Homeowners Guide to Erosion Control

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Whether the land is in the country or the city, movement of water across the property causes erosion. Controlling erosion is a matter preventing soil displacement. Controlling water movement and binding the soil are the major methods of preventing this soil displacement.

Controlling water movement depends on the amount of water, the terrain, and the type of soil. Water movement may be a trickle after a rain or along the edges of a creek, river, or lake. Erosion on a slight slope after rain can be controlled almost exclusively by plants. Erosion control on a small stream or pond depends on the steepness of the slope and type of soil. Erosion control on a large river or lake also depends on the slope and type of soil, but artificial materials may also be needed.

On a slight slope with only occasional water movement or slow water movement, the soil can be bound with plant material. Using plants native to the area is the most cost-effective way to do this because they will naturally bind the soil as well as survive the native weather patterns and wildlife encroachment.

On a steeper slope or with faster moving water, some rearrangement of the soil as well as plant material may be needed. Terracing, artificial water courses, French drains, or ponding may be needed to slow down the water movement. Once that is achieved using plants can help disburse water more naturally.

Along areas where water flows constantly or laps against a shore, some kind of retaining feature may be needed. These features might include large boulders, piers, or other types of retaining material. In addition, created water courses will help funnel the water to the most desirable area. Once that is done, plants can be added starting in the water between or near the retaining feature and moving inland. Using plants with deep or wide spreading roots help stabilize the soil. Using bog plants in and around the water course helps to stabilize it without overly hindering the water movement.

The use of the area where the erosion occurs can also impact the type of material used. If the water movement is in an area with foot or other type of traffic, a more solid surface may be the start of the project. Using gravel, concrete, or other hard surfaces may be necessary, but the more water permeable the better. If the traffic is light, mulches or ground covers can be used instead. Once the hard

surface is in, create areas to gather or slow down the water and add plants to further disperse the water.

As can be seen, no matter the slope, soil, or movement, plants are large part of the program. Plants help slow down the movement of the water, absorb some of the water, and hold the soil in place as the ground absorbs the water. The variety of leaf structure and plant size also help disperse the rain as it falls to the ground. Basically, hard surfaces are used the protect areas of heavy traffic or areas of excessive water movement.

Since plants are such an important component of erosion protection, it is necessary to select plants that can assist in the protection. Plants with deep roots help hold the soil together vertically. Plants with wide-spreading roots help hold the soil together horizontally. Both of these are needed to stabilize the soil. Also, plants that have adapted to larger amounts of water need to be where the water stands or flows, whereas plants that are adapted to drier soils help stabilize the dryer areas of the slope.

The charts below show plants that would help with soil erosion. The charts include the common and scientific names of the plants, the soil type needed for the plant, type of root structure, water and light needs, plant size, and miscellaneous information.

The first chart covers trees and shrubs. These large plants will hold larger areas of soil as well as protecting the ground beneath them. Plan the placement of these plants to channel water as well as hold the soil.

The next chart is the mid-sized plants. These plants include annuals, biennials, and perennials. The perennials and biennials will hold the soil in place year around, while the annuals contribute color and spring to fall erosion control.

The last chart is the grass and groundcovers. These can be medium-sized to small, but they all cover the ground more densely than those in the second chart. Also, they create clumps or mats that help hold the soil year around.

Working with nature instead of against it will provide more success in controlling erosion. Using the slope of the land and plants along with artificial products as needed helps keep the soil in place.

Trees/Shrubs

Common Name	Scientific Name	Height	Light	Root Structure	Soil	Water	Growth Habit	Notes
Box Elder Box Elder Maple Ash-leaved Maple Ashleaf Maple Red River Maple Fresno De Guajuco	*Acer negundo*	35-50’		Fibrous		Moist	Deciduous Tree	
Scarlet Buckeye Red Buckeye Firecracker Plant	*Aesculus pavia*	10-40’	Part Shade	Taproot	Sand, loam, clay, limestone	Moist	Deciduous Tree/Shrub	Forms thickets
Bluewood Condalia Brasil Brasilwood Bluewood Logwood Purple Haw Capul Negro	*Condalia hookeri*		Part Shade	Deep root system	Sand, loam, clay, caliche	Dry	Perennial Semi-evergreen Shrub/Tree	Forms thickets
Texas Persimmon Mexican Persimmon Black Persimmon Chapote Prieto	*Diospyros texana*	10-15+’	Sun, Part shade	Rhizomatous	Limestone, clay, caliche	Dry	Perennial Deciduous / semi-evergreen Tree	Forms thickets

Black Walnut Eastern Black Walnut American Black Walnut	*Juglans nigra*	50-80’	Sun, Part shade	Taproot	Deep loam	Moist	Deciduous tree	Chemical from root harms pines, azaleas, and crabapples
Osage Orange Bois d' Arc Bodark Horse Apple Hedge Apple Bowwood Yellowwood Naranjo Chino	*Maclura pomifera*	36-72’	Sun	Diffuse & Lateral	Loam, Clay	Dry	Perennial Deciduous Tree	
Red Mulberry Moral	*Morus rubra*	12-36’	Sun-Shade	Horizontal roots with vertical sinkers	Sand, Loam, Clay	Dry, Moist	Perennial Deciduous Tree	
American Sycamore Eastern Sycamore American Plane Tree Plane Tree Buttonwood Buttonball Tree	*Platanus occidentalis*	75-100’	Sun-Shade	Strong spreading	Loam	Moist	Perennial Deciduous Tree	

Eastern Cottonwood Carolina Poplar Necklace Poplar Alamo	*Populus deltoides*	40-100’	Sun, Part Shade	Woody shallow spreading	Sand, loam, clay, caliche	Dry, Moist	Perennial Deciduous Tree	Easy to establish
Honey Mesquite Glandular Mesquite Algarroba	*Prosopis glandulosa*	20-30’	Sun	Taproot	Sand, loam, clay, caliche	Dry	Perennial Deciduous Tree	
Escarpment Live Oak Plateau Live Oak Hill Country Live Oak Texas Live Oak Scrub Live Oak Plateau Oak Encino Molino Tesmoli	*Quercus fusiformis*	30-40’	Sun	Taproot	Sand, loam, clay, limestone	Dry	Perennial Evergreen Tree	
Bur Oak Burr Oak Savanna Oak Overcup Oak Prairie Oak Mossy-cup Oak Mossy-overcup Oak Blue Oak	*Quercus macrocarpa*	60-80’	Sun, Part Shade	Taproot	Sand, loam, clay, caliche	Dry	Perennial Deciduous Tree	Very large acorns

Black Willow Gulf Black Willow Swamp Willow Sauz	*Salix nigra*	-		Extensive root system				
Bald Cypress Baldcypress Common Bald Cypress Southern Bald Cypress Deciduous Cypress Southern Cypress Swamp Cypress Red Cypress White Cypress Yellow Cypress Gulf Cypress Tidewater Red Cypress	*Taxodium distichum*	45’	Sun, Part Shade	Woody with fibrous feeder roots	Sand, loam, clay, limestone	Moist	Deciduous Conifer Tree	Only deciduous conifer

Cedar Elm Fall Elm Basket Elm Scrub Elm Lime Elm Texas Elm Southern Rock Elm Olmo	*Ulmus crassifolia*	30-60’	Sun, Part Shade	Deep	Sand, loam, clay, caliche, limestone	Moist, dry	Perennial Deciduous Tree	
Huisache Texas Huisache Sweet Acacia Perfume Acacia Mealy Acacia **Mealy Wattle** Cassie	*Vachellia farnesiana*	15-20’	Sun	Long & deep	Sand, loam, clay, caliche	Dry	Perennial Deciduous Tree	Forms thickets
Desert Hackberry Spiny Hackberry Shiny Hackberry Granjeno Huasteco	*Celtis ehrenbergiana*	6-12’	Sun, Part shade	Extensive root system	Sand, loam, clay, rocky	Dry	Perennial Deciduous / Evergreen Shrub	
Common Buttonbush Buttonbush Button Willow	*Cephalanthus occidentalis*	6-12’	Part Shade, Shade	Fibrous	Sand, loam, clay, limestone	Moist, Wet	Perennial Deciduous Shrub	

Prostrate Bundleflower Wild Tantan Slender Mimosa	*Desmanthus virgatus*	1-3’	Taproot	Perennial Herb/ subshrub

Perennials/Annuals/Biennials

Common Name	Scientific Name	Height	Light	Root Structure	Soil	Water	Growth Habit	Notes
Huisache Daisy Butterfly Daisy Honey Daisy	*Amblyolepis setigera*	6-15”	Part Shade	Taproot	Sand, loam, caliche	Low	Annual Herb	
Partridge Pea Sleepingplant Sensitive Plant	*Chamaecrista fasciculata*	1-3’	Sun, Part Shade	Nitrogen fixing	Sand, clay, loam,	Dry, Moist	Annual Deciduous Herb	Nitrogen fixing roots

Evening Rain Lily Evening Star Rain Lily	*Cooperia drummondii*	10-12”	Sun, Part Shade	Bulb	Clay, sand, limestone, caliche	Dry, Moist	Perennial Deciduous Herb	
Indian Blanket Firewheel Girasol Rojo	*Gaillardia pulchella*	1-2’	Sun, Part Shade	Tap root	Sand, loam	Dry	Annual Herb	
Maximilian Sunflower Max Sunflower	*Helianthus maximiliani*	3-10’	Sun	Fibrous, Rhizomatous	Sand, loam, clay	Dry, Moist	Perennial Herb	Forms colonies
Scarlet Sage Tropical Sage Blood Sage Red Sage Indian Fire	*Salvia coccinea*	2-3’	Sun - Part Shade	Deep root system	Sand, loam, clay, caliche	Moist, dry	Deciduous Perennial	Annual in cold areas, Can be mown
Tall Goldenrod Late Goldenrod Canadian Goldenrod Canada Goldenrod	*Solidago altissima*	2*7’	Sun, Part Shade	Fibrous	Sand, loam	Dry	Perennial	Forms colonies

Plateau Goldeneye Sunflower Goldeneye Toothleaf Goldeneye Chimalacate	*Viguiera dentata*	3-6’	Sun, Part Shade	Extensive root system	Sand, loam, clay, caliche, limestone	Dry	Biennial
Orange Zexmenia Hairy Wedelia Wedelia Texas Creeping-oxeye	*Wedelia acapulcensis* var. *hispida*	1.5-2’	Sun, Part shade	Dense & tangle	Sand, loam, clay, caliche, limestone	Dry	Shrubby Perennial

Grass/Groundcover

Common Name	Scientific Name	Height	Light	Root Structure	Soil	Water	Growth Habit	Notes
Bushy Bluestem Brushy Bluestem	*Andropogon glomeratus*	2-5’	Sun	Fibrous	Sand, clay, loam	Moist, Wet	Perennial Deciduous Grass	

Sideoats Grama Banderilla Banderita Navajita	*Bouteloua curtipendula*	1-3’	Sun, Part Shade	Fibrous	Sand, clay, loam	Dry, Moist	Perennial Grass	Mow once in June and after first frost
Buffalograss Buffalo Grass	*Bouteloua dactyloides*	3-12”	Sun	Fibrous	Loam, clay, caliche, limestone	Dry	Perennial Semi-evergreen Grass	Requires only 1.5” of rain a month
Hairy Grama	*Bouteloua hirsuta*	10-18”	Part Shade	Fibrous	Sand, loam, clay	Dry	Perennial Grass	
Silver Bluestem Silver Beardgrass	*Bothriochloa laguroides*	1-3’		Fibrous			Perennial Grass	
Texas Grama	*Bouteloua rigidiseta*	6-15”	Sun	Fibrous	Sand, loam, clay	Dry	Perennial Grass	
Hooded Windmill Grass Hooded Windmillgrass	*Chloris cucullata*	1-3’	Part Shade	Fibrous	Sand, loam	Moist	Perennial Grass	

Inland Sea Oats Indian Wood Oats Wild Oats River Oats Flathead Oats Upland Oats Upland Sea Oats	*Chasmanthium latifolium*	2-4;	Part Shade, Shade	Fibrous	Sand, loam, clay	Moist	Perennial Deciduous Grass	Can make a solid mat
Canada Wild Rye Canadian Wildrye Prairie Wildrye Nodding Wildrye	*Elymus canadensis*	2-6’	Sun, Part Shade	Fibrous	Sand, loam, clay, limestone	Moist	Perennial Deciduous Grass	Cool season grass
Curly-mesquite	*Hilaria belangeri* var. *belangeri*	4-6”	Sun	Fibrous	Rocky, caliche, sand, loam, clay	Dry	Perennial grass	Forms a dense sod
Green Sprangletop	*Leptochloa dubia*	2-3’	Part Shade	Fibrous	Sand, Loam, Clay, Rocky	Dry	Perennial Grass	
Little Bluestem Popotillo Azul	*Schizachyrium scoparium*	1-2’	Sun, Part Shade	Deep & fibrous	Sand, loam, clay, caliche, limestone	Dry	Perennial grass	

Indiangrass Yellow Indiangrass	*Sorghastrum nutans*	3-5’	Sun, Part Shade	Dense, deep, fibrous & tangled	Sand, loam, clay, limestone	Moist	Perennial grass
Eastern Gammagrass Fakahatchee Grass	*Tripsacum dactyloides*	2-3’	Sun, Part Shade	Dense & fibrous	Sand, loam, clay	Moist	Perennial grass
Multi-flowered False-rhodesgrass Multiflower False Rhodes Grass Showy Chloris	*Trichloris pluriflora*	1-3’	Sun	Shallow & fibrous	Clay	Moist	Perennial Grass