



Cardno Native Plant Nursery

RESOURCE CATALOG

- > Native Plant Propagation
- > Prairie, Wetland, and Specialty Seed Mixes
- > Bioengineering Materials
- > Design and Planting Strategies
- > Establishment and Maintenance Strategies
- > Planting Guide
- > Pollinator Support
- > Ecological Consulting Services

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Note from the **Nursery Director**

Restoring a native landscape can be a challenging, time-consuming task. But by understanding the different environments and the plant species that inhabit them, you can recreate these ecosystems.

This year (2021) presented many unexpected challenges. A pandemic, semi drought, supply shortages, increasing costs, and an unusual high demand for plants after a slow start. Through it all, our nursery team emerged and adapted to everything thrown their way. What a great team.

2021 saw the expansion of our seed production fields. We invested in increasing our native seed supply. Along with the seed production field, we have added seed harvesting and cleaning capabilities.

Cardno's native seed mixes are being used for Monarch butterfly and pollinator habitat projects on roadsides, energy corridors, solar farms, filter strips, and soil stabilization projects across the country. We can customize native seed mixes to meet your project's needs. We also produce native seed packets, which are a great way to showcase your commitment to the environment. These packets are great handouts at tradeshow and conferences. Contact us about customizing options for your projects or business needs.

Our deep water aquatic production continues to expand as we offer species that are part of the Elodea, Potamogeton, and Vallisneria genera. We are planning to bring more submerged aquatic species to market in the future.

We are excited about our growing native plant kit program designed for agencies to promote and provide native plants to their local communities. You can contact our nursery for the latest details.

It has been a great pleasure to work on hundreds of unique projects with and learn from many passionate and talented people in the industry over the years. I would like to thank our loyal customers, vendors, and incredible nursery team. It's been a privilege to work with you.

Mark O'Brien

Business Unit Leader, Restoration Services Nursery





The Cardno Native Plant Nursery

Since 1994, Cardno has operated a full-service native plant and seed nursery in northwest Indiana. We specialize in wetland, prairie, and woodland restoration and native landscape projects in the Midwest and beyond.

Over the years the nursery has continued to grow in size and product offerings, while continuing to focus on native species. Recently we have:

- > Added more native species and genotype-specific plants and seed
- > Expanded our restoration products to include live stakes, fascines, liners, and gallon stock
- > Developed innovative, custom bioengineering materials to offer additional restoration options, including pre-vegetated coir products
- > Provided custom contract growing, seed collection, and plant and seed amplification services, all of which can ensure the materials and necessary genotype are available for your project
- > Increased the production of submerged aquatic plants to meet the demand for plants that grow in water over 1 foot deep
- > Developed a program for schools to install outdoor learning labs using our Monarch Prairie Kits
- > Continued to educate the public by sharing information on native plants, installation and maintenance through our expanded social media sites

Our commitment to innovation allows us to make continual operational improvements and use technological advancements to keep our nursery at the forefront in meeting our clients' native restoration needs.

To create a successful native landscape or restoration project, it is critical to design, specify, install, and maintain native landscapes with plants most suited to the local environment, so that they become well established and flourish. To achieve a resilient, sustainable, and complex native landscape, the interaction among a site's climate, topography, soils, hydrology, and vegetation needs to be understood. Using Cardno's high-quality native plants and seed, along with quality design and installation, will provide you with the value-added tools needed to achieve project success.



Advantages of Native Vegetation

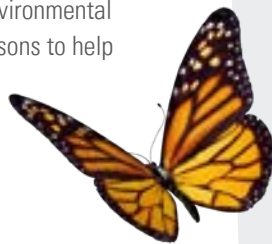
Native plants are species indigenous to a particular habitat within a specific bio-geographic region. They have certain characteristics that contribute to their success. They:

- > Are adapted to the region's soil, hydrology, and climate
- > Have evolved defenses to many diseases and insect pests
- > Create deep and extensive root systems, which help to stabilize the soil column and create an environment favorable to building fertile soils rich in organic matter
- > Absorb excess nutrients from runoff, enhancing infiltration during periods of heavy rain as well as drought
- > Provide habitat for butterflies, hummingbirds, songbirds, and beneficial insects, to create greater biodiversity

The Monarch Prairie Kit | A natural place to learn

Cardno Native Plant Nursery has teamed up with an experienced environmental science teacher to create a simple kit with the plants, tools, and lessons to help you grow and utilize a native plant prairie on your school grounds.

This prairie will not only beautify your school landscape, it can become the foundation for a variety of engaging lessons in math, language arts, science, history, art, and more.



The Monarch Prairie Kit includes the Monarch Prairie Guide. The guide takes you from the prairie planning stage through planting, showing you how to engage your students throughout the process, and introduce them to a career in the environmental sciences. Once your prairie is planted, follow the links in the guide to find complete lesson plans on the Monarch Prairie website, as well as links to other outdoor education resources that you can use in your prairie.

Visit the Monarch Prairie website for cost, details on the kit, ideas, and links for grants and other funding sources.

www.cardnonativeplantnursery.com/monarch-prairie-guide

Functions and values of native plants and seed

Native landscapes contribute to immediate and long-term ecosystem benefits, such as:

- > Achieving green building site design goals
- > Benefiting Monarchs and pollinators
- > Enhancing natural beauty
- > Increasing wildlife habitat
- > Managing nutrient loading
- > Managing stormwater
- > Mitigating habitat impacts
- > Providing public education
- > Reducing operational costs and long-term maintenance
- > Restoring watersheds

Advantages of Native Vegetation



Native to a region

Ecoregions

Numerous factors determine biological diversity, such as climate, soil chemistry, soil composition, and geology. Together, such factors define complex natural patterns called ecological regions, or ecoregions. Plants and animals that are native to a particular ecoregion are adapted to that area's specific conditions. While a given species may be represented in many ecoregions, the species' specific genetic make-up may vary among ecoregions. The US Environmental Protection Agency (USEPA) and the US Forest Service are among the federal agencies that use ecoregions to define regions.

Cardno uses USEPA's Level III ecoregions as a key criterion for specifying native plants. To maximize the probability of successful plant growth and establishment, when possible, we recommend specifying native plant materials that originate from within the project's same or adjacent ecoregion. Not every project needs this level of specificity; contact Cardno to determine if ecoregion verification is important in meeting your project's goals and objectives.

Genotype verification

To further determine if a plant species is native to a region, the plant's genotype can be verified. Different regions and climates alter the dormancy, bloom times, and hardiness of the same plant species. These slight differences can affect a plant's relationship with pollinators and its ability to reproduce and survive.

In most instances, Cardno tracks the genotype of each plant to the parent collection site, to confirm that the plant is native to the particular region. If genotype is important for your restoration project, we can make appropriate plant recommendations and assist with regulatory compliance.



USEPA Level III Ecoregions



Custom seed collection

Cardno can custom-collect specific seed species or genotypes to meet project requirements. Global positioning system (GPS) technology may be used as part of the tracking detail provided. After custom collection, we clean and test the seed to remove inert material and contaminants, producing a purer and more productive seed lot. Consult with a Cardno team member to determine seed collection and custom growing options.

Quality assurance and control

To ensure clients receive the highest quality plants and seed, Cardno has developed industry-leading standards for grading, cleaning, testing, labeling seeds, and enhancing plant materials.

Pure Live Seed (PLS) tests

Cardno uses independent laboratories to conduct Pure Live Seed (PLS) tests to determine the purity and viability for all of our native seed. This industry measure describes the percentage of a seed batch that will germinate. A PLS weight of 100% indicates that all materials are anticipated to germinate. PLS provides a standard quality assessment to allow customers to compare seed lots, especially across price variations, of the same species. Based on the PLS test results, we will increase the bulk quantity shipped to meet the equivalent of 100% PLS weight.

Plant and seed amplification

When local genotype is important, Cardno can collect plants or seed from a specific site to make additional plants or seed available. Amplification is particularly useful for helping to conserve rare plant species or species with limited availability.

Enhanced root systems

As a standard part of our growing process, Cardno uses a root maximizer - mycorrhizal fungi - to promote the development of a vigorous root system for all plants and seed. The symbiotic relationship between the fungi mix and the roots increases the plants' resistance to disease, drought, and insect damage, and it enhances the roots' ability to capture nutrients. We apply the same broad-spectrum inoculants to all seed blends to encourage more vigorous growth.

Plant quality grading

Before Cardno ships any plant material, our shipping department grades each item, using a scale of 1 to 5, with one being the highest quality. The grading system checks the quality of stems, foliage, and roots, and looks for any potential diseases or pests. We automatically ship any grade 1 or 2 plants. Grade 3 plants are shipped if their grade is related to seasonal dormancy or after consulting with the client. We do not ship any plants graded 4 or 5.



Ohio DOT World War I Red Poppy Remembrance Garden

Cardno's Native Plant Nursery grew and supplied the more than 1,600 full-size red poppies (*Papaver rhoeas*) for the Ohio Department of Transportation's (ODOT) World War I (WWI) Red Poppy Remembrance Garden, which honors those who lost their lives in WWI. Following WWI, the red poppy bloomed in the battlefields and cemeteries all over Europe and also became the national symbol of the American Legion.

Following the early to mid-summer poppy blooms, the garden was replanted and transitioned into a native pollinator garden in fulfillment of ODOT's commitment to increased pollinator habitat and support for Ohio's Pollinator Habitat Initiative. Cardno completed the installation and maintained the site through June 2018. Cardno Marketing developed the commemorative posters and seed packets provided at the dedication ceremony and permanent signage highlighting Ohio's role in WWI and the symbol of the red poppy.



Creating a Native Landscape

Restoring native plant communities and creating attractive, dynamic landscapes using native plants requires in-depth knowledge of native plants and habitats. When designing a project, there are 9 basic elements of successfully establishing native plant communities:

1. Determine project objectives
2. Determine budget and resources
3. Assess site conditions
4. Select plant species
5. Determine seed and plant quantities
6. Prepare site for installation
7. Follow appropriate timing
8. Install seed and plant material
9. Monitor and maintain site

Determine project objectives

A restoration project may seek to achieve one or several goals, such as:

Manage stormwater

As stormwater infrastructure becomes overburdened, and additional regulations are adopted, communities are seeking alternatives to conventional stormwater systems. Natural treatment options, such as bioswales and rain gardens, have been shown to assist with water quality and quantity management issues. Cardno can provide stormwater planning options and assist with regulatory compliance.

Restore watersheds

Water quality and quantity have gained importance in areas that have long enjoyed abundant, clean water. Native landscape ecosystems can support water purification, groundwater recharge, and stormwater management. Healthy aquatic ecosystems rely on a carefully managed balance of vegetation, hydrology, and biological communities. Cardno's team of aquatic ecologists can assist with watershed assessment and design.



Michigan City, IN Pipeline Exposure Remediation

Cardno designed and implemented a natural, practical solution to mitigate an exposed gas pipeline within a sand dune right-of-way. Coconut fiber bioengineering materials were utilized in conjunction with marram grass stolons and Cardno Native Plant Nursery's Great Lakes Dune native seed mix. This mix is intended to be used in areas of disturbance to stabilize sandy soils. A series of sand-encapsulated lifts were constructed to provide adequate cover for the pipeline, while providing a deterrent for off-road vehicle traffic, which caused the pipeline erosional exposure. This method has since been utilized to provide solutions to similar problems with various utility assets.

Manage nutrient loading

Too much nitrogen or phosphorus in rivers and streams causes algae blooms, resulting in hypoxic, or aquatic "dead," zones. Wetlands, floodplains, and riparian buffer zones take up these nutrients, offering a proven solution to this growing environmental challenge. Our team can perform water quality and biologic assessments and develop a water quality management plan to address these issues.

Mitigate habitat impacts

Developers are often required to offset impacts to sensitive natural areas that occur from the development process. Regulatory agencies commonly require that developers mitigate impacts to wetlands, streams, and rare, threatened, and endangered (RTE) species habitat. In addition to fulfilling regulatory requirements, mitigation sites can also provide secondary benefits such as wildlife habitat, outdoor recreation, and flood water storage. Cardno has extensive experience planning, building, and maintaining wetland and other mitigation sites.

Increase wildlife habitat

Increasing native plant diversity can enhance a property's overall biodiversity. Native plant installations also provide sources of food and shelter for many wildlife species, including pollinators. For projects in Areas of Concern or with a RTE component, habitat quality can be a primary consideration. Cardno has extensive experience in creating sites that support increased biodiversity and habitat enhancement.

Enhance natural beauty

Landscapes with native plants bring nature to urban, suburban, and corporate settings. They attract a variety of birds, butterflies, and other animals. Many managers of residential communities, corporations, and educational campuses are seeking the aesthetic benefits natural spaces provide for the benefit of their clients and employees. Cardno can provide advice to help you plan and create a beautiful natural landscape.



Creating a Native Landscape



Boardman River Dam Removal

Cardno provided stream construction and native revegetation services, as a subcontractor to the Michels Corporation (Michels), as part of one of the most comprehensive dam removal and restoration projects in Michigan's history and one of the largest such projects in the Great Lakes Basin. The Cass Road Dam removal project, located in northwest Michigan, involved the restoration of approximately 9,400 linear feet of river channel. Cardno assisted Michels with river restoration services including: installation of 43 acres of native floodplain and upland seeding; construction of 4,100 linear feet of fabric encapsulated soil lifts; placement of 530 large wood structures; and installation of 10,050 square yards of slope protection and erosion control.

The project restored fishery movement throughout the mainstream and tributaries, restored natural large woody debris transport, mitigated temperature regimes lethal to salmonids, and restored natural stream flow function and channel form.



Provide public education

Traditional aesthetic values focused on manicured landscapes may conflict with sustainable and ecologically-sound landscapes. To help reduce the potential for such conflicts, restoration projects can include an educational component on the benefits of native landscapes and serve as outdoor classrooms. Cardno can assist with community outreach for urban native landscape and green infrastructure projects.

Achieve green building site design goals

Creating native landscapes is often part of a larger design context, in particular the US Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system. Our team of professionals has extensive experience designing and installing landscapes and stormwater systems that provide projects with key LEED credits.

Reduce operational costs and long-term maintenance

Once established, native plants require little to no use of chemical fertilizers, herbicides, or pesticides, minimal watering and weeding, and less frequent mowing, than traditional turf grass, reducing long-run maintenance costs.

Determine budget and resources

Most projects have limited access to funds, equipment, and other needed resources. To help avoid delays and cost increases, determine the project budget early in the process. In addition to materials and installation, funds are needed for maintenance after installation. While native landscapes have lower long-term maintenance needs, they need to be monitored and maintained during establishment, to ensure long-term success.



Assess site conditions

For any potential project, understanding the site's natural features is imperative to help determine if the project goals can feasibly be achieved. Site conditions also dictate species likely to thrive there. Before selecting plant species, be sure to have a solid understanding of your site's soils, hydrology, topography, and solar exposure.

When creating a native landscape, there are additional existing conditions that need to be understood during the project planning stage, including the vegetation already present on the site, adjacent land uses and conditions, sensitive natural resources, and access to the site.

Vegetation

Vegetative cover and the site's seed bank, which includes seed dropped from existing vegetation and any sub-surface dormant seed, can have a significant impact on a native landscape's success. Understanding the existing vegetation, including the presence of invasive species and the previous land use, will help define site preparation needs. Existing species on a site also often reveal clues about soil fertility and hydrologic conditions. This information can be used to determine what other species will perform well after installation. Cardno can assist with site assessment and invasive species control.

Adjacent land uses and conditions

Landscapes do not necessarily respect property boundaries. Vegetative cover on adjacent sites can have a significant impact

on a native landscape's success. Poorly managed adjacent properties can negatively impact the success of a site's management plan. If it is possible, managing unwanted plants on adjacent sites will help with long-term site establishment and maintenance. In addition, understanding adjacent land uses will help ensure that the plant species selected will be able to withstand any externalities.

Sensitive natural and cultural resources

It is also important to determine whether a site has any sensitive natural resources, such as wetlands, streams, or other water sources; any RTE species and their habitats; or historically or culturally significant resources. Protecting natural and cultural resources on a site can significantly affect planning, design, construction, management, and overall project costs. Understanding whether there may be permitting and compliance requirements as a result of these site attributes is critical to a successful project.

Site access

Some sites are in remote locations or are difficult to reach. Design your project with any such limitations in mind, and make sure that appropriate equipment can be used during both installation and maintenance. Keep in mind that specialized equipment will likely be required for maintaining larger-scale wetland or aquatic projects. Cardno can perform a detailed site assessment and create custom recommendations for your project.

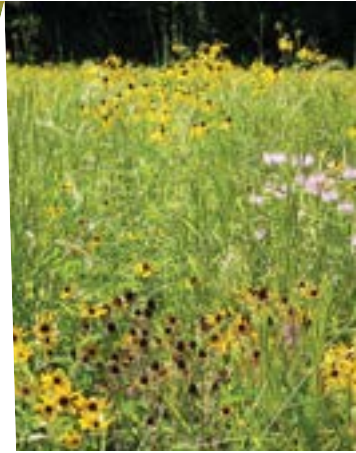
Creating a Native Landscape



8 weeks



1 year



3 years

Select plant species

Project objectives, budget, and site conditions present factors that will influence the range of species best suited for a project. In addition, project expectations, aesthetics, and availability are also key factors for selecting plant species.

Short and long-term expectations

It usually takes 2 to 3 full growing seasons for a native seeding to reach maturity, with some species not appearing until after 5 years or more. Budget parameters and your choice of seed versus plants have a significant impact on the rate of establishment and appearance of the project.

Using native seed is more economical than live plants; however, it will take longer to establish. If you need to see progress quickly, include species in the seed mix that will germinate and bloom in the first year. For even more immediate results, install plugs or larger established plants.

For long-term projects, it may be best to stagger installation over several years, planting early successional species first to develop a stable native matrix, and then adding species that are more conservative in later years.

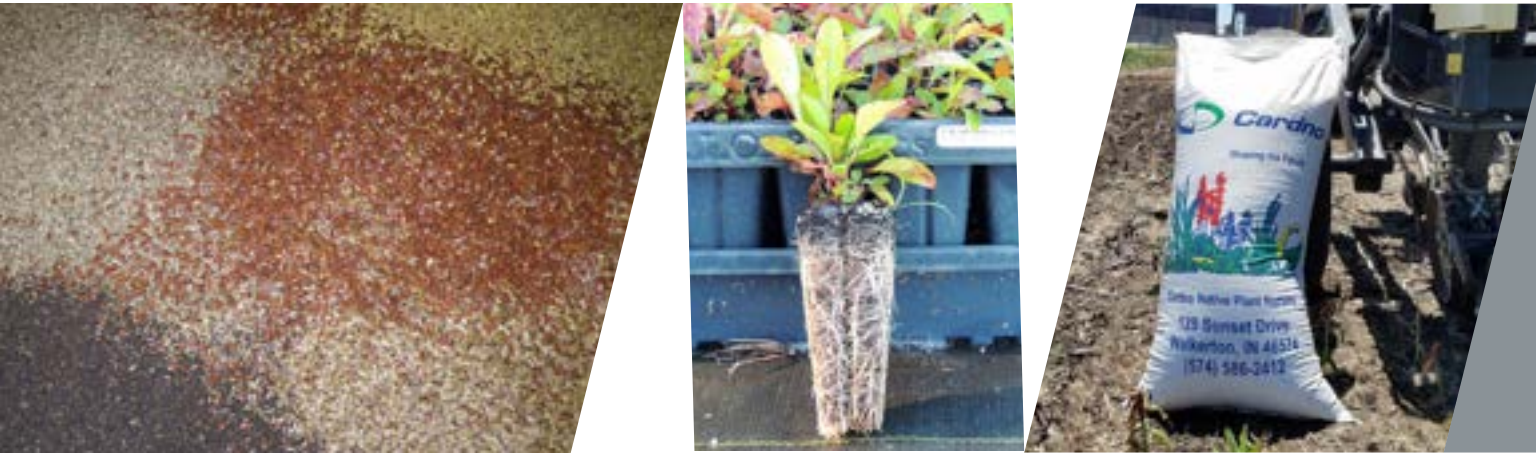
Aesthetic elements

Expectations are often connected to the aesthetic elements of a project. When thinking about the visual impact of species selection, consider what the site requires with regard to:

- > Bloom time and color throughout the season
- > Plant form and growth habit
- > Height at maturation, relationship to other plants, and overall sight lines
- > Spread and coverage rate
- > Functional attributes such as pollinator and habitat enhancement

Availability

Not all species may be available at all times or in the quantities needed. Before specifying a species for a project, determine if the plant is readily available or if it needs to be custom grown. If species with a specific local genotype are required, collecting and growing these species will likely need to occur a year or more before the planned installation date. Contact Cardno to discuss specific plant or seed availability and contract collection and growing options.



Determine seed and plant quantities

Choosing the quantity and stock type is just as important as selecting plant species. This decision will greatly affect project establishment. It is influenced by overall project goals, budget, and time frame.

Seed quantities

When using native seed, we recommend calculating the amount of seed needed for a particular species by estimating the amount of native seed of that species to apply per square foot or per acre. Native seeds vary greatly in size and shape, depending upon the species you are using. A species with a high seed count per ounce will require much less seed to cover a given area than another species with a lower seed count.

For example, 1 ounce of Broad-Leaved Purple Coneflower (*Echinacea purpurea*) contains 6,600 seeds. In contrast, 1 ounce of Foxglove Beard Tongue (*Penstemon digitalis*) contains 115,000 seeds. To provide the same coverage per acre, you need approximately 17 times as much *Echinacea purpurea* as *Penstemon digitalis*.

Determining how many total seeds per square foot are enough for a site depends upon project goals, budget, and resources. Cardno native seed mixes are designed with an application rate of 50 to 95 native seeds per square foot, depending on the mix. Acceptable results can be achieved by using an approximate seeding rate of 20 to 30 seeds per square foot, including grasses and forbs.

Note that some species are early successional, or “pioneers,” meaning they are dominant early on in project establishment. Others

are more conservative and do not establish readily from seed. These more conservative species might be more suitable to be included as plugs or larger container sizes. Cardno’s nursery team can discuss these options with you.

Plant quantities

The size of the live plant to use will depend on budget and project expectations. Plugs are less expensive than quart or gallon-sized stock, but they will be less showy after planting. After a full year in the ground, it is difficult to distinguish a planting installed with plugs versus gallons. However, because gallon stock is larger at installation, they are typically second-year plants, meaning they will be more likely to bloom during the year following installation.

When estimating the number of plants, keep in mind plant size at maturity. Many native species are at least 3 feet tall and 1 or more feet wide at maturity. While a planting density of 1 foot on center will look great during the first year, the plants will be very crowded once they mature. Spacing larger plants 18 or 24 inches on center will be less costly and just as showy in the end.

Prepare site for installation

Prior to installing native seed or plants, the site needs to be prepared properly, which involves identifying existing native plants, removing unwanted vegetation, stabilizing erodible areas, and preparing the plant and seed beds. Before making modifications to a site, however, be sure to obtain any required permits and put proper erosion control measures in place. Cardno can assist with your permitting and erosion control needs.

Creating a Native Landscape



Effective vegetation removal techniques

Herbicide application

Works for large sites or sites with little or no native vegetation. Selective use of herbicide is especially effective for aggressive non-natives. The number of treatments depends upon site conditions, species present, and the presence of a seed bank within the soil. Repeat applications may be required for persistent perennial weeds.

Smothering

Works for smaller sites when chemical use is not desirable. Landscaping fabric, dense compost, or grass clippings cover existing vegetation and is left in place for a full growing season.

Cultivation

Involves tilling an area regularly from spring to fall, to between 4 to 5 inches deep, to destroy weed root systems. Because it can also bring up weed seeds, cultivation needs to occur at regular intervals, between 2 to 3 weeks, to ensure undesirable perennials do not re-sprout. This has the highest risk of soil loss from erosion. Plants with deep root systems may need supplemental herbicide application.

Prescribed burning

Can be used to prepare a site, but it is most commonly used to maintain a prairie landscape. See the section on maintenance for more information on prescribed burning.

Before installing a native landscape, a site may need to be prepared over one or more growing seasons. The effort required depends on current site conditions, in particular the amount of non-native plants in the seed bank and invasive species on site. Cardno can provide the professional assistance needed to evaluate site preparation needs.

Identify any existing native vegetation

Some projects may have areas of “remnant” habitat present. Protecting these species onsite or temporarily relocating and using them later as part of the installation can be key to a project’s success. Cataloging which species are present within these areas can also be highly valuable for developing a planting plan, because the remnant will contain species that have adapted to survive at that particular site. These remnants can also serve as seed sources for plant material if preserving local genotype is a goal of the project.

Remove unwanted vegetation

Be sure to remove any weeds and existing vegetation that could out-compete native species. Besides the usual aggressive invasive species, such as Purple Loosestrife, Reed Canary Grass, and Honeysuckle, some of the more problematic competitors include cool-season grasses, such as Brome, Clover, Tall Fescue, and other turf grasses. If your site has a significant unwanted plant seed bank, it will likely require ongoing control and maintenance, to ensure unwanted vegetation does not become re-established.

Several techniques can be used to remove undesirable vegetation. Hand weeding can be done if a site is small or if there are a limited number of plants to be removed. However, for most sites, either a more aggressive approach or a combination of approaches is typically needed. A trained and licensed native landscape professional should perform these activities.



Stabilize erodible areas

Many native plant installations are located along streambanks, shorelines, and other sloped areas that have a tendency to erode. Before planting occurs on these sites, the surrounding soils need to be stabilized. Structures such as silt fences, erosion control blankets, straw mulch, and straw bale dams can be installed to control erosion and siltation. As a site becomes stable, seeding with permanent native species helps with optimal long-term erosion control. Cardno provides various bioengineering materials for erosion control.

Prepare planting and seedbeds

To prepare the soil and create optimal plant conditions before disturbing any ground:

- > Call 811 before you dig
- > Clear area of debris that would interfere with planting
- > Mow any excess existing vegetation growth
- > Apply broad-spectrum or targeted herbicide, depending on species present
- > De-compact any areas of special concern
 - Lightly de-compact tilled or loose soil with a roller, cultipacker, or similar equipment. If using a no-till seed drill, tilling can be omitted.
 - If ground is wet, tilling should not occur until the soil dries enough to break apart when tilled.

Amend soils

For stormwater applications like rain gardens and bioswales, soil can be amended to create appropriate growing conditions for wetland plants and for drainage required to allow these features to function properly. These areas often have the native soil removed and have a combination of compost and sand applied to achieve this objective.

Follow appropriate timing

Seed: The optimal time to install seed is from the fall (September 1) to late spring (June 15). Avoid mid-to-late summer seeding, because of limited soil moisture and rainfall. Native seed mixes can be installed in the fall when temperatures are cooler and rains are more frequent. Many native species require the cold stratification of winter in order to break dormancy. When conditions are right in the spring, the seed will be in place to germinate.

Seeding a wetland in the winter is often easier, because the site is frozen and equipment can more easily access the site. Broadcast the seed when the evening temperatures drop below freezing. Use appropriate erosion control measures, because the seed is not likely to germinate and provide stabilization until the following growing season.

Plant & Seed Material	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Container Plants												
Bareroot Aquatic Plants												
BR Trees & Live Stakes												
Seed Mixes												
Vegetated Coir Products												

Creating a Native Landscape



Live plants: Live plants, including plugs, container stock, and bare-root herbaceous plants, are best planted during the growing season, which in the Midwest is between May 1 and October 15. Spring plantings are usually more successful, because the plants have sufficient time to develop a deep-root system to withstand summer droughts. If planting needs to occur in the middle of summer, irrigation is recommended. If plants are installed in late fall (after October 15) after going dormant, care should be taken to anchor plants in loose soil to prevent frost heaving. Wet soils are more prone to frost heaving.

Dormant woody materials: Bare-root trees and shrubs, live stakes, fascines, and brush layering are all dormant when sold and are best planted during their dormant season (December 1 through April 15). This timing reduces transplant shock and allows the plants to develop a root system when moisture is readily available. Fall availability of bare-root trees and shrubs is weather dependent, and winter weather can eliminate fall harvest opportunities.

Install seed and plant material

Seed installation techniques

Cardno's native plant experts recommend using specific techniques to successfully install native seed.

Broadcasting: For small (typically 2 acres or less) or irregularly shaped areas, seed can be planted by hand broadcasting. To aid seed distribution, combine the seed mix with filler materials, such as dry sawdust, sand, or vermiculite. Mix the material evenly into the filler material, which should be dry so that the seed flows

through the broadcaster. If not already included in the seed mix, plant a temporary cover crop along with the seed, to stabilize the soil while the permanent native species germinate and become established, especially in highly-erodible areas. Do not use a heavy amount of cover crop seed, which could smother the native seed and inhibit germination.

Using a hand-crank or tow-behind broadcaster, start with half of the seed and try to cover the entire area with that amount of seed. Take the remaining half of the seed, go to the opposite end of the site and cover it again. This approach helps prevent running out of seed, a common occurrence. After broadcasting is complete, it is important to use a cultipacker or roller over the area to make good seed-to-soil contact. If a roller is not available, tractor tires can be used instead. Do not cover seed more than 1/4-inch deep.

No-till drill: For larger areas and sites with existing vegetation, use a no-till seed drill, which does not require the soil to be tilled before planting, resulting in minimal soil disturbance. No-till drills plant seed in rows by opening slits in the soil, into which seed is deposited. Several brands of no-till drills are available to plant prairie forbs and grasses. If using a no-till drill, Cardno recommends following the specific manufacturer's recommendations. Because the diversity of seed sizes makes drill calibration a challenge, perform a few test areas first to help prevent running out of seed.

Native plant installation

Prior to installation

- > After delivery, remove plants immediately from packaging and set them in a cool, semi-shaded area until you are ready to plant.



- > If the soil around the plant roots is dry, irrigate to keep the roots moist, but not saturated.
- > If watered properly and protected from extreme conditions, such as excessive heat, sun, strong winds, or frost or freezing conditions, plants should be fine in their original pots or plug trays for up to several weeks.
- > On site, it may be helpful to stage plants near the areas where they will be installed, to save time. During the planting process, protect bare-root trees, shrubs, and aquatic plants from heat, sun, and wind, to prevent the roots from drying out.

Upland plant installation: Install upland plants as you would any landscape materials. Because many native plants have an extensive taproot, take care during installation not to damage the roots.

For large-scale plantings, a gas-powered auger greatly speeds up the planting process. Select an auger bit slightly wider than the diameter of the container being planted, and pre-drill the planting holes at the recommended spacing. A field crew can then follow behind and install plants.

Wetland plant installation: In many wetland situations, the plant installation process is the same as for an upland area, but the process may be slower due to softer soils and the slower speed of planting. When planting in submerged areas, the most difficult aspect of installation is getting the plants to stay in place. If possible, use a pump or water control structure to lower the water level during installation and let the water level rise slowly.

If planting below the water line or in areas submerged due to water fluctuations, planting holes often immediately refill with water, causing soil and plants to float to the surface after planting. In these instances, after installing the plant under the soil surface, use stones, small wood stakes, steel turf staples, or similar mechanical means to anchor the plant in place. Take care not to crush or puncture the plant or root with any anchoring techniques. If the plants have leafy stems or foliage, ensure foliage will stand above the water level after installation.

Specific wetland conditions

If wetland is temporarily dry:

- > Scarify soil surface through shallow tilling or raking. If tilling adjacent to a wet area, assess the potential for erosion and runoff when disturbing the soil.
- > In lower elevations, where water levels are deeper, sow seed that is packaged wet. Sow dry-packaged seed on the higher elevations; this seed can overlap into wet-seed areas.
- > Press seed firmly into soil using a roller, cultipacker, or similar equipment. Light raking is an acceptable alternative, but be careful not to cover seed more than 1/4-inch deep.
- > Install erosion fabric over areas where water is likely to flow and displace seed.
- > Slowly restore water level or wait for rainfall to bring water level up after seeding. If feasible, use outlet controls to maintain water level depths between 1/2 inch and 6 inches until seed germinates and wetland vegetation is well established.

If wetland is permanently wet:

- > Mix seed with damp clay pellets in a container, such as a 5-gallon bucket. Clay pellets should be small (approximately 1/2 inch in diameter) and placed in optimal areas for germination.
- > Sow dry-packaged seed in areas at and above the waterline. If soil moisture conditions permit, press seed firmly into soil using a roller, cultipacker, or similar equipment. Do not cover seed more than 1/4-inch deep.
- > Permanently wet areas can also be seeded by broadcasting when the ground is frozen.

Creating a Native Landscape



Tips for bare-root tree and shrub installation

- > After delivery, remove plants immediately from box and store upright to prevent mold growth.
- > Keep roots moist until plants are installed. They may be held in buckets or containers of water on site; however, if plant material will not be installed for a week or longer, do not keep in standing water.
- > Keep plants in a cold, dark place to prevent them from breaking dormancy until ready to plant. Bare-root trees and shrubs can be stored this way for several days, but check frequently for signs of mold and to make sure they are adequately watered.

Tips for bare-root aquatic and emergent species installation

- > Because they do not remain viable for long after harvesting, schedule shipment to arrive as close to planting date as possible.
- > Take plants out of the packaging, place upright in a container, and keep in fresh water until planting (similar to fresh-cut flowers).
- > Plant roots must remain submerged at all times until just before planting, even when staging at the planting site.
- > Change water every few days if unable to plant immediately.

Bare-root aquatic or emergent species like Lilies, Pickerel Weed, and Common Arrowhead are supplied in the early spring in bare-root format with little to no foliage. When planting bare-root plants, submerge the entire root to the appropriate depth and anchor it below the soil surface. A technique to use with bare-root tubers is to put them in a small, weighted, biodegradable mesh sack and submerge them at an appropriate depth. The sack will keep the tuber from floating to the surface, and by the time the plants have rooted into the soil, the sack will have biodegraded. Other techniques can be used to anchor plants, such as using small piles of loose gravel," or planters. Contact Cardno for additional advice on wetland plant installation.

Post-planting protection: Plantings may need to be protected after installation. Use physical barriers such as chicken wire, netting, or twine obstacles to keep out geese, muskrats, deer, and other animals. Various repellants can also be applied directly to the plants, but they often need to be re-applied periodically.

Monitor and maintain site

To help ensure success, projects need a maintenance and management plan that is flexible and supports site development goals. While native plants tend to germinate and develop at a slower rate than ornamental perennials or turf grass, regular maintenance during the establishment period greatly improves project success. Regular maintenance and monitoring controls invasive species, ensures optimal moisture levels are present, and identifies other necessary management actions.

The maintenance of a native landscape can include many different actions:

- > Regular site inspection and monitoring
- > Mowing
- > Selective herbicide application
- > Overseeding and supplemental planting
- > Water control and temporary irrigation
- > Prescribed burning

Selection of maintenance methods partly depends upon timing, but other factors such as aesthetic goals, project size, and budget also help determine what techniques will work best. For example, for small areas or sites where chemical applications cannot be performed, target species may be removed by hand.



Regular site inspection and monitoring

During the first 6 to 12 months of a seeding project, it may be difficult to differentiate between the germinated native seed and undesirable weeds. Although some wildflower and grass species will be recognizable within the first year, it may take 2 to 4 years before the native plant community is sufficiently established to be recognized by most people. During this establishment period, address any invasive species that subsequently appear on site, to prevent them from becoming a larger problem later. Cardno inspects project areas throughout each growing season to gauge native plant density and composition, and manage undesirable weeds.

Mowing

During the establishment period, native plants concentrate their energy toward expanding their root systems. Mowing can suppress non-native annual plants without negatively affecting natives. Mowing also thins out the canopy, allowing more light to reach new seedlings. Because most weed competition comes from fast-growing annuals, mowing needs to occur to keep these species from re-seeding. Cardno recommends mowing to between 8 and 10 inches high. During the first growing season, our team performs 1 to 3 mowing events, depending on the height and growth of the vegetation. If weed pressure is high, more mowing events may be needed.

Selective herbicide application

Many perennial weed species are best controlled through chemical applications. Cardno's trained herbicide application staff uses caution when applying these chemicals, to minimize collateral damage to desirable plant species. Cardno staff has the

qualifications to ensure chemical selection, rates, and application methods are legal and appropriate.

Overseeding and supplemental planting

Most native species grow slowly from seed, making it difficult to assess the development of a recently seeded site. Supplemental plantings are often used to increase diversity or to introduce conservative species to an established planting. Cardno can determine the need for overseeding or supplemental planting, typically by the second growing season following installation.

Water control and temporary irrigation

In periods of drought, small native areas will benefit from irrigation, especially during the first growing season. Typically, 1 inch of water per week is sufficient to encourage proper germination and growth. Weed pressure will increase with supplemental watering, which may then require more frequent mowing or herbicide application.

Prescribed burning

Controlled burns can be important to long-term prairie maintenance. Burning simulates historical processes that once maintained prairies. It greatly reduces the number of woody species and enhances the health of herbaceous species. It also clears thatch, making way for new growth in the spring. The black, burned surface absorbs and retains heat, giving natives an early start in the spring. Cardno has a team of personnel trained in fire management techniques and safety, ready with the proper equipment to conduct burns.



Chicago Park District Natural Area Restoration and Stewardship Services

The Chicago Park District (CPD) is the largest municipal park manager in the United States and owner of more than 8,100 acres of green space. Cardno is providing management of natural areas for the CPD as part of a 5-year contract. Cardno's services include vegetation management; hardscape elements and repair; and landscape waste disposal. Nature garden services include ongoing maintenance; spring clean-up activities; planting beds, trees, shrubs; and winterization services. Additional maintenance services include prescribed burn management; ecological restoration and consulting; and community outreach and volunteer stewardship coordination. Cardno is also working closely with CPD on the maintenance, restoration, and incorporation of over 300 acres of new natural areas within the greater natural areas program. In 2017, Cardno's Native Plant Nursery provided over 6,400 pounds of native seed and 160,000 plants to be installed on the various park lands.



Supporting Pollinators

Native pollinators play a key role in supporting the health and sustainability of native ecosystems as well as providing valuable crop fertilization services. Insects, such as bees, moths, and butterflies, make up the majority of pollinator species in the US. There is evidence of a decline in pollinator populations due to a number of factors, including loss of habitat. We offer a native pollinator seed mix and plant species that support the conservation and restoration of native habitat.

The importance of native plant communities

Many native plant species, including trees and shrubs, have been negatively impacted by development, herbicide and pesticide use, invasive species, and non-native landscaping practices. Planting or retaining native species for pollinator habitat and food sources helps preserve and restore the ecosystem benefits for more than just the pollinator species. Many birds and mammals require a diet of berries, fruits, and seeds from insect-pollinated plants, and the adult and larvae of insect pollinators are fed upon by many birds, bats, other insects, and mammals. The native plants also rely on insects for their pollination to continue to support the health of the ecosystem.

Habitat needs of insect pollinators

The large number and diversity of pollinator species have a range of needs, so plant variety is important. Pollinators need a diversity of flowering species with a succession of bloom times, to provide a source of nectar throughout the year. They also need a variety of native plants to provide shelter and nesting sites. Species may select single plant species as host plants for their larvae to feed upon. For example, the Monarch butterfly only lay their eggs on milkweed species, (*Asclepias spp.*). Loss of milkweed in the environment due to increased herbicide use and land



development has been cited by many research articles as a primary cause in the decline of Monarch populations. It is critical to have enough of the appropriate habitat within the flight range of pollinators to support a healthy population.

Supporting crop fertilization

Native pollinators provide a substantial benefit for crop production. According to a wide range of research, insect pollination is responsible for the fertilization of at least 75% of flowering plants and crops. The role of insects in moving pollen from the stamen (male part of the flower) to the stigma (female part of the flower) leads to fertilization that produces fruit and seeds for a wide variety of crops. Honey bees provide the bulk of crop pollination in the US, but native bees also make significant contributions to pollination estimated in billions of dollars annually.

Native plants that support pollinators

Homeowners, farmers and land owners, public entities, and private businesses can support pollinators by including a diverse selection of native plants in projects. Native plant diversity and pollinators have a positive impact in various conditions, including:

- > Agriculture
- > Corporate campuses
- > Erosion control
- > Landfills
- > Landscape design
- > Mitigations
- > Parks and golf courses
- > Roadsides
- > Stormwater control
- > Utility corridors
- > Wetlands
- > Wildlife habitat
- > Windbreaks

Native plant diversity is a primary component of a healthy native ecosystem. Native plants are superior to exotic/non-native ornamentals and hybridized native varieties because they flower during the natural time of the season and offer pollinators the nutrition they need to remain healthy. Planting or maintaining a mixture of native plants that will have different species flowering continually from early spring until late fall is ideal. [See the Plant Material chart starting on page 35](#) with species information, including flowering times.

Pollinator landscapes

Aesthetics are an important factor when choosing native plants for a site. Not all native plant species fit every landscape. Follow these simple fundamentals:

- > Place taller species in the back, stagger bloom times, plant the same species in groups.
- > Use edging and landscape fabric for weed control.
- > Use plant plugs for planting beds.
- > On sites greater than 1 acre, planting seed mixes can be more effective in establishing native species. Seeding instructions are on [page 14](#).

Native landscape plants for pollinators

Forbs:

- > *Asclepias tuberosa*
- > *Baptisia australis*
- > *Coreopsis lanceolata*
- > *Coreopsis palmata*
- > *Dalea purpurea*
- > *Dalea candida*
- > *Echinacea purpurea*
- > *Eryngium yuccifolium*
- > *Eurybia macrophylla*
- > *Filipendula rubra*
- > *Liatris spp.*
- > *Lobelia spp.*
- > *Monarda fistulosa*
- > *Oligoneuron rigidum*
- > *Penstemon spp.*
- > *Pycnanthemum spp.*
- > *Rudbeckia fulgida*
- > *Rudbeckia subtomentosa*
- > *Zizia aurea*

Grasses:

- > *Carex spp.*
- > *Chasmanthium latifolium*
- > *Juncus effusus*
- > *Koeleria pyramidata*
- > *Schizachyrium scoparium*
- > *Sporobolus heterolepis*

Seed Mixes

Seed mix specifications are a key to the success of any restoration or native planting project. Cardno has hundreds of native plant and seed species available. Our experience with designing seed mixes allows us to offer high quality custom and standard mixes to meet our clients’ project needs.



When choosing a seed mix, the combination of species should be suited to existing site conditions. In addition, consider project goals and expectations, especially with regard to budget constraints. Seed is a highly economical way to create a native landscape, but expectations may require that species that germinate quickly be chosen. Supplementing seed with selective plant installation can help address expectations.

Standard seed mixes

To simplify the process and reduce costs, Cardno has developed several seed mixes for specific habitats and hydrologic conditions. To maintain maximum seed quality, our standard mixes are blended to order. Minor changes can be made to suit your project needs. Species can also be added to increase diversity. Because they are made to order, allow approximately 1 week for seed mix orders to be processed. Seed mixes are sold in 1/4 acre increments.

The seed mix lists can be downloaded as either an Excel spreadsheet or as a PDF at cardnonativeplantnursery.com. Our sales staff is available to conduct site inspections to assist with selecting the most suitable seed mix for your site.

Prairie Seed Mixes



Penstemon digitalis,
Foxglove Beard Tongue

Native Wildflower Mix

This seed mix includes quick-blooming native wildflowers to provide initial color during native prairie establishment, especially on restoration sites. This mix contains many species beneficial to native bees and pollinators and can be used to supplement other seed mixes or existing natural areas. This seed mix includes at least 10 of 12 native forb species. Apply at 4.63 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Forbs		
<i>Asclepias syriaca</i>	Common Milkweed	4.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	16.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	8.00
<i>Desmanthus illinoensis</i>	Illinois Sensitive Plant	12.00
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	12.00
<i>Lupinus perennis</i> v. <i>occidentalis</i>	Wild Lupine	4.00
<i>Monarda fistulosa</i>	Wild Bergamot	1.50
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	1.00
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00
<i>Rudbeckia hirta</i>	Black-Eyed Susan	10.00
<i>Solidago speciosa</i>	Showy Goldenrod	0.50
<i>Symphyotrichum laeve</i>	Smooth Blue Aster	1.00
Total		74.00

Basic Prairie

A general prairie grass and wildflower mix providing a solid variety of species for most soil types and full sun, this seed mix features a broad palette of colorful species, including several key species for pollinator habitat. Adding seed or plant plugs at a later date is a wonderful way to increase a prairie's richness and diversity. This seed mix includes at least 6 of 7 native permanent grass and sedge species and 20 of 24 native forb species. Apply at 41.91 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Andropogon gerardii</i>	Big Bluestem	12.00
<i>Bouteloua curtipendula</i>	Side-Oats Grama	16.00
<i>Carex</i> spp.	Prairie Sedge Species	3.00
<i>Elymus canadensis</i>	Canada Wild Rye	24.00
<i>Panicum virgatum</i>	Switch Grass	2.50
<i>Schizachyrium scoparium</i>	Little Bluestem	32.00
<i>Sorghastrum nutans</i>	Indian Grass	12.00
	Total	101.50
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
	Total	512.00
Forbs		
<i>Amorpha canescens</i>	Lead Plant	0.50
<i>Asclepias syriaca</i>	Common Milkweed	2.00
<i>Asclepias tuberosa</i>	Butterfly Weed	1.50
<i>Chamaecrista fasciculata</i>	Partridge Pea	10.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	6.00
<i>Coreopsis tripteris</i>	Tall Coreopsis	1.50
<i>Dalea purpurea</i>	Purple Prairie Clover	2.00
<i>Desmanthus illinoensis</i>	Illinois Sensitive Plant	2.00
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	8.00
<i>Eryngium yuccifolium</i>	Rattlesnake Master	1.00
<i>Heliopsis helianthoides</i>	False Sunflower	0.50
<i>Lespedeza capitata</i>	Round-Headed Bush Clover	1.00
<i>Liatris aspera</i>	Rough Blazing Star	1.00
<i>Lupinus perennis v. occidentalis</i>	Wild Lupine	2.00
<i>Monarda fistulosa</i>	Wild Bergamot	1.00
<i>Oligoneuron rigidum</i>	Stiff Goldenrod	1.00
<i>Drymocallis arguta</i>	Prairie Cinquefoil	1.00
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00
<i>Rudbeckia hirta</i>	Black-Eyed Susan	6.00
<i>Silphium terebinthinaceum</i>	Prairie Dock	1.00
<i>Solidago speciosa</i>	Showy Goldenrod	0.50
<i>Symphyotrichum laeve</i>	Smooth Blue Aster	1.00
<i>Symphyotrichum novae-angliae</i>	New England Aster	0.50
<i>Vernonia gigantea</i>	Smooth Tall Ironweed	2.00
	Total	57.00

Prairie Seed Mixes



Andropogon gerardii, **Big Bluestem**



Lupinus perennis, **Wild Lupine**



Monarda fistulosa, **Wild Bergamot**

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Prairie Seed Mixes



Established **Economy Prairie Mix**



Asclepias tuberosa, **Butterfly Weed**



Ratibida pinnata, **Yellow Coneflower**

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Economy Prairie

This prairie seed mix offers an economical way to establish a prairie. In addition to native prairie grasses, flowering species provide color throughout the growing season and food sources for birds and butterflies. Adding seed or plant plugs at a later date is a wonderful way to increase a prairie's richness and diversity. This seed mix includes at least 6 of 7 native permanent grass and sedge species and 10 of 13 native forb species. Apply at 40.95 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Andropogon gerardii</i>	Big Bluestem	12.00
<i>Bouteloua curtipendula</i>	Side-Oats Grama	16.00
<i>Carex spp.</i>	Prairie Sedge Species	3.00
<i>Elymus canadensis</i>	Canada Wild Rye	24.00
<i>Panicum virgatum</i>	Switch Grass	2.50
<i>Schizachyrium scoparium</i>	Little Bluestem	32.00
<i>Sorghastrum nutans</i>	Indian Grass	12.00
Total		101.50
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
Total		512.00
Forbs		
<i>Asclepias syriaca</i>	Common Milkweed	1.00
<i>Asclepias tuberosa</i>	Butterfly Weed	1.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	10.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	6.00
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	8.00
<i>Helianthus annuus</i>	False Sunflower	0.25
<i>Monarda fistulosa</i>	Wild Bergamot	0.50
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	1.00
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00
<i>Rudbeckia hirta</i>	Black-Eyed Susan	8.00
<i>Solidago speciosa</i>	Showy Goldenrod	0.50
<i>Symphyotrichum laeve</i>	Smooth Blue Aster	1.00
<i>Symphyotrichum novae-angliae</i>	New England Aster	0.50
Total		41.75



Keys to seeding success

- > Adequate site preparation
- > Choose the correct plant species for the site conditions
- > Purchase quality Pure Live Seed
- > Ensure good seed-to-soil contact
- > Prevent annual weeds from re-seeding
- > Create and follow a maintenance plan, adapt as site conditions dictate

Low-Profile Prairie

This prairie seed mix provides a wide range of shorter prairie grass, sedge, and wildflower species. Most species will grow to 4 feet or less, making this an ideal mix for areas where taller forbs and grasses are not appropriate. Once established, this wildflower community displays a variety of colors, blooming from early spring to fall, creating a diverse habitat for birds, butterflies, moths, and other pollinators. This seed mix is suitable for medium-to-dry sites. This seed mix includes at least 5 of 6 native permanent grass and sedge species and 28 of 32 native forb species. Apply at a rate of 41.75 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Bouteloua curtipendula</i>	Side-Oats Grama	16.00
<i>Carex spp.</i>	Prairie Sedge Species	4.00
<i>Elymus canadensis</i>	Canada Wild Rye	32.00
<i>Koeleria macrantha</i>	June Grass	1.00
<i>Panicum virgatum</i>	Switch Grass	1.00
<i>Schizachyrium scoparium</i>	Little Bluestem	36.00
Total		90.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
Total		512.00
Forbs		
<i>Amorpha canescens</i>	Lead Plant	0.50
<i>Asclepias syriaca</i>	Common Milkweed	2.00
<i>Asclepias tuberosa</i>	Butterfly Weed	2.00
<i>Baptisia alba</i>	White Wild Indigo	2.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	10.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	5.00
<i>Coreopsis palmata</i>	Prairie Coreopsis	1.00
<i>Dalea candida</i>	White Prairie Clover	1.50
<i>Dalea purpurea</i>	Purple Prairie Clover	1.50
<i>Desmanthus illinoensis</i>	Illinois Sensitive Plant	3.00
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	8.00
<i>Eryngium yuccifolium</i>	Rattlesnake Master	2.00
<i>Lespedeza capitata</i>	Round-Headed Bush Clover	2.00
<i>Liatris aspera</i>	Rough Blazing Star	0.50
<i>Lupinus perennis v. occidentalis</i>	Wild Lupine	4.00
<i>Monarda fistulosa</i>	Wild Bergamot	0.50
<i>Oligoneuron rigidum</i>	Stiff Goldenrod	1.00
<i>Parthenium integrifolium</i>	Wild Quinine	1.00
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	0.50
<i>Penstemon hirsutus</i>	Hairy Beard Tongue	1.00
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00
<i>Rudbeckia hirta</i>	Black-Eyed Susan	5.00
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	1.00
<i>Silphium terebinthinaceum</i>	Prairie Dock	1.00
<i>Solidago speciosa</i>	Showy Goldenrod	0.50
<i>Symphotrichum ericoides</i>	Heath Aster	0.25
<i>Symphotrichum laeve</i>	Smooth Blue Aster	1.00
<i>Symphotrichum novae-angliae</i>	New England Aster	0.50
<i>Tradescantia ohimensis</i>	Common Spiderwort	1.00
<i>Verbena stricta</i>	Hoary Vervain	1.00
<i>Vernonia gigantea</i>	Smooth Tall Ironweed	1.50
<i>Veronicastrum virginicum</i>	Culver's Root	0.25
Total		66.00

Prairie Seed Mixes



Dalea purpurea, **Purple Prairie Clover**



Oligoneuron rigidum, **Stiff Goldenrod**



Tradescantia ohimensis,
Common Spiderwort

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Prairie Seed Mixes



Symphyotrichum novae-angliae,
New England Aster



Eryngium yuccifolium,
Rattlesnake Master



Silphium laciniatum, **Compass Plant**

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Mesic-To-Dry Prairie

This is a broad-spectrum prairie grass, sedge, and wildflower seed mix for sites with full sun and medium-to-dry soils. The height profile is more varied than the Low-Profile Prairie seed mix, with species ranging from short to tall. This profile creates a more diverse habitat, offering a variety of cover and food options for wildlife. This seed mix includes at least 6 of 7 native permanent grass and sedge species and 26 of 32 native forb species. Apply at a rate of 42.25 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Andropogon gerardii</i>	Big Bluestem	18.00
<i>Bouteloua curtipendula</i>	Side-Oats Grama	8.00
<i>Carex</i> spp.	Prairie Sedge Mix	4.00
<i>Elymus canadensis</i>	Canada Wild Rye	24.00
<i>Panicum virgatum</i>	Switch Grass	4.00
<i>Schizachyrium scoparium</i>	Little Bluestem	28.00
<i>Sorghastrum nutans</i>	Indian Grass	12.00
	Total	98.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
	Total	512.00
Forbs		
<i>Asclepias syriaca</i>	Common Milkweed	2.00
<i>Asclepias tuberosa</i>	Butterfly Weed	1.00
<i>Baptisia alba</i>	White Wild Indigo	2.00
<i>Baptisia bracteata</i>	Cream Wild Indigo	0.50
<i>Chamaecrista fasciculata</i>	Partridge Pea	10.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	4.00
<i>Coreopsis palmata</i>	Prairie Coreopsis	0.75
<i>Desmanthus illinoensis</i>	Illinois Sensitive Plant	2.00
<i>Desmodium illinoense</i>	Illinois Tick Trefoil	0.50
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	8.00
<i>Eryngium yuccifolium</i>	Rattlesnake Master	2.00
<i>Lespedeza capitata</i>	Round-Headed Bush Clover	2.00
<i>Liatris aspera</i>	Rough Blazing Star	1.00
<i>Liatris pycnostachya</i>	Prairie Blazing Star	2.00
<i>Lupinus perennis</i> v. <i>occidentalis</i>	Wild Lupine	2.00
<i>Monarda fistulosa</i>	Wild Bergamot	1.00
<i>Oligoneuron rigidum</i>	Stiff Goldenrod	2.00
<i>Parthenium integrifolium</i>	Wild Quinine	1.00
<i>Drymocallis arguta</i>	Prairie Cinquefoil	0.50
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	0.25
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00
<i>Rudbeckia hirta</i>	Black-Eyed Susan	5.00
<i>Silphium integrifolium</i>	Rosin Weed	3.00
<i>Silphium laciniatum</i>	Compass Plant	2.00
<i>Silphium terebinthinaceum</i>	Prairie Dock	3.00
<i>Solidago nemoralis</i>	Old-Field Goldenrod	0.25
<i>Solidago speciosa</i>	Showy Goldenrod	0.50
<i>Symphyotrichum laeve</i>	Smooth Blue Aster	1.00
<i>Symphyotrichum novae-angliae</i>	New England Aster	0.50
<i>Symphyotrichum oolentangiense</i>	Sky-Blue Aster	1.00
<i>Tradescantia ohiensis</i>	Common Spiderwort	1.00
<i>Veronicastrum virginicum</i>	Culver's Root	0.25
	Total	66.00

Wet-To-Mesic Prairie

This prairie seed mix offers a broad spectrum of prairie grasses, sedges, and wildflowers for sites with medium-to-wet soils. This dynamic grouping of plants features a variety of colors and textures while tolerating a wide range of conditions with several *Silphium* and *Solidago* species to provide late-season food sources for native pollinators. This seed mix includes at least 8 of 11 native permanent grass and sedge species and 26 of 34 forb species. Apply at a rate of 39.56 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Andropogon gerardii</i>	Big Bluestem	16.00
<i>Calamagrostis canadensis</i>	Bluejoint Grass	1.00
<i>Carex lurida</i>	Bottlebrush Sedge	3.00
<i>Carex stricta</i>	Common Tussock Sedge	1.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	1.00
<i>Elymus virginicus</i>	Virginia Wild Rye	24.00
<i>Juncus canadensis</i>	Canadian Rush	0.50
<i>Panicum virgatum</i>	Switch Grass	2.00
<i>Scirpus cyperinus</i>	Wool Grass	0.50
<i>Sorghastrum nutans</i>	Indian Grass	8.00
<i>Spartina pectinata</i>	Prairie Cord Grass	3.00
Total		60.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
Total		512.00
Forbs		
<i>Asclepias syriaca</i>	Common Milkweed	2.00
<i>Baptisia alba</i>	White Wild Indigo	1.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	10.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	4.00
<i>Coreopsis tripteris</i>	Tall Coreopsis	2.00
<i>Desmodium illinoense</i>	Illinois Tick Trefoil	0.50
<i>Doellingeria umbellata</i>	Flat-Top Aster	0.50
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	4.00
<i>Eryngium yuccifolium</i>	Rattlesnake Master	2.00
<i>Helenium autumnale</i>	Sneezeweed	2.00
<i>Helianthus grosseserratus</i>	Sawtooth Sunflower	0.50
<i>Lespedeza capitata</i>	Round-Headed Bush Clover	1.50
<i>Liatis spicata</i>	Marsh Blazing Star	1.00
<i>Monarda fistulosa</i>	Wild Bergamot	1.00
<i>Oligoneuron rigidum</i>	Stiff Goldenrod	1.00
<i>Parthenium integrifolium</i>	Wild Quinine	1.00
<i>Physostegia virginiana</i>	Obedient Plant	0.25
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	0.50
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00
<i>Rudbeckia hirta</i>	Black-Eyed Susan	4.00
<i>Rudbeckia laciniata</i>	Wild Golden Glow	1.00
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	0.50
<i>Senna hebecarpa</i>	Wild Senna	2.25
<i>Silphium integrifolium</i>	Rosin Weed	1.00
<i>Silphium laciniatum</i>	Compass Plant	2.00
<i>Silphium perfoliatum</i>	Cup Plant	2.00
<i>Silphium terebinthinaceum</i>	Prairie Dock	3.00
<i>Solidago juncea</i>	Early Goldenrod	0.25
<i>Solidago rugosa</i>	Rough Goldenrod	0.25
<i>Symphotrichum novae-angliae</i>	New England Aster	0.50
<i>Tradescantia ohimensis</i>	Common Spiderwort	1.25
<i>Vernonia fasciculata</i>	Common Ironweed	3.00
<i>Veronicastrum virginicum</i>	Culver's Root	0.25
<i>Zizia aurea</i>	Golden Alexanders	1.00
Total		59.00

Prairie Seed Mixes



Established **Wet-To-Mesic Prairie Mix**



Spartina pectinata, **Prairie Cord Grass**



Echinacea purpurea,
Broad-Leaved Purple Coneflower

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Wetland Seed Mixes



Juncus effusus, **Common Rush**



Peltandra virginica, **Arrow Arum**



Pontederia cordata, **Pickerel Weed**

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Emergent Wetland

This is a wetland seed mix for saturated soils and shallow water in relatively stable wetlands and ponds with good water quality. When established, plants will spread to water depths of up to 12 inches. This seed mix includes at least 8 of 12 native permanent grass and sedge species and 15 of 20 native forb or shrub species. Apply at a rate of 37.13 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Bolboschoenus fluviatilis</i>	River Bulrush	1.00
<i>Carex comosa</i>	Bristly Sedge	2.50
<i>Carex lacustris</i>	Common Lake Sedge	0.50
<i>Carex lurida</i>	Bottlebrush Sedge	4.00
<i>Carex stricta</i>	Common Tussock Sedge	1.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	2.00
<i>Eleocharis palustris</i>	Great Spike Rush	1.00
<i>Juncus effusus</i>	Common Rush	1.00
<i>Leersia oryzoides</i>	Rice Cut Grass	3.00
<i>Schoenoplectus acutus</i>	Hard-Stemmed Bulrush	2.50
<i>Schoenoplectus pungens</i>	Chairmaker's Rush	1.50
<i>Schoenoplectus tabernaemontani</i>	Great Bulrush	6.00
	Total	26.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
	Total	512.00
Forbs/Shrubs		
<i>Acorus americanus</i>	Sweet Flag	1.00
<i>Alisma subcordatum</i>	Common Water Plantain	2.00
<i>Asclepias incarnata</i>	Swamp Milkweed	1.00
<i>Boehmeria cylindrica</i>	False Nettle	1.00
<i>Cephalanthus occidentalis</i>	Buttonbush	6.00
<i>Decodon verticillatus</i>	Swamp Loosestrife	0.50
<i>Eutrochium maculatum</i>	Spotted Joe-Pye Weed	0.50
<i>Hibiscus spp.</i>	Rose Mallow Species	4.00
<i>Iris virginica v. shrevei</i>	Blue Flag	6.00
<i>Lobelia cardinalis</i>	Cardinal Flower	0.25
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.25
<i>Lycopus americanus</i>	Common Water Horehound	1.00
<i>Mimulus ringens</i>	Monkey Flower	1.00
<i>Peltandra virginica</i>	Arrow Arum	16.00
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50
<i>Persicaria spp.</i>	Pinkweed Species	2.00
<i>Pontederia cordata</i>	Pickerel Weed	4.00
<i>Sagittaria latifolia</i>	Common Arrowhead	2.00
<i>Sparganium eurycarpum</i>	Common Bur Reed	6.00
<i>Verbena hastata</i>	Blue Vervain	1.00
	Total	56.00

Sedge Meadow

A grass and sedge mix for level sites with saturated soil conditions (although it will tolerate drier soils late in the year), this meadow seed mix creates a diverse habitat, offering a variety of cover and food options for wildlife. Many of the plants attract pollinators, such as butterflies and hummingbirds. This seed mix includes at least 14 of 18 native permanent grass and sedge species and 27 of 30 native forb and shrub species. Apply at a rate of 37.56 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Calamagrostis canadensis</i>	Bluejoint Grass	1.00
<i>Carex comosa</i>	Bristly Sedge	2.00
<i>Carex cristatella</i>	Crested Oval Sedge	1.00
<i>Carex frankii</i>	Bristly Cattail Sedge	2.00
<i>Carex lupulina</i>	Common Hop Sedge	3.00
<i>Carex lurida</i>	Bottlebrush Sedge	2.00
<i>Carex stipata</i>	Common Fox Sedge	1.00
<i>Carex stricta</i>	Common Tussock Sedge	1.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	3.00
<i>Elymus virginicus</i>	Virginia Wild Rye	24.00
<i>Glyceria striata</i>	Fowl Manna Grass	0.50
<i>Juncus effusus</i>	Common Rush	0.50
<i>Leersia oryzoides</i>	Rice Cut Grass	1.00
<i>Scirpus atrovirens</i>	Dark Green Rush	1.00
<i>Scirpus cyperinus</i>	Wool Grass	0.50
<i>Scirpus pendulus</i>	Red Bulrush	0.50
<i>Schoenoplectus tabernaemontani</i>	Great Bulrush	1.00
<i>Spartina pectinata</i>	Prairie Cord Grass	2.00
Total		47.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
Total		512.00
Forbs/Shrubs		
<i>Alisma subcordatum</i>	Common Water Plantain	1.00
<i>Angelica atropurpurea</i>	Great Angelica	4.00
<i>Asclepias incarnata</i>	Swamp Milkweed	2.00
<i>Bidens cernua</i>	Nodding Bur Marigold	2.00
<i>Boehmeria cylindrica</i>	False Nettle	0.50
<i>Coreopsis tripteris</i>	Tall Coreopsis	1.00
<i>Doellingeria umbellata</i>	Flat-Top Aster	0.50
<i>Eupatorium perfoliatum</i>	Common Boneset	0.50
<i>Eutrochium maculatum</i>	Spotted Joe-Pye Weed	1.00
<i>Helenium autumnale</i>	Sneezeweed	1.00
<i>Hibiscus laevis</i>	Smooth Rose Mallow	2.00
<i>Iris virginica</i> v. <i>shrevei</i>	Blue Flag	3.00
<i>Liatris spicata</i>	Marsh Blazing Star	2.00
<i>Lobelia cardinalis</i>	Cardinal Flower	0.25
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.25
<i>Lycopus americanus</i>	Common Water Horehound	0.50
<i>Penthorum sedoides</i>	Ditch Stonecrop	1.00
<i>Physostegia virginiana</i>	Obedient Plant	0.50
<i>Persicaria spp.</i>	Pinkweed Species	2.00
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	0.50
<i>Sagittaria latifolia</i>	Common Arrowhead	1.00
<i>Senna hebecarpa</i>	Wild Senna	4.00
<i>Silphium perfoliatum</i>	Cup Plant	1.00
<i>Sparganium eurycarpum</i>	Common Bur Reed	4.00
<i>Symphotrichum novae-angliae</i>	New England Aster	0.50
<i>Symphotrichum puniceum</i>	Bristly Aster	1.00
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	1.00
<i>Verbena hastata</i>	Blue Vervain	2.00
<i>Vernonia fasciculata</i>	Common Ironweed	1.00
<i>Zizia aurea</i>	Golden Alexanders	1.00
Total		42.00

Wetland Seed Mixes



Established **Sedge Meadow Mix**



Lobelia cardinalis, **Cardinal Flower**



Zizia aurea, **Golden Alexanders**

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Wetland Seed Mixes



Carex frankii, Bristly Cattail Sedge



Scirpus cyperinus, Wool Grass



Sagittaria latifolia, Common Arrowhead

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Wetland Edge

This is a wetland and pond-edge seed mix for sites with stable, saturated soil conditions and good water quality. When established, the deep-rooted native plants will stabilize the soil and provide food and cover for many species of native fauna. Some plant species will spread to water depths of up to 4 inches. This seed mix includes at least 12 of 15 native permanent grass and sedge species and 18 of 24 native forb species. Apply at 36.25 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Bolboschoenus fluviatilis</i>	River Bulrush	2.00
<i>Carex comosa</i>	Bristly Sedge	1.50
<i>Carex cristatella</i>	Crested Oval Sedge	0.50
<i>Carex frankii</i>	Bristly Cattail Sedge	4.00
<i>Carex stricta</i>	Common Tussock Sedge	0.50
<i>Carex vulpinoidea</i>	Brown Fox Sedge	2.00
<i>Eleocharis palustris</i>	Great Spike Rush	0.50
<i>Elymus virginicus</i>	Virginia Wild Rye	16.00
<i>Glyceria striata</i>	Fowl Manna Grass	1.00
<i>Juncus effusus</i>	Common Rush	0.50
<i>Leersia oryzoides</i>	Rice Cut Grass	0.50
<i>Schoenoplectus pungens</i>	Chairmaker's Rush	1.00
<i>Schoenoplectus tabernaemontani</i>	Great Bulrush	2.50
<i>Scirpus atrovirens</i>	Dark Green Rush	1.00
<i>Scirpus cyperinus</i>	Wool Grass	0.50
	Total	34.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
	Total	512.00
Forbs		
<i>Acorus americanus</i>	Sweet Flag	1.00
<i>Alisma subcordatum</i>	Common Water Plantain	2.00
<i>Asclepias incarnata</i>	Swamp Milkweed	2.00
<i>Bidens spp.</i>	Bidens Species	2.00
<i>Boehmeria cylindrica</i>	False Nettle	1.00
<i>Doellingeria umbellata</i>	Flat-Top Aster	0.25
<i>Eupatorium perfoliatum</i>	Common Boneset	1.00
<i>Helenium autumnale</i>	Sneezeweed	1.00
<i>Iris virginica v. shrevei</i>	Blue Flag	4.00
<i>Lobelia cardinalis</i>	Cardinal Flower	0.25
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.25
<i>Lycopus americanus</i>	Common Water Horehound	0.25
<i>Mimulus ringens</i>	Monkey Flower	0.50
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50
<i>Persicaria spp.</i>	Pinkweed Species	2.00
<i>Rudbeckia laciniata</i>	Wild Golden Glow	1.00
<i>Sagittaria latifolia</i>	Common Arrowhead	2.00
<i>Senna hebecarpa</i>	Wild Senna	2.00
<i>Sparganium eurycarpum</i>	Common Bur Reed	4.00
<i>Symphotrichum puniceum</i>	Bristly Aster	1.00
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	0.50
<i>Verbena hastata</i>	Blue Vervain	1.50
<i>Verbesina alternifolia</i>	Wingstem	2.00
<i>Vernonia fasciculata</i>	Common Ironweed	2.00
	Total	34.00

Wooded Wetland Establishment

Use this wetland seed mix in partially shaded riparian corridors and saturated, newly reforested areas to reduce weed competition and provide soil stabilization. As the tree canopy fills in, some of the species in this seed mix will establish a permanent herbaceous understory layer and help to fill out the maturing wooded wetland. This seed mix includes at least 12 of 16 native permanent grass and sedge species and 16 of 21 native forb and shrub species. Apply at 37.13 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Calamagrostis canadensis</i>	Bluejoint Grass	1.00
<i>Carex crinita</i>	Fringed Sedge	1.00
<i>Carex frankii</i>	Bristly Cattail Sedge	3.00
<i>Carex lupulina</i>	Common Hop Sedge	3.00
<i>Carex lurida</i>	Bottlebrush Sedge	2.00
<i>Carex muskingumensis</i>	Swamp Oval Sedge	1.00
<i>Carex squarrosa</i>	Narrow-Leaved Cattail Sedge	1.00
<i>Carex typhina</i>	Common Cattail Sedge	3.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	2.00
<i>Cinna arundinacea</i>	Common Wood Reed	0.50
<i>Elymus virginicus</i>	Virginia Wild Rye	32.00
<i>Glyceria striata</i>	Fowl Manna Grass	2.00
<i>Juncus effusus</i>	Common Rush	0.50
<i>Leersia oryzoides</i>	Rice Cut Grass	2.00
<i>Scirpus atrovirens</i>	Dark Green Rush	1.00
<i>Spartina pectinata</i>	Prairie Cord Grass	1.00
	Total	56.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
	Total	512.00
Forbs/Shrubs		
<i>Alisma subcordatum</i>	Common Water Plantain	1.00
<i>Angelica atropurpurea</i>	Great Angelica	1.00
<i>Asclepias incarnata</i>	Swamp Milkweed	0.50
<i>Bidens</i> spp.	Bidens Species	2.50
<i>Boehmeria cylindrica</i>	False Nettle	2.00
<i>Campanulastrum americanum</i>	Tall Bellflower	0.25
<i>Cephalanthus occidentalis</i>	Buttonbush	0.50
<i>Doellingeria umbellata</i>	Flat-Top Aster	0.25
<i>Helenium autumnale</i>	Sneezeweed	1.00
<i>Heracleum maximum</i>	Cow Parsnip	1.00
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.50
<i>Lycopus americanus</i>	Common Water Horehound	0.50
<i>Mimulus ringens</i>	Monkey Flower	0.50
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50
<i>Persicaria</i> spp.	Pinkweed Species	2.00
<i>Rudbeckia laciniata</i>	Wild Golden Glow	2.00
<i>Senna hebecarpa</i>	Wild Senna	2.00
<i>Solidago patula</i>	Swamp Goldenrod	1.00
<i>Symphotrichum puniceum</i>	Bristly Aster	1.00
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	2.00
<i>Verbesina alternifolia</i>	Wingstem	4.00
	Total	26.00

Wetland Seed Mixes



Carex lurida, Bottlebrush Sedge



Campanulastrum americanum, Tall Bellflower



Helenium autumnale, Sneezeweed

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Specialty Seed Mixes



Well Field Seeding



Stream Bank Stabilization



Sorghastrum nutans, Indian Grass

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Slope Stabilization

This grass and sedge mix is best suited for sites with slopes where erosion control is needed. Applications include embankments, dams, and levees. Use this mix in conjunction with erosion control materials for best results. This seed mix includes 7 of 8 native permanent grass and sedge species. Apply at 60.00 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Andropogon gerardii</i>	Big Bluestem	48.00
<i>Bouteloua curtipendula</i>	Side-Oats Grama	16.00
<i>Carex spp.</i>	Prairie Sedge Species	4.00
<i>Elymus canadensis</i>	Canada Wild Rye	32.00
<i>Elymus virginicus</i>	Virginia Wild Rye	24.00
<i>Panicum virgatum</i>	Switch Grass	12.00
<i>Schizachyrium scoparium</i>	Little Bluestem	32.00
<i>Sorghastrum nutans</i>	Indian Grass	32.00
Total		200.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	640.00
<i>Lolium multiflorum</i>	Annual Rye	120.00
Total		760.00

 Add a pollinator enhancement

To add a pollinator enhancement to the Slope Stabilization seed mix add our Native Wildflower seed mix (page 20) at a rate of 1/4 acre of Native Wildflower to 1 acre of the Slope Stabilization Seed Mix.

Promote your organization | Promote native pollinators

Is your organization looking for a unique way to stand out? Build a promotional seed packet! Cardno's Native Plant Nursery can build promotional seed packets customized with your organization's logo and contact information. Cardno's seed packets make great handouts and conversation starters at conferences, tradeshow, and community events.

Advertise your organization and provide your audience with an opportunity to grow native plants that return year after year as a colorful reminder of your contribution. These plants help restore native landscape in your region and build habitat for butterflies, hummingbirds, and other pollinators.

Custom mixes can be specialized by region. Additional graphic services can be provided for an additional cost. Contact nurserysales@cardno.com for details and pricing.



1.5 – 2.0 grams of native plant seed of 5 species

Stormwater

A wetland seed mix for saturated soils in a detention pond or for seeding a saturated basin, this mix will tolerate highly fluctuating water levels and poor water quality associated with urban stormwater wetlands and ponds. For detention basins that experience long, dry periods, use the Economy Prairie seed mix in the upper third to half of the basin area in combination with this mix. This seed mix includes at least 10 of 12 native permanent grass and sedge species and 13 of 17 native forb species. Apply at 36.22 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Bolboschoenus fluviatilis</i>	River Bulrush	1.00
<i>Carex cristatella</i>	Crested Oval Sedge	0.50
<i>Carex lurida</i>	Bottlebrush Sedge	3.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	2.00
<i>Elymus virginicus</i>	Virginia Wild Rye	24.00
<i>Glyceria striata</i>	Fowl Manna Grass	1.00
<i>Juncus effusus</i>	Common Rush	1.00
<i>Leersia oryzoides</i>	Rice Cut Grass	1.00
<i>Panicum virgatum</i>	Switch Grass	2.00
<i>Schoenoplectus tabernaemontani</i>	Great Bulrush	3.00
<i>Scirpus atrovirens</i>	Dark Green Rush	2.00
<i>Scirpus cyperinus</i>	Wool Grass	1.00
Total		41.50
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
Total		512.00
Forbs		
<i>Alisma subcordatum</i>	Common Water Plantain	2.50
<i>Asclepias incarnata</i>	Swamp Milkweed	2.00
<i>Bidens spp.</i>	Bidens Species	2.00
<i>Eupatorium perfoliatum</i>	Common Boneset	1.00
<i>Helenium autumnale</i>	Sneezeweed	2.00
<i>Iris virginica v. shrevei</i>	Blue Flag	4.00
<i>Lycopus americanus</i>	Common Water Horehound	0.50
<i>Mimulus ringens</i>	Monkey Flower	1.00
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50
<i>Persicaria spp.</i>	Pinkweed Species	2.00
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	1.00
<i>Rudbeckia triloba</i>	Brown-Eyed Susan	1.50
<i>Sagittaria latifolia</i>	Common Arrowhead	1.00
<i>Senna hebecarpa</i>	Wild Senna	2.00
<i>Symphotrichum lanceolatum</i>	Panicled Aster	0.50
<i>Symphotrichum novae-angliae</i>	New England Aster	0.50
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	2.00
Total		26.00

Specialty Seed Mixes



Carex cristatella, **Crested Oval Sedge**



Mimulus ringens, **Monkey Flower**



Rudbeckia subtomentosa,
Sweet Black-Eyed Susan

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Specialty Seed Mixes



Established **Swale Seed Mix**



Asclepias incarnata, **Swamp Milkweed**



Iris virginica, **Blue Flag**

For current pricing, availability, and information on our full installation and management services, visit cardnonativeplantnursery.com

Swale

Best suited for drainage swales or depressions, the native plants used in this mix help filter pollutants from lawns and pavement runoff. This seed mix can also be applied to areas that temporarily retain water after a rain event or dry-bottomed detention basins. The swale seed mix includes at least 10 of 12 native permanent grass and sedge species and 12 of 17 native forb species to provide diversity for establishment. Apply at 37.00 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
<i>Andropogon gerardii</i>	Big Bluestem	4.00
<i>Carex cristatella</i>	Crested Oval Sedge	0.50
<i>Carex lurida</i>	Bottlebrush Sedge	3.00
<i>Carex spp.</i>	Prairie Sedge Species	8.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	3.00
<i>Elymus canadensis</i>	Canada Wild Rye	16.00
<i>Elymus virginicus</i>	Virginia Wild Rye	16.00
<i>Juncus canadensis</i>	Canadian Rush	1.00
<i>Panicum virgatum</i>	Switch Grass	3.00
<i>Scirpus atrovirens</i>	Dark Green Rush	2.00
<i>Scirpus cyperinus</i>	Wool Grass	0.50
<i>Spartina pectinata</i>	Prairie Cord Grass	3.00
Total		60.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
Total		512.00
Forbs		
<i>Alisma subcordatum</i>	Common Water Plantain	1.00
<i>Asclepias incarnata</i>	Swamp Milkweed	2.00
<i>Coreopsis tripteris</i>	Tall Coreopsis	1.00
<i>Euthamia graminifolia</i>	Common Grass-Leaved Goldenrod	0.50
<i>Eutrochium maculatum</i>	Spotted Joe-Pye Weed	1.00
<i>Iris virginica v. shrevei</i>	Blue Flag	4.00
<i>Liatris spicata</i>	Marsh Blazing Star	1.00
<i>Lycopus americanus</i>	Common Water Horehound	0.50
<i>Mimulus ringens</i>	Monkey Flower	0.50
<i>Penthorum sedoides</i>	Ditch Stonecrop	1.00
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	0.50
<i>Rudbeckia triloba</i>	Brown-Eyed Susan	1.00
<i>Senna hebecarpa</i>	Wild Senna	1.00
<i>Silphium terebinthinaceum</i>	Prairie Dock	1.00
<i>Symphotrichum novae-angliae</i>	New England Aster	0.50
<i>Verbena hastata</i>	Blue Vervain	1.50
<i>Zizia aurea</i>	Golden Alexanders	2.00
Total		20.00

Midwest Mesic Pollinator

This pollinator seed mix is a good choice for creating new pollinator habitat, or enhancing an existing native planting. Its combination of forbs and native grasses is ideal for creating wildflower-rich habitats that support a diverse population of bees and other pollinators for dry to mesic soils. This seed mix includes 3 native grass species and at least 21 of 26 native forb species. Apply at a rate of 39.00 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses		
<i>Schizachyrium scoparium</i>	Little Bluestem	36.00
<i>Sorghastrum nutans</i>	Indian Grass	2.00
<i>Sporobolus heterolepis</i>	Prairie Dropseed	6.00
	Total	44.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	512.00
	Total	512.00
Forbs		
<i>Agastache foeniculum</i>	Lavender Hyssop	2.00
<i>Allium cernuum</i>	Nodding Onion	2.00
<i>Amorpha canescens</i>	Lead Plant	2.00
<i>Asclepias syriaca</i>	Common Milkweed	10.00
<i>Asclepias tuberosa</i>	Butterfly Weed	2.00
<i>Baptisia bracteata</i>	Cream Wild Indigo	1.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	8.00
<i>Dalea candida</i>	White Prairie Clover	3.00
<i>Echinacea pallida</i>	Purple Coneflower	4.00
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	8.00
<i>Eryngium yuccifolium</i>	Rattlesnake Master	2.00
<i>Liatris pycnostachya</i>	Prairie Blazing Star	1.00
<i>Lupinus perennis v. occidentalis</i>	Wild Lupine	4.00
<i>Monarda fistulosa</i>	Wild Bergamot	2.00
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	1.00
<i>Penstemon hirsutus</i>	Hairy Beard Tongue	1.00
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	0.50
<i>Senna hebecarpa</i>	Wild Senna	4.00
<i>Silphium perfoliatum</i>	Cup Plant	1.00
<i>Solidago speciosa</i>	Showy Goldenrod	1.00
<i>Symphotrichum ericoides</i>	Heath Aster	0.50
<i>Symphotrichum laeve</i>	Smooth Blue Aster	1.00
<i>Tradescantia ohimensis</i>	Common Spiderwort	2.00
<i>Verbena stricta</i>	Hoary Vervain	2.00
<i>Verbesina alternifolia</i>	Wingstem	2.00
<i>Vernonia gigantea</i>	Smooth Tall Ironweed	1.00
	Total	68.00

Specialty Seed Mixes



Asclepias syriaca, **Common Milkweed**



Senna hebecarpa, **Wild Senna**



Silphium perfoliatum, **Cup Plant**

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Specialty Seed Mixes



Coreopsis lanceolata, Sand Coreopsis



Monarda punctata, Horse Mint

Custom Seed Mixes



Great Lakes Dune

This dune seed mix contains species found in the fore- and back-dune areas around the Great Lakes. This mix is intended to be used in areas of disturbance to stabilize sandy soils. It is recommended that this mix is supplemented with bareroot dune grass (*Ammophila beviligulata*) plantings. Because dunes are dynamic zones, other erosion control methods may also be required. This Midwestern native seed mix includes at least 4 of 5 native permanent grass species and 7 of 10 native forbs species. Apply at a rate of 49.28 PLS pounds per acre.

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses		
<i>Calamovilfa longifolia</i>	Sand Reed	16.00
<i>Elymus canadensis</i>	Canada Wild Rye	24.00
<i>Koeleria macrantha</i>	June Grass	1.00
<i>Panicum virgatum</i>	Switch Grass	8.00
<i>Schizachyrium scoparium</i>	Little Bluestem	48.00
Total		97.00
Temporary Cover		
<i>Avena sativa</i>	Common Oat	640.00
Total		640.00
Forbs		
<i>Asclepias syriaca</i>	Common Milkweed	4.00
<i>Asclepias tuberosa</i>	Butterfly Weed	2.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	16.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	8.00
<i>Desmodium sessilifolium</i>	Sessile-Leaved Tick Trefoil	4.00
<i>Lespedeza capitata</i>	Round-Headed Bush Clover	2.00
<i>Lupinus perennis v. occidentalis</i>	Wild Lupine	6.00
<i>Monarda punctata</i>	Horse Mint	0.50
<i>Rudbeckia hirta</i>	Black-Eyed Susan	8.00
<i>Verbena stricta</i>	Hoary Vervain	1.00
Total		51.50

Custom seed mixes

For clients seeking unique project results or with the expertise to know exactly what they want, Cardno can blend a customized seed mix based on other specifications or project objectives. For example, we often supply seed mixes that state Departments of Transportation have designed for native roadside plantings. We also supply custom mixes for projects for design firms and specifiers.



Plant Materials

Cardno has hundreds of native plant species in stock. Plants are available in 50-count plug trays (2" x 2" x 5" deep). We can also provide plants in 32 and 72-count trays, with adequate lead time. In addition, we have quart and gallon containers, and most plant species are also available as seed. Additional sizes can be provided as part of a custom grown order. Please contact our staff to request the size needed.

Cardno Native Plant Nursery has made several revisions to the botanical names of some of the species in the following tables. Most of the changes have occurred in the genera *Aster*, *Eupatorium*, *Scirpus*, and *Solidago*. These changes were made to align more closely with currently accepted nomenclatures among botanists in the eastern half of North America.

Legend	
Upland Dry	
Upland Moist	
Saturated	
Emergent Shallow	
Emergent Deep	
Aquatic	
Full Sun	
Partial Sun	
Shade	
Salt Tolerant	
Deer Resistant	
Pollinator	

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Acorus americanus</i>	Sweet Flag	7,000	1'-4'	Green	May-Jun			
<i>Agalinis purpurea</i>	Purple False Foxglove	781,250	1'-2'	Lavender	Aug-Oct			
<i>Agalinis tenuifolia</i>	Slender False Foxglove	781,250	1'-2'	Lavender	Aug-Oct			
<i>Agastache foeniculum</i>	Lavender Hyssop	65,000	2'-4'	Purple	Jun-Sep			
<i>Agastache nepetoides</i>	Yellow Giant Hyssop	90,000	3'-7'	Yellow	Jul-Oct			
<i>Ageratina altissima</i>	White Snakeroot	150,000	2'-4'	White	Jul-Oct			
<i>Alisma subcordatum</i>	Common Water Plantain	70,175	2'-4'	White	Jul-Sep			
<i>Allium cernuum</i>	Nodding Onion	7,700	1'-2'	White/Lavender	Jul-Oct			
<i>Allium tricoccum</i>	Wild Leek	1,400	6"-1'	White	Jun-Aug			
<i>Ammophila breviligulata</i>	Dune Grass	107,800	2'-3'	Green	Jul-Sep			
<i>Amorpha canescens</i>	Lead Plant	17,000	2'-3'	Purple	Jun-Aug			
<i>Amorpha fruticosa</i>	Indigo Bush	3,700	12'-17'	Purple	May-Aug			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Andropogon gerardii</i>	Big Bluestem	8,188	4'-8'	Purple	Jul-Sep			
<i>Andropogon virginicus</i>	Broom Sedge	15,625	2'-3'	Brown	Aug-Sep			
<i>Anemone canadensis</i>	Meadow Anemone	9,250	1'-2'	White	May-Sep			
<i>Anemone cylindrica</i>	Thimbleweed	20,938	2'-3'	White	Jun-Aug			
<i>Anemone virginiana</i>	Tall Anemone	20,000	1'-3'	White	Jun-Aug			
<i>Angelica atropurpurea</i>	Great Angelica	6,250	4'-12'	White	May-Jun			
<i>Aquilegia canadensis</i>	Wild Columbine	25,000	1'-3'	Red/Yellow	Apr-Jul			
<i>Aralia racemosa</i>	Spikenard	33,000	3'-4'	Green	Jul-Aug			
<i>Arisaema triphyllum</i>	Jack-In-The-Pulpit	425	1'-3'	Green	Apr-Jul			
<i>Arnoglossum atriplicifolium</i>	Pale Indian Plantain	6,500	3'-8'	White	Jun-Oct			
<i>Arnoglossum plantagineum</i>	Prairie Indian Plantain	5,938	3'-5'	White	Jun-Aug			
<i>Asclepias exaltata</i>	Poke Milkweed	4,000	2'-5'	Green/Pink	Jun-Jul			
<i>Asclepias hirtella</i>	Tall Green Milkweed	4,300	2'-3'	Purple/Cream	Jun-Aug			
<i>Asclepias incarnata</i>	Swamp Milkweed	4,540	3'-5'	Pink	Jun-Sep			
<i>Asclepias purpurascens</i>	Purple Milkweed	5,141	2'-4'	Purple/Pink	Jun-Jul			
<i>Asclepias sullivantii</i>	Prairie Milkweed	5,300	2'-3'	Pink	Jun-Aug			
<i>Asclepias syriaca</i>	Common Milkweed	4,000	2'-4'	Pink	Jun-Aug			
<i>Asclepias tuberosa</i>	Butterfly Weed	3,500	1'-3'	Orange	Jun-Sep			
<i>Asclepias verticillata</i>	Whorled Milkweed	10,250	1'-1.5'	White	Jun-Sep			
<i>Astragalus canadensis</i>	Canadian Milk Vetch	16,000	1'-4'	Cream	Jun-Oct			
<i>Aureolaria flava</i>	Smooth False Foxglove	7,000	3'-5'	Yellow	Jul-Oct			
<i>Baptisia alba</i>	White Wild Indigo	1,600	3'-4'	White	May-Aug			
<i>Baptisia australis</i>	Blue Wild Indigo	1,600	1'-4'	Blue	May-Jun			
<i>Baptisia bracteata</i>	Cream Wild Indigo	1,700	3'-4'	Cream	May-Jun			
<i>Baptisia tinctoria</i>	Yellow Wild Indigo	5,200	2'-3'	Yellow	Jun-Aug			
<i>Bidens cernua</i>	Nodding Bur Marigold	14,175	1'-4'	Yellow	Jun-Oct			
<i>Bidens coronata</i>	Tall Swamp Marigold	8,925	2'-5'	Yellow	Jun-Oct			
<i>Bidens frondosa</i>	Common Beggars-Tick	5,250	1'-4'	Orange	Jul-Sep			
<i>Blephilia hirsuta</i>	Wood Mint	233,539	1'-3'	White	Jun-Oct			
<i>Boehmeria cylindrica</i>	False Nettle	20,313	3'-4'	Yellow	Jul-Aug			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Bolboschoenus fluviatilis</i>	River Bulrush	65,000	3'-7'	Brown	May-Jul			
<i>Boltonia asteroides</i>	False Aster	141,750	3'-5'	White/Yellow	Aug-Oct			
<i>Bouteloua curtipendula</i>	Side Oats Grama	9,375	2'-4'	Red	Jul-Oct			
<i>Brasenia schreberi</i>	Water Shield	78,125	—	Purple	Jun-Jul			
<i>Brickellia eupatorioides v.corymbulosa</i>	False Boneset	29,500	1'-4'	White	Aug-Oct			
<i>Bromus ciliatus</i>	Fringed Brome	6,188	2'-4'	Brown	Jun-Jul			
<i>Bromus kalmii</i>	Prairie Brome	9,063	2'-4'	Brown	Jun-Jul			
<i>Bromus pubescens</i>	Woodland Brome	7,188	2'-4'	Brown	Jun-Jul			
<i>Calamagrostis canadensis</i>	Bluejoint Grass	94,500	2'-4'	Brown	Jun			
<i>Calamoviola longifolia</i>	Sand Reed	17,125	3'-6'	Brown	Jul-Sep			
<i>Caltha palustris</i>	Marsh Marigold	50,000	1'-2'	Yellow	Mar-Jun			
<i>Campanula rotundifolia</i>	Harebell	900,000	1'-2'	Blue	Jun-Oct			
<i>Campanulastrum americanum</i>	Tall Bellflower	800,000	2'-6'	Blue	Jul-Nov			
<i>Carex aquatilis</i>	Long-Bracted Tussock Sedge	125,000	2'-3'	Green	Apr-Jun			
<i>Carex bebbii</i>	Bebb's Oval Sedge	100,000	2'-3'	Green	Jun			
<i>Carex bicknellii</i>	Copper-Shouldered Oval Sedge	33,422	1'-2'	Green	May-Jun			
<i>Carex blanda</i>	Common Wood Sedge	12,500	1'-2'	Green	Apr-Jun			
<i>Carex brevior</i>	Plains Oval Sedge	27,500	1'-2'	Green	May-Jun			
<i>Carex buxbaumii</i>	Buxbaum's Sedge	14,500	2'-3'	Green	May-Jun			
<i>Carex cephaloidea</i>	Rough-Clustered Sedge	15,500	1'-3'	Green	May-Jun			
<i>Carex comosa</i>	Bristly Sedge	41,183	2'-3'	Green	May-Jun			
<i>Carex crinita</i>	Fringed Sedge	141,750	2'-5'	Green	May			
<i>Carex cristatella</i>	Crested Oval Sedge	59,000	2'-3'	Green	May-Jun			
<i>Carex davisii</i>	Awned Graceful Sedge	9,000	2'-3'	Green	May			
<i>Carex emoryi</i>	Riverbank Sedge	140,625	2'-3'	Green	May			
<i>Carex frankii</i>	Bristly Cattail Sedge	31,250	1'-2'	Green	Jun-Jul			
<i>Carex gracillima</i>	Graceful Sedge	100,000	2'-3'	Green	Apr-Jun			
<i>Carex granularis</i>	Pale Sedge	15,500	1'-2'	Green	May-Jun			
<i>Carex grayi</i>	Common Bur Sedge	1,200	1'-2'	Green	May-Jun			
<i>Carex hystericina</i>	Porcupine Sedge	36,000	2'-3'	Green	May-Jun			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Carex lacustris</i>	Common Lake Sedge	26,000	2'-4'	Green	May-Jun			
<i>Carex lupulina</i>	Common Hop Sedge	3,635	2'-3'	Green	May-Jun			
<i>Carex lurida</i>	Bottlebrush Sedge	12,000	2'-3'	Green	May-Jun			
<i>Carex molesta</i>	Field Oval Sedge	27,500	1'-3'	Green	Jun-Jul			
<i>Carex muhlenbergii</i>	Sand Bracted Sedge	11,875	1'-3'	Green	May-Jun			
<i>Carex muskingumensis</i>	Swamp Oval Sedge	81,250	1'-2'	Green	May-Jun			
<i>Carex normalis</i>	Spreading Oval Sedge	25,000	1'-3'	Green	May-Jun			
<i>Carex pellita</i>	Wooly Sedge	28,000	1'-2'	Green	May-Jun			
<i>Carex pensylvanica</i>	Common Oak Sedge	29,000	6"-1'	Green	Apr-May			
<i>Carex plantaginea</i>	Plantain Wood Sedge	30,000	6"-1'	Green	Mar-May			
<i>Carex prairea</i>	Fen Panicked Sedge	84,375	1'-4'	Green	May			
<i>Carex projecta</i>	Loose-Headed Oval Sedge	131,094	1'-3'	Green	May-Jun			
<i>Carex radiata</i>	Straight-Styled Wood Sedge	41,390	1'-2'	Green	May-Jun			
<i>Carex scoparia</i>	Lance-Fruited Oval Sedge	83,250	2'-3'	Green	May-Jun			
<i>Carex shortiana</i>	Short's Sedge	17,000	1'-3'	Green	May-Jun			
<i>Carex squarrosa</i>	Narrow-Leaved Cattail Sedge	25,111	1'-2'	Green	May-Jun			
<i>Carex stipata</i>	Common Fox Sedge	35,625	1'-3'	Green	Apr-May			
<i>Carex stricta</i>	Common Tussock Sedge	187,500	2'-3'	Green	Apr-Jun			
<i>Carex swanii</i>	Swan's Sedge	74,000	1'-2'	Green	May-Jun			
<i>Carex tribuloides</i>	Awl-Fruited Oval Sedge	118,750	2'-3'	Green	May-Jul			
<i>Carex typhina</i>	Common Cattail Sedge	15,375	1'-2'	Green	Jun			
<i>Carex vulpinoidea</i>	Brown Fox Sedge	125,000	2'-3'	Green	May-Jun			
<i>Caulophyllum thalictroides</i>	Blue Cohosh	120	1'-3'	Yellow	Apr-May			
<i>Ceanothus americanus</i>	New Jersey Tea	7,000	1'-3'	White	Jun-Oct			
<i>Chamaecrista fasciculata</i>	Partridge Pea	3,800	1'-3'	Yellow	Jun-Oct			
<i>Chasmanthium latifolium</i>	Indian Wood Oats	7,500	2'-3'	Green	Jul-Aug			
<i>Chelone glabra</i>	Turtlehead	96,875	2'-4'	Cream	Aug-Sep			
<i>Cinna arundinacea</i>	Common Wood Reed	308,750	3'-4'	Green	Aug-Sep			
<i>Cirsium discolor</i>	Field Thistle	6,400	2'-8'	Pink	Jul-Sep			
<i>Clematis virginiana</i>	Virgin's Bower	13,600	Vine	White	Jul-Oct			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Conoclinium coelestinum</i>	Blue Mistflower	315,000	1'-3'	Blue	Aug-Sep	 		
<i>Coreopsis lanceolata</i>	Sand Coreopsis	12,500	1'-2'	Yellow	May-Aug	 	 	
<i>Coreopsis palmata</i>	Prairie Coreopsis	11,875	1'-2'	Yellow	Jun-Aug	 	 	
<i>Coreopsis tripteris</i>	Tall Coreopsis	11,500	4'-8'	Yellow/Brown	Aug-Sep	 	  	
<i>Dalea candida</i>	White Prairie Clover	26,250	1'-3'	White	Jun-Oct	 	 	
<i>Dalea purpurea</i>	Purple Prairie Clover	20,000	1'-3'	Purple	Jun-Sep	 	 	 
<i>Decodon verticillatus</i>	Swamp Loosestrife	40,250	2'-4'	Pink	Jul-Sep	 	  	
<i>Deschampsia caespitosa</i>	Tufted Hair Grass	75,000	1'-3'	Green	May-Jun	 	 	
<i>Desmanthus illinoensis</i>	Illinois Sensitive Plant	4,888	3'-5'	White	Jul-Aug		 	
<i>Desmodium canadense</i>	Showy Tick Trefoil	4,500	2'-5'	Purple	Jun-Sep	 	 	
<i>Desmodium canescens</i>	Hoary Tick Trefoil	2,800	3'-5'	Purple	Aug	 		
<i>Desmodium illinoense</i>	Illinois Tick Trefoil	4,250	3'-6'	Purple	Jul-Aug	 	 	
<i>Desmodium sessilifolium</i>	Sessile-Leaved Tick Trefoil	5,125	2'-4'	Purple	Jul-Sep	 		
<i>Diarrhena obovata</i>	Beak Grass	3,320	1'-3'	Green	Jul	  		
<i>Dodecatheon meadia</i>	Shooting Star	75,000	1'-3'	White/Pink	Apr-May	 	  	 
<i>Doellingeria umbellata</i>	Flat-Topped Aster	315,000	1'-4'	White/Yellow	Jul-Oct	 	 	
<i>Drymocallis arguta</i>	Prairie Cinquefoil	175,000	1'-3'	White	Jun-Sep		 	
<i>Dulichium arundinaceum</i>	Three-Way Sedge	100,000	1'-3'	Green	Jul-Aug	 	 	
<i>Echinacea pallida</i>	Pale Purple Coneflower	5,000	2'-4'	Lavender	May-Aug			 
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	6,600	3'-4'	Purple	Jun-Aug	 	 	 
<i>Eleocharis acicularis</i>	Needle Spike Rush	70,000	5"-7"	Green	May-Oct		 	
<i>Eleocharis erythropoda</i>	Red-Rooted Spike Rush	70,000	2"-6"	Green	May-Sep		 	
<i>Eleocharis obtusa</i>	Blunt Spike Rush	95,000	6"-1'	Green	May-Sep	 	 	
<i>Eleocharis palustris</i>	Great Spike Rush	141,750	1'-2'	Green	Jul		 	
<i>Elodea canadensis</i>	Common Waterweed	—	—	Green	Jun-Aug		 	
<i>Elymus canadensis</i>	Canada Wild Rye	4,258	3'-5'	Green	Jun-Sep	 	 	
<i>Elymus riparius</i>	Riverbank Wild Rye	5,531	2'-4'	Green	Jul-Aug	  		
<i>Elymus villosus</i>	Silky Wild Rye	7,800	1'-3'	Green	Jul	  	 	
<i>Elymus virginicus</i>	Virginia Wild Rye	4,375	2'-4'	Green	Jun	  	 	
<i>Epilobium coloratum</i>	Cinnamon Willow Herb	55,000	1'-3'	Pink	Jun-Sep	  		

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Equisetum hyemale</i>	Tall Scouring Rush	—	1'-3'	Brown	Apr-Aug			
<i>Eragrostis spectabilis</i>	Purple Love Grass	66,000	1'-2'	Purple	Jul-Aug			
<i>Eryngium yuccifolium</i>	Rattlesnake Master	8,000	3'-5'	White	Jul-Sep			
<i>Eupatorium perfoliatum</i>	Common Boneset	125,000	3'-5'	White	Jul-Oct			
<i>Eupatorium serotinum</i>	Late Boneset	60,500	2'-5'	White	Jul-Oct			
<i>Euphorbia corollata</i>	Flowering Spurge	10,000	2'-4'	White	Jun-Oct			
<i>Eurybia macrophylla</i>	Big-Leaved Aster	21,600	6"-2'	Lavender/White/Yellow	Jul-Oct			
<i>Euthamia graminifolia</i>	Common Grass-Leaved Goldenrod	546,875	1'-4'	Yellow	Jul-Sep			
<i>Eutrochium fistulosum</i>	Hollow Joe Pye Weed	78,125	5'-9'	Pink	Jul-Aug			
<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	78,125	4'-7'	Pink	Jun-Oct			
<i>Eutrochium purpureum</i>	Purple Joe Pye Weed	48,000	3'-6'	Pink	Jul-Sep			
<i>Filipendula rubra</i>	Queen Of The Prairie	9,375	3'-6'	Pink	Jul			
<i>Gentiana andrewsii</i>	Bottle Gentian	227,000	1'-3'	Blue	Aug-Oct			
<i>Gentiana flavida</i>	Cream Gentian	180,000	1'-3'	Cream	Sep-Oct			
<i>Geranium maculatum</i>	Wild Geranium	4,850	1'-2'	Lavender	Apr-Jul			
<i>Geum triflorum</i>	Prairie Smoke	33,000	6"-1'	Pink	Apr-Jun			
<i>Glyceria canadensis</i>	Rattlesnake Grass	74,000	2'-5'	Green	Jun			
<i>Glyceria grandis</i>	Reed Manna Grass	109,375	3'-5'	Green	Jun			
<i>Glyceria striata</i>	Fowl Manna Grass	125,000	1'-5'	Green	May-Jun			
<i>Helenium autumnale</i>	Sneezeweed	141,750	3'-5'	Yellow	Jul-Nov			
<i>Helianthus giganteus</i>	Tall Sunflower	10,938	4'-12'	Yellow	Jul-Sep			
<i>Helianthus grosseserratus</i>	Sawtooth Sunflower	12,500	4'-12'	Yellow	Jul-Oct			
<i>Helianthus mollis</i>	Downy Sunflower	7,700	2'-4'	Yellow	Jul-Sep			
<i>Helianthus occidentalis</i>	Western Sunflower	13,000	2'-4'	Yellow	Aug-Sep			
<i>Helianthus strumosus</i>	Pale-Leaved Sunflower	7,200	2'-5'	Yellow	Jul-Oct			
<i>Heliopsis helianthoides</i>	False Sunflower	6,500	4'-6'	Yellow	Jun-Oct			
<i>Heracleum maximum</i>	Cow Parsnip	3,016	4'-10'	White	May-Jul			
<i>Heterostipa spartea</i>	Porcupine Grass	680	2'-4'	Green	Jun			
<i>Heuchera richardsonii</i>	Prairie Alum Root	800,000	1'-3'	Green	May-Sep			
<i>Hibiscus laevis</i>	Halbred-Leaved Rosemallow	2,188	3'-7'	White/Pink	Jul-Sep			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Hibiscus palustris</i>	Swamp Rosemallow	2,188	3'-7'	White/Pink/Red	Jul-Sep			
<i>Hierochloa hirta</i>	Sweet Grass	41,000	1'-3'	Green	Apr-Jun			
<i>Hydrophyllum virginianum</i>	Virginia Waterleaf	2,800	1'-2'	Lavender	May-Jun			
<i>Hypericum ascyron</i>	Great St. John's Wort	220,000	3'-6'	Yellow	Jul-Aug			
<i>Hypericum kalmianum</i>	Kalm's St. John's Wort	121,336	2'-4'	Yellow	Jun-Aug			
<i>Hystrix patula</i>	Bottlebrush Grass	4,700	3'-5'	Green	Jun-Jul			
<i>Iris virginica v. shrevei</i>	Blue Flag	1,400	2'-3'	Lavender/Purple	May-Jul			
<i>Juncus canadensis</i>	Canadian Rush	1,000,000	1'-3'	Brown	Jul-Sep			
<i>Juncus dudleyi</i>	Dudley's Rush	2,270,000	1'-2'	Brown	May-Jul			
<i>Juncus effusus</i>	Common Rush	1,000,000	1'-4'	Brown	Jun			
<i>Juncus interior</i>	Inland Rush	2,800,000	6"-2'	Brown	Jun-Jul			
<i>Juncus tenuis v. dudley</i>	Path Rush	1,000,000	6"-2'	Brown	Jun			
<i>Juncus torreyi</i>	Torrey's Rush	1,134,000	1'-2'	Brown	Jun-Sep			
<i>Justicia americana</i>	Water Willow	75,000	1'-2'	Lavender	Jun-Aug			
<i>Koeleria macrantha</i>	June Grass	150,000	1'-2'	Cream	May-Jul			
<i>Lathyrus palustris</i>	Marsh Vetchling	750	6"-1'	Pink/Purple	May-Sep			
<i>Leersia oryzoides</i>	Rice Cut Grass	94,500	2'-5'	Green	Jul-Sep			
<i>Lespedeza capitata</i>	Round-Headed Bush Clover	10,000	2'-4'	White	Jul-Sep			
<i>Liatris aspera</i>	Rough Blazing Star	13,000	2'-3'	Pink	Jul-Nov			
<i>Liatris cylindracea</i>	Cylindrical Blazing Star	13,300	1'-2'	Pink	Jul-Oct			
<i>Liatris pycnostachya</i>	Prairie Blazing Star	10,750	2'-4'	Pink	Jul-Sep			
<i>Liatris scariosa v. nienwandii</i>	Savanna Blazing Star	13,000	3'-5'	Pink	Aug-Oct			
<i>Liatris spicata</i>	Marsh Blazing Star	12,000	3'-5'	Pink	Jul-Sep			
<i>Lobelia cardinalis</i>	Cardinal Flower	437,500	2'-5'	Red	Jul-Oct			
<i>Lobelia inflata</i>	Indian Tobacco	495,000	1'-3'	Cream	Jun-Oct			
<i>Lobelia siphilitica</i>	Great Blue Lobelia	520,000	1'-4'	Blue	Jul-Oct			
<i>Lobelia spicata</i>	Pale Spiked Lobelia	90,000	1'-3'	Lavender	May-Aug			
<i>Ludwigia alternifolia</i>	Seedbox	281,250	2'-3'	Yellow	Jun-Aug			
<i>Lupinus perennis v. occidentalis</i>	Wild Lupine	1,000	1'-2'	Blue/Violet	Apr-Jul			
<i>Lycopus americanus</i>	Common Water Horehound	235,000	1'-2'	White	Jul-Sep			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Lythrum alatum</i>	Winged Loosestrife	3,000,000	2'-3'	Purple	Jun-Sep			
<i>Mentha canadensis</i>	Wild Mint	315,000	1'-3'	White	Jul-Sep			
<i>Mertensia virginica</i>	Virginia Bluebells	9,650	1'-2'	Blue	Mar-May			
<i>Mimulus ringens</i>	Monkey Flower	283,500	2'-4'	Lavender	Jun-Sep			
<i>Monarda fistulosa</i>	Wild Bergamot	78,000	2'-5'	Lavender	Jul-Sep			
<i>Monarda punctata</i>	Horse Mint	94,000	1'-2'	Cream	Jul-Sep			
<i>Nelumbo lutea</i>	Lotus	32	3"-1'	Cream	Jul-Aug			
<i>Nuphar advena</i>	Yellow Pond Lily	—	—	Yellow	May-Sep			
<i>Nymphaea odorata tuberosa</i>	White Water Lily	—	—	White	May-Sep			
<i>Oenothera biennis</i>	Common Evening Primrose	55,000	2'-6'	Yellow	Jun-Nov			
<i>Oligoneuron ohioense</i>	Ohio Goldenrod	90,000	2'-4'	Yellow	Jul-Oct			
<i>Oligoneuron riddellii</i>	Riddell's Goldenrod	94,500	2'-5'	Yellow	Sep-Nov			
<i>Oligoneuron rigidum</i>	Stiff Goldenrod	46,000	1'-5'	Yellow	Jul-Oct			
<i>Opuntia cespitosa</i>	Eastern Prickly Pear	1,344	3"-6"	Yellow	Jun-Jul			
<i>Osmorhiza claytonii</i>	Hairy Sweet Cicely	2,400	1'-3'	White	May-Jun			
<i>Panicum virgatum</i>	Switch Grass	28,356	3'-5'	Green/Purple	Jun-Oct			
<i>Parthenium integrifolium</i>	Wild Quinine	6,800	2'-3'	White	Jun-Sep			
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	1,875	Vine	Green	Jul-Aug			
<i>Pedicularis lanceolata</i>	Fen Betony	32,500	1'-3'	Yellow	Aug-Oct			
<i>Peltandra virginica</i>	Arrow Arum	42	1'-3'	Green	Jun-Jul			
<i>Penstemon calycosus</i>	Smooth Beard Tongue	90,000	2'-4'	White	May-Jun			
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	115,000	2'-4'	White	May-Jul			
<i>Penstemon hirsutus</i>	Hairy Beard Tongue	125,000	1'-2'	White/Lavender	May-Jul			
<i>Penthorum sedoides</i>	Ditch Stonecrop	36,063	1'-3'	Green	Jun-Oct			
<i>Persicaria amphibia v. stipulacea</i>	Water Knotweed	3,125	1'-2'	Pink	Jun-Oct			
<i>Persicaria pensylvanica</i>	Pinkweed	4,063	1'-5'	Pink	Jun-Oct			
<i>Phlox divaricata</i>	Woodland Phlox	12,000	1'-2'	Blue	Apr-Jun			
<i>Phlox glaberrima interior</i>	Marsh Phlox	7,400	1'-2'	Pink/Lavender	Jun-Aug			
<i>Phlox pilosa</i>	Sand Prairie Phlox	18,750	1'-2'	Pink	May-Aug			
<i>Physostegia virginiana</i>	Obedient Plant	25,000	2'-5'	Pink	Aug-Oct			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Polygonatum biflorum</i>	Smooth Solomon's Seal	1,200	1'-4'	Green/White	May-Jul			
<i>Pontederia cordata</i>	Pickereel Weed	1,250	1'-3'	Purple	Jun-Sep			
<i>Potamogeton natans</i>	Common Pondweed	22,500	—	Green/White	Jun-Jul			
<i>Potamogeton nodosus</i>	Long-Leaved Pondweed	22,500	—	Green/White	Jun-Jul			
<i>Pycnanthemum tenuifolium</i>	Mountain Mint	375,000	1'-3'	White	Jun-Aug			
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	331,250	1'-3'	White	Jun-Oct			
<i>Ratibida pinnata</i>	Yellow Coneflower	25,250	3'-6'	Yellow/Brown	Jul-Oct			
<i>Rhexia virginica</i>	Virginia Meadow Beauty	115,000	6"-2'	Lavender/Yellow	Aug-Sep			
<i>Rosa carolina</i>	Pasture Rose	2,900	1'-3'	Pink	Jun-Sep			
<i>Rosa palustris</i>	Swamp Rose	1,600	2'-7'	Pink	Jun-Aug			
<i>Rudbeckia fulgida</i>	Showy Black-Eyed Susan	31,000	2'-3'	Yellow/Brown	Aug-Sep			
<i>Rudbeckia hirta</i>	Black-Eyed Susan	110,000	1'-3'	Yellow/Brown	Jun-Oct			
<i>Rudbeckia laciniata</i>	Wild Golden Glow	15,000	3'-10'	Yellow	Jul-Nov			
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	46,000	3'-5'	Yellow/Brown	Aug-Sep			
<i>Rudbeckia triloba</i>	Brown-Eyed Susan	33,000	2'-5'	Yellow/Brown	Aug-Oct			
<i>Ruellia humilis</i>	Prairie Petunia	4,000	1'-2'	Lavender	Jun-Aug			
<i>Rumex orbiculatus</i>	Great Water Dock	9,063	2'-5'	Green	May-Sep			
<i>Rumex verticillatus</i>	Swamp Dock	9,688	2'-5'	Green	Jun-Sep			
<i>Sabatia angularis</i>	Rose Gentian	406,250	1'-3'	Pink	Jul-Nov			
<i>Sagittaria latifolia</i>	Common Arrowhead	56,700	1'-4'	White	Jun-Sep			
<i>Sanguinaria canadensis</i>	Bloodroot	2,500	6"-1'	White/Yellow	Apr-May			
<i>Saururus cernuus</i>	Lizard's Tail	343,750	2'-4'	White	Jun-Aug			
<i>Schizachyrium scoparium</i>	Little Bluestem	8,800	2'-4'	Brown	Aug-Sep			
<i>Schoenoplectus acutus</i>	Hardstem Bulrush	20,000	4'-6'	Brown	Apr-Aug			
<i>Schoenoplectus pungens</i>	Chairmaker's Rush	125,000	2'-5'	Brown	May-Sep			
<i>Schoenoplectus tabernaemontani</i>	Softstem Bulrush	37,813	4'-8'	Brown	May-Aug			
<i>Scirpus atrovirens</i>	Dark Green Rush	187,500	3'-5'	Brown	Jun-Aug			
<i>Scirpus cyperinus</i>	Wool Grass	562,500	3'-5'	Brown	Jun-Sep			
<i>Scirpus pendulus</i>	Red Bulrush	378,125	2'-4'	Brown	May-Jun			
<i>Scrophularia marilandica</i>	Late Figwort	125,000	3'-7'	Brown	Jun-Oct			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Scutellaria lateriflora</i>	Mad-Dog Skullcap	65,000	1'-2'	Purple	Jun-Sep			
<i>Senna hebecarpa</i>	Wild Senna	1,400	3'-5'	Yellow	Jul-Aug			
<i>Silene regia</i>	Royal Catchfly	23,000	2'-4'	Red	Jul-Aug			
<i>Silene stellata</i>	Starry Campion	30,000	1'-2'	White	Jul-Oct			
<i>Silene virginica</i>	Fire Pink	26,000	6"-1'	Red	May-Jul			
<i>Silphium integrifolium</i>	Rosin Weed	4,000	2'-6'	Yellow	Jul-Sep			
<i>Silphium laciniatum</i>	Compass Plant	650	3'-8'	Yellow	Jun-Sep			
<i>Silphium perfoliatum</i>	Cup Plant	2,100	3'-8'	Yellow	Jul-Oct			
<i>Silphium terebinthinaceum</i>	Prairie Dock	1,100	3'-8'	Yellow	Jun-Sep			
<i>Sium suave</i>	Tall Water Parsnip	9,500	2'-6'	White	Jul-Sep			
<i>Smilacina racemosa</i>	Feathery False Solomon's Seal	900	1'-3'	White	Apr-Jun			
<i>Smilacina stellata</i>	Starry False Solomon's Seal	900	1'-2'	White	Apr-Jun			
<i>Solidago caesia</i>	Blue-Stemmed Goldenrod	546,875	1'-2'	Yellow	Sep-Oct			
<i>Solidago flexicaulis</i>	Broad-Leaved Goldenrod	84,000	1'-3'	Yellow	Aug-Oct			
<i>Solidago juncea</i>	Early Goldenrod	140,625	2'-4'	Yellow	Jul-Sep			
<i>Solidago nemoralis</i>	Old-Field Goldenrod	240,000	1'-3'	Yellow	Aug-Nov			
<i>Solidago patula</i>	Swamp Goldenrod	71,875	3'-6'	Yellow	Aug-Oct			
<i>Solidago rugosa</i>	Rough Goldenrod	92,500	2'-5'	Yellow	Aug-Oct			
<i>Solidago speciosa</i>	Showy Goldenrod	105,000	1'-4'	Yellow	Jul-Oct			
<i>Solidago ulmifolia</i>	Elm-Leaved Goldenrod	130,000	2'-3'	Yellow	Jul-Oct			
<i>Sorghastrum nutans</i>	Indian Grass	8,516	4'-7'	Green/Yellow	Aug-Sep			
<i>Sparganium americanum</i>	American Bur Reed	975	2'-3'	Green	Jun-Aug			
<i>Sparganium eurycarpum</i>	Common Bur Reed	596	2'-6'	Green	May-Aug			
<i>Spartina pectinata</i>	Prairie Cord Grass	15,750	3'-7'	Green	Jul-Aug			
<i>Spiraea alba</i>	Meadowsweet	390,625	3'-6'	White	Jun-Sep			
<i>Spiraea tomentosa</i>	Steeplebush	390,625	2'-5'	Pink	Jul-Sep			
<i>Sporobolus heterolepis</i>	Prairie Dropseed	14,000	2'-3'	Green	Aug-Sep			
<i>Stuckenia pectinata</i>	Sago Pondweed	22,500	—	Green/White	May-Sep			
<i>Stylophorum diphyllum</i>	Celandine Poppy	12,400	2'-3'	Yellow	Apr-Jun			
<i>Symphotrichum cordifolium</i>	Heart-Leaved Aster	131,250	2'-4'	Blue/White/Yellow	Sep-Oct			

Botanical Name	Common Name	Seeds/Oz	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Symphyotrichum dumosum</i>	Rice-Button Aster	57,000	1'-3'	Lavender/White	Sep-Oct			
<i>Symphyotrichum ericoides</i>	Heath Aster	140,000	1'-3'	White/Yellow	Aug-Oct			
<i>Symphyotrichum laeve</i>	Smooth Blue Aster	48,000	3'-5'	Blue/Yellow	Aug-Oct			
<i>Symphyotrichum lanceolatum</i>	Panicled Aster	141,750	3'-5'	White/Yellow	Jul-Nov			
<i>Symphyotrichum lateriflorum</i>	Side-Flowering Aster	200,000	1'-3'	White/Yellow	Jul-Oct			
<i>Symphyotrichum novae-angliae</i>	New England Aster	76,000	3'-6'	Violet/Yellow	Jul-Oct			
<i>Symphyotrichum oblongifolium</i>	Aromatic Aster	51,000	2'-3'	Lavender	Aug-Oct			
<i>Symphyotrichum oolentangiense</i>	Sky-Blue Aster	82,000	1'-4'	Blue/Yellow	Jul-Nov			
<i>Symphyotrichum puniceum</i>	Bristly Aster	76,000	3'-6'	Lavender/Yellow	Aug-Oct			
<i>Symphyotrichum sericeum</i>	Silky Aster	57,000	1'-2'	Purple/Yellow	Aug-Oct			
<i>Symphyotrichum shortii</i>	Short's Aster	60,000	1'-4'	Blue/Yellow	Aug-Oct			
<i>Symphyotrichum urophyllum</i>	Arrow-Leaved Aster	110,000	2'-5'	White/Yellow	Aug-Sep			
<i>Symplocarpus foetidus</i>	Skunk Cabbage	30	1'-3'	Maroon	Feb-Apr			
<i>Tephrosia virginiana</i>	Goat's Rue	2,500	1'-3'	Pink/Cream	Jun-Jul			
<i>Teucrium canadense</i>	Germander	19,500	1'-3'	Purple	Jul-Sep			
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	13,500	3'-6'	Cream	May-Jun			
<i>Thalictrum dioicum</i>	Early Meadow Rue	7,300	1'-3'	Green	Apr-May			
<i>Tradescantia ohimensis</i>	Common Spiderwort	8,000	2'-4'	Blue/Lavender	May-Oct			
<i>Triadenum virginicum</i>	Marsh St. John's Wort	230,000	1'-2'	Pink	Jul-Sep			
<i>Vallisneria americana</i>	Eel Grass	—	—	Green	Jul-Sep			
<i>Verbena hastata</i>	Blue Vervain	125,000	3'-6'	Purple	Jun-Sep			
<i>Verbena stricta</i>	Hoary Vervain	32,000	2'-4'	Purple	Jun-Sep			
<i>Verbesina alternifolia</i>	Wingstem	9,063	3'-7'	Yellow	Jul-Oct			
<i>Vernonia fasciculata</i>	Common Ironweed	21,875	3'-7'	Purple	Jul-Oct			
<i>Vernonia gigantea</i>	Smooth Tall Ironweed	24,000	4'-9'	Purple	Jul-Oct			
<i>Veronicastrum virginicum</i>	Culver's Root	750,000	3'-6'	White	Jun-Aug			
<i>Zizia aptera</i>	Heart-Leaved Meadow Parsnip	9,000	1'-2'	Yellow	Apr-May			
<i>Zizia aurea</i>	Golden Alexanders	12,000	1'-3'	Yellow	Apr-Jun			



Trees and Shrubs

Cardno supplies midwestern genotype bare-root trees and shrubs. Sold in bundles of 25, our extensive selection of native tree and shrub species are stored in a dormant state in our climate-controlled storage facility. Our standard size bare-root stock is 12 to 18 inches above the root collar. Larger or smaller stock is available on request.

To optimize planting success, plant bare-root trees and shrubs in the early spring. Bare-root trees are available only from late November to early May, when seedlings are dormant. Seedling availability in the fall depends upon frost timing for dormancy and when the ground freezes permanently for the winter.

Botanical Name	Common Name	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Acer rubrum</i>	Red Maple	60'-90'	Red/Yellow	Apr-May			
<i>Acer saccharinum</i>	Silver Maple	50'-90'	Green/Yellow	Mar-Apr			
<i>Acer saccharum</i>	Sugar Maple	70'-100'	Green/Yellow	Apr-May			
<i>Aesculus glabra</i>	Ohio Buckeye	30'-70'	Green/Yellow	Apr-May			
<i>Amelanchier canadensis</i>	Shadbush Serviceberry	15'-25'	White	Apr-Jun			
<i>Asimina triloba</i>	Pawpaw	10'-30'	Brown/Purple	Apr-May			
<i>Betula nigra</i>	River Birch	50'-90'	Green	May			
<i>Carpinus caroliniana virginiana</i>	Blue Beech, Ironwood	20'-30'	Yellow	Apr-May			
<i>Carya illinoensis</i>	Northern Pecan	70'-100'	Yellow/Green	May-Jun			
<i>Carya laciniosa</i>	Shellbark Hickory	70'-100'	Yellow/Green	May-Jun			
<i>Carya ovata</i>	Shagbark Hickory	70'-100'	Yellow/Green	May-Jun			
<i>Celtis occidentalis</i>	Hackberry	50'-90'	Green	Apr-May			
<i>Cephalanthus occidentalis</i>	Buttonbush	15'-20'	White	Jun-Aug			
<i>Cercis canadensis</i>	Redbud	20'-35'	Pink	Apr-May			
<i>Cornus amomum v. schuetzeana</i>	Silky Dogwood	10'-15'	White	May-Jul			
<i>Cornus florida</i>	Flowering Dogwood	30'-40'	White	May-Jun			

Botanical Name	Common Name	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Cornus racemosa</i>	Gray Dogwood	6'-15'	White	May-Jun			
<i>Cornus sericea</i>	Red-Osier Dogwood	3'-10'	White	May-Aug			
<i>Corylus americana</i>	American Hazelnut	3'-9'	Green	July-Aug			
<i>Gymnocladus dioica</i>	Kentucky Coffee Tree	80'-100'	Green	May			
<i>Hamamelis virginiana</i>	Witch Hazel	20'-30'	Yellow	Oct-Dec			
<i>Ilex verticillata</i>	Winterberry	15'-20'	White	May-Jun			
<i>Juglans nigra</i>	Black Walnut	90'-120'	Green	Apr-May			
<i>Larix laricina</i>	Tamarack	50'-80'	—	—			
<i>Lindera benzoin</i>	Spicebush	9'-15'	Yellow	Apr-May			
<i>Liquidambar styraciflua</i>	Sweet Gum	60'-100'	Green	May-Jun			
<i>Liriodendron tulipifera</i>	Tulip Tree	60'-180'	Green/Orange	May-Jun			
<i>Nyssa sylvatica</i>	Black Gum	50'-90'	Green	May-Jun			
<i>Physocarpus opulifolius</i>	Ninebark	10'	White	May-Jul			
<i>Platanus occidentalis</i>	Sycamore	70'-150'	Green	Apr-Jun			
<i>Populus deltoides</i>	Eastern Cottonwood	90'-120'	Green	Apr-Jun			
<i>Prunus americana</i>	American Plum	25'-30'	White	Apr-May			
<i>Prunus serotina</i>	Wild Black Cherry	75'-80'	White	Apr-May			
<i>Quercus alba</i>	White Oak	80'-100'	Green/Yellow	Apr-Jun			
<i>Quercus bicolor</i>	Swamp White Oak	60'-90'	Green/Yellow	May			
<i>Quercus imbricaria</i>	Shingle Oak	50'-70'	Green/Yellow	May-Jun			
<i>Quercus macrocarpa</i>	Bur Oak	50'-80'	Green/Yellow	Apr-Jun			
<i>Quercus michauxii</i>	Swamp Chestnut Oak	60'-90'	Green/Yellow	Apr-Jun			
<i>Quercus palustris</i>	Pin Oak	50'-90'	Green/Yellow	Apr-May			
<i>Quercus rubra</i>	Red Oak	60'-90'	Green/Yellow	May			
<i>Quercus shumardii</i>	Shumard Oak	60'-100'	Green/Yellow	Apr-May			
<i>Quercus velutina</i>	Black Oak	60'-80'	Green/Yellow	Apr-Jun			
<i>Rhus typhina</i>	Staghorn Sumac	25'-30'	Green/Yellow	Apr-Jun			
<i>Salix discolor</i>	Pussy Willow	6'-20'	Yellow	Mar-Apr			
<i>Salix exigua</i>	Sandbar Willow	5'-15'	Yellow	Apr-May			
<i>Salix nigra</i>	Black Willow	60'-100'	Yellow	Apr-May			

Botanical Name	Common Name	Height	Bloom Color	Bloom	Sunlight	Moisture Level	Other
<i>Sambucus canadensis</i>	Elderberry	9'-15'	White	Jun-Aug			
<i>Taxodium distichum</i>	Bald Cypress	100'-120'	—	—			
<i>Tilia americana</i>	American Basswood	60'-100'	White	Jun			
<i>Ulmus americana</i>	American Elm	100'-120'	Green	Apr-May			
<i>Viburnum dentatum</i>	Arrowwood	3'-15'	White	May-Jun			
<i>Viburnum lentago</i>	Nannyberry	20'-30'	White	Apr-Jun			
<i>Viburnum opulus v. americanum</i>	American Highbush Cranberry	3'-15'	White	May-Jun			
<i>Viburnum prunifolium</i>	Black Haw	20'-25'	White	May-Jun			

Submerged Aquatics



Brasenia schreberi - Water Shield is an aquatic, perennial herb with floating leaves that grows in ponds, lakes, and slow moving streams. It is a food source for waterfowl. Its floating leaves provide shelter for fish and other aquatic organisms.

Elodea canadensis - Common Waterweed can be found in wet mud along sluggish streams, seepage areas, and marshes. By absorbing nutrients, it helps control algae and keeps waters clear. It is a submerged aquatic perennial.

Polygonum amphibium v. stipulaceum - Water Knotweed is a native perennial that inhabits still or slow moving water of lakes, rivers, marshes and swamps, and is variable in habitats, growing underwater, floating or emergent. Seeds are a food source for waterfowl and also serve as a major food source for the Purplish copper butterfly and cover for fish.

Potamogeton illinoensis - Illinois Pondweed is a submersed plant that has both submersed and floating leaves. Rooted to the bottom, it grows in shallow or deeper waters. It grows equally well in swift-flowing rivers or quiet lake margins.

Potamogeton natans - Common Pondweed is native to quiet or slow-flowing freshwater habitats; lakes and rivers; ditches, ponds, and bogs. Usually found in fairly shallow water but recorded at deeper depths up to 12 feet. This species almost never fails to produce floating leaves.

Potamogeton nodosus - Long-leaved Pondweed preference is full sun, warm standing water up to 4 foot deep, and a mucky bottom. Habitats consist of ponds, quiet harbors of lakes, slow-moving streams, and deep ditches with standing water. It is a food source for many turtles.

Stuckenia pectinata - Sago Pondweed is found in stagnant ponds, spring-fed rivers, and slow-flowing marshes. Waterfowl extensively use and rely on it as a food source.

Vallisneria americana - Eel Grass grows in lakes and slow-moving rivers in neutral to basic water. Its long strap-like leaves grow from stoloniferous clumps submerged under water. It is an important source of food for turtles and other aquatic wildlife.



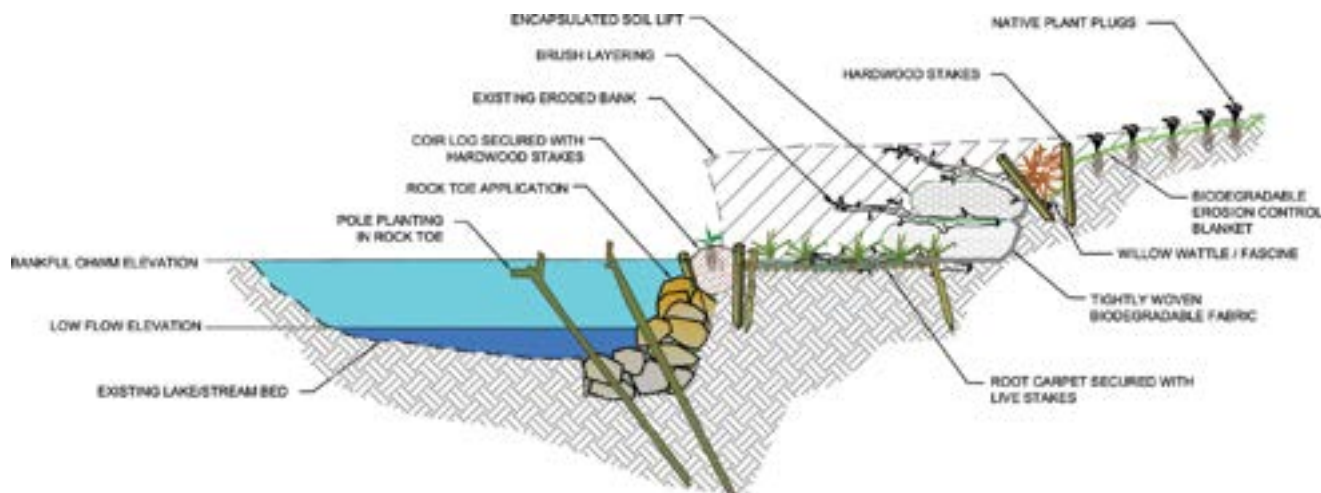
Bioengineering Materials

Bioengineering materials provide enhanced site stabilization to help control erosion and stabilize streambanks, lake shores, and steep slopes. They are typically used on sites where installation of plant material alone cannot achieve the desired results.

Pre-vegetated coir materials

Many of Cardno's bioengineering solutions are pre-vegetated with native plant species. They can also be vegetated with customized plant species. Pre-vegetated materials have an immediate aesthetic result along with enhanced performance. Because they are designed to biodegrade as the plant material becomes established, use bioengineering materials in conjunction with native seed or plants for long-term results.

Cardno's bioengineering materials perform best when integrated into a full-service site restoration solution. Contact Cardno to learn more about how we can help you design, select, install, and maintain one or more of these products as part of an ecological restoration project.





Erosion control blankets

Erosion control blankets provide significant surface area coverage for stabilizing slopes, streambanks, and wetland edges. Used in conjunction with seeding, they protect large seeded areas from herbivores and help maintain hydration levels for young plant growth and seed germination. Seeded plants grow through the blanket's weave and become established before the blanket decomposes.

Blankets can be used on their own or with other bioengineering tools such as live stakes and fascines.

Specifications

- > Available product composition: straw, straw and coconut coir, coconut coir, and wood fiber with natural and poly netting.
- > Measurements: typically 8-feet wide; length varies by material.
- > Longevity: varies by product composition.

Installation

- > See manufacturer's recommendations. Contact the nursery for more information.
- > Contact the nursery regarding use with plant materials.

Live stakes, fascines, and brush layers

Specific tree and shrub species that root well from cuttings in water or moist soil conditions are available as live stakes, fascines, or brush layers. They are used as part of a strategy to stabilize streambanks and create natural shorelines.

Live stakes are dormant woody cuttings with the branches removed. They can be used alone or to secure other bioengineering materials such as erosion control blankets or root carpets. Live stakes are easier to install than bare-root trees and shrubs, because they require a 2-inch pilot hole, compared to an 18-inch hole for a tree or shrub.

Fascines (also called wattles) are living branches bundled together to trap sediment and protect against erosion. They are laid horizontally along streambank contours to impede water flow before it reaches the new streambank. Fascines can also be used above the water line to slow down water flow and help prevent erosion.

Brush layers are living branches placed on a terrace along streambank contours, between layers of soil. They are typically used in conjunction with encapsulated soil lifts, which are layers of soil wrapped in erosion control blankets, to completely rebuild a streambank or slope. All these materials should be used along with seed and plugs to establish vegetation on a site.

We provide live stakes, fascines, and brush layering in these species:

Buttonbush (*Cephalanthus occidentalis*), Ninebark (*Physocarpus opulifolius*), Willow (*Salix*) species, Dogwood (*Cornus*) species, Elderberry (*Sambucus canadensis*), and *Viburnum* species. Other species may be available seasonally.



Specifications

These products are harvested between November and April. Because they are provided live and dormant, they are only available during these months.

Live stakes:

- > Sold by the linear foot.
- > Available in 1/2-inch to 2-inch calipers.

Fascines:

- > Length: Typically 6 to 8 feet; can be customized.
- > Diameter: Typically between 4 to 12 inches; can be customized.

Brush layers:

- > Sold by the linear foot.
- > Length: Typically 6 to 8 feet, depending on species; can be customized.

Installation

Live stakes:

- > Install in late fall to spring, when stakes are dormant.
- > Keep stakes cool and damp until ready to install.
- > Plant with buds up and chiseled end down, with 80% of the stake underground.
- > Space 3 to 6 feet apart, or as specified.

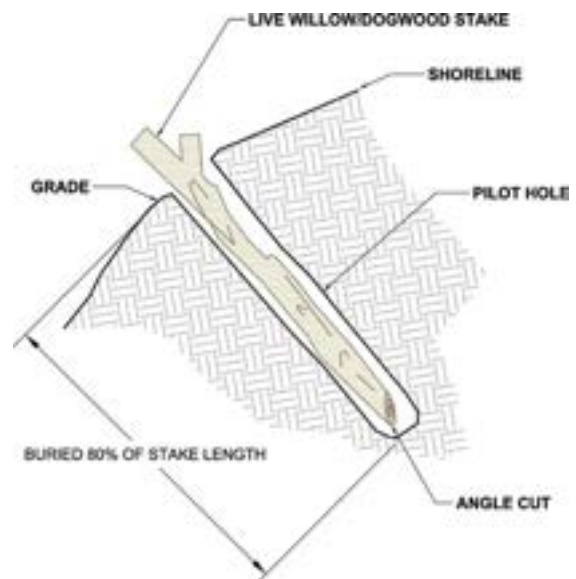
Fascines:

- > Install fascine bundles parallel to the site's slope to slow water. The materials will establish roots there, forming a hedge structure.
- > Fascines can also be installed above the water line, parallel to slope contours to slow runoff and prevent erosion.

- > If installing above the waterline, install in a shallow trench 1/2 to 1/3 the diameter of the fascine.
- > If using multiple fascines, place them so the ends are touching.
- > They can be anchored in place with hardwood stakes, live cuttings, or re-bar.

Brush layers:

- > Install brush layers according to the engineering specifications.
- > Contact the nursery for further information on brush layer use or installation.





RootCarpet™

RootCarpet™ consists of thick sections of pre-vegetated coir fiber enclosed in a woven coir blanket that helps keep roots together and soil in place until establishment. Because the developed roots actively seek the soil, RootCarpet™ facilitates quick establishment across relatively large areas. It is especially good for wetlands and areas with moving water, and it is effective in controlling weeds.

All RootCarpet™ is grown on a contract basis. It can also be custom grown with plant species according to specification. To establish additional shrub and herbaceous vegetation, live stakes and fascines can be driven through it.

Specifications

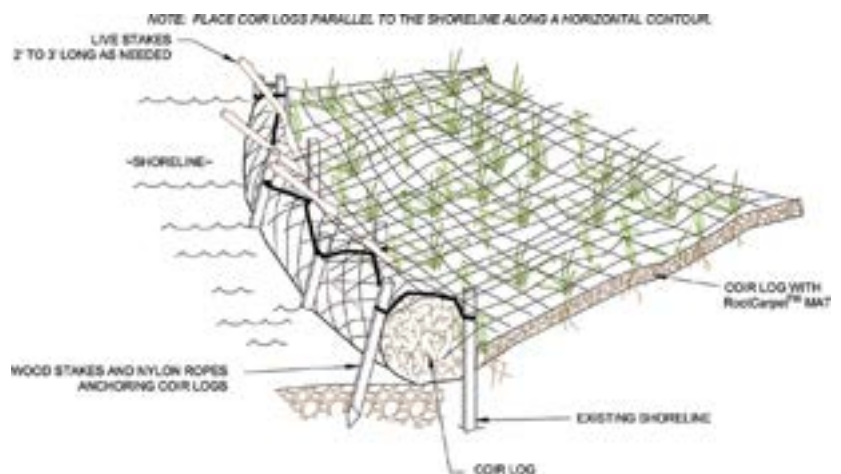
Carpet material: 100% biodegradable coconut fiber, vegetated with native wetland plants.

Custom orders: Please allow 8 to 12 weeks lead time for all orders. Winter orders may require more lead time. Native wetland plants are installed 10 to 12 inches on center (approximately 45 to 65 plants per blanket).

- > Length: 15 ft (4.6 m).
- > Width: 3 ft (.92 m).
- > Area: 45 ft² (4.23 m²).
- > Coir mat thickness: 2.75" (7 cm).
- > Coir fiber density: 3 ft x 15 ft – 1.022 lbs/sqf.
- > Exterior net structure: square patterned coir net.
- > Net mesh size: 0.75 in x 0.75 in (20 mm x 20 mm).
- > Net thickness: 0.16 in (4 mm).

Installation

- > Final grade should be smooth, free of rocks, sticks, and existing vegetation. Do not install RootCarpet™ mats on hard, compacted soil.
- > RootCarpet™ mats must have good soil contact and be in contact with water at the normal water level.
- > If installing in a stream channel, unroll RootCarpet™ mats starting downstream, working upstream. Lay mats loosely and DO NOT stretch. Overlap RootCarpet™ mats similarly to roof shingles, 6 inches on ends and 4 inches on sides.
- > If installing in conjunction with vegetated coir logs, RootCarpet™ should be in direct contact with coir logs.
- > Securely anchor with 8- to 12-inch steel turf staples or hardwood stakes as needed to maintain direct contact with soil.





Vegetated coir logs

Vegetated coir logs are biodegradable coconut coir pith logs tightly packed in tubular netting. They are highly effective in reducing water velocity at the base of slopes, shorelines, and streambanks. They are used for controlling dry slope erosion and establishing wetland edges and stream channel banks.

Coir logs are available either vegetated or unvegetated, in a variety of sizes. They are grown on a contract basis. As the native species establish their root systems, the coir logs biodegrade over several years, allowing a native shoreline to develop. Upon request, Cardno can provide pre-vegetated coir logs with specific plant species. A minimum of 8 to 12 weeks growing time is required. Winter orders may require additional lead time.

Specifications

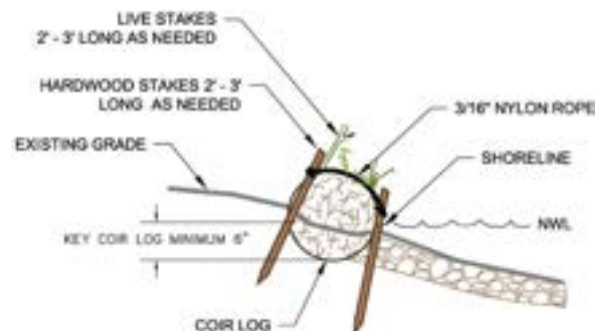
Coir log material: 100% biodegradable coconut fiber, plugged with native wetland plants. Vegetated coir logs can be custom grown based on your site conditions. Please allow 8 to 12 weeks lead time. Plugs are planted 2 per linear foot.

Coir fiber density: 30 cm x 3 m – 11kgs/lm. Larger diameters can be provided with sufficient lead time.

- > Exterior net structure:
 - Coir net: diamond shape mesh.
 - PP net: knotless diamond shape mesh.
- > Net mesh size: 5 cm x 5 cm.
- > Net thickness:
 - Coir net: 4 mm.
 - PP net: 2 mm.

Installation

- > Final grade should be smooth, free of rocks, sticks, and vegetation. Do not install vegetated coir logs on hard, compacted soil.
- > Logs should maintain solid contact with the soil and be installed to minimize gaps between the bottom of the log and the substrate.
- > Install logs at the approximate normal water level. Between 1/3 to 2/3 of the log should be submerged.
- > Drive alternately-spaced hardwood stakes into the soil along the sides of the log until the top of the stake is about 4 inches above it. Stakes should be between 3 to 4 feet long, based on application, a minimum of 1.25 inches thick, and spaced 2 to 3 feet apart.
- > Notch hardwood stakes approximately 4 inches below the top of the log deep enough to fit a 3/16 inch nylon rope. Crisscross the rope over the top of the log. When complete, drive stakes down until rope is tight against the log. Cut off excess from stakes so they are flush with the top of the installed log.
- > Couple adjacent logs together with supplemental rope, wire ties, or cable ties.
- > Supplemental plantings can be installed within the log and on the front and back sides.



Contract and custom growing

For the majority of native plant species, Cardno provides contract and custom growing services. We can also propagate seed materials when local genotype is important.

Cardno has provided contract growing for numerous clients, including the US Forest Service, US Army Corps of Engineers, Ohio Department of Transportation, Indiana Department of Transportation, Indiana Department of Natural Resources, and private clients.

Custom seed collection and cleaning

Restoration projects often require the use of seed that can be verified as local genotype seed. Cardno has selected genotype specific seed in-stock and can collect local genotype seed for your project. For all seed, we use a customized cleaning process to remove inert material and contaminants, to produce a purer, more productive seed lot.

Plant rescue and relocation

Development activities sometimes disturb or destroy valuable, diverse ecosystems. Cardno can assess an area and help clients preserve plants that otherwise might be destroyed. For example, Cardno staff successfully transplanted approximately 100,000 Dwarf Lake Iris (*Iris lacustris*) and 30,000 Houghton's Goldenrod (*Solidago houghtonii*) to protect them from impacts related to a pipeline expansion. Our staff can relocate plant species within an existing site or move them to an entirely new planting site in other areas.



Professional Restoration Services

In addition to Cardno's full-service turn-key method of project delivery, our staff can provide additional professional services, adding value to our native plant materials and enhancing restoration projects.

Ecological restoration planning and design

Cardno has provided comprehensive ecological services to successfully restore habitat and ecosystem functionality for thousands of projects across the country, including developing and implementing large, complex, multi-million dollar restoration projects. Our team of professionals address each site's unique technical challenges, navigate regulatory requirements, and handle critical administrative support of complex and basic restoration and mitigation projects. Cardno's integrated project management approach fosters innovative solutions that get results and save clients time and money.

Natural area management

Our restoration management team creates effective, yet flexible maintenance and management plans to support long-term project success. Using our extensive GPS/GIS capabilities, our staff combines cutting-edge technology with site-specific ecological and botanical knowledge to identify and quantify problem areas and potential threats to site development, and track the progress of restoration efforts.

Stream restoration/stabilization

Stream restoration projects start with understanding current site conditions and impairments. Cardno conducts ecological assessments, fluvial-geomorphology characterization, reference reach surveys, and erosion inventory and evaluation to understand the baseline state. We also perform in-depth aquatic species surveys, with particular emphasis on endangered species identification. We perform channel realignment, grade and bank stabilization, and aquatic habitat enhancement. We develop design-build solutions and supervise construction.



Post-Storm Dune Restoration and Dune Planting

Cardno's restoration team provided planting services for the Duval County Beaches Post-Storm Dune Restoration project. Cardno's services included: planting of over 620,000 native dune plants across constructed dunes; development of daily planting reports, weekly summaries, and monthly status reports; and management and scheduling to ensure timely delivery of plant material. Cardno worked closely with the City of Jacksonville, Florida, and their third-party project management consultant to ensure deadlines and project specifications, including plant spacing, plant quality, and technical planting requirements were met effectively and with the highest quality product. The project was completed on time and all survival warranties were met according to the project specifications.

Watershed management

Cardno uses GIS analysis, windshield tours, Watershed Assessment of River Stability and Sediment Supply (WARSS) assessments, and water quality and quantity monitoring and modeling to understand stormwater and flood impacts, erosion, sediment supply, and stream stability. Land use within the watershed drives stream stability. As part of the watershed planning process, we take into account landscape development factors and mitigation measures that might reduce erosion pressures. We review off-site resources and field data to prioritize restoration or mitigation projects to maximize the benefit to the watershed.

Environmental permitting and compliance

We have prepared thousands of federal, state, and local regulatory permit applications and associated reports regarding wetland delineations, documentation of RTE species surveys, cultural resource investigations, water quality assessments, and GIS maps. In addition to our in-depth regulatory expertise, Cardno also has strong working relationships with regulatory agency staff to facilitate communication, streamline the permitting process, and oversee ongoing project compliance.

Wetland mitigation and monitoring

As part of the permitting process, most agencies request mitigation or replacement of an impacted area. Cardno works with clients to identify and develop the most cost-effective mitigation plans. The plan will generally include a grading plan, planting plan, and monitoring plan. Our wetlands expertise allows us to identify needed plan modifications, such as supplemental plantings, adjustments to water control structures, or invasive species management. Identifying and addressing these needs early improves the ability to create a successful wetland mitigation area, thus minimizing the overall cost of the project and maximizing project success.

Cultural resources management

Cardno provides a full array of cultural resources management services to document, evaluate, preserve, and mitigate possible adverse effects to land and natural resources. For more than 30 years, our staff has worked as part of the project team to avoid or resolve impacts to cultural resources. We have developed extensive and close relationships with tribes and state historic preservation officers across the US, which helps streamline permitting and compliance issues.

Request a quote

For all plant and seed material needs, Cardno's nursery team can quickly provide a price quote and check availability for your project. Contact us to work through the quote process or send us the list and our sales team can generate the quote. **Use Request a Quote on the Cardno Native Plant Nursery website.**



About Cardno

We simplify access to the consulting and field professionals you need

Cardno is a professional services company, offering a wide range of integrated environmental, engineering, infrastructure, scientific consulting, and field services to provide the expertise and operational efficiencies that support public and private sector clients.

Local expertise across the Americas and around the world

Our team of experienced professionals provide clients with best-in-class environmental, infrastructure, and scientific solutions from more than 100 offices across the Americas.

In addition to local expertise, our global professionals collaborate to share diverse knowledge and perspectives that allow us to provide innovative and sustainable solutions that deliver lasting value.

Our offices across the Americas are strategically located to make it easy for our team to get to your facilities and sites. We pride ourselves on following clear communications paths, careful quality assurance procedures, and disciplined safety processes. Together, with our local knowledge, we excel in providing exceptional solutions as we plan, design, and manage your project.

Industry recognition

By working with new clients every day and expanding relationships with our existing clients, we have become a recognized leader within the industry. In recent years, Cardno has continually ranked in multiple categories as a Top firm in *Engineering News-Record's* annual lists.

Zero harm

We are committed to continually improving our safety processes. Our Zero Harm program means that we conduct business in a way that protects our people, clients, visitors, and the public from harm, while also promoting our commitment to environmental responsibility.



Cardno professionals deliver experience and insight

We are scientists, engineers, landscape architects, geologists, planners, botanists, economists, and environmental specialists. Our diverse disciplines, perspectives and service offerings combine to deliver holistic solutions that meet your technical needs, gain stakeholder buy-in, and consider your operations and budgets.

Cardno careers

Are you interested in working for a global organization of talented people, with a reputation for excellence who are united by a shared purpose to make a difference? We have opportunities to join our teams around the country.

Our work is diverse and interesting and can lead to new opportunities. Visit our website at www.cardno.com/careers/ to learn more.

Making a difference.

We are leaders in delivering scientific and sustainable environmental solutions for our clients. We work to restore the physical and natural environment, improve ecological and human health, and positively impact the lives of our employees and our communities.

Our company's core values – safety, integrity, people, and excellence – reflect this vision. Within Cardno, staff and the work we perform center around a commitment at all times to working safely, with integrity and excellence, and a caring spirit for our people, our teams, and our communities.

SAFETY

INTEGRITY

PEOPLE

EXCELLENCE

As a global organization of talented people, we are united by one purpose and that is Making a difference, for our people, our clients, and for the communities in which we live and work.



Cardno Native Plant Nursery
128 Sunset Drive
Walkerton, Indiana 46574

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage, and deliver sustainable projects and community programs. Cardno is an international company, listed on the Australian Securities Exchange [ASX:CDD].

Learn more about our professional services:

- > Full-service ecological consulting
- > Site assessment, design, and engineering
- > Permitting and compliance assistance
- > Restoration and remediation
- > Archaeology and architectural history
- > Contract and custom growing
- > Custom seed collection
- > Plant rescue and relocation
- > Installation, monitoring, and maintenance

