

6. River Edge Treatment - Floodplain Wetland/ Aquatic Shelf

This treatment involves cutting back the existing bank to create a shallow aquatic shelf that would support native emergent and aquatic vegetation. The newly created slope should be planted with native riparian vegetation. Applicability of this treatment is limited to areas with sufficient space to allow grading the banks back a sufficient distance to create a shallow shelf. The width of the shelf could be a little as 5 feet or as great as 50 or more feet to create a backwater "slough." This treatment can significantly increase aquatic and riparian habitat. With adequate width and vegetation establishment, flow and wave erosion pressure at the water's edge can be substantially reduced. However, it may be necessary to provide some level of hardened stabilization at the edge of the channel (but below the normal water level). The reestablished slope should be seeded, covered with an erosion control blanket, and planted with native plugs as necessary.

The establishment of different plant communities along the hydrologic gradient (e.g., permanently inundated to saturated soil conditions), provides the chance for a diversity of vegetative species. This in turn provides the opportunity for a diversity of fauna species within the varied microclimatic habitats. For example, a backwater slough habitat would provide refuge for fish during storm events and this area may be inundated after storm events for a sufficient time period to provide amphibian and small fish habitat. This will then provide foraging opportunities for wading birds and some mammals (e.g., raccoons). Later in the season when the slough area becomes a mud flat, this will provide a different foraging niche for sandpiper and similar shore bird species. The width of created wetland habitat will determine the various usages of the habitat; less width will provide some cover and foraging opportunities; more extensive width (50 feet or greater) will provide better cover, more foraging opportunities, and potential for nesting habitat.

Advantages:

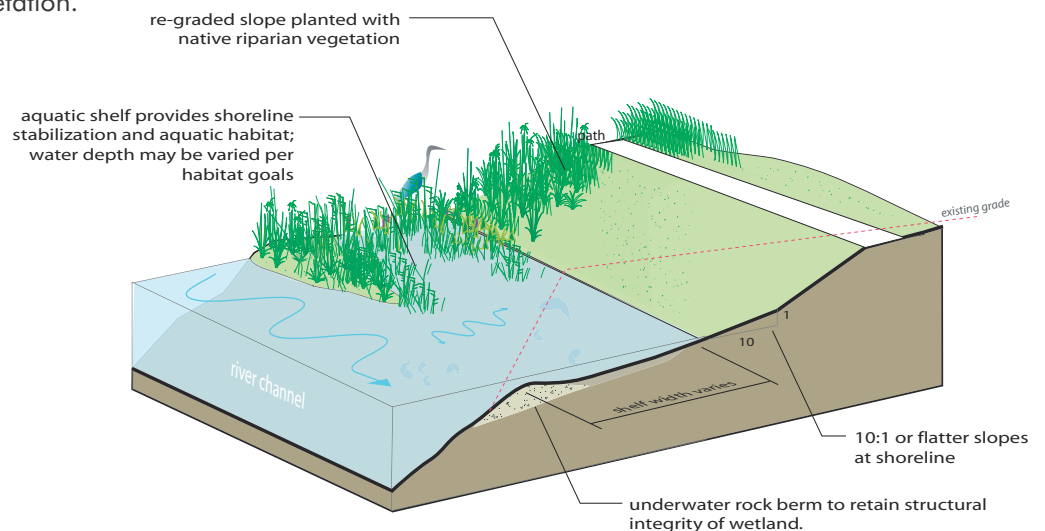
- If properly integrated into the river edge and adjacent landscape, floodplain wetland/aquatic shelf can provide long term stabilization of the shoreline.
- Creates excellent wetland and aquatic habitat for a variety of aquatic wildlife.
- Elevation of the shelf relative to normal water level and the degree of direct connection with the river can be varied to achieve different plant community and habitat goals.
- The river is extended into the park enhancing the aesthetics of both the river and the park.
- Provides additional opportunities for environmental interpretation and programming.

Disadvantages:

- Adequate landward space is required to create the shelf and the back slope.
- Depending on the height of bank, the amount of material to be removed may be very large, therefore costly.
- Excessive silt deposition could limit plant communities that can be established.
- Requires commitment during vegetation establishment period.
- Long-term commitment for monitoring and management.

Maintenance:

- Interface between shelf and channel will need to be inspected for scouring.
- Routine management of plant communities, typical of other created wetlands, including control of invasive vegetation and burn management.
- Replacement of lost vegetation.



1. Slope Treatment - No Grading

In many areas, the bank slope is relatively stable; therefore, no regrading of the slope is necessary. However, there are areas where dense growth of invasive trees and shrubs with insufficient groundcover is leading to surface erosion. Tree canopy should be selectively thinned to allow sunlight in order to establish native riparian cover to address surface erosion.

The reestablishment of a native vegetative cover, which is primarily native grasses and forbs, will provide cover habitat and a food source for small mammals and birds, as well as a breeding habitat and food source for insect species. If native shrub species are interplanted within the “prairie” or “savanna” communities, this will provide an additional layer of structure for breeding, foraging, and cover opportunities for wildlife.

Advantages:

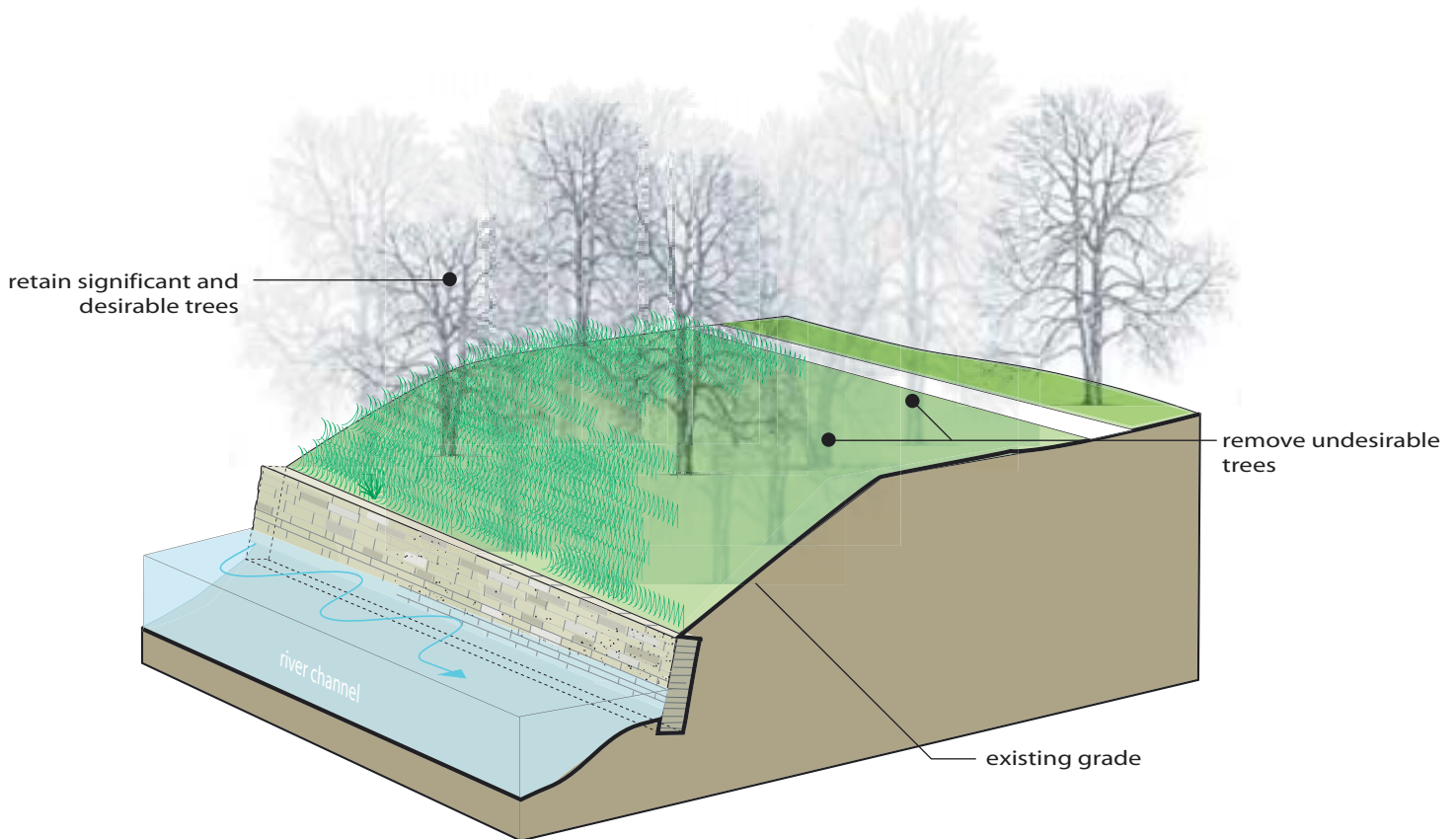
- No major site disturbance – allows retention of existing desirable trees.
- Vegetative management creates an environment for native plant growth and wildlife.

Disadvantages:

- Where slopes are relatively steep but stable, access down to the water may be limited.
- Success of long term slope stability may be dependent upon vegetative establishment.
- Establishment of vegetation may be difficult on steep, shaded and north facing slopes.
- Where slopes are steep and high, toe stabilization is critical to maintain slope stability.

Maintenance:

- Burn management is recommended for establishment of a native vegetative community.
- Initial establishment period (years 1 – 3) would require more intense weed control via mowing or string trimmer, herbicide treatment, etc. for control of weedy and undesirable non-native species.



Note: The “no grading” slope treatment is shown with “stacked flat rock” toe stabilization.

2. Slope Treatment - Regrading

Where bank slopes are steep and unstable, regrading may be required. In most cases, regrading will require partial or complete removal of existing vegetation (trees and other vegetation). This provides an opportunity to plant more desirable riparian tree species and native vegetation. The establishment of deep rooted native herbaceous plant communities on the regraded slopes is necessary to prevent soil erosion. Erosion blankets must be used to provide temporary protection against sheet and rill erosion and to facilitate vegetative establishment.

The potential wildlife habitat for this treatment would be similar to the no grading treatment option (if native communities are reestablished under that treatment application). However, this treatment, may create a wider habitat depending upon the extensiveness of the proposed grading. Development of a wider habitat provides increased potential of breeding conditions for some bird and small mammal species. For example, data collected of minimum riparian buffer strip widths required to support breeding bird populations in Iowa resulted in more generalist species such as cardinal, black-capped chickadee, and downy woodpecker requiring buffer widths of 11 to 15 meters. Mid-range buffer widths of 35 to 90 meters supported bird species such as great crested flycatcher, hairy woodpecker, and red-eyed and warbling vireos. More substantial buffer widths, 150 to 200 meters, are needed for more specialist species such as blue-gray gnatcatcher, ovenbird, and scarlet tanager.*

Advantages:

- Structures not needed to stabilize slopes, providing a natural appearance.
- Immediate solution, creates “clean template” to established desired plant communities and provides appropriate slopes minimizing erosion problems.
- The establishment of native vegetative communities provides wildlife habitat opportunities and creates a pleasing aesthetic.

Disadvantages:

- Usually requires removal of many or all existing trees, shrubs, and other vegetation, which creates a temporarily barren landscape.
- Establishing trees and herbaceous vegetation is necessary.
- Requires room to perform regrading.

Maintenance:

- Routine inspection of new vegetation establishment.
- Invasive species control including but not limited to burn management, mowing, string trimmer, herbicide treatment, etc.
- Replanting and reseeding as necessary.

* Reference: Fischenich, J.C. and Copeland, R.R.(2001). “Environmental considerations for vegetation in flood control channels,” ERDC TR-01-16, U.S. Army Research and Development Center, Vicksburg, MS.

