Wetland Sod for Bio-engineereed Streambank Stabilization and Wetland Revegation[ab]

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Wetland sod is a pre-vegetated coconut fiber mat containing well-established native plants that have been grown hydroponically to achieve high initial root density. It provides immediate soil stabilization and accelerated revegetation for stream and wetland restoration projects. In 2002-2003 we used wetland sod and other materials to stabilize 1340 m of eroding streambanks at 6 sites on the Teton River, SE Idaho, a predominantly groundwater-fed, free-flowing system. Before construction, banks averaged 1-1.5 m high and 1:1 or steeper slope, with silty clay loam texture and vegetation dominated by introduced pasture grasses. Using stable, natural reference sites as a guide, banks were excavated, reconstructed at an average slope of 4:1, and stabilized using long-term erosion control fabric, wetland sod planted with native sedges and rushes, and containerized willows and rooted and dormant cuttings. Within 1 month, wetland sod was fully rooted and could not be displaced by human or animal disturbance. Bank treatments successfully established native plant communities and withstood cattle trampling, grazing and peak flow events over 1 year. Total cost was $246/linear meter including design, permitting, construction, revegetation, irrigation and weed control. In a replicated field experiment in Teton County, Wyoming, we compared wetland sod and six other wetland revegetation methods in an off-stream, floodplain setting. Wetland sod and other methods using vegetative plant materials provided superior establishment of target species compared to broadcast seeding, passive revegetation, or salvaged marsh surface. Wetland sod was uniquely effective in reducing establishment of invasive, exotic, and other undesirable species.