The Role of Riparian Vegetation



Riparian Chain Reaction

Adequate Vegetation:

Protects banks from excess erosion Dissipates energy and slows the velocity of floodwater Sediment dropped Sediment trapped and stabilized Floodplain / riparian sponge is enlarged Increased groundwater recharge Base-flow is sustained over time Five General Types of Riparian Plants:

- Sedges / Rushes
- Grasses
- Forbs
- Shrubs
- Trees



Two Functional Groups of Riparian Plants:

Colonizers
 Stabilizers



Colonizers

First plants to establish in freshly deposited sediment

Often spread rapidly by stolons or rhizomes or rooting at the nodes

Roots generally shallow and weak

Critical to recovery

Stabilizers

Strong, robust plants

Able to withstand high energy flows

Strong, deep, reinforcing root systems

Provide bank protection and energy dissipation



Stability Ratings of Riparian Plants Scale of 1 - 10

1 = Bare ground
10 = Anchored rock or large anchored logs
6/7 = Acceptable riparian stability *

Five Wetness Categories

1.	Obligate Wetland	OBL
2.	Facultative Wetland	FACW
3.	Facultative	FAC
4 .	Facultative Upland	FACU
5.	Obligate Upland	UPL

Interpreting Riparian Vegetation

Black willow = 7 FACW

Switchgrass = 9 FAC

Emory sedge = 9 OBL

> Water cress = 3 OBL

Knotgrass (*Paspalum distichum*) Colonizer / Stabilizer FACW; SR= 6



Bermudagrass FACU SR = 5

Spikerush *(Eleocharis)* Colonizer/Stabilizer OBL; SR= 6

Spikerush Seedhead



Rush Juncus sp. OBL SR = 5-7

Bushy bluestem – Colonizer FACW; SR = 5





Inland Sea Oats

FAC SR=6

Switchgrass Stabilizer; SR = 9





Switchgrass







Eastern gammagrass Stabilizer; SR = 9

FAC



Common Reed FACW; SR = 9











Water willow Stabilizer; SR= 7 OBL

Root Length; Miles per Cubic Foot



Rootmass; Pounds per Acre


Woody Plants

Tree Roots Reinforce Creek Banks

Black Willow Stabilizer; FACW; SR= 7 / 8

Cottonwood FAC SR = 6/7

Box elder Maple FACW SR = 6



Bur oak FAC SR = 6

0



 $\frac{\text{American Elm}}{\text{FAC}}$ $\frac{\text{SR} = 6}{\text{SR}}$

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Mexican ash / Cedar elm FAC SR = 6



Cypress OBL; SR = 10

Dwarf Palmetto FACW; SR = 8

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Buttonbush Stabilizer OBL; SR = 8

Indigobush Amorpha OBL SR= 7

Rough-leaf Dogwood FAC SR=6





Large Wood











Evaluating Riparian Vegetation





Multiple Age-class - Reproduction

Young Cypress

Mature Cypress

and the second

Mature switchgrass plants



Young, new switchgrass plants

Plant Diversity

Sycamore

Common reed

Spikerush

Bulrush



Willow

Species indicative of wet conditions OBL; FACW; (FAC)

Plants indicate large water table

"Riparian Sponge"





Rootmass – Stability







Plant Vigor

Plant Vigor-Leaves and Roots

Caring for the Green Zone, Riparian Areas and Grazing Management Alberta Riparian Habitat Management Project, "Cows and Fish Project"










Adequate amount of vegetation cover 70% coverage of stabilizing riparian vegetation







Source of Large Wood



Wood is Good

Vegetation Indicators:

Multiple age classes?



Plant diversity?

Plants indicative of wet conditions?

Stabilizing root mass?

Plant vigor?

Amount of plant cover?

Source of large wood?

Key Functions of Riparian Vegetation:

Dissipate Energy Reduce Erosion Trap Sediment Help Create / Enlarge Riparian Sponge

Slow Down the Water

