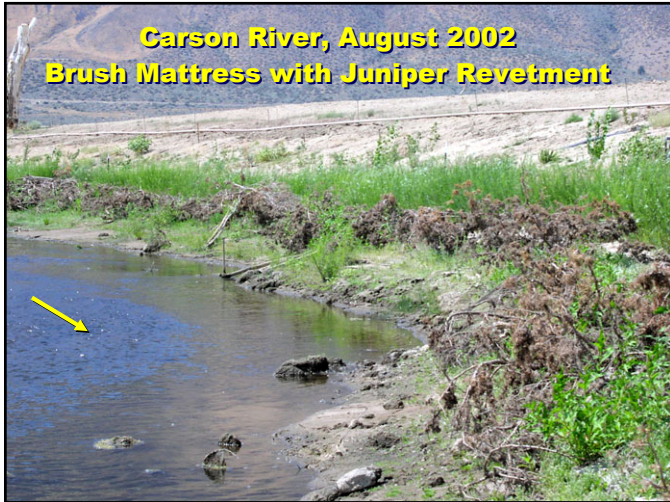
Upstream end of tree revetment on Pack River, Sandpoint, Idaho

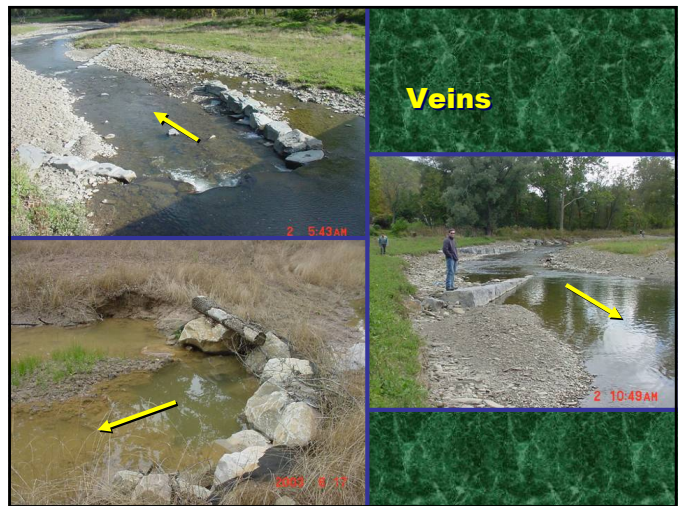


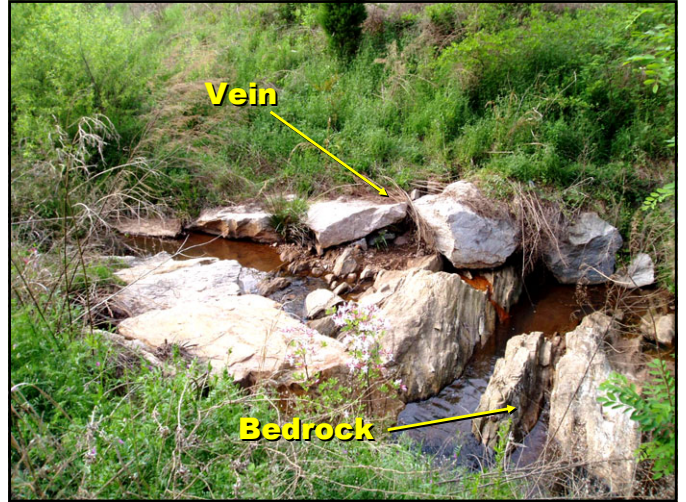
Christmas Tree Revetment installation on San Juan Creek in San Luis Obispo County, CA

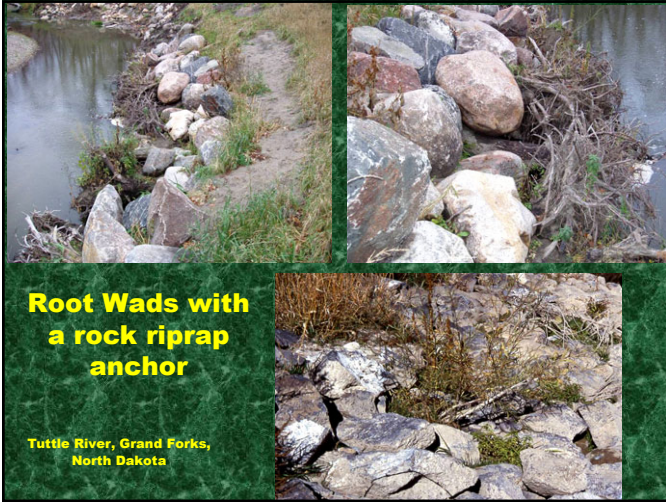






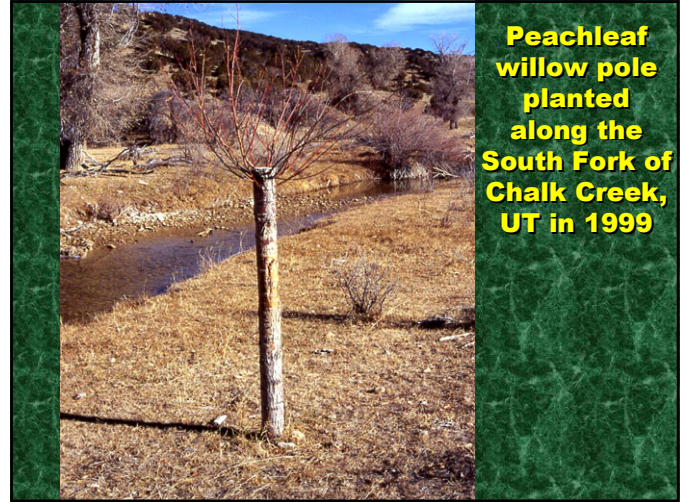






**Root Wads with
a rock riprap
anchor**

Tuttle River, Grand Forks,
North Dakota



**Peachleaf
willow pole
planted
along the
South Fork of
Chalk Creek,
UT in 1999**



**Containerized willow and
dogwood planting layout on
Salmon Creek, WA**

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