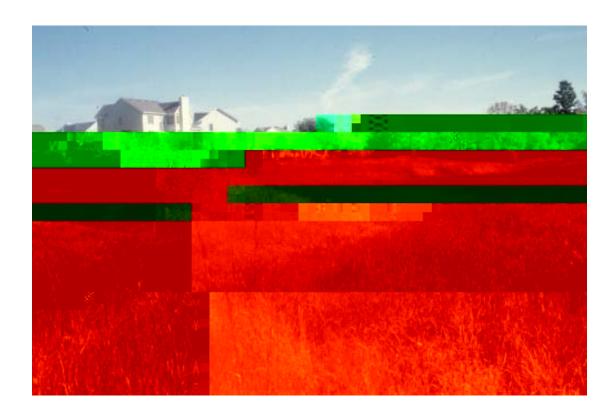


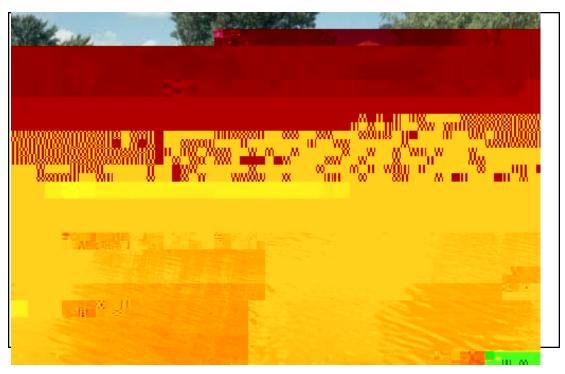
In December 1997, the publication "Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois" (commonly known as the Native Plant

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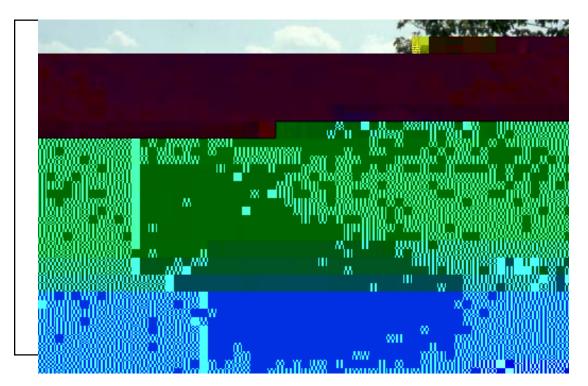


We't bot tom detention basins incorporating emergent shoreline plantings discussed in this Guide can prevent shoreline erosion and add an aest het ically appealing appearance as depicted in the photograph above. As shown below, wet land detention basins that incorporate emergent plants across the basin bot tom provide greater wildlife habit at and water quality benefits.





The phot ograph above illust rates the more traditional approach to stormwater basins with mowed turf grass shorelines, which can erode and cause water quality problems. The photograph below shows a stormwater basin with native plantings for shoreline stabilization and upland slope buffer. The shoreline and buffer plantings reduce erosion, improve water quality and wildlife habit at, and reduce maint enance costs.

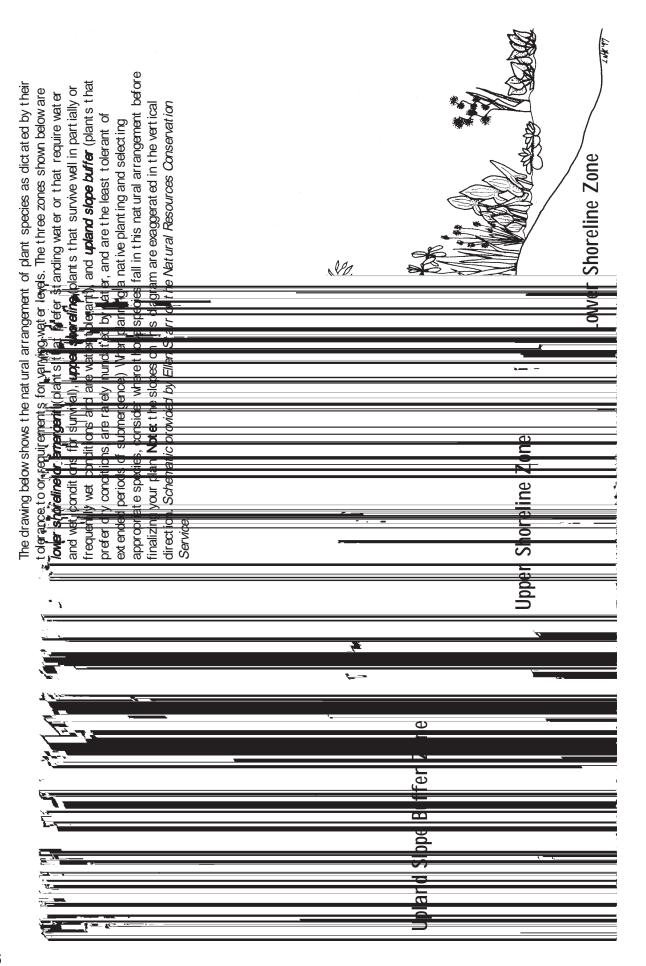


The following illust rations on the Root Systems of Prairie Plants and the Plant Zone Schematic are available in a large 11x17 size as a PDF file. You may download the large size illust rations at:

ft p://ft p-fc.sc.egov.usda.gov/IL/t echres/npg/NPGpp5-6-11x17.pdf

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In order to gain the most benefit from the concepts and information presented in this Guide, users must understand the purpose of the Guide and its limitations and must consider the detailed species-specific information. It is important to emphasize at the outset that this Guide is intended to encourage the use of native plant species along streams and in and around stormwater facilities instead of traditional landscaping. It is NOT intended for wetland or prairie restorations or creations, particularly those restorations or creations implemented as part of a Gean Water Act permitted mitigation plan.

Increased urban development in nort heast ern Illinois has result ed in major changes in the area's hydrologic regime. Preset t lement informat ion indicates that only a small percent age of precipit at ion in a given wat ershed act ually result ed in measurable runoff. In the preset t lement landscape, most precipit at ion was able to infilt rate into the soil. Today, st reams which originally meandered have been st raight ened and channelized to carry larger flows. St ormwat er det ent ion basins are utilized to temporarily st ore excess st ormwat er generated by impervious surfaces and compacted lawns, as well as displaced floodplains and wet lands. Erosion commonly occurs along st reambanks and edges of det ent ion basins as a result of increased st ormwat er discharges and large fluct uations in wat er levels.

Tradit ional met hods to control erosion and stormwater management problems have included structural measures such as rock and concrete structures, rip-rap, seawalls, and nonnative plant materials, such as reed canary grass and Kentucky bluegrass. In nort heast ern Illinois and elsewhere, there is a growing interest in the use of native plants to landscape and stabilize these areas. This approach, recommended or required by many natural resource and regulatory agencies, takes advantage of the deep-rooted native species that historically stabilized the soil, slowed runoff, facilitated infiltration, and decreased erosion prior to development of the area. These species may also offer a more aest het ically pleasing solution to the stormwater and erosion challenges of an urban area, while providing better wildlife habitat.

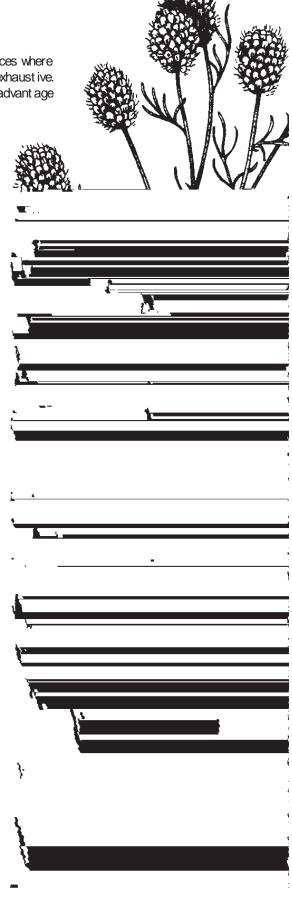
Nat ive plant ings can also provide economic benefits. The "bot t om line" can be a st rong mot ivat ion for inst alling and maint aining nat ural landscaping inst ead of convent ional turfgrass. The major savings is in the lower cost of landscape maint enance. Over a ten year period, the combined costs of inst allat ion and maint enance for nat ural landscapes may be one-fifth of the costs for convent ional landscape maint enance.

Using native veget at ion along st reams and in and around st ormwat er facilities also provides wat er quality benefits. Pollut ants in st ormwat er can be removed by native veget at ion through a combination of mechanisms. Physical, biological, and chemical pollut ant removal mechanisms are documented to occur in wet lands and other natural communities. These mechanisms include nutrient uptake, sedimentation, adsorption, precipitation and dissolution, filtration, biochemical interactions, volatilization, and infiltration. More detailed information can be found in Strecker, et al. (1992), Adamus, et al. (1987), and others. In addition, the processes that occur in natural wet lands, which we try to emulate in stormwater management facilities, are described in Mitsch and Gosselink (1993), Galatowitsch and van der Valk (1994), Marble (1992), Hammer (1992), and van der Valk (1989). The reader who wishes to pursue a more complete wet land restoration is referred to these

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Information was obtained from published scientific literature sources where available, though the literature search should not be considered exhaustive. Locally-based restoration practitioners were interviewed to take advantage of the most current but as yet unpublished information on restoration and establishment techniques. In some instances this local experience conflicted with literature information. In



veget at ed conditions, lower order (smaller) st reams show little erosion over decades. Larger st reams often show erosion on the out side bank of bends, but under natural veget at ed conditions, this becomes a part of the naturally meandering st ream morphology. Under natural conditions, st ream channels are continuously changing as the out side banks of the meanders are carved out while deposition continues on the point bars. With the urbanization of the region, society has sought to keep st reams in one place so as to not disrupt the man-made environment. Furthermore, many st reams have been st raight ened to increase conveyance and provide surface and subsurface drainage to urban and agricultural landscapes. This has caused increased velocities and in turn increased erosion. To exacerbate this further, increasing amounts of impervious surface increase the flow rates and volumes in urban st reams after each st orm event. In many places, these high velocity, st raight ened channels are lined by shallow-rooted turf grass areas and other features of the urban landscape. In this type of setting nearly all of the factors that once held st reambanks in place have been removed. By reest ablishing deep-rooted native veget at ion along st reams, st reambanks can be st abilized in a more natural and longer lasting way.

Bioengineering or bio-erosion control in some cases involves the use of structural elements such as coconut fiber rolls, concret e A-jacks, lunkers, and ot hers. In most cases it also involves the establishment of native vegetation. This native vegetation can be herbaceous or woody, depending on the situation. In most cases the banks have become



Sources of Design Information

The overall design of any stormwater management facility or streambank stabilization project is very important. If designed inappropriately, it will be very difficult, if not impossible, to establish native species. It will also be difficult to realize any of the water quality or habitat benefits. A brochure entitled Stormwater Detention Basin Retrofitting available from the Northeastern Illinois Planning Commission (NIPC) provides guidelines for incorporating best management practices (BMP) and native plantings into existing facilities. NIPC also has a course curriculum not ebook for Urban Stormwater Best Management Practices for Northeastern Illinois and a Source Book:

Natural Landscaping for Public Officials, which provide design guidelines and encourage the use of native plantings.

For st reambank and shoreline st abilizat ion met hods and design information, Appendix A in the St reambank St abilizat ion Program report (RUST 1995) available from DuPage County Depart ment of Environment al Concerns is a recommended reference. The latest edition of the Illinois Urban Manual (NRCS/IEPA) is also a good reference for design information and specifications. Bioengineering t echniques are becoming increasingly popular nationwide and new information is continually appearing in the literature. The Illinois State Water Survey has done extensive work on st reambank st abilization and can be contacted for further information or refer to "Field Manual of Urban St ream Rest oration," (Gaboury, et al., 1996) for more comprehensive st ream rest oration information. Other references may be available from your county Soil and Water Conservation District or from the local offices of the agencies that produced this Guide (See Appendix C).

Slopes

In most stormwater management facilities and streambank projects attempting to use native reget at ion, the most gent le slopes possible should be used. Steeper slopes magnify the erosive forces and make it more difficult to establish the plant material before a major erosion event damages or destroys the plantings. Gradual slopes (no steeper than 5:1 horizontal: vertical) are particularly important along the shorelines of ponds and detention basins. Most native plants are adapted to the gent le slopes that surrounded natural ponds and wetlands or were present along streams in the presett lement condition. Appropriate BMP's for soil erosion and sediment control (see Illinois Urban Manual) should be used during construction at sites where native veget at ion will be installed.

Soils

The condition and type of soil at the site where native plants are to be established are also import ant factors. Many native species are widely distributed in the United States and naturally grow in many soil textures and soil types. For most users of this Guide, however, the soil present will be a natural soil profile, but rather a regraded situation with topsoil placed on the site as a with medium. Soil compaction is a common cause of failure in wet land restorations and other native plantings. Care must be taken to ensure that soil compaction is minimized so that the plant roots can obtain water and oxygen. A minimum of one foot of topsoil applied with the least compaction possible is recommended. A soil with a coarser texture (higher sand and silt content than clay) is recommended because it reduces the potential for compaction. A mineral soil with a high organic content is also recommended. Organic matter in the soil increases water holding capacity, reduces compaction potential, and provides plant nutrients. Care should also be taken to ensure that the soil used does not contain a large number of weed seeds that would compete with the native plantings. Organic soils, such as peat or muck, present special problems if their hydrology is modified and should be avoided above the water line if possible.

Installation & Establishment

Detailed information is provided for each species on germination requirements and recommended establishment practices. Particular attention should be given to recommendations on seeding versus live plants or rootstock. There is no single best time to plant or seed. Generally, live plants and rootstock should be planted in the spring, approximately from last frost until mid-June. For seeding, fall or spring sowing are options. Spring seeding can be performed from March 1st through May. Fall seeding or dormant seeding can be performed after November 15. Some species are inhibited by fall planting while others are favored by fall planting. Summer seeding and planting in July, July, or August can be used if necessary, but only with adequate irrigation. Where specific information is available, this information is given within the establishment cat egory for each species. The information provided assumes adequate seedbed preparation that includes a relatively smooth topsoil surface, free of stones, clods, sticks and other debris. Also please consult the section on soils. Recommendations are given with each species for seeding or planting method.

Water Levels

Information is provided concerning water depth preferences and inundation tolerances for all species. This information should be used with the overall guiding principle that native plants are adapted to seasonal flooding and flooding of short duration. Prior to the intensified flooding problems brought on by urbanization, natural flooding occurred occasionally, but mostly in the spring with spring rainfall and snow melt. It did not occur with each major storm event throughout the summer, as occurs in many detention basins. Many native plants cannot tolerate the widely fluctuating water levels often associated with stormwater facilities. An effort should be made to reduce or dampen the water level fluctuations and flood plantings only for short durations during the growing season. It is also important to keep in mind that many mature wetland plants can survive flooding or inundation, but the seedlings cannot. Natural marshes go through an annual draw-down cycle as well as during droughts to allow germination of new plants, which allows these seedlings to become established. Provision should be made to lower the water levels during the critical establishment period.

Irrigation

While est ablished deep-root ed native plants are generally drought resistant, some irrigation of new plantings may be

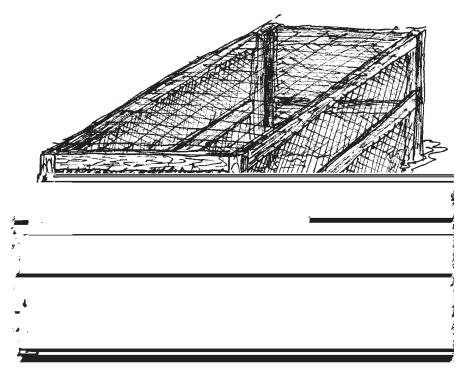


Figure 1.
Framed goose-protection
structure. Made of wood and
chicken wire (hardware cloth),
this sturdy cage protects newly
planted material while
allowing them to establish in a
natural setting. The structure
is put in place for a period of
several months, and then
removed once plants are well
established.

Figure 2.

Netted goose-protection structure. This is a more cost-effective version than the framed structure depicted above. While still providing reasonable protection from predators, the materials for constructing this device are relatively less expensive.

and is event ually replaced by the desired native veget at ion. Many contractors have strong preferences on cover crop composition. Recommended species frequently included are: annual ryegrass (Lolium multiflorum), red top (Agrost is alba), timothy (Phleum pratense), wild ryes (Elymus spp) (native), oats (Avena sativa), barley (Hordeum vulgare), rye (Secale cereale) and others. Some native species such as smart weeds (Polygonum spp), rice cut grass (Leersia oryzoides), and barnyard grass (Echinochloa crusgalli) can also serve this purpose. Species that will persist and compete with the desired native veget at ion such as Hungarian or smooth brome (Bromus inermis), Kent ucky bluegrass (Poa pratensis), and fescue (Fest uca spp) should be avoided. Properly applied nonallelopathic mulch or erosion control blanket should be used on steeper slopes. Erosion control blankets are recommended on detention basin side slopes and in veget at ed swales where flowing wat er is present. Some native species require light for germination. This should be considered when selecting either a cover crop, mulch, or erosion blanket.

Growth Rates

It may appear that many of these native plants are very slow growing, as reported in some landscape literature sources. It should be noted, however, that for most native plants the strategy is to grow a deep root system before putting energy into above-ground growth. While it may appear that they are slow growing initially, they are simply growing beneath the ground where the growth cannot be seen, but where it will provide the important soil stabilizing benefits.

Fertilizer

As mentioned under the nutrient loading tolerance section, most native species do not require any traditional fertilization to become established. Fertilizer application promotes the growth of many undesirable weeds and should not be used. Traditional landscaping specifications should be modified to discourage fertilization of native plantings.

Depredation

Depredation refers to the problem of wildlife eating the plant material, including root stock, plant shoots, and seeds. Many of the native plant species described in this Guide are an excellent wildlife food source. When a large amount of seeds and root stock are put into an unvegetated area, it is an attractive smorgasbord of food for urban wildlife, especially resident giant Canada geese. Protective measures are required to prevent the loss of native plantings. Installation contractors have a variety of protection methods. Ourrently, the most successful technique involves cells or compartments of plastic or nylon mesh. The mesh must cover the sides and top of each cell or compartment and be able to prevent animals from getting under the fence. It is very important that these protective measures be monit ored and maintained until the plants become fully established (See figures 1 and 2).

Naturally Invading Plant Species

There are many species of plants that may volunteer in an area of native vegetation planting. Some of these will present problems, some will not. There may be some species which are desirable natives that have appeared from a soil seed bank or that were blown or carried in from nearby sites. There will be some annual or biennial weeds that colonize recently disturbed soil, but do not persist when the planted material competes with it. Thus these species will drop out and not present any problems. A third group of species that may appear, however, are very aggressive and will overtake planted material without management and intervention. These include such species as reed canary grass (*Phalaris arundinacea*), common reed (*Phragmites australis*), buckthorn (*Rhamnus cathartica, R frangula*), and purple loosest rife (*Lythrum salicaria*). These species tend to form monocultures (single species) and do not provide the soil-holding capacity that desired natives provide. These species can be controlled in time with various management tools. Initially, these species may need to be controlled with selective herbicide application. This should be applied in a manner that does not impact other nearby plants and is consistent with the label indications and best management practices. A licensed applicator must be used. Prescribed burning over time will promote the desired native species and reduce many of these non-fire adapted invaders. Mowing can also be used to control some of these species. Techniques used in a given area depend on which problem species are present, setting and context of the area, and preferences and recommendations of the installation contractor.

Mowing and Prescribed Fire

Most native plant species are adapted to a natural regime of fire and limited grazing. In a modern urban context, prescribed fire is used as a primary management tool to sust ain native plant communities. Prescribed burning requires an Open Burning Permit from the Illinois Environmental Protection Agency (IEPA), permission from the local Fire Department, and a qualified, experienced contractor or crew. Prescribed burning can be done in urban settings in most instances, with proper planning, smoke management, and contingencies. Where burning is not possible, or in the early stages of establishment, mowing can be used as a management tool for native plantings. To reduce weed competition in early stages, native vegetation establishment areas should be mowed once or twice per year with a mower height of 6-12 inches. Normal turf management type mowing is inappropriate and will result in the loss of native plantings. See Appendix B for a list of prescribed burn contractors in nort heast ern Illinois.

Other Considerations

There are many factors that contribute to the success or failure of any given native vegetation planting, just as there are with engineered structures and traditional landscape plantings. This Guide attempts to provide the best available information at the time of publication, but is not an exhaustive reference nor a definitithemh noseopts to provide the bation at Orl

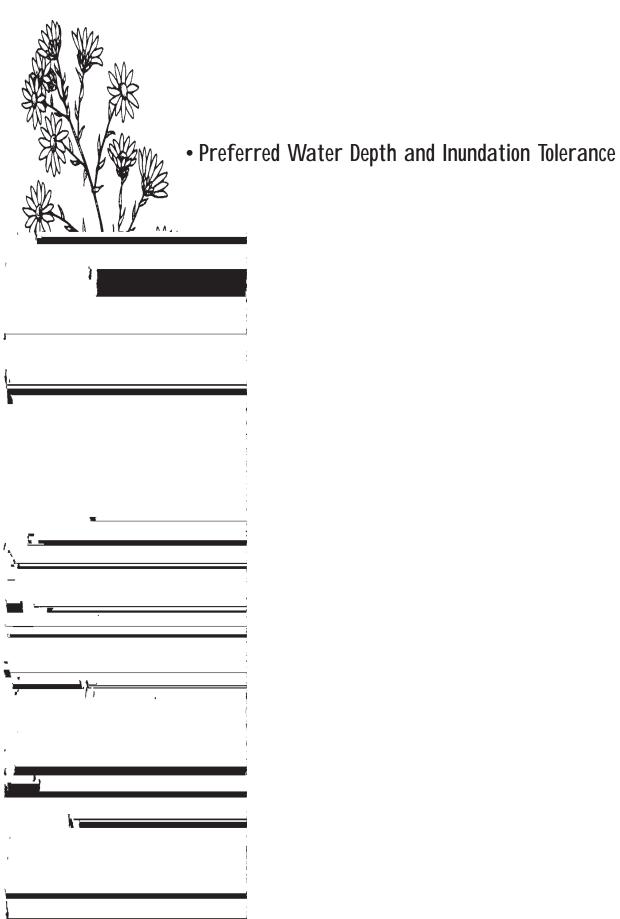
Streambank Stabilization

											0.02-0.06
Quercus bicolor	Swamp White Oak	Moist	Upper shoreline, upland buffers	50-70 ft.	Deciduous tree	FACW+	Low	Low	Low	Full sun	Not Applicable
Quercus macrocarpa	Bur Oak	Moist to Mesic	Upland buffers	60-70 ft.	Deciduous	FAC-	Low to Hight	Low	Low to Moderate	Full sun	Not Applicable
Quercus palustris	Pin Oak	Moist to saturated	Upland buffers	Up to 75 ft.	Deciduous tree	FACW	Low	Low to Moderate	Low	Full sun	Not Applicable
Ratibida pinnata	Yellow Cone Flower	Mesic	Upland buffers	Up to 3 ft.	Perennial herb	UPL	Low to Moderate	Not Available	Low	Full sun	Not Available

0.5-2.0	
Full sun	
Moderate	
Low to Moderate	
Moderate to High	
FACW+	
Perennial grass	
5-7 ft.	
Upper shoreline, streambanks, upland buffers, veg. swales	
Saturated	

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Fraxinus pennsvlvanica	

Arrow W



• Mature Height

This cat egory provides a range which indicates the height above ground that a plant species may achieve when mature. Note that many deep-rooted native species can



Acorus calamus

Sweet Flag

Preferred Water Depth and Inundation Tolerance

Prefers 6-20 inches (Max: 24"/ Min: 0"). Species tolerates seasonal inundation, but may be killed by inundation of 1 foot or more of water for prolonged periods.

Wildlife Value

Provides wat erfowl habit at. Muskrats will eat rhizomes. Wood ducks eat seeds. Medicinal plant with antibacterial compounds.

Application/Zone

Used in lower shoreline zones and veget at ed swales. Rhizomes and roots form a mat in upper 4-8 inches of soil.

Availability, Establishment, and Maintenance

- Transplants, rhizomes and seeds are common and available from commercial vendors.
 - elinegerm 0.cmx56 Tmn0.cmmszoneuain Ddva-ydeincced J-S38.16 ISB/TTn5suo19 lo vh.t l62ndcm

Sweet Flag

Acorus calamus

Mature Height 2-6 feet

<u>Plant Type</u> Perennial emergent herb

<u>Indicator Status</u> Obligat e

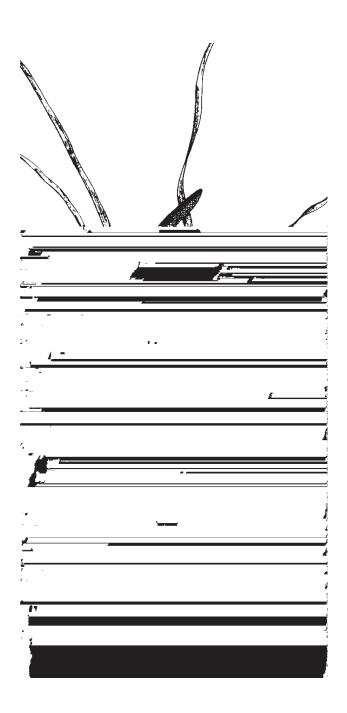
<u>рН</u> 5.9-8.8

Nutrient Load Tolerance Low

Salt Tolerance Low

Siltation Tolerance Low

Flowering Color and Time Green/brown



Alisma subcordatum

Common Water Plantain

Preferred Water Depth and Inundation Tolerance

Prefers 0-6 inches, shallow marsh (Max: 20"/Min: 0"). Species tolerates periodic inundation of short duration. Found in mudflat and shoreline areas that dry up by the end of the season.

Wildlife Value

Achenes are eat en by wat erfowl, songbirds, pheasants and rodents. Plants provide shade for fish. Leaves are sometimes eat en by rabbits and deer.

Application/Zone

Used in upper and lower shoreline zones, for st reambank st abilization, and in veget at ed swales.

Availability, Establishment, and Maintenance

- Achenes, transplants, and rootstocks are available from commercial vendors.
 Abundant achene production, approximately 144,000 per plant.
- Achenes require scarification to break dormancy which can be done with sandpaper. May require oscillating temperatures in moist (underwater) conditions and/or light for germination.
- Good plant establishment occurs when fresh achenes are broadcast in wet mudflats or around shorelines in the fall as this provides these treatments naturally.
- Achenes retain viability when stored in water under cold temperatures for 6 months.
- Root st ocks and t ransplant s may be plant ed 2-5 inches deep in soil at a spacing det ermined by project design.
- This species is present and viable in the seedbank found in many hydric (wet land) soils.

Andropogon gerardii

Big Bluestem

Preferred Water Depth and Inundation Tolerance

Prefers moist soil. Mesic prairie species that survives in wet prairies and fens. Species is not tolerant of flooding, but is drought tolerant.

Wildlife Value

Big Bluestem

Andropogon gerardii

Mature Height 3-9 feet

<u>Plant Type</u> Perennial grass

Indicator Status
Facult at ive (-)

<u>рН</u> Wide range

Nutrient Load Tolerance Low

Salt Tolerance Low

Siltation Tolerance Low

Flowering Color and Time
Bronze to steely gray-blue
July to September

<u>Light Preference</u> Full sun

Seeding Rate 2 lbs/acre



Aster laevis

Smooth Blue Aster

Preferred Water Depth and Inundation Tolerance

Can tolerate wet-mesic conditions for short durations and seasonal inundation. Species prefers dry upland areas.

Wildlife Value

Attracts orange sulphur butterflies.

Application/Zone

Used to slow stormwater runoff and provide upland slope buffer stabilization.

- Easily propagated from seed. No germination treatments are needed.
- Seeds can be stored dry.
- Out tings may be root ed.

Smooth Blue Aster

Aster laevis

Mature Height 3-5 feet

<u>Plant Type</u> Perennial herb

Indicator Status [Upland]

<u>рН</u> 5-6.5

Nutrient Load Tolerance Low

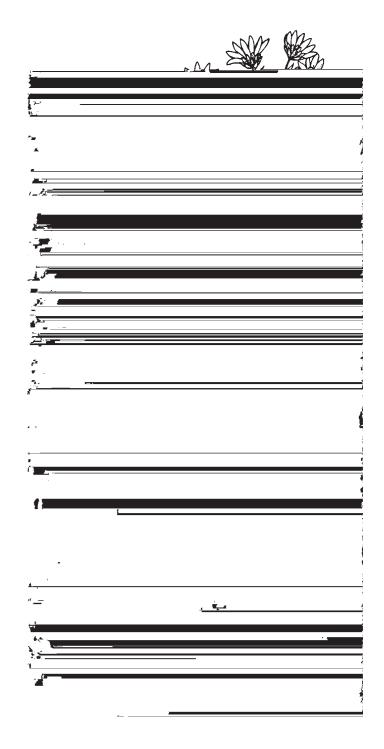
Salt Tolerance Low

Siltation Tolerance Low to moderate

Flowering Color and Time Lavender-blue August to October

<u>Light Preference</u> Partial to full sun

Seeding Rate
.02 - .125 lbs/acre



Aster lanceolatus

Panicled Aster

(A. simplex)

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soil. Germinating seedlings are killed by 2 days of inundation. Mature plants can tolerate short periods of shallow flooding. Panicled Aster is more tolerant of inundation than New England Aster.

Wildlife Value

Provides wat erfowl cover.

Application/Zone

Used in upper shoreline zone and as upland slope buffer stabilization. Also used in veget at ed swales.

- Transplants, achenes, and rootstocks are available from several commercial vendors.
- Moist stratification benefits germination of achenes, but this cold treatment may not be required.
- Drill or broadcast achenes in the fall and cover them lightly with soil.
- Mat ure plant s may be divided in the late fall or early spring.
- Most Asters studied germinate readily at 70° F.
- Can be very weedy and aggressive.

Panicled Aster

Aster lanceolatus

(A. simplex)

Mature Height 2-4 feet

<u>Plant Type</u> Perennial herb

Indicator Status
Facult at ive Wet

pH Not available

Nutrient Load Tolerance Moderat e

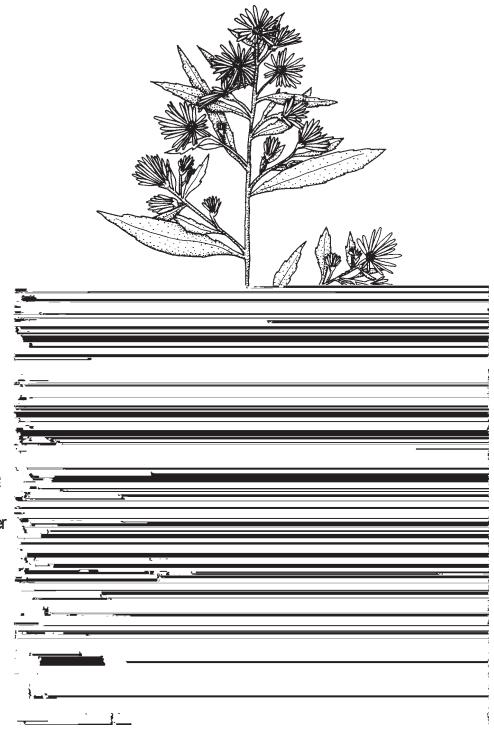
Salt Tolerance Moderat e

Siltation Tolerance High

Flowering Color and Time White August to September

<u>Light Preference</u> Partial to full sun

Seeding Rate
.06 lbs/acre



Aster novae-angliae

New England Aster

Preferred Water Depth and Inundation Tolerance

Prefers moist soil to wet-mesic conditions. Species has limited inundation tolerance. Germinating seedlings are killed by 2 days of inundation. Mature plants appear to tolerate short periods of shallow flooding in natural areas but not in reconstructed wet areas.

Wildlife Value

Provides wat erfowl cover. At tracts but terflies and honeybees.

Application/Zone

Used on moderate side slopes in prairie matrix. Used in upper shoreline zones and for upland slope buffer stabilization.

- Transplants, achenes, and rootstocks are available from several commercial vendors.
- Fresh achenes or achenes stored dry produce 95-100% germination in 3-8 days. Moist stratification of fresh achenes benefits germination. Drill or broadcast achenes in the fall and cover them lightly with soil for natural stratification.
- Mat ure plant s may be divided in late fall or early spring. Pinching back young growt h before July will cause plant s to bush out. Spring cut tings of 1.5-2 inches may be root ed in sand.
- An April-May drawdown st imulates seed germination and plant growth. New England Aster can be aggressive and form monocultures.

New England Aster

Aster novae-angliae

Mature Height 16.5 feet

Plant Type Perennial herb

Indicator Status
Facult at ive Wet

<u></u> 5.5-7

Nutrient Load Tolerance Moderat e

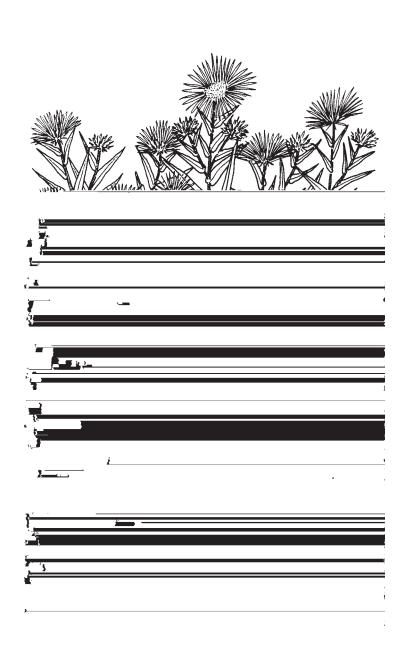
Salt Tolerance Low

Siltation Tolerance Moderate

Flowering Color and Time
Violet/purple, yellow cent er
-greenhouse grown plants
may vary in color
August to October-

<u>Light Preference</u> Partial to full sun

Seeding Rate
.03 - .2 lbs/acre



Bidens cernua

Nodding Beggarsticks

Nodding Bur Marigold

Preferred Water Depth and Inundation Tolerance

Prefers saturated soil. Species tolerates seasonally flooded conditions for short durations.

Wildlife Value

Provides wildlife cover. Wat erfowl, shorebirds, songbirds, and small mammals consume achenes.

Application/Zone

Used in upper shoreline zones and in veget at ed swales. A good pioneer species.

- Plant's and achenes are available from commercial vendors.
- Achenes should be broadcast on wet mudflats or shorelines and raked into the soil.
- Achenes require cold (34-36° F) moist stratification for several months before being exposed to warm temperatures for optimum germination.
- Achenes may be fall plant ed aft er drawdown on mudflat s or shorelines to allow wint er exposure. Drawdown in early summer will cause explosive growth from fall plant ed achenes.
- Early summer shallow flooding followed by drawdown promotes best seed product ion from est ablished plants.

Nodding Beggarsticks

Bidens cernua

Nodding Bur Marigold

Mature Height 4 inches - 3.3 feet

<u>Plant Type</u> Annual emergent herb

Indicator Status Obligat e

pH Not available

Nutrient Load Tolerance Moderat e

Salt Tolerance Low to moderate

Siltation Tolerance Moderatetohigh

Flowering Color and Time Yellow August to October

<u>Light Preference</u> Partial to full sun

<u>Seeding Rate</u> .25 - .5 lbs/acre



Bidens frondosa

Common Beggarsticks

Preferred Water Depth and Inundation Tolerance

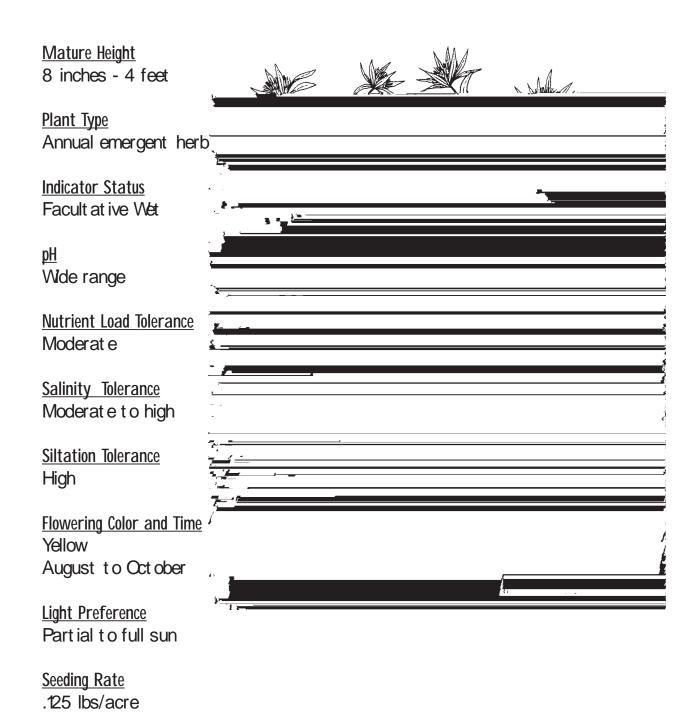
Prefers moist soil. Growth is favored by a 75-90% soil moist ure content. Young plants have no tolerance for submergence and should not be flooded for more than 2 or 3 days in 1-2 inches of water. Mat ure plants have some tolerance for water level fluct uation. This species shares the same zone with *Aster lanceolat us*.

Wildlife Value

Provides cover and food. Achenes are eat en by mallard ducks and ruffed grouse.

Common Beggarsticks

Bidens frondosa



Bouteloua curtipendula

Side-Oats Grama

<u>Preferred Water Depth and Inundation Tolerance</u>

Mesic to dry prairie and savanna species. Species has no inundation tolerance.

Wildlife Value

Provides nutritious grass for grazing and is tolerant to limited grazing. Attracts birds and provides cover for grassland birds.

Application/Zone

Used for upland slope buffers. Dense rhizomatous root system works well on steep slopes to prevent erosion.

- For warm season planting, seed or divisions work well.
- · Germinates easily from seed in most cases.

Side-Oats Grama

Bouteloua curtipendula

Mature Height 1-3 feet

<u>Plant Type</u> Perennial tufted grass

Indicator Status Upland

<u>рН</u> Wide range

Nutrient Load Tolerance Low

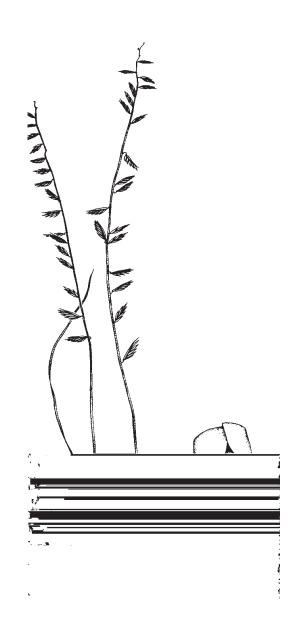
Salt Tolerance Not tolerant

Siltation Tolerance Low, found naturally on slopes.

Flowering Color and Timing Purplish July to September

<u>Light Preference</u> Full sun

Seeding Rate 5 lbs/acre



Calamagrostis canadensis

Blue Joint Grass

Preferred Water Depth and Inundation Tolerance

Prefers saturated soil. Tolerates temporary spring flooding up to a depth of 6 inches early in the season. Species does not tolerate permanent flooding.

Wildlife Value

Wat erfowl eat seeds. Young plants are grazed by deer and muskrats.

Application/Zone

Used in upper shoreline zones and in veget at ed swales.

Availability, Establishment, and Maintenance

- Locally, plugs have been most successful. These should be planted on 0.5-1.5 foot centiers because of their slow spread by rhizomes.
- Soil should be moist to saturated, but not inundated during planting.
- Est ablished st ands may be moved in alternate years for maint enance.

•

Carex comosa

Bristly Sedge

Preferred Water Depth and Inundation Tolerance

Prefers 0 - 12 inches. Species tolerates early seasonal flooding.

Wildlife Value

Fruits are eat en by wat erfowl. Also provides food for sora and yellow rails, swamp and tree sparrows, snipe and other song birds.

Application/Zone

Used in upper shoreline zones. Marsh species that forms clumps.

- Plugs seem to work best. Plant on 0.5-1.5 foot centers because of slow rate of spread.
- There are some known cases of seed germination in restored wet areas.
- Cold, moist stratification may be needed for seeds.

Carex cristatella

Crested Oval Sedge

Preferred Water Depth and Inundation Tolerance
Prefers moist soil. Species tolerates up to 6 inches of standing water.

Wildlife V

Crested Oval Sedge

Carex cristatella

Mature Height
Up to 3 feet

<u>Plant Type</u> Perennial sedge

Indicator Status
Facult at ive Wet (+)

pH Not available

Nutrient Load Tolerance Moderat e

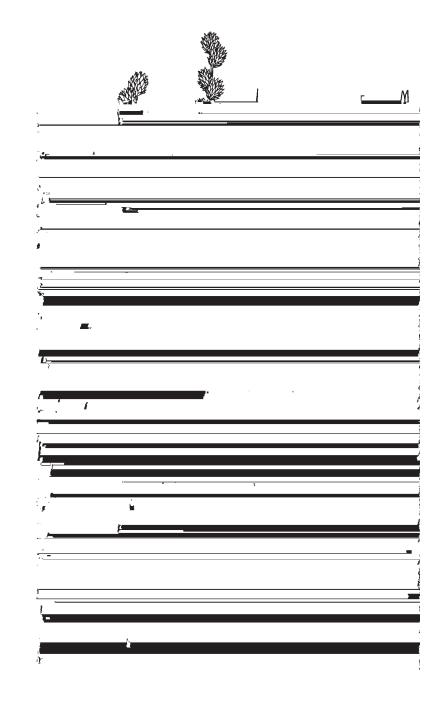
Salt Tolerance Not available

Siltation Tolerance Low

Flowering Color and Time Green May to July

<u>Light Preference</u> Partial to full sun

Seeding Rate
.125 lbs/acre



Carex granularis

Pale Sedge

Preferred Water Depth and Inundation Tolerance

Prefers moist soil. Species tolerates 1 inch of standing water for short durations. *C. granularis* is a flat wood and fen species.

Wildlife Value

Not available.

Application/Zone

Used in partially shaded upper shoreline zones.

- Has been observed recovering from soil seed bank.
- Germination is best from fresh seed.
- St ore seed dry (14% moist ure) cold, overwint er, and sow the following spring.

Pale Sedge

Carex granularis

Mature Height 0.5 - 2 feet

<u>Plant Type</u> Perennial sedge

Indicator Status
Facult at ive Wet (+)

pH Not available

Nutrient Load Tolerance Low to moderate

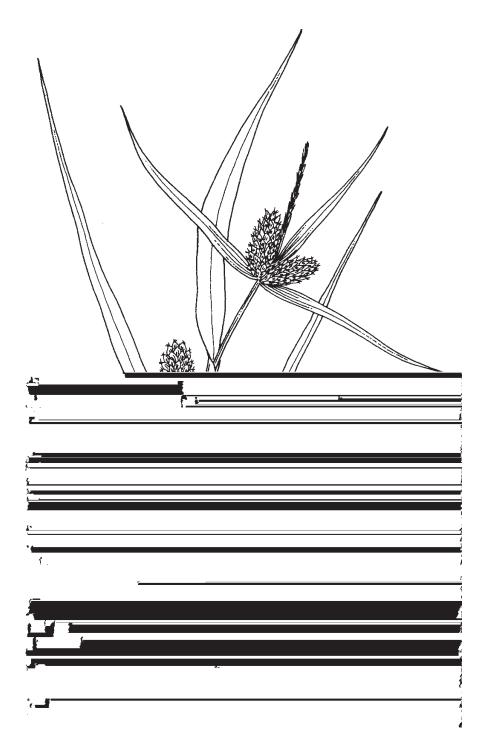
Salt Tolerance Low

Siltation Tolerance Not tolerant

Flowering Color and Time Green April to July

<u>Light Preference</u> Partial to full sun

Seeding Rate
.031lbs/acre



Carex lanuginosa

Wooly Sedge

(C. pellit a)

Preferred Water Depth and Inundation Tolerance

Prefers moist soil. Species tolerates shallow (0 to 6 inches) inundation early in the season.

Wildlife Value

Achenes are eat en by wat erfowl, sora and yellow rails, swamp and tree sparrows, snipe, and other songbirds.

Application/Zone

Used in upper shoreline zones and in veget at ed swales.

- Fresh seed, rhizomes or divisions of plug clumps may all be used for propagation.
- · This species has limited market availability.
- Fall seed with fresh seed or cold, moist stratify.

Wooly Sedge

Carex lanuginosa

(C. pellit a)

Mature Height		1	
1-3 feet			Č
<u>Plant Type</u> Perennial sedge			
<u>Indicator Status</u> Obligat e			 į
<u>рН</u> Not available	,		
Nutrient Load Tolerance Moderatetohigh	†		
Salt Tolerance Low	<u>-</u>		
Siltation Tolerance Moderat e			,
Flowering Color and Time Green April to July	<u> </u>		
<u>Light Preference</u> Full sun			,
Seeding Rate Not available			

Carex stipata

Awl-fruited Sedge

Common Fox Sedge

Preferred Water Depth and Inundation Tolerance

Prefers moist soil. Tolerates inundation to a depth of 6 inches. Species tolerates some water level fluctuation.

Wildlife Value

Provides food for sora and yellow rails, swamp and tree sparrows, snipe and other songbirds.

Application/Zone

Used in upper shoreline zones and veget at ed swales.

- Spreads well from seeds.
- St ore seed dry (14% moist ure) cold, overwint er, and sow the following spring.
- Fall seed with fresh seed.
- Because this is a clump-forming species and has a slow rate of spread by rhizomes, plugs should be planted on 0.5-1.5 foot centers.

Awl-fruited Sedge

Carex stipata

Common Fox Sedge

Mature Height
Up to 3 feet

<u>Plant Type</u> Perennial sedge

Indicator Status Obligat e

pH Not available

Nutrient Load Tolerance High

Salt Tolerance Low to moderate

Siltation Tolerance Moderate

Flowering Color and Time Green May to June

<u>Light Preference</u> Partial to full sun

Seeding Rate
.125 lbs/acre



Carex vulpinoidea

Fox Sedge Brown Fox Sedge

Preferred Water Depth and Inundation Tolerance

Prefers wat er dept h of 6 inches or less. Species does not tolerate extended inundation but does tolerate some fluctuation. Tolerates standing water in the spring and early summer.

Wildlife Value

Provides food for sora and yellow rails, swamp and tree sparrow, snipe and other songbirds.

Application/Zone

Used in upper shoreline zones, for st reambank st abilization, and in veget at ed swales.

- Seeds, root stock, and whole plants are available.
- Readily est ablished by seed. Seeds can be st ratified by either late fall planting for overwint ering or cold, dry st orage.
- Seed should remain close to the soil surface because they need light for germination.
- Transplants or small clumps should be planted from early spring to June 15.
- Transplants should be planted on 0.5-1.5 foot centers because of slow rate of spread.

Fox Sedge

Brown Fox Sedge

Carex vulpinoidea

Mature Height 13 feet Plant Type Perennial sedge **Indicator Status** Obligat e <u>pH</u> Not available **Nutrient Load Tolerance** Moderate to high Salt Tolerance Low to moderate **Siltation Tolerance** Moderat e Flowering Color and Time Green, Brown May to July **Light Preference** Partial to full sun **Seeding Rate** .06 - .5 lbs/acre

Celtis occidentalis

Hackberry

Preferred Water Depth and Inundation Tolerance

This is a floodplain forest and flat woods species (1st terrace). Seedlings cannot tolerate submergence, but mature trees can survive spring flooding.

Wildlife Value

Fruits are eaten by birds and small mammals. Serves as an exclusive food source of the hackberry and snout butterflies.

Application/Zone

Used in upper shoreline zones, for st reambank st abilization, and upland slope buffers.

- Easily transplanted bareroot as small tree or balled and burlapped as a larger tree.
- Seeds should be stratified for 60-90 days at 41°F in a moist medium.
- Growth rate is medium, 22-30 inches per year.

Hackberry

Celtis occidentalis

Mature Height
Up to 80 feet

<u>Plant Type</u> Deciduous tree

Indicator Status
Facult at ive (-)

<u>рН</u> 6.6-8.0

Nutrient Load Tolerance Moderat e

Salt Tolerance Moderat e

Siltation Tolerance Low to moderate

Flowering Color and Time Greenish yellow April to May

<u>Light Preference</u> Shade t olerant

Seeding Rate
Not applicable



Cephalanthus occidentalis

Common Buttonbush

Preferred Water Depth and Inundation Tolerance

Preferred wat er dept h is 2-3 feet. Species tolerates permanently to semi-permanently flooded conditions. Ten inch tall seedlings can survive complete submergence for up to 45 days.

Wildlife Value

Seeds are eat en by wat erfowl. Seed also provides food for insects, beaver, and muskrats. Plants provide nectar source and habit at for insects. Also provides nesting habit at for birds. Browsed by deer, muskrats, and beaver. Provides reptile habit at.

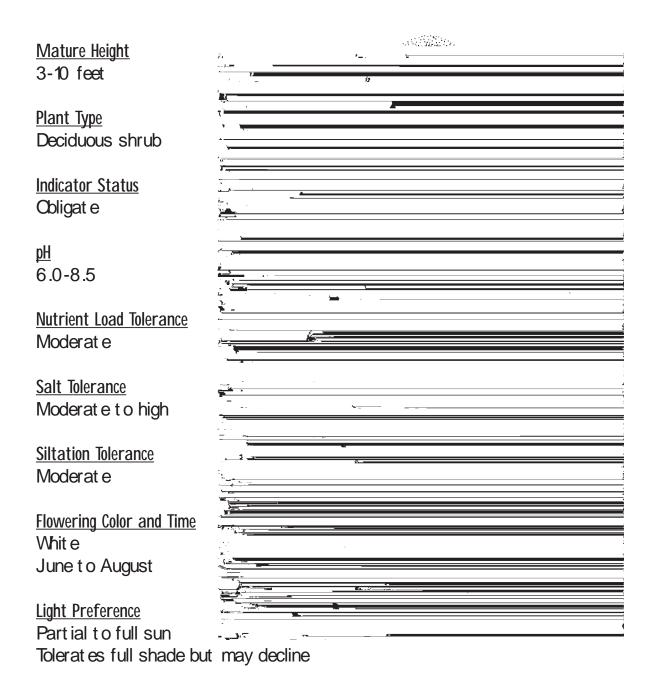
Application/Zone

Used in upper and lower shoreline zones and for st reambank st abilization.

- Transplants and seed have limited availability from vendors. Collect seed in August-Sept ember and store in fresh water at 34° F.
- Seed can be plant ed in wet mudflat's or shorelines and requires light for germination.
- Plants establish easily from cuttings, but cuttings should be rooted before flooding.
- Root ed cut t ings survive well. Small plants or seedlings may be t ransplant ed directly on the site at 5 feet on center density.
- Growth rate is medium, 1-2 feet per year.
- This species can form monocult ures.

Common Buttonbush

Cephalanthus occidentalis



Seeding Rate
Not applicable

Coreopsis tripteris

Tall Coreopsis

Preferred Water Depth and Inundation Tolerance

Wet and mesic prairie and savanna species. Survives 1 inch inundation for short periods.

Wildlife Value

Serves as a good nectar source. Attracts butterflies.

Application/Zone

Used for upland slope buffer stabilization.

- Readily available from vendors.
- No pret reat ment is needed for seeds.
- Est ablishes readily and spreads quickly from seed.
- In some cases, can be aggressive.

Tall Coreopsis

Coreopsis tripteris

Mature Height 3-10 feet

Plant T

Cornus racemosa

Gray Dogwood

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soil. Inundation of 2-4 inches is tolerated for short durations.

Wildlife Value

Fruits are eaten by birds. Provides browse and food for deer, beaver, pheasant, rabbit, woodchuck, raccoon, and squirrel. Also provides cover for American woodcock.

Application/Zone

Used in upper shoreline zones, for st reambank st abilization, and for upland slope buffers.

- Seed germinates easily only after scarification.
- Shrub spreads by underground stems to form round 8-12 feet wide colonies.
- Easily root ed from cut tings.
- Has a fast growth rate. Shoots grow 3 to 6 feet in one season. This species can become too aggressive.

Gray Dogwood

Cornus racemosa

Mature Height
Up to 8 feet

<u>Plant Type</u> Deciduous mult ist emmed shrub

Indicator Status [Facult at ive Wet (-)]

<u>рН</u> 5.5-8.5

Nutrient Load Tolerance Moderatetohigh

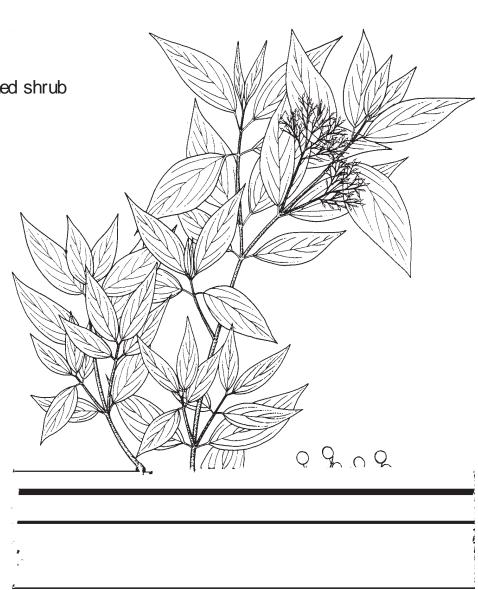
Salt Tolerance Low

Siltation Tolerance Moderatetohigh

Flowering Color and Time Whit e June to August

<u>Light Preference</u> Partial to full sun

Seeding Rate
Not applicable



Cornus sericea

Red Osier Dogwood

(C. st olonifera)

Preferred Water Depth and Inundation Tolerance

Prefers saturated soil. Species tolerates periodic inundation of 0-12 inches early in the season for short durations. During growing season, this species will tolerate constant inundation for less than 30 days.

Wildlife Value

Berries are eat en by many songbirds and ruffed grouse. Deer and rabbits browse twigs and buds. Thickets provide cover and nesting habit at. Provides excellent warbler habit at. Also provides food for raccoon, woodchuck, and beaver.

Application/Zone

Used in upper shoreline zones, for st reambank st abilization, and upland slope buffers.

- Excellent seedling establishment. Very easy to propagate.
- Widely available as bare root or balled and burlapped.
- Can root from cuttings.
- Spreads by stolons. Fast growth rate, more than 2 feet per year.

Red Osier Dogwood

Cornus sericea

(C. st olonifera)

Mature Height 3-9 feet

<u>Plant Type</u> Deciduous shrub

Indicator Status
Facult at ive Wet

<u>рН</u> 5.5-8.5

Nutrient Load Tolerance Moderatetohigh

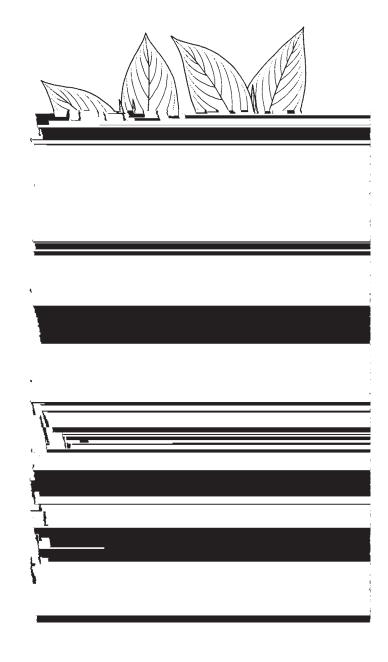
Salt Tolerance Not tolerant

Siltation Tolerance Moderatetohigh

Flowering Color and Time White May and August

<u>Light Preference</u> Partial to full sun

Seeding Rate
Not applicable



Cyperus esculentus

Field Nut Sedge

Yellow Nut Sedge; Chufa

Preferred Water Depth and Inundation Tolerance

Tolerates seasonal or occasional flooding, up to 1 foot deep.

Wildlife Value

Seeds are eat en by wat erfowl and ot her wildlife. Also provides cover for reptiles, amphibians, and small mammals. Wat erfowl also eat rhizomes.

Application/Zone

Used in lower and upper shoreline zones where wat er levels fluct uat e.

- Available as seed, root stock (tuber), or transplants.
- Grows readily from seed on moist soil (mudflats).
- Draw-down st imulates new growth from tubers.
- A common plant of farmed wet areas.

Field Nut Sedge

Cyperus esculentus

Yellow Nut Sedge; Chufa

Eleocharis smallii

Creeping Spike Rush

Marsh Spike Rush

Creeping Spike Rush

Eleocharis smallii

Marsh Spike Rush

Mature Height 12-18 inches

<u>Plant Type</u> Perennial herb

Indicator Status Obligat e

<u>рН</u> Not available

Nutrient Load Tolerance Low

Salt Tolerance Moderat e

Siltation Tolerance Low

Flowering Color and Time Brown June to September

<u>Light Preference</u> Full sun

Seeding Rate
.02 - .4 lbs/acre



Elymus canadensis

Nodding Wild Rye

Canada Wild Rye

Preferred Water Depth and Inundation Tolerance

Mesic species. Prefers moderately well to poorly drained soil. Minimal inundation tolerance.

Wildlife Value

Provides habit at for small mammals. Veget at ive parts are palatable to grazing species.

Application/Zone

Fibrous, wide spreading root system can stabilize upper shoreline zones, st reambanks, upland slope buffers, and veget at ed swales. Also a good pioneer species.

- Seed is widely available from commercial vendors.
- Seeding is recommended. Seed germination is better if seeds are stratified for one month at 32°F. Best germination of seed occurs if they are drilled into soil to a depth of 1-15 inches.
- Rangeland drill or hopper type seed broadcast er may be used to plant seeds. If broadcast ing, seeds must be covered lightly with soil. Mixing seed with sand and other grass and forb species dispersed with a hand hopper or cyclone spreader facilitates establishment of prairie species in small areas.
- One source recommends planting at 0.5 to 1.0 lbs/acre because the species is too short-lived and expensive to plant at a heavier rate. A complete stand will result in two to three years if planted at this rate.
- Spreads quickly from seed but dies back after a few years.

Nodding Wild Rye

Elymus canadensis

Canada Wild Rye

Mature Height 3-6 feet

<u>Plant Type</u> Perennial grass

Indicator Status
Facult at ive (-)

<u>рН</u> Wide range

Nutrient Load Tolerance Low

Salt Tolerance Not available

Siltation Tolerance Low

Flowering Color and Time Tan July to October

Elymus virginicus

Virginia Wild Rye

Preferred Water Depth and Inundation Tolerance

Prefers moist soil. Species tolerates inundation up to a depth of 6 inches. Can also tolerate dry soils.

Wildlife Value

Palat able to grazing species.

Application/Zone

Used in upper shoreline zones, for st reambank st abilization, for upland slope buffers, and in veget at ed swales.

- Fall and spring seeding is successful.
- Can become aggressive if seeded too heavily.

Eupatorium maculatum

Spotted Joe Pye Weed

Preferred Water Depth and Inundation Tolerance

Prefers moist soil. Tolerates inundation up to a depth of 6 inches early in the season, as in damp meadows, open marshes, and fens. Tolerates flooding for short periods in the spring.

Wildlife Value

Attracts butterflies, bumblebees, and many other insects. Provides cover for small mammals, amphibians, and reptiles. Seeds are eaten by swamp sparrow.

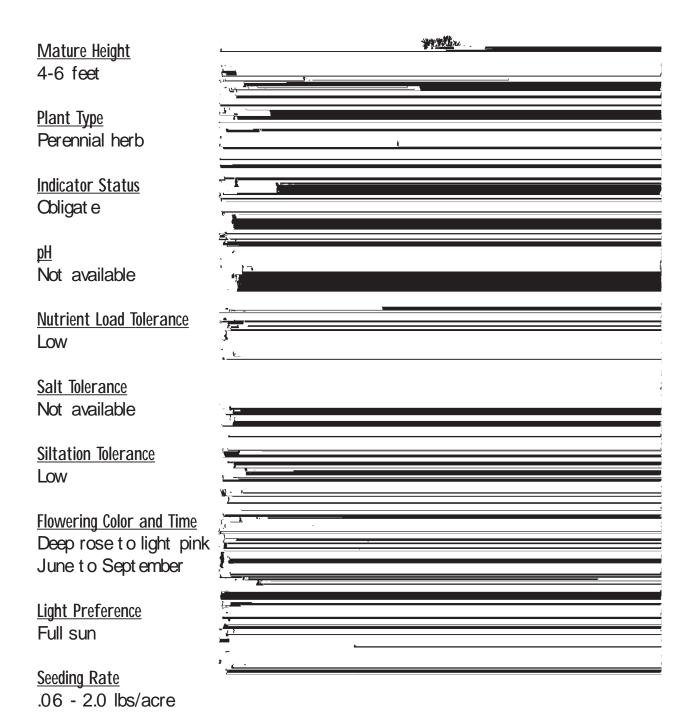
Application/Zone

Used in upper shoreline zones and in veget at ed swales.

- Seed works best and is readily available from commercial vendors.
- Seed has spotty germination. No treatment is necessary. Sow seed in the fall or early spring when ground is cool.
- · Seed is very fine and should be planted on the soil surface.
- Division of plants, if desired, should be done in the spring but only every 2 to 4 years.

Spotted Joe Pye Weed

Eupatorium maculatum



Eupatorium perfoliatum

Common Boneset

Preferred Water Depth and Inundation Tolerance

Prefers moist soil. Tolerates inundation to a depth of 6 inches early in the season, as found in wet meadows, marsh edges, fens, and prairie swales.

Wildlife Value

Achenes are eat en by wat erfowl, turkey, and swamp sparrow. Mallards and grouse eat leaves. Attracts but terflies. Also provides cover for small mammals, reptiles, and amphibians.

Application/Zone

Used in upper shoreline zones and in veget at ed swales. Fibrous root system binds soil and resists erosion. Provides good ground cover.

Availability, Establishment, and Maintenance

• Seed is best. Sow fine seed on soil surface in the fall or spring. No germination

Common Boneset

Eupatorium perfoliatum

Mature Height 2-3 feet

<u>Plant Type</u> Perennial herb

Indicator Status
Facult at ive V/et (+)

pH Not available

Nutrient Load Tolerance Low to moderate

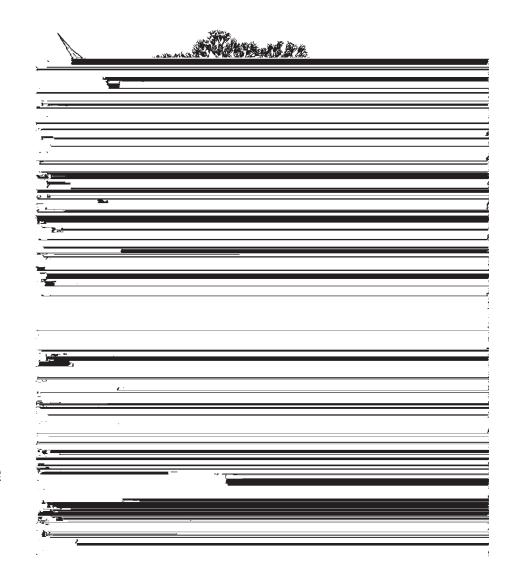
Salt Tolerance Not available

Siltation Tolerance Low to moderate

Flowering Color and Time White August to October

<u>Light Preference</u> Full sun

Seeding Rate
.125 lbs/acre



Fraxinus pennsylvanica

Green Ash

(F. pennsylvanica subint egerrima)

Preferred Water Depth and Inundation Tolerance

Natural floodplain species. Species tolerates periodic inundation of 0-24 inches for short durations.

Wildlife Value

Twigs and seeds provide forage for mammals, such as deer, beaver, and mice. Birds eat seeds and the tree provides nesting habit at. Fallen logs provide amphibian and reptile habit at. Also provides habit at for many insects.

Application/Zone

Used for st reambank and upland slope buffer st abilization.

- Transplants readily and establishes itself well.
- Best seed germination has been seen after dry storage at 40° F followed by 70° F.
- Tolerates drought and sterile soils. Has fast growth rate, 2.5-3 feet per year.
- Spreads quickly by seed.

Green Ash

Fraxinus pennsylvanica

(F. pennsylvanica subint egerrima)

Mature Height
Up to 60 feet

<u>Plant Type</u> Deciduous tree

Indicator Status
Facult at ive V&O 143 Tnt s47.c8 193 cpennsylvanica

Glyceria striata

Fowl Manna Grass

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated areas.

Wildlife Value

Provides food for wat erfowl, especially ducks, and for muskrat and deer.

Application/Zone

Good pioneer species in upper shoreline zones, for st reambank st abilization, and in veget at ed swales.

- · Good availability, but may not be a nort heast ern Illinois ecotype.
- Good establishment from seed, but less competitive against reed canary grass.
- Cold, moist stratification helps break dormancy of seed. Cold storage in water for three months or fall planting to allow overwint ering provides good germination.
- Mixing seed with sand facilitates hand broadcasting and results in more even planting.
- Transplants are best planted in the spring.
- Requires light for seed germination.

Fowl Manna Grass

Glyceria striata

Mature Height 14 feet

<u>Plant Type</u> Perennial grass

<u>Indicator Status</u> Obligat e

pH Not available

Nutrient Load Tolerance Low to moderate

Salt Tolerance Low

Siltation Tolerance Moderate

Flowering Color and Time Green May to August

<u>Light Preference</u> Full shade to partial sun

Seeding Rate
.06 - .5 lbs/acre



Helenium autumnale

Common Sneeze Weed

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soil. Tolerates brief, shallow inundation like that found in wet prairies, fens, and sedge meadows.

Wildlife Value

Attracts butterflies and provides cover.

Application/Zone

Fibrous root system can help stabilize upper shoreline zones, st reambanks, and veget at ed swales.

- Propagat e by divisions or seed in the spring.
- Seed is widely available from commercial vendors.
- Excellent germination of seed occurs within 4 weeks.

Common Sneeze Weed

Helenium autumnale

Mature Height 3-5 feet Plant Type Perennial herb **Indicator Status** Facult at ive Wet (+) <u>pH</u> 6-7 **Nutrient Load Tolerance** Moderate to high Salt Tolerance Not available **Siltation Tolerance** Moderate to high Flowering Color and Time Yellow August to November

<u>Seeding Rate</u>

.12- .5 lbs/acre

Light Preference

Full sun to partial shade

Helianthus grosseserratus

Sawtooth Sunflower

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soil. Species tolerates seasonal inundation like that found in sedge meadows and wet prairies.

Wildlife Value

Provides nect ar and pollen for bees and other insects. Achenes are eaten by insects, birds, and small mammals. Also provides reproduction and foraging habit at for Gorgone checkerspot but terfly.

Application/Zone

Used for soil stabilization in upper shoreline zones and veget at ed swales. Also a good pioneer species.

- Achenes may benefit from cold stratification.
- Plants may be subdivided in the fall and planted in a new site. Stem cuttings
 may be taken in the spring and rooted for transplanting.
- Achenes may be sown with a rangeland drill or a hopper style planter. Hand seeding with a small hopper may be used in small areas.
- Fall seeding works with fresh seed.
- This species has a quickly spreading growth habit and can become weedy.

Sawtooth Sunflower

Helianthus grosseserratus

Mature Height 3-13 feet

Plant Type
Perennial herb

Indicator Status
Facult at ive Wet (-)

pH Not available

Nutrient Load Tolerance Moderat e

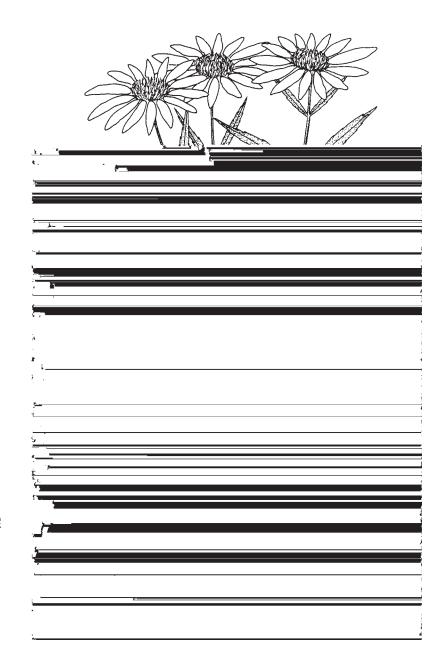
Salt Tolerance Moderat e

Siltation Tolerance Moderat e

Flowering Color and Time Yellow to cream July to October

<u>Light Preference</u> Full sun

Seeding Rate
Not available



Iris virginica

(Iris virginica shrevei)

Blue Flag Iris

Virginia Blue Flag Wild Flag

Preferred Water Depth and Inundation Tolerance

Prefers wet meadow zone, seasonally flooded to a depth of 3 inches early in the spring. Species will not tolerate constant inundation of more than 6-8 inches.

Juncus effusus

Common Rush

Preferred Water Depth and Inundation Tolerance

Prefers a few inches of standing water to moist soil (Max: 12"/Min: 0"). Species will tolerate some fluctuation in water levels. Tolerates drought in summer.

Wildlife Value

Seeds are eaten by songbirds and waterfowl. Plants are eaten by muskrats, deer, and small rodents. Provides cover for ducks and spawning habit at for sunfish. Also provides nesting habit at for rails and habit at for many species of insects.

Application/Zone

Used in upper and lower shoreline zones and in veget at ed swales.

- Seeds, container grown transplants, rootstocks, and rhizomes are available from commercial vendors. Seed is becoming more widely available.
- Seeds are extremely small, difficult to disseminate, and may require cold to break dormancy.
- Seed may be stored in fresh water or wet sand at 35-40°F for 4 to 9 months and then spring seeded by hand broadcasting.
- Fresh seed may also be fall plant ed to allow overwint ering to break dormancy.
- Seeds need alternating temperatures and light for best germination.
- One source recommends a seeding rate of up to 4 oz/acre in mixes.
- Rhizomes and root stocks should be spring plant ed 2-3 inches deep on 0.5-1.5 foot cent ers because of slow rate of spread in saturated soil.

Common Rush

Juncus effusus

Mature Height 10-3.5 feet

<u>Plant Type</u>

Perennial emergent herb

Indicator Status Obligat e

<u>pH</u>

Not available

<u>Nutrient Load Tolerance</u>

Moderat e

Salt Tolerance

Low

Siltation Tolerance

Moderat e

Flowering Color and Time

Green or Brown

May to September

<u>Light Preference</u>

Partial to full sun

Seeding Rate

Not available

Juncus torreyi

Torrey's Rush

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soil. Species tolerates up to 2 inches of inundation for short durations.

Wildlife Value

Provides food for muskrat, marsh birds, and wat erfowl. Also provides spawning ground for bluegill and other fish species.

Application/Zone

Rhizomat ous root system stabilizes upper shoreline zones and veget at ed swales.

- Appears to establish from seed naturally and is becoming more available from vendors.
- Fall seed or cold moist stratify.
- Because of a slow rate of spread, transplant on 0.5-1.5 foot centers once established.
- Spreads more quickly by rhizome.

Juncus torreyi

Mature Height Up to 3 feet Plant Type Perennial herb **Indicator Status** Facult at ive Wet <u>pH</u> Not available **Nutrient Load Tolerance** Moderat e Salt Tolerance Low **Siltation Tolerance** Moderat e Flowering Color and Time Green to brown July to October <u>Light Preference</u> Partial to full sun **Seeding Rate** .006 - .125 lbs/acre

Leersia oryzoides

Rice Cut Grass

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soil. Young plants do not tolerate submergence for longer than 2 - 3 days (Max: 8"/Min: saturated soil). Mature plants tolerate seasonal to permanent flooding. This species also has an observed tolerance to water level fluctuations.

Wildlife Value

Rice Cut Grass

.1 - .25 lbs/acre

Leersia oryzoides

Mature Height 3-5 feet, erect or sprawling Plant Type Perennial emergent grass **Indicator Status** Obligat e pН 6.0-7.0 **Nutrient Load Tolerance** Moderate to high Salt Tolerance Low **Siltation Tolerance** Moderat e Flowering Color and Time Greenish white June to October **Light Preference** Partial to full sun **Seeding Rate**

Monarda fistulosa

Wild Bergamot

Preferred Water Depth and Inundation Tolerance

Mesic prairie species. Minimal inundation tolerance.

Wildlife Value

Palat able in early growth by grazing species. Attracts butterflies and honeybees.

Application/Zone

Used for upland slope buffer stabilization. Slows water run off and reduces soil erosion.

- No pret reat ment is needed for seed.
- Est ablishes readily from seed. Seed germinates best with light at warmer temperatures and should be stored dry.
- For divisions, divide mat ure clumps in March before stems are sent up. Dig up the plant and divide clump into sections. Replant divisions immediately.
- Can also be est ablished from cut tings.

Wild Bergamot

Monarda fistulosa

Mature Height Up to 3 feet

<u>Plant Type</u> Perennial herb

Indicator Status
Facult at ive Upland

pH Not available

Nutrient Load Tolerance Moderat e

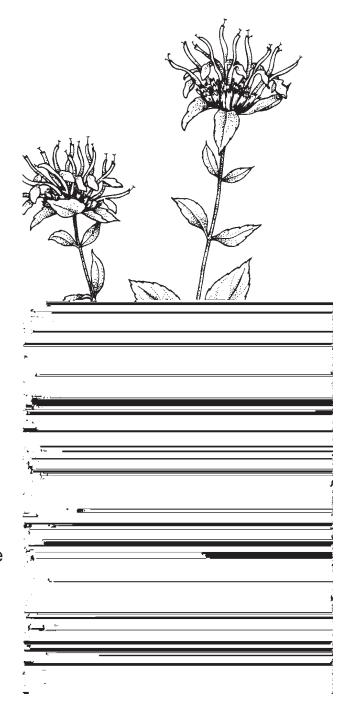
Salt Tolerance Not available

Siltation Tolerance Low to moderate

Flowering Color and Time
Pink, lavender, purple, and rarely white
August to October

Light Preference
Partial to full sun

Seeding Rate
.125- 1 lb/acre



Panicum virgatum

Switch Grass

Preferred Water Depth and Inundation Tolerance

Occurs in mesic prairie and buffer slopes. Species has some tolerance of early spring inundation. Drought tolerant.

Wildlife Value

Seeds and young foliage provide food for teal, widgeon, and black duck. Seeds are a food source for many songbirds and small mammals. Provides cover for most wildlife.

Application/Zone

Used for st reambank and upland slope buffer st abilization.

- Widely available as seed or plants.
- Best seed germinat ion results with alternating temperatures. Requires light for germination.
- Seeds have an 80% germination rate at 70° F with no treatments but will germinate at cooler temperatures.
- Has slow rate of spread by rhizome. Plant on 0.5-1.5 foot centers.

Switch Grass

Panicum virgatum

Mature Height Up to 6.5 feet

<u>Plant Type</u> Perennial grass

Indicator Status
Facult at ive (+)

pH Not available

Nutrient Load Tolerance Low to moderate

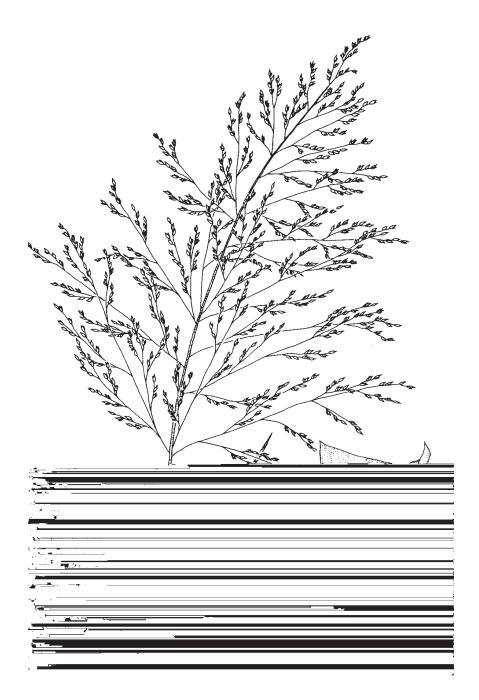
Salt Tolerance Moderate

Siltation Tolerance Low to moderate

Flowering Color and Time Beige July to October

<u>Light Preference</u> Full sun

Seeding Rate
.25 - 1lb/acre



Petalostemum purpureum

Purple Prairie Clover

Preferred Water Depth and Inundation Tolerance

Mesic prairie species. Species does not tolerate inundation.

Wildlife Value

Highly palatable and nutritious for grazing.

Application/Zone

Used for upland slope buffer stabilization. Deep taproot with extensive vertical branching helps to stabilize sandy soils in prairie and dry slopes.

- Propagation is best by seed. Seed can be scarified by removing the hull, stratifying at 33-38° F for 10 days. Inoculation with Santofoin type F rhizobium produces more vigorous plants, but is not necessary. Seed can then be planted in the spring and will emerge in 6 to 10 days.
- Seed can also be plant ed in the fall for overwint ering instead of the above treatments, but the treatments may increase the germination rate.
- Transplanting is difficult because of the deep taproot but can be done with potted plants.
- This species is not competitive in early growth and may be difficult to establish in clayey, reworked soil.

Purple Prairie Clover Petalostemum purpureum

Mature Height 13 feet

Plant Type Perennial herb

Indicator Status

Polygonum amphibium

Water Smartweed

(P. amphibium st ipulaceum)

Water Knot Weed

Preferred Water Depth and Inundation Tolerance

Species has a wide tolerance for inundation (Max: 20"/Min: moist soil).

Wildlife Value

Seeds are eat en by wat erfowl. Serves as a major food source for purplish copper but t erfly. Also provides cover for wat erfowl and fish.

Application/Zone

Used in lower shoreline zones. Wave tolerant.

Availability, Establishment, and Maintenance

• Achenes, cut tings, root stocks, and rhizomes may be used. Plants and root stocks

Water Smartweed

Polygonum amphibium

Water Knot Weed

(P. amphibium st ipulaceum)

Mature Height
Up to 3 feet

<u>Plant Type</u> Perennial emergent herb

Indicator Status Obligat e

<u>рН</u> 5.4-8.8

Nutrient Load Tolerance Moderat e

Salt Tolerance Low

Siltation Tolerance Moderatetohigh

Flowering Color and Time Red to pink June to August

<u>Light Preference</u> Partial to full sun

<u>Seeding Rate</u> .5 - 1.5 lbs/acre



Pycnanthemum virginianum

Quercus bicolor

Swamp White Oak

Preferred Water Depth and Inundation Tolerance

Floodplain and terrace species. Prefers moist soil that dries out towards the end of the growing season. Species tolerates spring flooding.

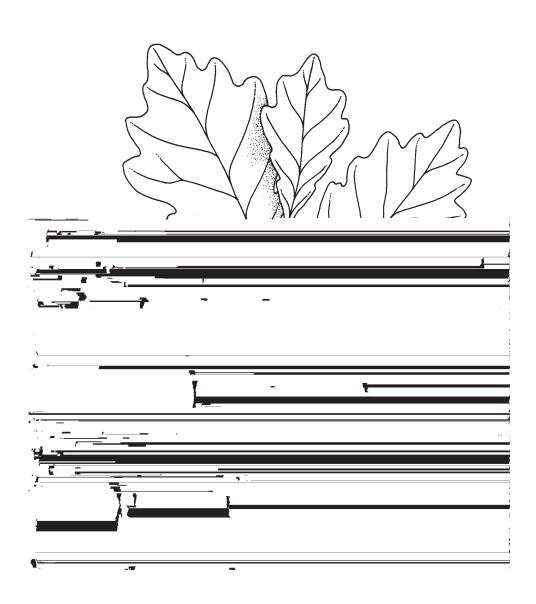
Wildlife Value

Acorns from this species are an important food source for many small mammals, deer, and birds. Provides habit at for many birds, reptiles, and amphibians.

Application/Zone

Used in upper shoreline zones and for upland slope buffer stabilization.

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Quercus macrocarpa

Bur Oak

Preferred Water Depth and Inundation Tolerance

Prefers moist soil and is drought tolerant. Species tolerates moderate dormant-season flooding.

Wildlife Value

Acorns of this species are eaten by squirrels, wood ducks, deer, rabbit, and mice. Also used as cover and for nesting sites.

Application/Zone

Plant ed in shelt er belt s for wind erosion cont rol. Provides upland slope buffer st abilizat ion.

- Limit ed availabilit y from commercial vendors.
- Seed must be stored moist for a short time only. Seed germination is improved by stratification. Seeds germinate readily at most temperatures if protected from grubs and other depredation. Seeds may die if moisture falls below 20 -22%
- Seedlings develop a deep tap root and extensive lateral roots, making the species difficult to transplant, though bag or pot-grown trees can readily be transplanted.
- Best success has been observed with small bare root seedlings which require wat ering to reduce transplant shock.
- Fall planting works best.

Bur Oak

Quercus macrocarpa

Mature Height 60-70 feet

<u>Plant Type</u> Deciduous tree

Indicator Status
Facult at ive (-)

pH Not available

Nutrient Load Tolerance Low to high

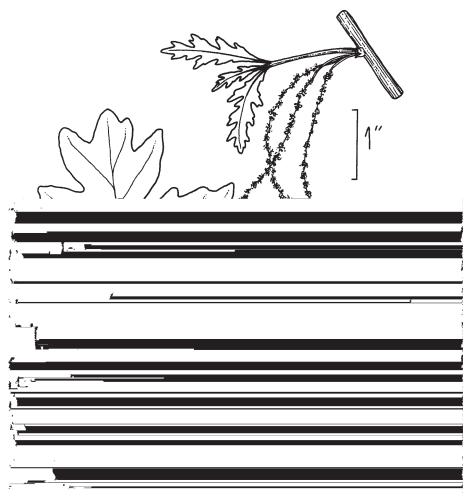
Salt Tolerance Low

Siltation Tolerance Low to moderate

Flowering Color and Time April to May

<u>Light Preference</u> Full sun Not shade tolerant

Seeding Rate
Not applicable



Quercus palustris

Pin Oak

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soils, but will tolerate up to 3 inches of standing water for short periods.

Wildlife Value

Acorns of this species are eaten by wildlife. Also used as cover and nesting sites.

Application/Zone

Used for upland slope buffer stabilization.

- Readily transplantable due to shallow fibrous root system.
- Seed must be stratified at 32-41°F for 30 to 45 days. Must be kept moist or seeds will die.
- CAUTION: Only use in east ern sect or in sandier, more acidic soils. Does not do well in calcareous till soils with higher clay content and high pH.

Pin Oak

Quercus palustris

Mature Height
Up to 75 feet

<u>Plant Type</u> Deciduous tree

Indicator Status
Facult at ive Wet

pH Slight ly acidic

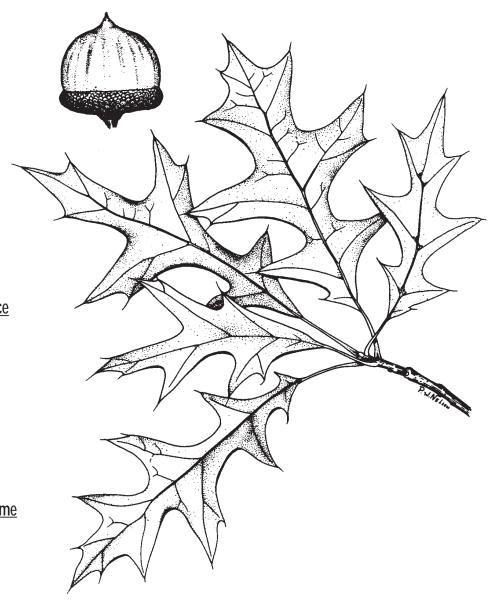
Nutrient Load Tolerance Low

Salt Tolerance Low to moderate

Siltation Tolerance Low

Flowering Color and Time Pink July to September

<u>Light Preference</u> Full sun Not shade tolerant



Ratibida pinnata

Yellow Cone Flower

Preferred Water Depth and Inundation Tolerance

Mesic prairie species. Species has no inundation tolerance.

Wildlife Value

Palatable to grazing species in young growth. Attracts butterflies and other insects.

Application/Zone

Ext ensive fibrous root systems are used to stabilize soil on upland slope buffers.

- Est ablishes easily from seed. Seed can be sown in the fall or spring. Best results
 can be reached by stratifying seed at 33-38°F for 30 days, but this is not
 essential for germination.
- Older plants can be divided and planted in the spring, but an extensive root system makes this difficult.

Yellow Cone Flower

Ratibida pinnata

Mature Height Up to 3 feet

Plant Type Perennial herb

Indicator Status Upland

<u>рН</u> 6-7

Nutrient Load Tolerance Low to moderate

Salt Tolerance Not available

Siltation Tolerance Low

Flowering Color and Time Yellow July to September

<u>Light Preference</u> Full sun

Seeding Rate
Not available



Rudbeckia hirta

Black-Eyed Susan

Preferred Water Depth and Inundation Tolerance

Mesic to wet prairie species. Species has limit ed inundation tolerance.

Wildlife Value

Attracts butterflies and is used for cover.

Application/Zone

Ext ensive fibrous root system stabilizes soil on upland slope buffers.

- · Easily established from seed. No pret reatment of seed is necessary.
- This species can be very aggressive.
- This species is early successional and will "t hin out" in mat ure rest orations.

Black-Eyed Susan

Rudbeckia hirta

Mature Height 1to 2 feet

<u>Plant Type</u> Perennial herb

Indicator Status
Facult at ive Upland

<u>рН</u> 4.5-7.5

Nutrient Load Tolerance Low to moderate

Salt Tolerance Not available

Siltation Tolerance Low

Flowering Color and Time
Yellow with black/brown center
June to July

<u>Light Preference</u> Partial to full sun

<u>Seeding Rate</u> .125 - .3 lbs/acre



Broadleaf Arrowhead

Sagittaria latifolia

Common Arrowleaf Duck Pot at o

Mature Height
Leaves 2-8 inches
Inflorescence 4-30 inches

<u>Plant Type</u> Perennial emergent herb

Indicator Status Obligat e

<u>рН</u> 5.9-8.8

Nutrient Load Tolerance Moderat e

Salt Tolerance Low

Siltation T

Salix amygdaloides

Peachleaf Willow

Preferred Water Depth and Inundation Tolerance

Sedge meadow species. Species tolerates 0-18 inches inundation for short periods.

Wildlife Value

Provides cover and nesting habit at for songbirds, marsh birds, amphibians, and reptiles.

Application/Zone

Used in upper shoreline zones and for st reambank st abilization.

- Root by cuttings.
- · Limit ed availability from commercial vendors.

Peachleaf Willow

Not applicable

Salix amygdaloides

Mature Height Up to 40 feet Plant Type Deciduous shrub **Indicator Status** Facult at ive Wet <u>pH</u> Not available **Nutrient Load Tolerance** Low to moderate Salt Tolerance Moderat e **Siltation Tolerance** Low to moderate Flowering Color and Time Green April to June **Light Preference** Partial to full sun **Seeding Rate**

Salix nigra

Black Willow

Preferred Water Depth and Inundation Tolerance

Natural floodplain species. Species tolerates periodic inundation with up to 2 feet of water for short durations.

Wildlife Value

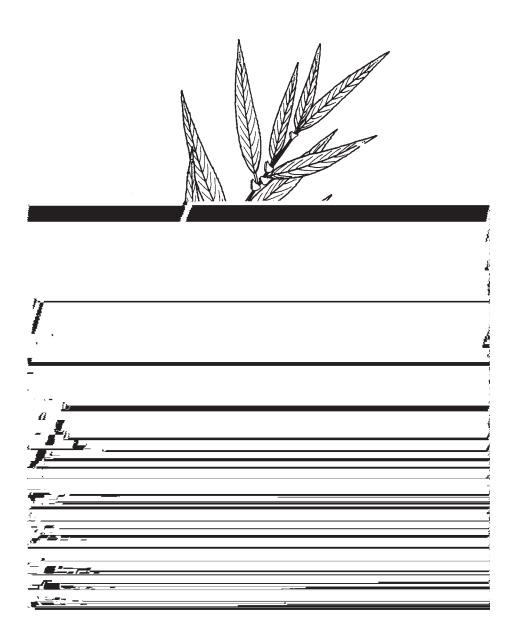
Provides nesting habit at for birds. Serves as a food source for morning cloak but terfly, songbirds, wat erfowl, woodpeckers, beaver, squirrel, and deer.

Application/Zone

Used in upper shoreline zones and for st reambank st abilization.

- Root by cuttings. Spreads by suckers.
- Has rapid growth rate, 3 to 6 feet per year.

Mature Height Up to 90 feet



Schizachyrium scoparium

Little Bluestem

(Andropogon scoparius)

Preferred Water Depth and Inundation Tolerance

Dry to mesic prairie species. No inundation tolerance.

Wildlife Value

Palat able and nut rit ious for grazing species. Provides cover for grassland birds.

Application/Zone

Branching, numerous vertical roots extending to a depth of 6 feet can stabilize upland slope buffers and generally will hold soil and prevent erosion wherever established.

Little Bluestem

Seeding Rate
1-6 lbs/acre

Schizachyrium scoparium

(Andropogon scoparius)

Mature Height 2-3 feet	
<u>Plant Type</u> Perennial tufted grass	
Indicator Status Facult at ive Upland (-)	
<u>рН</u> Wide range	
Nutrient Load Tolerance Low	
Salt Tolerance Not available	<u></u>
Siltation Tolerance Low	i
Flowering Color and Time Reddish-brown August to September	
<u>Light Preference</u> Full sun	

Scirpus acutus

Hardstem Bulrush

Preferred Water Depth and Inundation Tolerance

Prefers saturated soils in fens and water levels to a depth of 3 feet in marsh areas. Species tolerates semi-permanently flooded conditions.

Wildlife Value

Wat erfowl and shorebirds eat achenes. Muskrats and geese eat rhizomes and stems. Provides preferred nesting habit at for redhead and canvasback ducks. Also provides spawning and nursery habit at for northern pike and other fish species.

Application/Zone

Used in lower shoreline zones and in veget at ed swales. Resists wave act ion and wat er level changes.

- Achenes, root st ocks, rhizomes, and t ransplants are available from commercial vendors.
- Achenes do not germinat e readily unless they are stratified under cold, wet
 conditions for several months and then exposed to light and warm temperatures.
 Fresh collected achenes can be planted in the fall in wet mudflats after
 drawdown for spring germination.
- Spring planting of root stocks and rhizomes is preferred due to greater success.
 Rhizomes are planted at a depth of 2-5 inches in saturated substrate and at a
 depth of 4-6 inches in water. Rhizomes should be placed 3 feet apart in a
 clustered arrangement.
- Hardst em Bulrush is a rat her slow spreading plant when propagating from rhizomes. It may take up to 3 years to develop into a thick stand.

Hardstem Bulrush

Scirpus acutus

Mature Height 3.5-9.3 feet

<u>Plant Type</u> Perennial emergent herb

Indicator Status Obligat e

<u>рН</u> 6.7-9.1

Nutrient Load Tolerance Low to moderate

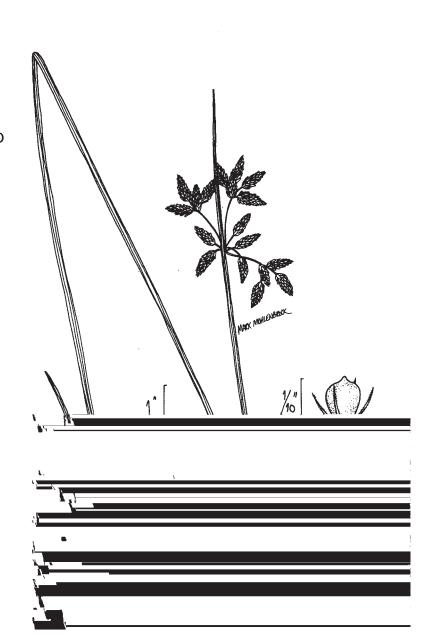
Salt Tolerance Moderatetohigh

Siltation Tolerance Low to moderate

Flowering Color and Time Reddish brown May to September

<u>Light Preference</u> Full sun

Seeding Rate
.06 - .25 lbs/acre



Scirpus americanus

Chairmaker's Rush

(S. pungens)

Preferred Water Depth and Inundation Tolerance

Prefers saturated soil to inundation 16.5 inches deep. Species tolerates seasonally flooded conditions. Also has more than 50% mortality in water depths of more than 20 inches.

Wildlife Value

Serves as an import ant source of wildlife food. Achenes are eat en by wat erfowl such as, pint ail, lesser scaup, gadwall, canvasback, ringneck duck, rails, and shorebirds.

Chairmaker's Rush

Scirpus americanus

(S. pungens)

Mature Height Up to 4 feet

Plant T

Scirpus tabernaemontani

Soft-stem Bulrush

(S. validus creber)

Great Bulrush

Preferred Water Depth and Inundation Tolerance

Prefers wat er at a depth of 12-20 inches (Max: 4'/Min: saturated soil to 6"). Species tolerates flooding of 2 feet or more, but not total inundation, for 3 weeks or longer during the growing season.

Wildlife Value

Achenes are eat en by many wat erfowl, shorebirds, and rails. Plants are eat en by muskrats. Provides valuable nesting cover for wat erfowl and habit at for insects and young fish.

Application/Zone

Excellent for lower shoreline zone stabilization. Also used in veget at ed swales.

- Achenes, rhizomes, root st ocks, and container plants are available from several commercial vendors.
- Seeding in the fall is more successful than in the spring. Sow fresh collected
 achenes on wet mudflats at the end of the growing season. Seeded area must be
 kept wet and covered with 1-2 inches of water during the winter, followed by
 spring drawdown. Avoid submergence of young seedlings.
- Root st ock, rhizomes, and transplants are the preferred material for more reliable plant establishment. Best results are achieved with spring planting. Plant root st ocks and rhizomes at a depth of 5-6 inches in soil. Entire plants may be planted in 6 inches of soil and up to 1 foot of water. Space propagules on 2-6 foot centers because of their rapid rate of spread.
- Manipulation of water levels is desirable for promoting seed germination and veget at ive establishment. Lat e spring drawdown is most favorable with gradual increase of water level.
- Because muskrats and Canada geese may depredate new plantings, control measures must be taken.
- This species is sensitive to oxygen depletion.

Soft-Stem Bulrush

Scirpus tabernaemontani

Great Bulrush

(S. validus creber)

Mature Height 3-9 feet

<u>Plant Type</u> Perennial emergent herb

Indicator Status Obligat e

<u>рН</u> 6.5-8.5

Nutrient Load Tolerance Moderat e

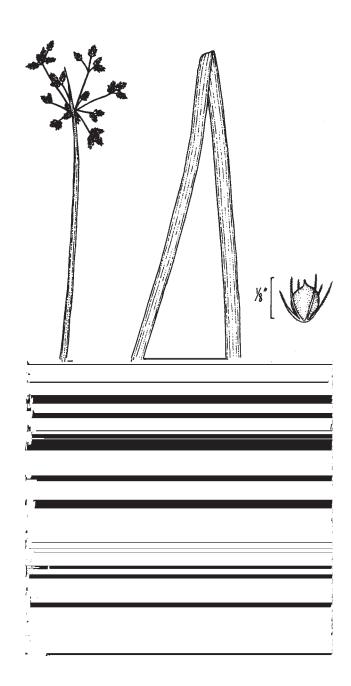
Salt Tolerance Low to moderate

Siltation Tolerance Moderate

Flowering Color and Time Brown June to August

<u>Light Preference</u> Full sun

Seeding Rate
.06 - .25 lbs/acre



Silphium laciniatum

Compass Plant

Preferred Water Depth and Inundation Tolerance

Usually a mesic prairie species, which does not tolerate inundation in artificial situations. This is not necessarily true in natural areas, as it is occasionally seen in sedge meadows and wet prairies.

Wildlife Value

Songbirds eat seed. Deer graze on plant. This species attracts butterflies and provides a food source for silphium weevil.

Application/Zone

Used for upland slope buffer stabilization.

- Propagation is very successful from seed. Because of a tough seed coat, moist, cold stratification at $33-38^{\circ}$ F for 10-60 days is beneficial. After stratification, sow seeds at a shallow depth (1/2 inch) in the spring.
- This is a very slow growing plant above ground. It may only grow one leaf in the first year and may need some protection.
- Direct seeding has been moderately successful.
- Deep taproot discourages transplanting, but can be successful if the taproot is not broken.
- Fall seeding can be very successful.

Silphium laciniatum

Silphium terebinthinaceum

Prairie Dock

Preferred Water Depth and Inundation Tolerance

Wet prairie or sedge meadow species. Species tolerates 0-6 inches of inundation for short durations early in the season.

Wildlife Value

Palat able to grazing species. Attracts butterflies and other insects.

Application/Zone

Used for upland slope buffer stabilization.

- Easily propagated from seed.
- To produce bare root transplants, sow seed 1/2 inch deep in late summer. Late planting is necessary because of rapid growth of taproot and will produce transplant stock in the fall or early the following spring.
- On permanent sites, use transplants in the fall or early spring, or sow unstratified seed in the fall or stratified seed in the spring.
- Requires light for germination.

Prairie Dock

Silphium terebinthinaceum

Mature Height
Up to 10 feet

<u>Plant Type</u> Perennial herb

Indicator Status
Facult at ive (-)

<u>рН</u> 4.5-7.5

Nutrient Load Tolerance Low to moderate

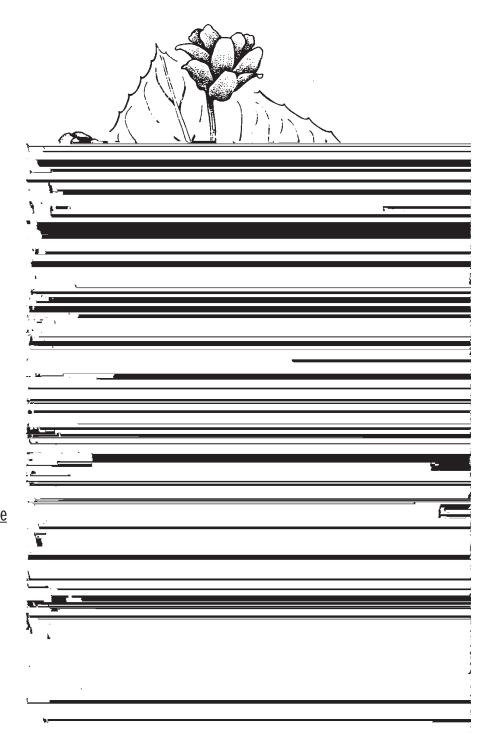
Salt Tolerance Low

Siltation Tolerance Low to moderate

Flowering Color and Time Yellow July to September

<u>Light Preference</u> Full sun

Seeding Rate
.03 - .19 lbs/acre



Solidago gigantea

Late Goldenrod

<u>Preferred Water Depth and Inundation Tolerance</u>

Prefers moist to saturated soil.

Wildlife Value

Provides cover for small mammals and songbirds.

Application/Zone

Used in upper shoreline zones, for st reambank st abilization, and in veget at ed swales.

- Available as divisions, stem cuttings, and seed.
- Seed germinates quickly in warm humid conditions.
- Can be aggressive and form monocult ures in rest orations and natural areas.

Late Goldenrod

Solidago gigantea

Mature Height Up t o 8 feet	
<u>Plant Type</u> Perennial herb	
Indicator Status Facult at ive Wet	
<u>рН</u> Not available	
Nutrient Load Tolerance Moderatetohigh	
Salt Tolerance Not available	
Siltation Tolerance Moderat e	
Flowering Color and Time Yellow July to October	
<u>Light Preference</u> Full sun	
Seeding Rate .125 lbs/acre	

Solidago rigida

Stiff Goldenrod

Preferred Water Depth and Inundation Tolerance

Prefers dry to mesic soil. Species has a minimal flooding tolerance.

Wildlife Value

Provides cover and food for songbirds. Attracts insects.

Application/Zone

Used for upland slope buffer stabilization.

- · Widely available as seed and establishes readily from seed.
- Excellent germination and coverage can be achieved by direct fall seeding on bare soil.
- Seed can be broadcast by hand or drilled.

Stiff Goldenrod

Solidago rigida

Mature Height Up to 6 feet

<u>Plant Type</u> Perennial herb

Indicator Status
Facult at ive Upland (-)

pH Not available

Nutrient Load Tolerance Low to moderate

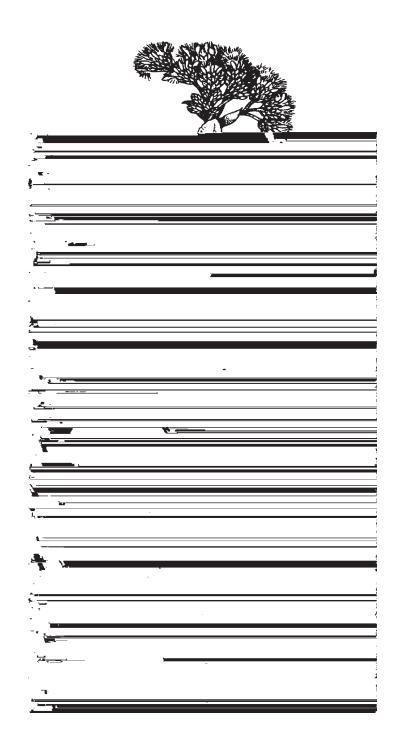
Salt Tolerance Low

Siltation Tolerance Low

Flowering Color and Time Yellow Mid July to October

<u>Light Preference</u> Full sun

Seeding Rate
.06 - .3 lbs/acre



Indian Grass

Sorghastrum nutans

Mature Height 4-8 feet

<u>Plant Type</u> Perennial grass

Indicator Status
Facult at ive Upland (+)

<u>рН</u> Wide range

Nutrient Load Tolerance Low

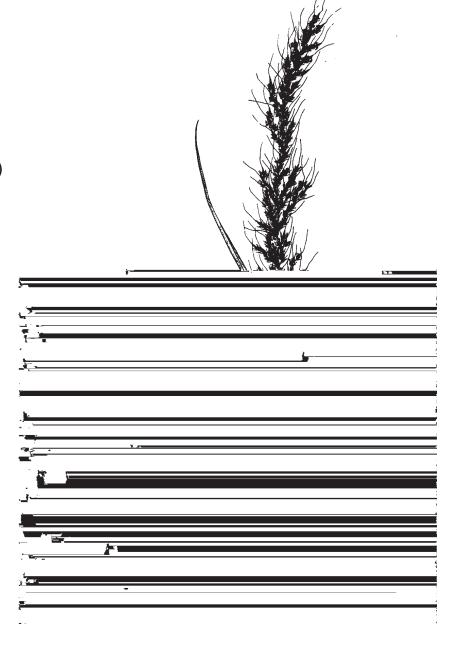
Salt Tolerance Not available

Siltation Tolerance Low to moderate

Flowering Color and Time Golden brown August to September

<u>Light Preference</u> Full sun

Seeding Rate
2.5 - 6.0 lbs/acre



Sparganium eurycarpum

Common Burreed

Preferred Water Depth and Inundation Tolerance

Prefers 12 inches of water in shallow marsh and water margins (Max: 24"/Min: 2").

Wildlife Value

Achenes are eat en by wat erfowl, pheasant, and beaver. Muskrats eat the entire plant. Leafy growth is good cover for nesting ducks, muskrats, and marsh birds. Tubers are eat en by ducks.

Application/Zone

Used in lower shoreline zones for erosion control along lake and pond margins. The spreading root system makes an excellent buffer against wave action.

- Corms, rhizomes, root stock, and transplants are available from several commercial vendors.
- Achenes have prolonged dormancy and low germination rates. They are also buoyant and float to the waterline. Achenes may be scarified and stored in 36-37° F water for at least one year for good germination. Overwintering in water that is allowed to freeze has also been successful.
- Corms and rhizomes are more successful than seed and can be planted in soil inundated with 2 inches of water or saturated soil in the spring. This species has a rapid rate of spread and should be planted on 2-6 foot centers.
- Potted, seed-grown plants are available and transplant well.

Sparganium eurycarpum

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Prairie Cordgrass

Tradescantia ohiensis

Spiderwort

Preferred Water Depth and Inundation Tolerance

Dry to mesic species. Species has some tolerance of early seasonal flooding for short durations. Drought tolerant.

Wildlife Value

Not available

Application/Zone

Used for upland slope buffer stabilization.

- Available as seed or plants.
- For best results from seed, sow fresh seed in fall, or store the seeds in cold, moist storage for 120 days before planting.
- Kelp-based fertilizers also stimulate germination.

Spiderwort

Blue Vervain

Verbena hastata

Mature Height Up to 5 feet

Plant T

Vernonia fasciculata

Common Iron Weed

Preferred Water Depth and Inundation Tolerance

Wet prairie, sedge meadow, and shallow marsh species. Species tolerates inundation of 2-3 inches early in the season.

Wildlife Value

Serves as a nect ar source for insect s.

Application/Zone

St oloniferous habit stabilizes upper shorelines and upland slope buffers.

- The germinat ion percent age for Common Iron Weed is very low which may be because it produces many nonviable seeds. Germinat ion rates can be increased by sowing stored seed in a seed frame out doors in June. If soil temperature is consist ently warm, germinat ion and seedling growth are very rapid.
- Transplant seedlings to individual containers when a rosette-like cluster of 3 to 4 four leaves develop and then move plants to the site when roots fill containers.
- For cuttings, take 4-6 inch stem cuttings in June or July. Root in a 50/50 mix
 of peat moss and sand. They should be well-rooted in 4 to 5 weeks and may then
 be transplanted into 3 to 4 inch pots. When well established, they may be
 transplanted on site or overwintered indoors in the pots for spring planting.
- Outtings may not be necessary because establishment from seed has been observed in restorations.
- Seed availability may be sporadic due to an insect pest.

Common Iron Weed

Vernonia fasciculata

Mature Height
Up to 6 feet

<u>Plant Type</u> Perennial herb

Indicator Status
Facult at ive Wet

<u>рН</u> 5.6-7

Nutrient Load Tolerance Low to moderate

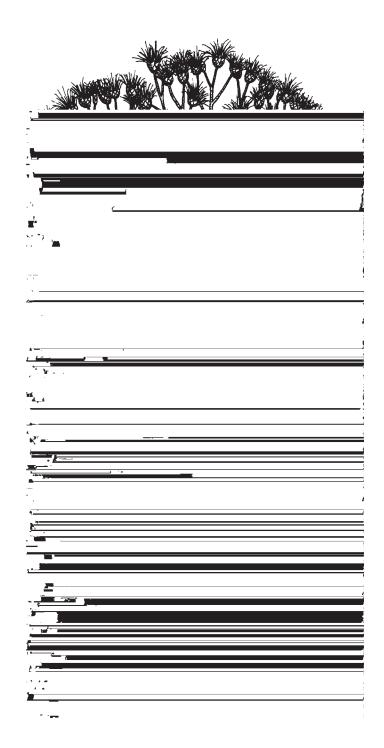
Salt Tolerance Not available

Siltation Tolerance Moderate

Flowering Color and Time Purple July-August

<u>Light Preference</u> Full sun

Seeding Rate
.06 - .19 lbs/acre



Viburnum dentatum lucidum Arrow Wood Viburnum

(V. recognit um)

Preferred Water Depth and Inundation Tolerance Prefers dry to moist soil.

Wildlife Value

Provides cover and nesting habit at for songbirds.

Application/Zone

Used for upland slope buffer stabilization.

- Available as bare root or balled and burlapped. Spreads veget at ively.
- For seeds warm, moist stratification followed by cold, moist stratification has been reported to break dormacy.

Arrow Wood Viburnum Viburnum dentatum lucidum

(V. recognit um)

Mature Height Up to 10 feet	Tar-
Plant Type Deciduous shrub	
Indicator Status Facult at ive Wet (-)	<u>ye</u>
<u>pH</u> Not available	
Nutrient Load Tolerance Low to mode 241 Annub	
Salt T	

Viburnum lentago

Nannyberry

Preferred Water Depth and Inundation Tolerance

Prefers moist to saturated soils in mesic woods. Species tolerates 1 inch of standing water.

Wildlife Value

Edible fruits attract birds. Provides food and nesting habit at for songbirds, such as, gray cat bird, common flicker, American robin, east ern bluebird, cedar waxwing, and other species.

Application/Zone

Used in upper shoreline zones, for st reambank stabilization, and on upland slope buffers.

Availilizty, Eabillishmtagand on Maintence

Nannyberry

Viburnum lentago

Mature Height 15-35 feet

Plant Type Small tree/shrub

Indicator Status
Facult at ive (+)

<u>рН</u> 6.0-7.5

Nutrient Load Tolerance Moderat e

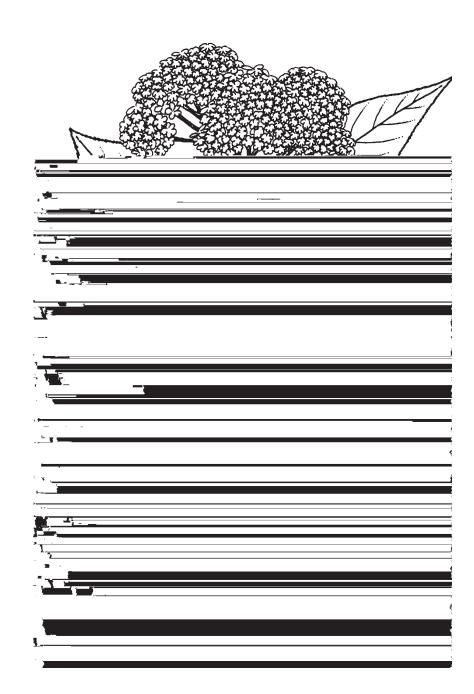
Salt Tolerance Low

Siltation Tolerance Low

Flowering Color and Time Whit e May to June

<u>Light Preference</u>
Partial sun to full sun
Shade tolerant

Seeding Rate
Not applicable



Will-South Cook SWCD

USDA-NRCS 1201 Gouger Road New Lenox, IL 60451 Phone: (815) 462-3106 x 3 Fax: 815-462-3176 http://www.ill-scookswcd.org http://www.il.nrcs.usda.gov

Chicago Botanic Garden

1000 Lake Cook Road Glencoe, IL 60022 Phone: (847) 835-5440 http://www.chicagobotanic.org

DuPage County Dept. of Development and 0 Environment al Concerns

421 North County Farm Road Wheat on, IL 60187 Phone: (630) 682-7220 Fax: (630) 784-3773 http://www.dupageco.org

Kane County Department of Environmental Management



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Appendix B

List of Native Plant Material Vendors

The following is a list of sources that provide wetland, forest, and prairie plant material and seeds for species native to northeastern Illinois. This information is provided as a public service and does not constitute a recommendation or endorsement, nor does the absence of a firm from the list constitute a negative endorsement. While an effort has

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Appendix C

Prescribed Burn Contractor List

The following is a list of consultants in the nort heast ern Illinois area that provide controlled burning as a service. This information is provided as a public service and does not constitute a recommendation, endorsement or certification of their qualifications or performance record, nor does the absence of a firm from the list constitute a negative endorsement. While an effort has been made to provide a complete and accurate listing, omissions or other errors may occur and therefore other available sources of information should be consulted. Those seeking professional services are advised to use independent judgment in evaluating the credentials of any firms appearing on this list.

This list was compiled by the U.S. Fish and Wildlife Service's Chicago, Illinois Field Office. Contact their office, using the information provided in Appendix A, for any updates or corrections to the list.

Applied Ecological Services, Inc.

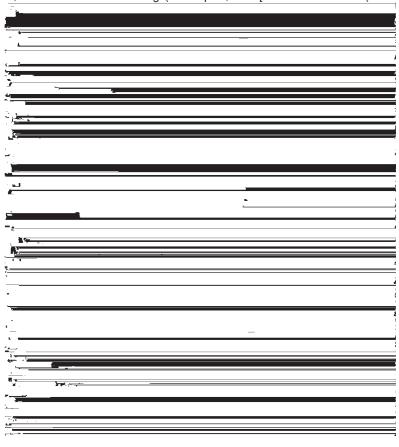
Mark O'Leary 120 West Main Street West Dundee, IL 60118 Phone: (847) 844-9385 Cell: (708) 906-8185

Aramark - ServiceMast er David Wacht el 2300 Warrenville Road Downers Grove, Illinois 60515 Phone: (630) 271-2281

Christ opher B. Burke Engineering Ltd.

Jedd Anderson 9575 West Higgins Road, Suite 600 Rosemont, IL 60018

Phoiseo/three,co-50n% Build Tol(100n/28/20)Time()-9/5/2600 Tive(100n/15t opher, -200 Tive(100n/15t opher) -200 Tive(100n/1



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Appendix D

Natural Areas Contractor List

The following is a list of contractors that provide services including brush cutting, herbicide application, drain tile removal and other similar services in northeastern Illinois. This information is provided as a public service and does not constitute a recommendation or endorsement, nor does the absence of a firm from the list constitute a negative endorsement. While an effort has been made to provide a complete and accurate listing, omissions or other errors may occur and therefore, other available sources of information should be consulted.

This list was compiled by the U.S. Fish and Wildlife Service's Chicago, Illinois Field Office. Contact their office, using the information in Appendix A, for any updates or corrections to the list.

Applied Ecological Services, Inc.

Mark O'Leary 120 West Main Street West Dundee, IL 60118 Phone: (847) 844-9385 Cell: (708) 906-8185

Aramark - ServiceMaster

David Wacht el 2300 Warrenville Road Downers Grove, Illinois 60515 Phone: (630) 271-2281

Arbor Images

Kevin Remer W296 Spring Prairie Road Burlingt on, W 53105 Phone: (262) 763-4645 Fax: (262) 763-5090

Backt rack Const ruction

John Suchy 372 West County Line Road Barrington, IL 60010 Phone: (847) 381-6182 Cell (847) 204-0245

Brush Busters

Don Schroeder 18370 Burns Parkway Anoka, MN 55303 Phone: (763) 441-8651 Cell: (612) 865-1043 Fax: (763) 441-4847

Civil Engineering Services, Inc.

Rick Woodford 700 E. Diehl Road, Suit e 180 Naperville, Illinois 60563 Phone: (630) 577-1551

Conservation Land Stewardship

Ken Willis 375 W First Street Elmhurst, Illinois 60126 Phone: (630) 559-2039

ENCAP, Inc.

Joe Alaniz/Carl Pet erson 1296 1 St at e Rout e 38 P.O. Box 8 47 Cort land, IL 60 112-0847 Phone: (8 15) 758-1621

Eubanks & Associates, Inc.

Dave Eubanks 10350 Dearlove Rd., Unit D Glenview, Illinois 60025 Phone: (847) 824-8325

Illinois Natural Areas Improvements

Bryon Walters 3885 E 550th Road Mendot a, IL 61342 Phone: (815) 252-9605 Fax (815) 539-6377

Integrated Lakes Management

Jim Bland 83 Ambrogio Drive, Suit e K Gurnee, Illinois 60031 Phone: (847) 244-6662

J.F. New & Associates

Clayt on Wooldridge 722 W Exchange Cret e, Illinois 60417 Phone: (708) 367-1130

Landscape Resources, Inc.

Brian Baumgart ner 1135 Sout h Lake St reet Mont gomery, IL 60538 Phone: (630) 801-1122 Fax: (630) 801-1433

Natural Resource Management,

Doug Short P.O. Box 702 Beecher, Illinois 60401 Phone: (708) 935-2100

Pizzo and Associates

Jack Pizzo 10729 Pine Road Leland, Illinois 60531 Phone: (815) 495-2300

Turning Leaf Restoration

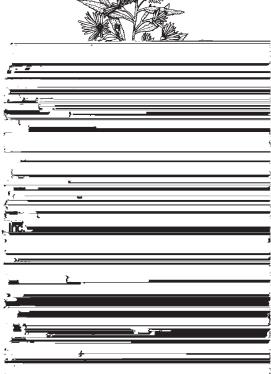
David Hodge 1158 Pinet ree Lane Bart let t, IL 60103 Phone: (630) 540-7533 Cell: (630) 624-5323

Witness Tree Native Landscapes

June Keibler, Mary Zaander 121 Ford Street Geneva, Illinois 60134 Phone: (630) 262-1160

Brad Woodson

14401 Trinit y Ct. Woodst ock, IL 60098 Phone: (815) 337-6040 (Home) Phone: (815) 653-2297 (Work & MOOD)



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Appendix F

In order to maint ain consist ency, species names (scientific and common) in this appendix have been altered to match those used in this guide and may differ from the names used in the publications referenced below. Page numbers listed below correspond with the references listed.

1. The following are illustrations used from *The Illustrated Flora of Illinois Series* published by SIU Press. These illustrations are being used with permission from SIU Press. This permission is not transferable, therefore, the illustrations cannot be reproduced without formally requesting permission from SIU Press.

The Illustrated Flora of Illinois: Flowering Plants Ser	ies: Rush
to Rushes by Mohlenbrock R.H. (C) 1970 by Southern	n Illinois
University Press:	
Acorus calamus (Sweet Flag)	page 126
Sagittaria latifolia (Common Arrow leaf)	page 46
Sparganium eurycarpum (Common Burreed)	page 164
Tradescantia ohiensis (Spiderwort)	page 176

The Illustrated Flora of Illinois: Flowering Plants Series:
Smart weeds to Hazelnuts by Mohlenbrock R.H. and Thompson P. (C) 1973 by the Board of Trustees, Southern Illinois University:

Achene: a dry, single seeded fruit that doesn't split at mat urity, similar to a small nut.

Adventive: an exotic plant that is introduced and nat uralized.

Allelopat hic: any direct or indirect harmful effect of chemicals from one plant on nearby plants.

Annual Plant: a plant that completes its life cycle and dies in one year or less.

Arch Abut ment: the part of an arch that directly receives thrust or pressure.

Best Management Practices (BMPs): A practice or combination or practices that are determined to be the most effective and practicable means of controlling point and non-point source pollutants. BMPs include structural devices which temporarily store or treat urban st ormwat er runoff to remove pollut ant s, reduce flooding, and protect aguatic habitats. BMPs also include non-structural approaches, such as public education efforts to prevent the dumping of household identeninia al Blaintto storm drains.2 Td(nat 7 Tc 0.00999 Tw 0.0

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ty;t teml aplined towaterwithtae

Corm: a short, vertical, often swollen, underground stem, many "bulbs" are actually corms.

Det ent ion Basin: a st ormwat er facility for st oring runoff, with a controlled release of water during and after the rainfall event.

Division: plant propagation by dividing a parent plant int o 2 or more. Many parts of plants can be split, including roots, crowns, bulbs, leaves, fronds, etc.

Drawdown: when the water level in a marsh or pond is lowered to expose the bottom sediment.

Drill: sowing seed in rows, usually by machine. The advantage is in more careful spacing of seed and assured seed-soil contact.

Emergent: a root ed, herbaceous, wet land or aquatic plant which manifests some of its adult growth above the wat erline, but is rooted underwater.

FAC (Facult at ive): an indicat or cat egory for plant s, estimating the probability of a given species to occur in wet lands at 34% to 66% A positive (+) sign at tached to the category indicates a frequency toward the higher 15en 2. 4/1490e probibierbiniug la Planta: h Tegat Ove () Tsi Brienmiliua li Plant: a frequency toward the lower end of the probability. The indiagroup (cert egory does not equate to the diagress) of 131 wet ness tolerated by a given species.

FACU (Facult at ive Upland): an indicat or cat egory for occur in wet lands at 1%t o 33% A positive (+) sign attached to the category indicates a frequency toward the higher end of the probability, and a negative (-) sign indicates a frequency toward the lower end of the probability. The indicator category does not equate to the degrees of wetness tolerated by a given species.

> FACW (Facult at ive Wet land): an indicat or cat egory for plants, estimating the probability of a given species to occur in wetlands at 67% to 99% A positive (+) sign attached to the category indicates a frequency toward the higher end of the probability, and a negative (-) sign indicates a frequency toward the lower end of the probability. The indicator category does not equate to the degrees of wetness tolerated by a given species.

Fen: a wet land area usually calcareous in nature, which has a supply of mineral rich ground water as the primary wat er source and has accumulated peat.

Flat woods: a low lying woodland composed of hardwood tree species in the canopy which usually occupies the first terrace, not the primary floodplain.

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Suckers: a shoot originating from the roots or lower part of the stem of a plant and usually developing rapidly.

Swale: a wide, shallow dit ch or depression used to temporarily convey, st ore, and filt er runoff. See Prairie Swale.

Swamp: an area saturated with water throughout much of the year but with the surface of the soil usually not deeply submerged; usually characterizd[0.8] rie Prairio.0043 Tc 54 Tw 0.8 ditch or 0-18.14.8 19t 7 ditch o.14999 rie Prairio.00 ob043 on 72 /am

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