

ESTABLISHMENT OF SUBMERGENT VEGETATION AND INVERTEBRATES IN A WETLAND CONSTRUCTED ON MINE SPOIL

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Because of their functions in substrate stabilization, nutrient uptake, and wildlife habitat, submerged aquatic macrophytes are essential for successful wetland restoration and creation. However, techniques for establishment of submergents have been slow to develop. Southern naiad (*Najas guadalupensis* (Spreng.) Magnus), coontail (*Ceratophyllum demersum* L.), and sago pondweed (*Potamogeton pectinatus* L.) were compared to borrowed-wetland soil during 1992 and 1993 growing seasons at three water depths (20, 50, and 80 cm) within an experimental wetland on Texas Utilities' Big Brown Mine in eastern Texas. Percent cover was determined during both seasons, and above-grown biomass (AGB) and associated macroinvertebrates were sampled at all water depths in 1993.

The borrowed-soil treatment generally had significantly ($P < 0.05$) higher total submergent AGB, percent cover, species richness, and invertebrate taxon richness than single-species treatments. Locally collected southern naiad and coontail produced greater percent cover than nursery stock. Success in submergent establishment and macroinvertebrate abundance generally increased with water depth, while emergent macrophytes establishment from borrowed soil were most successful at 20 cm. Results indicated borrowed soil by beutilized alone, or in conjunction with plantings of locally abundant species to successfully establish submergent macrophytes and associated invertebrates in wetland reclamation efforts.

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