Iowa's Living Roadway

PLANT PROFILER

Iowa Department of Transportation

ECOLOGICAL TRANSPORTATION

Iowa's Roadside Plants

Preface

This publication is a guide to understanding the Iowa Department of Transportation's roadside management programs. It offers descriptions of various landscape designs or planting styles used within or adjacent to Iowa's highway rights-of-way, as well as various plant profiles. In addition, this guide will help you learn more about the value of plants and their contribution to our environment and society.

This publication is written for persons having little or no formal training in botany, and technical terminology has been kept to the minimum necessary to maintain standards of accuracy and conciseness in the descriptions.

Plants are known by common names and botanical names. Most people prefer to use common names because they are easier to spell and say. Both have been used in this publication.

Botanical names are taken from Latin, Greek or "Latinized" words of other languages. Each plant species has a unique botanical name, consisting of the genus, followed by the species. Some botanical names contain additional words after the species name to designate cultivars or subspecies. Plant species are grouped into families by flower structure. Family names are Latin, so the associated common family names are included in parenthesis.

Sources of information for this publication are not cited within the text to save space, avoid repetition and make it more readable. However, all references used are included in the bibliography at the end of this publication.

Landscape designs

A landscape design is a detailed planting strategy used to achieve certain goals in Iowa's landscape. Designs normally include an integrated planning map, often with sketches of proposed systems. They also include a written report providing basic planting and landscaping strategies, water systems design, soil improvement suggestions, and wildlife habitat restoration. All designs are customized to meet specific needs of the site and the DOT's planting philosophies.

The DOT uses a number of landscape design philosophies. Those designs are customized by type of plant species and are described in more detail within the tree, shrub and native grasses and wildflower sections of this publication.

Roadside plants

This publication is designed to enable those interested in learning more about the species and cultivars of plants most commonly used by the DOT in enhancing Iowa's roadsides. It is not intended as a field identification guide because accurate identification takes a close look, which is difficult at driving speed. The department advises motorists not to stop along the highway because of safety concerns. There are many rest areas, county and state parks, preserves, and arboretums where these same species can be viewed up close.

As you compare descriptions given to the plants, keep in mind that considerable variation occurs in plant growth and appearance, depending on local conditions of competition, soil moisture and type, available nutrients, etc.

The time of flowering and fruiting can also vary, with differences of several weeks sometimes occuring between the extreme northern and southern parts of the state.

Plant uses

Iowa law prohibits the destruction of public property, including plant material. Harvesting of seed or other plant parts requires a permit obtained from the local DOT office. The DOT recommends you enjoy these plants from a distance as you travel along Iowa's roadside or stop at rest areas. This publication offers some trivia on the historical uses of various plants for medicinal or nutritive purposes. The Iowa Department of Transportation does not recommend plants be used for these purposes.

Chapter 1: Iowa's Climate, Land, Original Vegetation, Growing Season, and Land Use

Climate

Iowa's climate reflects the state's position in the interior of the North American continent. It is characterized by warm summers and cold winters with long, mild springs and autumns. Average temperatures in the summer range from 71° F in the north to 73° F in the south. Temperatures from December to February average
22° F, with January temperatures averaging about 14° F. Average humidity is 70 percent and sunshine can be expected on about 200 days of the year. Precipitation ranges from less than 28 inches in the northwest to more than 35 inches in the southeast.

Land

Iowa is located in the heartland of the U.S. between the nation's two longest rivers. The Mississippi forms Iowa's eastern border, and Missouri borders the state on the west. The state of Missouri borders Iowa to the south, and state of Minnesota borders Iowa to the north.

Iowa is the 23rd largest state in the United States. It has a total area of 56,276 square miles (145,754 square kilometers). The state has a maximum distance from east to west of 332 miles, and 214 miles from north to south.

The physical features of present-day Iowa are the result of widespread and repeated glacial activity during the last Ice Age, and subsequent changes brought about by wind and water erosion. Iowa's bedrock was formed by shallow warm seas that covered the state for many millions of years.

Iowa contains a total of 36,016,000 acres. Lakes, ponds, reservoirs and streams cover about 210,000 acres, and urban areas cover roughly 2.89 million acres. The vast majority of the state is farmland.

Original Vegetation

Before the state was inhabited by European settlers, Iowa's vegetation was a mixture of prairie, wetland and forest. Iowa's original wetland area was approximately four million acres. This wetland area included the prairie potholes of central and northwest Iowa, and riparian wetlands along Iowa's major streams.

It is estimated that Iowa's forest acreage equaled approximately 6.7 million acres, including the savanna habitat. The northeastern and southeastern corners of the state and major river drainages, such as those of the Des Moines, Iowa and Skunk rivers were the most heavily forested areas.

The remaining 70 percent of the state was prairie. Prairie covered the flat and rolling portions of the state, as well as the loess hills in western Iowa, sandy areas in southeastern Iowa, and hills along many of the alluvial valleys, particularly in northeastern Iowa. Prairie plant communities were composed of approximately 60 percent grasses (tall grass and short grass), 35 percent forbs and 5 percent shrubs.

Growing Season

Iowa's growing season, the period between the last killing frost in the spring and first killing frost in the fall, ranges from about 180 days in the southeastern and southwestern corners of the state to about 130 days in the extreme northwest. The last killing frost in the spring usually occurs in late April in the south and early May in the north. The first killing frost in the fall generally occurs in late September or early October in the north and the second week of October in the south.

Land Use

Since Euro-American settlement began in the 1850s, Iowa's landscape has changed dramatically. By 1930, 95 percent of the state's land had been converted to farmland.

The prairies that helped produce the state's fertile soil have today been reduced to less than 0.1 percent of their original size. Approximately 30,000 acres remain. The prairie ecosystem was destroyed as fire was suppressed, grasslands plowed under, and woody farmstead and urban plantings were established.

Conversion of Iowa's wetlands to farmland also accelerated in the late 1880s. Iowa landowners constructed drainage ditches, straightened existing streams and tiled the land. All of these actions resulted in the drainage of approximately 95 percent of the state's prairie pothole wetlands.

Iowa's native forests were cut to provide lumber, fencing material, railroad ties, wood for fuel, and other products, and clear land for farming. Nearly 73 percent of Iowa's original forests and savannas have disappeared. The good news is fairly recent tree planting programs and a decline in livestock numbers are contributing to a return of Iowa's forest acres in the state. In 1990, a survey by the United States Forest Service showed about 2 million acres of trees in Iowa, compared to about 1.5 million in 1974, which represents an increase of a half million acres.

In total, less than 7 percent of Iowa's original natural landscape remains. What is left is fragmented, split by roads, farms and towns.

While many of these changes have been good for Iowans, they have resulted in the loss or degradation of suitable habitat for many plant and animal species. Plants and animals depend on their habitat. If Iowans want the diverse flora and fauna to remain in Iowa, a continuing effort by the public and DOT must be made toward the reconstruction of native vegetation areas, as well as the preservation and enhancement of existing habitat remnants.

Chapter 2: Iowa's Roadside Management Programs

Iowa's public lands add up to approximately 2 percent of the state's total land area. The Iowa Department of Transportation is responsible for managing over 175,000 acres of this land that is dedicated to the state's highway rights-of-way. While rights-of-way are valuable for public safety and future road construction, they can also serve as valuable habitat for plants and animals. Several programs aid the Iowa DOT in carefully enhancing and managing Iowa's roadsides.

Living Roadway Trust Fund

The Living Roadway Trust Fund was authorized by the Iowa Legislature and established in July 1989. This fund supports integrated roadside vegetation management programs on city, county or state rights-of-way or public areas adjacent to traveled roadways. These funds allow for the purchase of special equipment, roadside inventories, gateway plantings, native grass and forb seed, tree and shrub plantings, and research, education and awareness programs.

DOT/DNR Roadside Planting Program

In the mid-1800s in Iowa, forests covered 10 to 15 percent of the land. By 1990, two-thirds of that original forest was gone. This depletion of natural resources was the impetus for the formation of a partnership between the Iowa Department of Transportation and Department of Natural Resources. This partnership, better known as the DOT/DNR Roadside Planting Program, has resulted in the planting of more than 1.3 million trees and other woody plants on Iowa's largest publicly owned areas of land - the interstate and primary highway rights-of-way.

Wetlands Mitigation

It is the DOT's responsibility to determine and mitigate any impacts the state's highway projects may have on the survival and quality of Iowa's wetlands and its inhabitants.

Aerial photographs and topographic maps identifying these areas are provided to the highway designers to use when laying out roadway alignments so they can first avoid, then minimize impacts whenever possible. Where this is not possible, compensatory mitigation measures are deployed. Through those mitigation measures, the DOT has restored, created or enhanced more than 1,000 acres of wetlands at sites throughout the state. A combination of plant types are used in the establishment or restoration of wetland areas.

The DOT's efforts not only replace wetlands that are lost, but they often provide additional public benefit such as education, recreational opportunities and wildlife viewing.

Roadside Maintenance and Enhancement

DOT personnel responsible for the maintenance of state roadways (highway rights-of-way) use a number of approaches to enhance and preserve these areas. The primary objectives of roadside maintenance are safety of motorists and control of noxious weeds, while at the same time providing a habitat for wildlife and an aesthetically pleasing environment. Roadside mowing is limited to safety zones and noxious weed areas. Spot herbicide applications are also used for noxious weed and brush control. Wildflowers and native grasses are being established to provide competition for weeds and provide travelers with a more intriguing landscape.

New Highway Construction

An important component of any new or reconstruction highway project is its roadside development plan. The plan is specific for each project and outlines the appropriate planting styles and species that will be used for erosion control, and as enhancements to the project. These plans will vary depending on the terrain, soil types, areas disturbed during construction, required mitigation related to environmental impacts, and overall highway corridor design.

Adopt-A-Highway and Roadside Planting Sponsorship Program

This program allows groups to select a portion of highway right-of-way for removal of litter and/or to plant trees, shrubs, wildflowers and grasses. For more information about this program, contact the DOT's Office of Maintenance at 515-239-1471.

Private Sponsors

In addition to the plantings done by the Iowa Department of Transportation, the department encourages private citizens and civic groups to establish and maintain plantings on highway rights-of-way. For information about how to get involved, contact your local DOT maintenance facility or the DOT's roadside development section at 515-239-1424.

Chapter 3: Value of Landscaping and Roadside Management

Flowers, grasses, trees, shrubs, and other woody plants are a familiar site to most people traveling Iowa's roadways. However, few of us pause to consider how they came to be there, how they are managed, and the benefits they bestow on us. In reality, people often take plants for granted.

The value of plants for their aesthetic contribution is obvious. Many less obvious benefits of plants and roadside management are described here.

- Plants protect water quality. The hair-like root fibers of trees and other plants trap pollutants such as nitrates and phosphates that would contaminate ground-water. Plants also reduce surface water runoff, keeping phosphorus and other pollutants out of our waterways.

- Proper landscaping reduces soil erosion and rejuvenates the earth. A dense cover of plants and mulch holds soil in place, keeping sediment out of lakes, streams, storm drains and roads; and reducing flooding, mudslides and dust storms. The decaying of dead plant parts improves the soil through the addition of organic matter.

- Plant foliage improves air quality by acting as a filter, absorbing both solid and gaseous particulates. These particulates include such pollutants as carbon dioxide, chlorine, sulfur dioxide and others. One tree can remove 26 pounds of carbon dioxide from the atmosphere annually, equaling the emissions created by 11,000 miles of car travel. Of course, plants also give off oxygen as a by-product of photosynthesis. Without plants there would be no life on earth.

- Landscaping alters the environment in which we live by moderating climate. Climate control is obtained by moderating the effects of sun, wind and rain. Radiant energy from the sun is absorbed or deflected by leaves in the summer, and is only filtered by branches in winter. Urban plants reduce urban air temperatures significantly by shading heat sinks such as buildings and concrete, and returning humidity to the air through evaporative cooling.

- Landscaping screens busy streets and roadways. Well-placed plantings offer privacy and tranquility by screening out busy street noises and objectionable views of traffic, as well as unwanted views from the highway such as junkyards, etc. They also reduce glare and reflection from headlights and street lighting.

- Good landscaping increases community appeal. Psychologists have discovered that trees, well-landscaped grounds, and places for taking walks to be among the most important factors considered when individuals chose a place to live. Size and distribution of trees also relates to citizens satisfaction with their neighborhood.

- Landscaping reduces crime. One state study showed that landscaped areas were relatively graffiti-free, while open, non-landscaped areas were graffiti targets. Well planned and maintained landscapes are seen as safer than unmaintained plantings.

- Plants also offer social benefits by making our life more pleasant and less stressful. Most of us respond to the presence of trees beyond simply observing their beauty. We feel serene, peaceful, restful, and tranquil when trees are in view. It has been shown that workers who view trees on their commute are healthier because they experience less stress on their way to and from work.

- Landscaping enhances business districts. Greening of business districts increases community pride and positive perception of an area, drawing customers to the businesses. Economic development will take place where people want to live.

- Plants also attract wildlife, and provide shelter and food for many different animals. This is extremely important as development overtakes natural habitats.

- Wind speed and direction can be affected by plants. A well designed windbreak can benefit highway maintenance operations by reducing the amount of snow that blows across or drifts onto the roadway.

- Roadside plants also contribute to highway safety by providing a variety of shapes, colors, and sizes to break up the landscape, and decrease highway hypnosis. This visual stimulation reduces driver fatigue and the potential of falling asleep at the wheel. Plants can also be used to delineate highway alignment, giving visual cues to drivers of upcoming curves or intersections. Some native grasses, as well as trees and shrubs, protrude through Iowa's snow cover, thus reducing the sun's glare.

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Chapter 4: Wildflowers and Native Grasses

A. Planting philosophy and benefits

When highway construction is complete, vegetation is established to help control surface erosion and provide competition for Mother Nature's inevitable invasion of opportunistic weedy species. Different seed mixes are used depending on the location in the right-of-way. For example, areas next to the shoulder that receive regular mowing are seeded to species that can best tolerate mowing.

When looking for species that are tough enough to thrive in roadside conditions, the Iowa DOT has looked at what grew here historically. Iowa was predominantly prairie, with 85 percent of the state covered by more than 300 species of grasses and wildflowers. Most of these species are warm-season plants that tolerate Iowa's hot summers because they have developed a special photosynthesis system, and deep, massive root systems to find moisture. It is these root systems that help prevent soil erosion and crowd out undesirable weeds, thus making them well suited for roadsides. Many of the non-native species now used in the state, such as bluegrass for lawns, are cool season plants and grow mainly during the spring and fall, often going dormant during the summer. Since native plants have successfully developed here for several centuries, the DOT strives to use these plants in the majority of roadside seedings. The goal is not to try to recreate the prairie, but to use prairie plants for landscaping Iowa's roadsides.

B. Planting mixes

Seed mixes can be changed to meet a variety of needs. The following gives some examples of how the Iowa DOT designs seed mixes to achieve different results.

Minimum Maintenance Mixes

These seed mixes are used on the majority of roadsides. The intent is to use plants that can best tolerate the least amount of maintenance and still provide the needed erosion control and weed competition. Only spot mowing and targeted spraying are anticipated as maintenance activities. Native grasses and wildflowers are mostly used, with some non-natives added occasionally for faster vegetative establishment in highly erodible areas. Cover crops of annual plants are sometimes added to these mixes to reduce erosion during establishment. These mixes include approximately 70 percent grasses and 30 percent forbs (wildflowers), attempting to mimic the ratio of grasses to forbs found in the tall grass prairie.

Mowable Mixes

These mixes are used for areas that will receive periodic mowings. Cool season, non-native plants such as fescues and ryegrasses are often used along shoulders and in medians where mowings are needed three to four times a year. Where an aesthetic turf look is desired, seed mixes containing bluegrass and creeping red fescue are used because they tolerate frequent mowing.

Weed Area Mixes

These mixes contain primarily grasses and are used when reseeding areas with high noxious weed infestations where future herbicide applications are expected. Few wildflowers tolerate the herbicides used to control thistles.

Wildflower Mixes

These mixes are a variation of the basic minimum maintenance mixes. In these mixes, shorter grasses and a higher concentration of wildflowers are used to give a more showy floral display. These are used at selected areas where there is a desire to draw attention to the roadside. Communities often request these types of mixes to beautify their gateways.

Special Seeding Mixes

Seed mixes often need to be designed for special areas such as butterfly gardens, outdoor classrooms, wetlands, woodlands, or in areas with unusual soil characteristics. It is important to know about the growth and habitat characteristics of many different species to identify which plants to use in these areas.

Common name:	**Canada Anemone**
Other common names:	Round-leaf Thimbleweed
Latin name:	Anemone canadensis
Plant family:	Ranunculaceae (Buttercup)
Physical characteristics:	Perennial; grows 12 to 24 inches tall; rhizomatous; white flowers
Bloom period:	May to July
Trivia:	Pollinated by bees and flies; easy to grow; good ground cover
Habitats and possible locations:	Found in meadows and woodland edges; native patches are common on roadsides; requires moist soil; prefers full sun, but will grow in partial shade

Common name: **Foxglove Beardtongue**
Other common names: Foxglove Penstemon, Beardtongue, Penstemon
Latin name: Penstemon digitalis
Plant family: Scrophulariaceae (Snapdragon)
Physical characteristics: Perennial; 1-inch tubular white colored flowers; shiny green opposite leaves up to 5 inches long; average height 2 to 3 feet
Bloom period: Late spring to early summer
Trivia: Hummingbirds attracted to the tubular-shaped flowers; the Beardtongue name refers to the presence of a fifth stamen, which in many species has a hairy tip or beard; the name Penstemon is Greek for five stamens; Penstemon digitalis is less common in Iowa native prairies than other Penstemon species, but is used in roadside plantings because it grows easily from seed and is very showy; decorative seed capsules add interest in the fall and winter
Habitats and possible locations: Found in meadows and prairies on moist, sandy soil; more common in southeastern Iowa

Common name:	**White Wild Indigo**
Other common names:	Great Baptisia, False Indigo, Great False Indigo, Largeleaf Wild Indigo, White False Indigo, White Prairie Wild Indigo
Latin name:	Baptisia lactea
Plant family:	Fabaceae (Bean)
Physical characteristics:	Perennial; grows 3 to 6 feet tall; white flowers on 2 foot racemes; blue-green leaves in three parts; root extends 10 feet
Bloom period:	May to June
Trivia:	Seed needs special treatment to grow; the plant was used as a blue dye, hence the name indigo
Habitats and possible locations:	Prefers sandy, loamy and well-drained soils and full sun; occurs naturally in sandy pine woods, prairies and open areas

Common name:	**Culver's Root**
Other common names:	Black Root, Blackroot, Culver, Culver's Physic, Culver's Root, Culverwortel, Physic Root
Latin name:	Veronicastrum virginicum
Plant family:	Scrophulariaceae (Snapdragon)
Physical characteristics:	Deciduous perennial; grows 3 to 4 feet tall by 3 to 4 feet wide; white flowers in several racemes at the top of the stocks; leaves are whorled
Bloom period:	Late summer from July to August
Trivia:	Was used medicinally by several native North American Indian tribes to treat a variety of complaints; **caution is advised since the plant is potentially toxic**; pollinated by insects; attracts butterflies
Habitats and possible locations:	Naturally occurring in meadows, thickets and prairies, and woodland edges; prefers moist, well-drained soil and full sun; tends to flop without full sun

Common name: **Rattlesnake Master**
Other common names: Button Snake-root, Button Snakeroot, Snakeroot
Latin name: Eryngium yuccifolium
Plant family: Apiaceae (Parsley)
Physical characteristics: An evergreen perennial; grows 2 to 3 feet tall; in leaf all year; has an arid, yucca-like foliage, with thick, waxy leaves silver-green in color; flowers are umbels, like dill or parsley, but compacted into a tight, knobby ball about one inch in diameter; fruit essentially looks the same as the flowers, only darkening to a dull brown and remaining on the stalks for the remainder of the season; seed head contains many 1/4-inch long seeds; individual flowers are greenish-white and surrounded by larger pointed bracts
Bloom period: July to September
Trivia: The name is derived from an old belief that the root could be used to heal rattlesnake bites–roots were chewed and applied to the bite; pollinated by bees, flies and beetles; easy to grow from seed
Habitats and possible locations: Found in established prairies; prefers moist to mesic, well-drained soil

Common name:	**Canada Milkvetch**
Other common names:	Canada Milk-vetch, Little rattlepod
Latin name:	Astragalus canadensis
Plant family:	Fabaceae (Bean)
Physical characteristics:	Perennial; grows 2 to 3 feet tall; dark green leaves with seven to 15 leaflets; showy, cream-colored pea-like flowers; attractive pods in cluster around stem
Bloom period:	July to August
Trivia:	Seed requires special treatment to germinate
Habitats and possible locations:	Occurs in prairies and open woods; grows in well-drained, wet-dry soils; prefers full sun; grows well in disturbed areas

Common name: **Prairie Sage**

Other common names: Louisiana Sagewort, Western Mugwort, White Sage-brush, Prairie Sage

Latin name: Artemisia ludoviciana

Plant family: Asteraceae (Aster)

Physical characteristics: Perennial; grows 2 to 3 feet tall; rhizomatous; striking silver foliage; inconspicuous greenish-white flowers

Bloom period: August to October

Trivia: Leaves and flowering heads are used as a flavoring or garnish for sauces and gravies; an herb tea is made from the leaves and flowering heads; leaves are astringent; commonly used by North American Indians for various medicinal purposes and as an underarm deodorant

Habitats and possible locations: Natural habitat includes prairies and savannas, prefers sandy, loamy and well-drained soil; prefers full sun, but can grow in semi-shade (light woodland); often seen growing in silver patches on Iowa roadsides because of rhizomatous growth; pollinated by the wind; grows easily by seed and division

Common name:	**Roundheaded Bushclover**
Other common names:	Lespedeza, Round-head Bush-clover, Roundhead Bushclover, Round-headed Bushclover
Latin name:	Lespedeza capitata
Plant family:	Fabaceae (Bean)
Physical characteristics:	Perennial; 2 to 3 feet tall; non-showy, creamy white-colored flowers on dense, rounded heads 1 1/2 inches in diameter; velvety foliage; tan-brown seed heads
Bloom period:	July, August and September
Trivia:	Plant contains several biologically active compounds and pharmaceutical preparations are manufactured from them; seedheads are attractive in winter; seeds are eaten by songbirds and other game; the stout stem provides a good bird perch
Habitats and possible locations:	Occurs in dry prairies and savannas; prefers sandy, loamy and well-drained soils, and full sun

Common name: **Golden Alexanders**
Other common names: Golden Alexander's, Golden Zizia
Latin name: Zizia aurea
Plant family: Apiaceae (Parsley)
Physical characteristics: Perennial; grows 1 to 3 feet tall; yellow flowers in a rounded umbel; leaves doubly compound
Bloom period: May to June
Trivia: The flowers, with the main stem removed, are a welcome addition to a tossed green salad; they are also a delicious cooked vegetable when used in a similar manner to broccoli; pollinated by insects
Habitats and possible locations: Found in moist prairies, open meadowland, woodlands and rocky outcrops; prefers moist soil and full sun; used in roadside plantings for spring color; establishes well from seed, but needs a long stratification (placement in cool, moist conditions)

Common name:	**Butterfly Milkweed**
Other common names:	Butterfly Weed, Butterfly-weed, Milkweed, Pleurisy Root, Pleurisy-root, Pleurisyroot, Tuberous Swallowwort
Latin name:	Asclepias tuberosa
Plant family:	Asclepiadaceae (Milkweed)
Physical characteristics:	Long-lived perennial; grows upright, 2- to 3-foot stems; clusters of small, bright orange-red flowers; the stem, when broken, does not produce the milky white sap characteristic of this plant family; narrow, cone-shaped pods in fall
Bloom period:	July to September
Trivia:	**CAUTION: Plant is poisonous if eaten in large quantities.** Used by the North American Indians as food and medicine; good quality fiber can be obtained from the bark and used in making twine and cloth; seed floss is used to stuff pillows or is mixed with other fibers to make cloth; used in life jackets as a stuffing material, very water repellent; caterpillars of the monarch butterfly rely on milkweed leaves as their sole source of food; pollinated by bees, insects, moths and butterflies; attracts butterflies and hummingbirds throughout the growing season
Habitats and possible locations:	Natural habitat – dry prairies and savannas; also occurs on moist, well-drained soil; prefers full sun, but can grow in semi-shade (light woodland); may take up to two years to become established from seed

Common name:	**Blackeyed Susan**
Other common names:	Black-eyed Suzan, Black-eyed Susan, Gloriosa Daisy, Hairy Coneflower, Yellow Daisy
Latin name:	Rudbeckia hirta
Plant family:	Asteraceae (Aster Family)
Physical characteristics:	Biennial; grows 1 to 2 feet tall by 1 foot wide; stiff upright plant; heads cone-shaped with yellow ray flowers, 1 inch by 1/4 inch
Bloom period:	Mid-June to mid-July
Trivia:	Probably the most commonly grown of American wildflowers; in wildflower plantings, Blackeyed Susan is usually the first to germinate; plant is reputed to be poisonous to cattle, sheep and pigs; a yellow dye can be made from the flowers; pollinated by bees and flies; fruiting begins in late June and seeds fall soon after maturing
Habitats and possible locations:	Common on dry to moist prairies, also in roadsides and open woods; prefers sandy, loamy and clay soils; can grow in semi-shade (light woodland) to full sun; requires moist, well-drained soil; often reseeds itself; used in roadside plantings for fast color and also as a cover crop

Common name:	**Plains Coreopsis**
Other common names:	Calliopsis, Dyer's Calliopsis, Cyer's Coreopsis, Golden Tickseed, Golden Coreopsis, Tall Plain's Coreopsis
Latin name:	Coreopsis tinctoria
Plant family:	Asteraceae (Aster)
Physical characteristics:	Annual or short-lived perennial; grows 1 to 3 feet tall by 1 foot wide; upright and slender branched plant; rayed flowers blend from a crimson-brown color in the center to a buttery yellow at the petal's outer edges; seeds ripen from June to October
Bloom period:	June to September
Trivia:	A tea can be made from the dried plant; it was used as a coffee substitute; a yellow dye made from the flowers has been used to dye cloth; pollinated by bees; noted for attracting wildlife
Habitats and possible locations:	Commonly found in moist, low ground, roadsides and waste areas; prefers sandy, loamy and well-drained soil; cannot grow in the shade; this is a sun-loving plant; establishes easily by seed; used in some roadside plantings for quick color, but does not last over the years

Common name: **Oxeye Sunflower**

Other common names: Sunflower, Oxeye, Ox-eye, Smooth Oxeye, False Sunflower, Ox Eye Sunflower

Latin name: Heliopsis helianthoides

Plant family: Asteraceae (Aster Family)

Physical characteristics: Perennial; tall, upright plant grows to 2 to 5 feet high by 2 feet wide; dark green opposite leaves; showy yellow-orange flowers 2 to 3 inchs in diameter, daisy-like flowers; fall colors are green and yellow or brown

Bloom period: June through September

Habitats and possible locations: Prefers sun to part shade; moderately rich, well-drained soil; very easy to grow in clay, loam or moist sand; occurs naturally in prairies and savannas; competes well with grasses

Common name:	**Compass Plant**
Other common names:	Compassplant, Pergelotu, Polar Plant, Rosinweed
Latin name:	Silphium laciniatum
Plant family:	Asteraceae (Aster)
Physical characteristics:	Perennial; towering 4 to 6-foot stalks; 3-inch yellow rayed flowers widely scattered along the stem; 2-foot tall basal leaves are decorative and deeply lobed
Bloom period:	July to August; does not bloom every year
Trivia:	Called compass plant because the leaves line up approximately north to south; this is believed to be a cooling mechanism to avoid the hot afternoon sun; the leaf orientation is not accurate as a compass; a resin exudes naturally from the plant and is an inexpensive substitute for mastic, and is used as a chewing gum to sweeten the breath; pollinated by insects; seeds ripen from August to September
Habitats and possible locations:	Common in prairies; prefers sandy, loamy and clay soils; can grow in semi-shade (light woodland) or no shade; requires moist soil

Common name: **Grayhead Coneflower**

Other common names: Gray-headed Coneflower, Grey-Headed Coneflower, Grayhead Coneflower, Prairie Coneflower, Drooping Coneflower, Globular Coneflower, Yellow Coneflower, Pinnate Prairie Coneflower, Grayhead Prairie Coneflower, Globular Coneflower

Latin name: Ratibida pinnata

Plant family: Asteraceae (Aster)

Physical characteristics: Perennial; blooms second season and successive seasons; grows 3 to 5 feet tall; is distinguished by its bright yellow flowers with dramatically drooping petals; often called the gray-head coneflower for its gray seed head

Bloom period: June through mid-August

Trivia: Seed head has strong scent and was used like cedar chips by pioneers

Habitats and possible locations: Prairies and savannas; common on moist to dry prairies and in woodland edges, also roadsides; prefers full sun; grows best in rich loamy, sandy or clay, well-drained soil; establishes well by seed

Common name:	**Partridge Pea**
Other common names:	Annual Seena, Showy Partridgepea, Sleepingplant
Latin name:	Chamaecrista fasciculata
Plant family:	Fabaceae (Bean)
Physical characteristics:	Annual; grows 20 to 36 inches tall; yellow pea-like flower
Bloom period:	July through September
Trivia:	Establishes quickly from seed; reseeds itself; seeds have high dormacy; useful nurse crop while perennials are establishing
Habitats and possible locations:	Prefers sandy, loamy and clay soils; prefers sun, can grow in semi-shade (light woodland)

Common name: **Stiff Goldenrod**

Other common names: Hardleaf Goldenrod, Rigid Goldenrod, Gray Goldenrod, Hard-leaved Goldenrod

Latin name: Solidago rigida

Plant family: Asteraceae (Aster)

Physical characteristics: Perennial; tall, 3- to 5-foot plant; yellow flower in a large flat-topped or domed cluster; stems are unbranched; basal leaves are much larger than the upper stem leaves; leaves are gray-green color; seed matures in October, and tends to remain in the seed head for several weeks afterwards

Bloom period: July into October

Trivia: No known edible uses; both the roots and flowers were used medicinally by Native Americans; Thomas Edison hoped to make a rubber substitute from the rubbery sap of the goldenrod; usefulness of the plant to countless birds, butterflies and other insects is significant; mustard, orange and brown dyes can be obtained from the whole plant; pollinated by insects

Habitats and possible locations: Prefers sandy, loamy and clay soils; commonly found in dry or gravelly open woods, thickets and prairies; can grow in a wide range of soils, but needs full sun

Common name:	**Illinois Bundleflower**
Other common names:	Prairie Bundle-flower, Prairie Bundleflower, Illinois Bundle Flower, Prairie Mimosa, Fake Sensitive Plant, Pickleweed, Rattle Box
Latin name:	Desmanthus illinoensis
Plant family:	Fabaceae (Bean)
Physical characteristics:	Perennial; grows 3 to 4 feet in height; produces a flat sickle-shaped pod that persists into winter; leaves are sensitive to touch; flowers have white petals with yellow anthers
Bloom period:	June through August
Trivia:	Cooked seed is rich in protein, but without much flavor; a leaf tea has been used in the treatment of itchy skin; Native Americans used seed pods as rattles to entertain babies; it is being studied as a potential perennial forage crop
Habitats and possible locations:	Native to prairies, river banks and fields; prefers sandy, loamy and clay soils; requires moist, well-drained soil; cannot be grown in the shade

Common name: **Showy Goldenrod**
Other common names: Noble Goldenrod
Latin name: Solidago speciosa
Plant family: Asteraceae (Aster)
Physical characteristics: Perennial; yellow-colored flowers; considered the prettiest of the Goldenrods; this U.S. native plant forms large golden plumes 4 to 12 inches long on single stalks that reach a height of 2 to 4 feet; forms tight clumps of leafy, red-tinged stems crowned with dense, elongated flower clusters
Bloom period: August through October
Trivia: Insect pollinated so does not cause hay fever; the bright yellow flowers attract butterflies, hummingbirds and honeybees; Goldfinches and other small birds feed on its seeds
Habitats and possible locations: Prefers full sun and well-drained sandy or loamy soil; more prolific in moist soil; occurs naturally in tall grass prairies, meadows and savannas

Common name: **Prairie Phlox**
Other common names: Ozark Prairie Phlox, Downy Phlox
Latin name: Phlox pilosa
Plant family: Polemoniaceae (Phlox)
Physical characteristics: Perennial; plants can have one to several stems and reach heights of a foot or more; stems have fine hairs; spear-shaped leaves are about 2 inches long; five-petaled, pink, white or purplish flowers are about 3/4 inch wide and grouped in a cluster atop the main stem
Bloom period: May through July
Trivia: The generic name Phlox is Greek for flame, as most phloxes have bright red-to-purple flowers; prairie phlox was first described for science by the Swedish father of plant taxonomy, Carl von Linne in his monumental *Species Planarum* of 1753; seed is difficult to collect and therefore expensive
Habitats and possible locations: Most commonly found in native prairie, open woods, thickets and old railroad grades; best grown in average, medium wet, well-drained soil in full sun; prefers sandy or clay soils; used in roadside plantings because it has showy spring color, but to a limited extent

Common name: **Dame's Rocket**

Other common names: Sweet Rocket, Dame's Violet, Dame's-rocket, Dammask Violet, Garden Rocket, Maternalise, Mother-of-the-evening, Violette

Latin name: Hesperis matronalis

Plant family: Brassicaceae (Mustard)

Physical characteristics: Short-lived perennial, often grown as a biennial; grows 2 to 3 feet high by 1.5 feet wide; purplish-white flowers have four petals and are very aromatic with a clove-like fragrance, especially apparent in the evening

Bloom period: May through August

Trivia: An essential oil from the seed is used in perfumes and cultivated for this purpose; the genus name, Hesperis, is Greek, meaning evening, referring to the plant's unique characteristic of filling the night with its sweet fragrance; pollinated by bees, flies, moths and butterflies; noted for attracting wildlife; a very ornamental plant; introduced species; parts of the plant are edible in certain stages

Habitats and possible locations: Found in woodland edges, meadows and hedges; prefers sandy, loamy and clay soils; requires well-drained soil; can grow in semi-shade to full sun; prefers moist soil; used in some roadside plantings for its showy flowers and quick establishment by seed

Common name:	**Wild Rose**
Other common names:	Brier Rose, Iowa Wild Rose
Latin name:	Rosa spp.
Plant family:	Rosaceae (Rose)
Physical characteristics:	A deciduous shrub; grows 2 to 3 feet tall; scented, pink flowers with yellow centers
Bloom period:	June to July
Trivia:	Wild Rose is Iowa's official state flower; scented pink flowers are pollinated by bees, flies, beetles, moths and butterflies; fruit attracts many species of birds; bright red fruits are called "hips"; fruit is edible raw or cooked; fruit is very rich source of vitamins and minerals, especially vitamins A, C and E; fairly good source of essential fatty acids; can be used in making jams and syrups; syrup used as a nutritional supplement, especially for babies; fruit can be dried and used as a tea; seed can be ground and mixed with flour or added to other foods as a supplement; dried leaves are used as a tea and coffee substitute; petals eaten as a vegetable in China and make an unusual scented jam; the syrup made from the hips is used as a pleasant flavoring in medicines and is added to cough mixtures
Habitats and possible locations:	Occurs naturally in hedges, scrub, woods, roadsides and banks; prefers sandy, loamy and clay soils; requires well-drained soil; can grow in semi-shade to full sun; requires moist or wet soil; Wild Rose does not transplant well, but grows from seed

Common name: **Spiderwort**
Other common names: Ohio Spiderwort, Bluejacket
Latin name: Tradescantia ohiensis
Plant family: Commelinaceae (Spiderwort)
Physical characteristics: Perennial; can reach 2 to 4 feet in height; leaves are up to 16 inches long and 2 inches wide; flowers are blue to lavender, sometimes (rarely) white; three-petaled flowers open first thing in the morning and close tight by early afternoon; the distinctive blue hairs are the stamens, these hairs are blue even on the rare white flowered plants; by August the plants have set seed and are not easily visible
Bloom period: May through July; blooms continuously for several weeks
Trivia: Plants in this genus seem to be immune to the predator nature of rabbits; crushed leaves were used on insect bites and stings
Habitats and possible locations: Occurs naturally in open woods, prairies and savannas; tolerates most moisture conditions in loamy/sandy soil; grows best in light to moderate shade for dark green foliage or in full sun for more flowers; easy to establish by seed; makes a good garden plant

Common name:	**Hoary Vervain**
Other common names:	Hairy Blue Vervain, Hoary Verbena, Wooly Vervain
Latin name:	Verbena stricta
Plant family:	Verbenaceae (Vervain)
Physical characteristics:	Perennial; grows from 2 to 3 feet in height; violet-blue flowers open progressively up stalk, tubular, two-lipped and dropping soon after opening; square stem; hairy
Bloom period:	Mid-June to early September
Trivia:	A tea-like beverage has been made from the leaves; pollinated by bees, flies, moths and butterflies
Habitats and possible locations:	Plant prefers sandy, loamy and clay soils; requires well-drained, but moist soil in a sunny location; common on mesic to dry prairies, pastures, roadsides and other dry open places; establishes easily by seed

Common name: **Leadplant**
Other common names: Lead Plant, Buffalo Bellow Plant
Latin name: Amorpha canescens
Plant family: Fabaceae (Bean)
Physical characteristics: Perennial; deciduous shrub; may reach 40 inches in height; green leaves; beautiful dark purple or violet flowering spikes with orange centers; an individual spike may contain 50 to 100 flowers
Bloom period: Late June and in July; flowers persist for several weeks
Trivia: Gets its colloquial name from the gray appearance caused by fine hairs that cover the leaves, stems and unopened flower; the generic name Amorpha stems from the Greek word “amorphosa” meaning without shape, or deformed, in reference to the absence of four of the five petals normally found in plants in the bean family; the species name canescens means becoming gray in botanical Latin; leadplant was first described by German botanist Frederick Pursh in 1814; there is an old belief that the plant was an indicator of lead ore deposits; leadplant and the other Amorphas have been used medicinally by Native Americans who called it buffalo bellow plant because its bloom coincided with the rutting of bison
Habitats and possible locations: Occurs in a variety of habitats, including dry plains, hillsides, prairies, open woodlands, ravines and roadsides; requires well-drained soil; thrives in sandy to silt-textured soils

Common name:	**Pale Purple Coneflower**
Other common names:	Echinacea, Coneflower, Pale Kansas Snakeroot, Pale Purple-coneflower, Pale Coneflower
Latin name:	Echinacea pallida
Plant family:	Asteraceae (Aster)
Physical characteristics:	Perennial; grows from 2 to 4 feet high by 2 feet wide; narrow lanceolate leaves; lavender flowers; narrow rays have notches at tips
Bloom period:	Mid-summer (June through July) through frost
Trivia:	Pollinated by insects; is grown commercially for medicinal uses
Habitats and possible locations:	Native on dry to mesic soils on prairies and barrens; plant prefers well-drained sandy, loamy and clay soils; requires full sun

Common name: **Purple Coneflower**

Other common names: Black Sampson, Coneflower, Narrow-leaved Coneflower, Eastern Purple Coneflower, Eastern Purple-coneflower, Kansas Snakeroot, Missouri Snakeroot

Latin name: Echinacea purpurea

Plant family: Asteraceae (Aster)

Physical characteristics: Perennial; grows from 3 to 4 feet tall; flower is large, daisy-like with swept back, reddish-purple rays; rays are wider and shorter than Pale Purple Coneflower; lower leaves are wider than Pale Purple Coneflower, tapering with rough teeth

Bloom period: July through August

Trivia: Pollinated by insects

Habitats and possible locations: Occurs naturally in dry open woods, prairies and barrens; prefers sandy and loamy soils; requires dry or moist, well-drained soils; prefers full sun to partial shade; easy to grow in gardens; used in butterfly gardens; native in southern Iowa

Common name:	**Purple Prairie Clover**
Other common names:	Purple Prairieclover, Purple-tassels, Thimble-weed, Violet Prairie-clover, Violet Prairieclover, Gattinger's Prairie-Clover
Latin name:	Dalea purpurea (formerly Petalostemum purpureum)
Plant family:	Fabaceae (Bean)
Physical characteristics:	Upright perennial; plant can reach 1 to 3 feet in height; lavender-purple flowers are concentrated on slender cones at the end of wiry stems; the stems, leaves and flowers are dotted with glands, making the plant look blistered
Bloom period:	May through September
Trivia:	An excellent high protein forage for livestock, but does not tolerate overgrazing
Habitats and possible locations:	Plant prefers sandy and loamy soils; grows in dry or moist, well-drained soil in full sun; habitat includes glades and other open limestone areas; used in roadside plantings for nitrogen fixing properties; establishes well from seed with special treatment; does not transplant well due to deep tap root

Common name: **Wild Bergamot**

Other common names: Eastern Beebalm, Horsemint, Beebalm

Latin name: Monarda fistulosa

Plant family: Lamiaceae (Mint)

Physical characteristics: Perennial; growing from 3 to 4 feet in height by 5 feet wide; forms upright clumps; lavender flowers in globes, pleasantly scented member of the mint family; square stem; opposite leaves with magenta-tinged undersides

Bloom period: July through September

Trivia: Plant is noted for attracting bees, butterflies and hummingbirds; leaves are edible raw or cooked; entire plant above ground level can be used as an herb; used as a flavoring in salads and cooked foods; flowers make an attractive edible garnish in salads; fresh or dried leaves are brewed into a refreshing, aromatic tea; often employed medicinally by several native North American Indian tribes who used it to treat a variety of complaints; the plant contains an essential oil, bergamot oil, which can be inhaled to treat bronchial complaints; in cosmetics, bergamot oil is used in preventing oily skin, acne and psoriasis; the oil, or constituents of it, are sometimes added to sun-tanning oils; the leaves have also been used as an insect repellant

Habitats and possible locations: Occurs naturally in prairies and woodland edges; prefers sandy, loamy and clay soils; prefers a sunny location, though it can succeed in light shade; grows in dry or moist soil

Common name:	**Swamp Milkweed**
Other common names:	Incarnate Swallowwort, Red Milkweed, Swamp Silkweed, Marsh Milkweed
Latin name:	Asclepias incarnata
Plant family:	Asclepiadaceae (Milkweed)
Physical characteristics:	Perennial; grows from 3 to 4 feet in height; its rounded clusters of pink/red flowers grow from smooth-stemmed branches; plant grows quickly; a very ornamental plant; stems have a milky sap
Bloom period:	July through August
Trivia:	**Caution: leaves and stems may be poisonous;** unopened flower buds are edible cooked, tasting somewhat like peas and can be dried and stored for later use; a good quality fiber is obtained from the bark and is used in twine and cloth; the seed floss is used to stuff pillows and mixed with other fibers to make cloth; it is water repellent and used in life jackets as a stuffing material; rubber can be made from latex contained in the leaves and stems; pods contain an oil and a wax; pollinated by bees, insects, moths and butterflies; the flowers are very attractive to butterflies with several different species of butterflies often feeding on its nectar at once; one of the favorite host plants for the Monarch butterfly caterpillar
Habitats and possible locations:	Native to swamps, wet thickets and shores; often found in roadside ditch bottoms; prefers sandy and loamy soils; can grown in semi-shade or sun; requires moist or wet soil

Common name:	**Blue Vervain**
Other common names:	Simpler's Joy, Simpler's-joy, Swamp Verbena
Latin name:	Verbena hastata
Plant family:	Verbenaceae (Vervain)
Physical characteristics:	Perennial; grows from 3 to 5 feet in height; blue-purple flowers on 1-to 4-inch spikes with three to seven spikes branching from the top of the stem; opposite leaves; toothed, square stem
Bloom period:	July through September
Trivia:	Pollinated by bees, flies, moths, and butterflies
Habitats and possible locations:	Native to damp thickets, moist prairies and shores; prefers sandy, loamy and clay soils; requires moist, well-drained soil and full sun; commom in road ditches

Common name:	**Ironweed**
Other common names:	Broad-leaf Ironweed, Broadleaf Ironweed
Latin name:	Vernonia fasciculata
Plant family:	Asteraceae (Aster)
Physical characteristics:	Perennial; grows from 4 to 6 feet in height; purple-magenta flowers in rounded clusters; long, narrow leaves
Bloom period:	July to August
Trivia:	Pollinated by insects
Habitats and possible locations:	Native to sunny edge of rich woods and wet prairies; prefers sandy, loamy and clay soils, and full sun; requires moist soil; another species, Vernonia baldwinii (Baldwin's ironweed), is more common in southern and western Iowa–it grows on medium to dry soil

Common name:	**Prairie Blazing Star**
Other common names:	Kansas Gayfeather, Button Snakeroot, Tall Blazing Star
Latin name:	Liatris pycnostachya
Plant family:	Asteraceae (Aster)
Physical characteristics:	Perennial; grows 3 to 5 feet tall in spikes of dense, violet-lavender to rosy purple flower heads (each 3/4" across); the light green spikes first turn purple, then flowers generally open top to bottom on the spikes; leaves are grass-like and about 4 inches long; short stiff hairs are on both the leaves and stem
Bloom period:	Late July to late August
Trivia:	Prairie Blazing Star is perhaps the tallest Liatris species in cultivation, growing to 5 feet; a magnet for butterflies, birds and honeybees; difficult to establish from seed; container-grown transplants are often used
Habitats and possible locations:	Occurs naturally in wet prairies and savannas; prefers well-drained, fairly wet soils and full sun; grows best in clay or loam

Common name:	**New England Aster**
Latin name:	Aster novae-angliae
Plant family:	Asteraceae (Aster)
Physical characteristics:	Perennial; grows from 2 to 5 feet in height; spread 3 to 4 feet; very showy, large rosy-lilac to deep purple flowers with distinct yellow centers; flowers are 1 to 2 inches in diameter; leaves are distinctive, clasping stem; they are 1 to 5 inches long, toothless, narrow and lanceolate-shape
Bloom period:	August to October
Trivia:	The leaves, when crushed, release an aroma similar to turpentine; pollinated by bees, flies, beetles, moths, and butterflies; noted for attracting wildlife; pinching helps keep plant from becoming top-heavy
Habitats and possible locations:	Grows in sandy, loamy and clay soils; requires well-drained, moist soil; grows in semi-shade and sun; easy to grow in gardens

Common name: **Smooth Blue Aster**
Other common names: Smooth Aster
Latin name: Aster laevis
Plant family: Asteraceae (Aster)
Physical characteristics: Perennial; has numerous spreading flower branches with 1-inch flowers on long stalks; flowers have deep blue to lavender/light blue petals, surrounding a yellow disk; normally grows 1 to 3 feet tall, but can grow up to 5 feet tall in rich soil; stalk is smooth; leaves are smooth, alternate and slightly clasping, becoming smaller toward top
Bloom period: September
Trivia: Appealing to butterflies
Habitats and possible locations: Naturally occurring in dry to mesic prairies and savannas; grows in dry to moist, well-drained sand, loam or clay soil; grows best in full sun; establishes easily from seed

Common name:	**Big Bluestem**
Other common names:	Turkey Claw, Turkey Feet, Beard Grass, Big Bluestem Grass, Red Hay
Latin name:	Andropogon gerardii
Plant family:	Poaceae (Grass)
Physical characteristics:	Perennial warm season grass; flowering stalk from 3 to 6 feet tall, but occasionally up to 9 feet; young shoots are flattened at base, and lower leaves and sheaths are covered with silky hairs; leaves turn bronze in the fall; after frost, this grass turns light reddish purple with head resembling the foot of a bird (turkey-foot is another common name); flowering stems rise above the foliage clump bearing purplish, three-parted, finger-like flower clusters (to 4 inches long)
Bloom period:	Late summer
Trivia:	Official prairie grass of the State of Illinois; a very ornamental plant; this type of grass was an important food for the American bison; seed has high dormacy; good quality livestock forage
Habitats and possible locations:	Occurs in dry soils, prairies, open ground and open woods; prefers sandy, well-drained soils; cannot grow in the shade; requires dry or moist soil

Common name: **Little Bluestem**

Other common names: Pinehill Bluestem, Prairie Beardgrass, Broom Beardgrass, Small Feathergrass, Seacoast Bluestem, Wiregrass, Broom

Latin name: Andropogon scoparius

Plant family: Poaceae (Grass)

Physical characteristics: Perennial; warm season bunchgrass; grows 2 to 4 feet tall with coarse stems and basal leaves; leaves are smooth, but frequently covered with hair at the base; tan flowers; fruiting begins in early August and fruits begin dropping in mid-September

Bloom period: Mid-July to late August

Trivia: The scientific name “scoparius” comes from a Greek word meaning broom-like, referring to the stiffly bunched stems; it is easily mistaken for common broomsedge; provides habitat and food for birds and mammals; domestic and wild animals prefer to eat little bluestem when the plant is very young and green, after it has reached maturity the plant is very coarse and animals will not eat it; it is often burned to encourage more palatable new growth; with its blue-green leaves during the growing season and attractive rusty color with white fluffy seed heads; in the fall little bluestem is used in ornamental plantings; serves as a host to several Skipper butterflies

Habitats and possible locations: The most widely distributed native grass in North America; will grow on a wide variety of soils, but is very well adapted to well-drained, medium to dry, infertile soils; common on dry prairies to loess prairies; native to North America’s tall and short grass prairies; will grow in full or partial sun

Common name:	**Indiangrass**
Other common names:	Indian grass
Latin name:	Sorghastrum nutans
Plant family:	Poaceae (Grass)
Physical characteristics:	Perennial; warm season bunch grass; 3 to 5 feet tall with flowering spikelets of a yellow-brown color; even as a young plant it can be distinguished from other native grass species by the rifle-sight ligule at the point where the leaf attaches to the stem
Bloom period:	Growth starts in mid-spring from short, scaly rhizomes; seed heads form in late August and September
Trivia:	Often compared to the feathers of an American Indian headdress; Indiangrass is relished by all livestock; it provides high-quality forage; very good for nesting and rearing areas of wildlife
Habitats and possible locations:	Common on mesic prairies; also on dry and moist prairies, roadsides and open places; best adapted to deep, moist soils from heavy clays to deep sands; an important component of native prairie meadows prefers sunny conditions; fields of Indiangrass benefit from being burned every three to five years to reduce residue and decrease competition from woody plants; attractive heads make it an excellent choice for landscaping and beautification projects; a major component of the tall grass vegetation which once dominated the prairies of Iowa

Common name: **Sideoats Grama**

Other common names: Side-oats grama, Prairie Grama, Mesquite Grass, Tall Grama Grass

Latin name: Bouteloua curtipendula

Plant family: Poaceae (Grass)

Physical characteristics: A medium-size, native warm season perennial bunchgrass; reaches 15 to 30 inches tall, or occasionally taller; the largest and most coarse of the grama grasses; has a bluish-green color with a purplish cast; matures to a reddish-brown or straw color; leaves are coarser than other species of gramas, straight and stiff; 10 to 30 small spikes are born mostly along one side of each central seed stalk, these spikes drop when mature; characterized by oat-like seeds that hang down one side of seed stem

Bloom period: Mid-June to early July

Trivia: One of the most important range grasses for all types of animals; furnishes some forage for deer when green; official grass of the state of Texas

Habitats and possible locations: Found on rocky open slopes, woodlands and forest openings; also common on dry prairies and loess prairies; prefers fine-textured soils and sunny locations; its long root system will penetrate deeply into the underlying areas of drier, subsurface soil, which then reduces the plant's dependency on the changeable moisture levels of the topsoil; will tolerate full or partial sun; fruiting begins in early July and fruits begin dropping in mid-August; a fair to good plant for erosion control on highway slopes and steep areas when mixed with other plants naturally associated with it

Common name:	**Prairie Dropseed**
Other common names:	Northern Dropseed, Meadow Dropseed
Latin name:	Sporobolus heterolepsis
Plant family:	Poaceae (Grass)
Physical characteristics:	Perennial; warm-season bunch grass; grows from 2 to 3 feet tall; has stout, erect stems with spikelets in a panicle; leaves are narrow and fold back to look almost thread-like; the leaves cascade in fountain-looking clumps that can be 3 feet in diameter; in the fall, the leaves twist as they dry, creating an interesting texture to accompany the straw-reddish-bronze foliage color; growth begins in late spring; grains begin falling from the spikelets in late September
Bloom period:	August to September
Trivia:	Beautiful ornamental grass; compared to other grasses, prairie dropseed is fair in forage value for livestock and poor for wildlife, but provides good habitat for ground nesting birds
Habitats and possible locations:	Found on dry to mesic prairies; another species, Tall dropseed (S. aspera) is more common on sandy or rocky soils in prairies and roadsides

Common name: **Canada Wildrye**

Other common names: Canada Wild Rye, Nodding Wild Rye, Texas Wild Rye, Texas Wildrye, Smoothscale Canada Wildrye

Latin name: Elymus canadensis

Plant family: Poaceae (Grass)

Physical characteristics: A cool-season, native grass; short-lived perennial bunch grass; plant grows from 3 to 4 feet high; wide, curling leaf blades sit at a 45° angle to the stem; pollinated by the wind; flower color is brown; heads are 4 to 6 inches long, with long awns resembling wheat or barley, and dropping or nodding when mature; greenish bloom color; seeds ripen from September to October

Bloom period: July to September

Trivia: Plant has ornamental value; dried seed heads are used in flower arrangements; seed is edible cooked, can be ground into a flour and used to make bread; seed was an important item of food for the Paiute Indians of south-western North America; no known medicinal uses

Habitats and possible locations: Prefers moist sites; has some shade tolerance and will grow in sandy soil; makes a good companion in a prairie mixture; good for erosion control; typically occurs on disturbed sites in open woods, prairies, fields and stream banks

Chapter 5: Trees

A. Tree planting philosophy and benefits

Iowa's highways traverse many kinds of landscapes: from urban to rural; from prairie and savanna to forests; and from dry, upland sites to rivers and wetlands. Designers use a variety of planting styles to help the highway visually blend into the surrounding landscape or improve aesthetics and safety. Trees are often planted to add visual variety to the landscape, thus breaking up the "highway hypnosis" effect. Trees are also planted to help control blowing and drifting snow, screen unsightly views both to and from the highway, frame interesting views, or delineate curves and other changes in the highway alignment.

When the DOT impacts woodlands and wooded wetlands with highway projects, it mitigates those impacts with new tree plantings and/or preserving existing woodlands.

B. Definition

It is sometimes difficult to categorize a plant as a tree or a shrub. Sometimes species appear tree-like under favorable environmental conditions, but shrub-like in other areas. For this publication, a tree has been defined as a plant with a single woody stem with a mature diameter of not less than 2 inches and height of at least 15 to 20 feet.

All species of broadleaf trees, except the ginkgo, produce flowers sometime during the growing season, generally in the spring. The most colorful blossoms are usually found on the smallest trees. Most large trees have tiny, inconspicuous flowers that few people notice, with some exceptions, such as catalpa and tulip trees.

C. Tree planting styles

The following is a brief look at some of the more common tree planting styles.

Formal Style Plantings

This is where the plant materials are planted in evenly spaced, straight lines or rigid geometric shapes. This style is often used in urban areas where the planting area is very narrow or the designer is trying to define a space or create an image. This style generally requires a higher level of maintenance because if a plant dies or is replaced, it is obvious to the viewer.

Informal Planting Style

Informal planting is where plant materials are randomly spaced, either individually or in groups. This style gives a natural, park-like look to the landscape. One of the benefits of this style is that if a plant dies or is removed, it is not obvious to the viewer.

Forestation Style

This is where large numbers of trees (often seedlings) are planted tightly together in closely spaced rows. This is a technique used by foresters to establish tree stands with strong, straight trunks. It is a very economical way for planting and early maintenance. The idea is to return to the planting after a number of years and strategically thin the stand by removing selected trees to give it the desired look.


Formal


Informal


Forestation

Photo courtesy of Paul Wray,
Iowa State University, forestryimages.com

Common name:	**Green Ash**
Latin name:	Fraxinus pennyslvanica
Plant family:	Oleaceae (Olive)
Physical characteristics:	A deciduous tree; grows at a fast rate to 60 feet tall by 20 to 30 feet wide; long-lived (100-150 years); bark is gray with diamond-shaped furrows; branches are opposite; flowers are dioecious (individual flowers are either male or female, but only one sex is to be found on any one plant); pollinated by the wind; dark green summer leaves that change to golden-yellow in the fall; seeds ripen in October
Bloom period:	May
Trivia:	Inner bark is edible cooked; it is said to taste like eggs; inner bark can also be dried, ground into a powder and then used as a thickening in soups or mixed with cereals when making bread; a red dye can be extracted from the bark; wood is hard, tough, elastic and coarse-grained; used for making tool handles and furniture
Habitats and possible locations:	Adaptable; prefers sandy, loamy and clay soils; cannot grow in the shade; requires well-drained, moist soil; resists drought; can tolerate strong winds and atmospheric pollution; natural habitat includes stream banks, floodplains and wet upland sites; used in roadside plantings extensively for fast growth, adaptability and striking fall color

Common name: **White Ash**

Other common names: Ash, Biltmore Ash, Biltmore White Ash

Latin name: Fraxinus americana

Plant family: Oleaceae (Olive)

Physical characteristics: The largest of all Ash trees; some grow 70 to 80 feet tall and the trunks 2 to 3 feet in diameter; those that grow in a forest grow to 120 feet tall and the trunks can be 6 feet in diameter; leaves are 8 to 12 inches long and have 6 to 9 leaflets; leaves are dark green; twigs are stout, smooth, shiny, dark-green to purplish-green; bark is dark-grey or brownish, deeply ridged; wing-shaped seed dispersed by the wind; the minimum seed-bearing age is 20 years; flowers are purplish-red

Bloom period: Flowers appear with or just before the leaves in April and May

Trivia: White Ash is used for skis, long tool handles, baseball bats, and any item where the wood has to be bent into shape; the White Ash gets its name from its bark; seeds are eaten by the wood duck, purple finch and squirrel

Habitats and possible locations: Will grow in all types of soils, but prefers well-drained, fertile sites; found naturally either as a single tree or with a group of other hardwoods; grows well in residential areas

Photo inset courtesy of Paul Wray, Iowa State University, forestryimages.com

Common name: **Northern Catalpa**
Latin name: Catalpa speciosa
Plant family: Bignoniaceae (Bignonia or Trumpet Creeper)
Physical characteristics: A medium-sized deciduous tree growing 40 to 60 feet tall, and half again as wide; pollinated by bees; a very fast-growing tree in the wild, where it commences to flower when about 15 years old; seeds ripen in October; flowers are hermaphrodite (have both male and female organs)
Bloom period: May to June; flowering is cyclic, with large crops of seeds being produced every two to three years
Trivia: No known edible or medicinal uses; wood is soft, coarse-grained and very durable in the soil; it is largely used for fence posts, rails and telephone poles; used occasionally for making furniture and the interior finish of buildings; a very valuable timber tree in North America
Habitats and possible locations: Natural habitat includes borders of streams and fertile, often inundated, bottomlands and woods; prefers sandy, loamy and clay soils; cannot grow in the shade; requires a moist soil; can tolerate atmospheric pollution

Common name: **Eastern Red Cedar**

Other common names: Red Cedar, American Juniper, Cedar Apple, Cedarwood, Virjinya Ardici

Latin name: Juniperus virginiana

Plant family: Cupressaceae (Cedar)

Physical characteristics: Red cedar is an evergreen growing 20 to 40 feet tall and spreading 8 to 12 feet when given a sunny location; grows at a slow rate; in leaf all year; pollinated by the wind; seeds ripen in October; scented flowers are dioecious (individual flowers are either male or female, but only one sex is to be found on any one plant, so both male and female plants must be grown if seed is required)

Bloom period: April to May

Trivia: Essential oil from the berries used in aromatheraphy; essential oil obtained from the wood is used in soaps, as an insecticide and moth repellent, a deodorant, and in polishes; bark has been used to make mats; leaves are used as an incense and are either burnt or crushed and then scattered around as an insect repellent; the reddish wood is highly prized for cabinet making, it is also used for fencing and the casing of lead pencils; its thick growth makes this one of the most popular windbreak trees

Habitats and possible locations: Prefers sandy, loamy and clay soils; requires well-drained soil; cannot grow in the shade; requires dry or moist soil and can tolerate drought; natural habitat includes dry, rarely wet, open woods and rock slopes, often on limestone

Common name:	**Adams Crabapple**
Latin name:	Malus “Adams”
Plant family:	Rosaceae (Rose)
Physical characteristics:	Deciduous tree; height 20 feet; spread 20 feet; dense, rounded shape; green foliage, with red tint in spring; persistent, red fall fruits; moderate growth rate; pink flowers
Bloom period:	Early spring to mid spring
Habitats and possible locations:	Are adapted to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun

Common name:	**Beverly Crabapple**
Latin name:	Mallus “Beverly”
Plant family:	Rosaceae (Rose)
Physical characteristics:	Height 20 feet; spread 20 feet; upright, spreading, rounded shape; light green, delicate foliage; pink buds open to white single flowers; bright red fruit; deep green foliage all summer; pink buds open to white flowers
Bloom period:	April through May
Habitats and possible locations:	Are adapted to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun

Common name:	**Donald Wyman Crabapple**
Latin name:	Malus “Donald Wyman”
Plant family:	Rosaceae (Rose)
Physical characteristics:	Deciduous tree with a moderate growth rate; small bright red fruit is among the most persistent of all crabapples, persists well into winter; birds eat fruit in winter; single, white, showy flower; attractive exfoliating bark; height 20 feet; spread 24 feet; rounded shape; dark green foliage, turning yellow in the fall; glossy clean foliage gives tree a fresh appearance all summer; buds are pink; usually flowers every other year
Bloom period:	April through May
Habitats and possible locations:	Are adapted to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun for best flowers and fruit; tolerant to sun, drought and atmospheric pollution

Common name:	**Indian Magic Crabapple**
Latin name:	Malus “Indian Magic”
Plant family:	Rosaceae (Rose)
Physical characteristics:	Deciduous tree; height 15 feet; spread 15 feet; persistent, glossy red changing to golden orange, 1/2 inch fruit; deep pink, single flower; green leaves with an apricot-orange fall foliage; attractive bark; rounded, upright and spreading structure; moderate growth rate
Bloom period:	April through May
Habitats and possible locations:	Adaptable to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun

Common name:	**Zumi Calocarpa**
Latin name:	Malus Zumi Calocarpa
Plant family:	Rosaceae (Rose)
Physical characteristics:	Deciduous tree with a moderate growth rate; 15 to 20 feet tall by 15 to 20 feet wide; a good, strong growing crab; rounded spreading form; persistent red fruit, 3/8-inch; dense, dark green foliage turning orange and yellow in fall; good disease resistance; among the best crabapples for streets; single, pink buds open to large white blossoms
Bloom period:	May
Habitats and possible locations:	Are adapted to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun for best flowers and fruit

Common name: **Ormiston Roy Crabapple**
Latin name: Malus “Ormiston Roy”
Plant family: Rosaceae (Rose)
Physical characteristics: Deciduous tree with a moderate growth rate; deep-furrowed gray bark; attractive fruit display in fall; 15 to 25 feet tall by 10 to 20 feet wide; upright when young, becomes more round and spreading with age; green leaves; yellow-orange, showy fruit in fall, small but abundant fruits are long-lasting; has pale pink to white flowers 1-2 inches across, with orange-yellow fruit lasting until the following March and providing excellent winter bird food; buds are red
Bloom period: April and May
Trivia: The original tree was found in Des Moines, Iowa, in 1933
Habitats and possible locations: Are adapted to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun for best flowers and fruit

Common name:	**Prairie Fire Crabapple**
Other common names:	Prairie Fire Crabapple
Latin name:	Malus “Prairie Fire”
Plant family:	Rosaceae (Rose)
Physical characteristics:	Deciduous, medium-sized crabapple with a moderate growth rate; 20 feet tall by 12 to 15 feet wide; persistent, purple-red fruit in fall, 2 inches in size; red-tinged foliage; orangish fall foliage; upright, spreading, becoming rounded structure; one of the best red-leafed crabapples; attractive reddish bark; bold red buds open into red-pink blossoms
Bloom period:	April and May
Habitats and possible locations:	Adaptable to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun for best flowers and fruit

Common name: **Professor Sprenger Crabapple**
Latin name: Malus “Professor Sprenger”
Plant family: Rosaceae (Rose)
Physical characteristics: Height 20 feet; spread 20 feet; upright, spreading structure;green foliage; persistent orange-red, 2-inch fruit; pink buds open to white, single flowers
Bloom period: April to May
Habitats and possible locations: Are adapted to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun

Common name: **Snowdrift Crabapple**
Latin name: Malus “Snowdrift”
Plant family: Rosaceae (Rose)
Physical characteristics: Deciduous tree with a fast growth rate; height 15 to 20 feet by 15 to 20 wide; rounded and dense form; green, attractive, glossy foliage; orange-red, small, less than 3/8-inch, fruit appears in early fall and persists into the winter; one of the most popular crabs; the crown is very uniform and symmetrical, making it one of the more formal looking crabs; numerous, bright white flowers with pleasant fragrance adorn the tree; flowers profusely every year; buds are red
Bloom period: April and May
Habitats and possible locations: Adaptable to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun for best flowers and fruit

Common name: **Sugar Tyme Crabapple**
Latin name: Malus “Sugar Tyme”
Plant family: Rosaceae (Rose)
Physical characteristics: Deciduous tree with a fast growth rate; 15 to 20 feet tall by 10 to 15 feet wide; upright, spreading, oval shape; green foliage; red, 1/2-inch abundant, persistent fruit; fragrant, white, showy flowers
Bloom period: April and May
Habitats and possible locations: Adaptable to a wide range of soil types, including heavy loams; soil should be well-drained; prefers full sun for best flowers and fruit

Common name:	**Washington Hawthorn**
Other common names:	Washington Hawthorne, Washington Thorn
Latin name:	Crataegus phaenopyrum
Plant family:	Rosaceae (Rose)
Physical characteristics:	Deciduous tree growing to 20 to 25 feet tall; spreads 15 to 25 feet; creates a nearly impenetrable thorny hedge; pollinated by insects; reddish spring foliage, dark green in summer, orange-red in fall; ornamental berries all winter; seeds ripen in October; scented flowers are hermaphrodite (have both male and female organs)
Bloom period:	July
Trivia:	Wood useful for making tool handles, mallets and other small tools
Habitats and possible locations:	Prefers sandy, loamy and clay soils; can grow in heavy clay soil; can grow in semi-shade (light woodland) or no shade; requires moist or wet soil, and can tolerate drought; can tolerate atmospheric pollution; natural habitat includes thickets, open woods and banks of streams in rich soils

Common name: **American Linden**

Other common names: Basswood, Basswood Tree, Lime-tree, Whitewood

Latin name: Tilia americana

Plant family: Tiliaceae (Linden)

Physical characteristics: A deciduous tree; grows to 70 feet at a medium rate; noted for attracting wildlife; moderately long-lived tree, starts producing seed when about 15 years old and continues for at least another 85 years; shape is oval to irregular; leaves dark green above, with a pale green to silvery color underneath; seeds ripen in October; flowers are hermaphrodite (have both male and female organs) and are pollinated by bees

Bloom period: July

Trivia: A tough fiber is obtained from the inner bark that can be used for making thread for sewing, fine yarn for weaving bags, clothing and cordage for making nets, shoes, twine and mats; the white wood is excellent for turning and carving, it is used for making woodenware such as spoons and inexpensive furniture

Habitats and possible locations: Plant prefers sandy, loamy and clay soils; requires moist, well-drained soil; can grow in semi-shade (light woodland) or no shade; can tolerate strong winds, making it ideal for use as part of a shelterbelt planting; natural habitat includes rich, often moist, soils of woods and bottomlands

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Common name:	**Littleleaf Linden**
Other common names:	Lime Tree, Small-leaved Linden, Small-leaved Lime
Latin name:	Tilia cordata
Plant family:	Tiliaceae (Linden)
Physical characteristics:	A deciduous tree growing 35 to 50 feet high and 20 to 30 feet wide at a medium rate; pollinated by bees; noted for attracting wildlife; smaller leaves and a more dense growth than the American Linden; form is pyramidal to oval, becoming broader with age; leaves are dark green, turning yellow or yellow-green in the fall; small, fragrant yellowish flowers; seeds ripen in October; flowers are hermaphrodite (have both male and female organs)
Bloom period:	June to July
Trivia:	A fiber from the inner bark is used to make mats, shoes, baskets and ropes; a charcoal made from the wood is used for drawing
Habitats and possible locations:	Found naturally in woods on most fertile soils, especially limestone; prefers sandy, loamy and clay soils; requires moist, well-drained soil; can grow in semi-shade or no shade; can tolerate strong winds; fairly tolerant of pollution

Common name: **Thornless Honeylocust**

Other common names: Thornless Seedless Locust, Honeylocust, Shademaster Locust, Thornless Common Honey Locust

Latin name: Gleditsia triacanthos var. inermis (“inermis” means unarmed)

Plant family: Fabaceae (Pea)

Physical characteristics: Deciduous tree with no annoying thorns; features upright ascending, then spreading branches that produce an irregularly vase-shaped form and a slightly rectangular outline; foliage is fine textured, medium green; yellow fall color; the flowers are small and fragrant, and the fruits are long, flat pods that spiral and turn brown as they age; grows 40 to 45 feet high by 30 to 35 feet wide; rapid growing tree, grows 2 to 3 feet per year; greenish-yellow bloom color

Bloom period: May and June

Trivia: A superb tree for withstanding city conditions; very popular as a shade tree because leaves are so fine, they break up as they drop in the fall, thus eliminating leaf raking; an excellent street tree, its upright branch structure lends itself to pruning for traffic clearance; the seeds inside the pod look like beans and can actually be roasted and used as a coffee substitute

Habitats and possible locations: Requires full sun and moderate to low water levels; reaches maximum development on rich, moist soil, but it is tolerant of drought, high pH levels, and winter roadway salt

Photo inset courtesy of Paul Wray, Iowa State University, forestryimages.com

Common name:	**Amur Maple**
Other common names:	Maple
Latin name:	Acer ginnala
Plant family:	Aceraceae (Maple)
Physical characteristics:	An excellent, low-growing deciduous tree/shrub; can be grown as a multi-stemmed clump or trained into a small tree with a single trunk up to 4 to 6 feet tall; tree grows about 20 to 30 feet tall and has an upright, rounded, finely branched growth habit that creates dense shade under the crown; it shares the three-lobed leaves of trident maple; leaves are medium green, shiny and rippled on the edges; fruit is red and showy, and persists well into the winter; fall color shows genetic variability, and can be red, yellow, orange, brown or combinations; bark smooth gray; reddish brown buds; whitish-yellow bloom color; flowers are in small clusters and fragrant, attracting bees
Bloom period:	Mid-May through early June
Trivia:	Black, blue and brown dyes are obtained from the dried leaves; has only started to attain popularity as a bonsai
Habitats and possible locations:	Prefers sandy, loamy and clay soils; can grow in semi-shade or no shade; requires moist soil; quite adaptable to roadside soil types; commonly used as a screen

Common name: **Autumn Blaze Maple**
Other common names: Maple
Latin name: Acer x fremanii “Autum Blaze”
Plant family: Aceraceae (Maple)
Physical characteristics: Deciduous tree; a hybrid between Acer rubrum (red maple) and Acer saccharinum (silver maple); combines the best features of both parents, the drought tolerance of silver maple and fall color of red maple; adapts well to poor soils found in roadsides; shape is upright branching, broadly oval, medium green foliage; brilliant orange-red, long lasting fall color; grows to 50 feet tall by 40 feet wide; growth rate is four times faster than the red maple; under good conditions it can grow 3 feet or more per year
Bloom period: N/A
Trivia: Developed by Poplar Farms, Inc. of Batavia, Ill., was chosen Tree of the Year in 1997 by Iowa’s Nursery and Landscape Professionals
Habitats and possible locations: It is adaptable over a wide range of soils and climate conditions; preferring an acidic soil range, wet or dry sites; prefers full sun

Photo inset courtesy of Paul Wray,
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Common name:	**Black Maple**
Latin name:	Acer nigrum
Plant family:	Aceraceae (Maple)
Physical characteristics:	A deciduous tree; grows 60 to 75 feet tall at a slow rate; spreads 50 to 60 feet with a softly rounded, very symmetrical top; long life span; fruit/seed is brown colored; green foliage; the seeds ripen in October; yellow flowers are monoecious (individual flowers are either male or female, but both sexes can be found on the same plant)
Bloom period:	April
Trivia:	The leaves are packed around apples and root crops to help preserve them; wood is close-grained, tough, hard and heavy; wood is used for furniture, ship building and fuel
Habitats and possible locations:	Found naturally in rich alluvial woods and a variety of soil types, near streams and rivers; prefers sandy, loamy and clay soils; requires moist, well-drained soil; can grow in semi-shade or no shade

Common name: **Silver Maple**

Other common names: Bird's Eye Maple, White Maple, Soft maple, River Maple, Silverleaf Maple, Swamp Maple, Water Maple

Latin name: Acer saccharinum

Plant family: Aceraceae (Maple)

Physical characteristics: A deciduous tree; mature trees have reached a height of 90 to 120 feet with a trunk diameter of 36 to 48 inches; average height is 55 feet; grows at a fast rate; a medium-sized tree with quickly branching crown; flowers are hermaphrodite (have both male and female organs) and are pollinated by the wind; tolerates strong winds, but branches are rather brittle and can break off even in minor storms; tolerates atmospheric pollution; may live 125-140 years; the winged seeds are the largest of any of the native maple; an attractive tree with delicate and graceful foliage and often planted as an ornamental; seeds ripen from April to June; flowers are greenish yellow and bloom long before the leaves appear

Bloom period: February to March

Trivia: Stems are used in making baskets; boiled inner bark and twigs yields a brown/black dye; wood is rather brittle, close- grained, hard, strong and easily worked, but not durable; wood has many uses such as veneer, furniture and flooring; seeds are produced in great abundance annually, providing many birds and small mammals with food; buds of silver maple provide a vital link in the food chain of squirrel populations; tree also ranks high as a food source for beavers

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Habitats and possible locations: Prefers sandy, loamy and clay soils; can grow in semi-shade or no shade; requires moist soil; naturally found on the banks of rivers, usually in sandy soils; occasionally found in deep, often submerged swamps

Common name: **Sugar Maple**

Other common names: Bird's Eye Maple, Chalk Maple, Florida Maple, Rock Maple, White Maple

Latin name: Acer saccharum

Plant family: Aceraceae (Maple)

Physical characteristics: A deciduous tree; grows 60 to 75 feet tall by 40 to 50 feet wide at a slow rate; upright and rounded hardy shade tree has dark green foliage turning to a rich yellow to a bright red in fall; seeds ripen from October to December; flowers are hermaphrodite (have both male and female organs); pollinated by insects

Bloom period: April to May

Trivia: Maple syrup is used in cough syrups; wood is close-grained, tough, heavy, strong, and not very durable, but considered by many as the most valuable hardwood tree in North America; the sugar maple is used for a wide range of applications including furniture, flooring, musical instruments and ship building; accidental forms with the grain curled and contorted, known as curly maple and bird's eye maple, are common and highly prized in cabinet making

Habitats and possible locations: Prefers sandy, loamy and clay soils; requires well-drained, moist soil; can grow in semi-shade or no shade; can tolerate atmospheric pollution; naturally found in woodland areas

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Common name: **Bur Oak**
Other common names: Burr Oak, Mossy-cup Oak, Blue Oak, Scrub Oak
Latin name: Quercus macrocarpa
Plant family: Fagaceae (Beech)
Physical characteristics: A large and impressive native Iowa tree with a thick truck and stout branches; grows to 55 feet tall by 45 feet wide at a slow rate; shape is broadly oval, irregular and open; foliage is dark green; fall color is yellow to yellow brown; bark is thick, rugged, ridged, and dark gray; seeds ripen in October; flowers are monoecious (individual flowers are either male or female, but both sexes can be found on the same plant); pollinated by the wind
Bloom period: May
Trivia: The oak was designated as Iowa's official state tree in 1961; the Iowa General Assembly chose the oak because it is abundant in the state and serves as shelter, food and nesting cover for many animals and birds; it is difficult to find a tract of natural woodland in Iowa that does not have in it at least one species of oak; no other group of trees is more important to people and wildlife; acorns, the nuts of oak trees, are a dietary staple of many animals and birds, including deer, wild turkeys, pheasants, quail, wood ducks, raccoons, squirrels, chipmunks, blue jays, nuthatches, grackles and several kinds of woodpeckers; wood is hard, heavy, strong, very

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durable, and close-grained; wood is of considerable importance as a timber tree – it is used for all types of construction, in making baskets, flooring, cabinet making and ship building

Habitats and possible locations: Found in a variety of habitats from dry hillsides to moist bottomlands, rich woods and fertile slopes, mainly on limestone soils; prefers loamy and heavy clay soils; can grow in semi-shade or no shade; requires dry or moist soil, and can tolerate drought; can tolerate strong winds and atmospheric pollution

Photo courtesy of Paul Wray,
Iowa State University, forestryimages.com

Common name:	**Red Oak**
Latin name:	Quercus rubra
Plant family:	Fagaceae (Beech)
Physical characteristics:	A deciduous tree; grows to a height of 50 feet by 45 feet wide; a large, fast-growing, broad-headed tree; the large leaves turn from a rich green to a deep red in the fall; seeds ripen in October; flowers are monoecious (individual flowers are either male or female, but both sexes can be found on the same plant); pollinated by the wind
Bloom period:	April to May
Trivia:	A reddish-brown dye can be obtained from the bark; wood is coarse-grained, hard and heavy; wood is an important lumber source in America - it is highly valued for flooring, furniture, veneer and construction
Habitats and possible locations:	Prefers loamy and clay soils; can grow in semi-shade or no shade; requires dry or moist soil; can tolerate strong winds; natural habitat includes dry or upland woods, and wetlands; found in a variety of soils, it grows best in those that are deep and fine textured; the largest trees are found in protected ravines or on sheltered slopes

Common name: **Swamp White Oak**

Latin name: Quercus bicolor (Quercus is the Latin name for Oak, bicolor translates as “two colors”, referring to the lower sides of the leaves being whitish-green and a dramatic contrast to the dark green upper sides of the leaves when the wind blows)

Plant family: Fagaceae (Beech)

Physical characteristics: A deciduous tree; grows to a height of 50 to 60 feet by 45 feet wide; rounded, open shape; foliage is green with wavy margins; fall color is yellow brown to reddish; a beautiful native tree; seed is quite large, and, unlike most other oaks, is attached to the tree by a long stem; a relatively fast-growing tree in the wild, living 300 to 350 years; its fruit consists of a moderate-sized acorn (1 inch long), maturing in a single season, with a cap covering the upper one-third of the oval nut; seeds ripen in October; flowers are monoecious (individual flowers are either male or female, but both sexes can be found on the same plant); pollinated by the wind

Bloom period: May

Trivia: Wood is close-grained, strong, hard, heavy, and tough; wood is usually quite knotty and of some importance commercially; wood is used for construction, furniture, interior finishes, fencing and fuel

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Photo courtesy of Paul Wray,
Iowa State University, forestryimages.com

Habitats and possible locations: Prefers loamy and clay soils; can grow in semi-shade or no shade; requires moist or wet soil; tolerates strong winds; natural habitat includes bottomlands, stream margins and swamps; tolerant of poorly drained sites, it is frequently found in heavy, mucky soils

Common name: **White Oak**
Other common names: Northern White Oak, Quebec Oak
Latin name: Quercus alba
Plant family: Fagaceae (Beech)
Physical characteristics: A deciduous tree; shape is pyramidal in youth, becoming rounded with horizontal branches; grows 50 to 80 feet tall; slow to medium growth rate, slower with great age; pollinated by the wind; seeds ripen in October; flowers are monoecious (individual flowers are either male or female, but both sexes can be found on the same plant); trees take about 30 years before they start to bear good crops of seeds and continue to yield crops for about 120 years; fruit is a nut (acorn) 2 inches to 1 inch long with involucre (cup) only covering 1/4 of nut; leaves are 4 to 8 inches long with rounded lobes, color is dull, blue-green when mature; new leaves are a bright, grayish green; autumn foliage is purple-red, generally fairly showy, color develops late and is long lasting
Bloom period: April to May
Trivia: Bark is a rich source of tannin; wood is strong, very heavy, close-grained and durable; one of the most important timbers in North America, it is used for cabinet making, construction, agricultural tools and also as a good fuel; tree from which the phrase “Mighty Oak” was coined

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Photo courtesy of Paul Wray,
Iowa State University, forestryimages.com

Habitats and possible locations: Prefers loamy and clay soils; can grow in semi-shade or no shade; requires dry or moist soils; can tolerate strong winds; natural habitat includes dry woods, gravelly ridges, sandy plains, rich uplands and moist bottomlands; best specimens are found in deep, rich, well-drained loamy soils

Common name: **White Pine**

Other common names: Western White Pine, Mountain White Pine, Idaho White Pine, Eastern White Pine, Silver Pine, Northern White Pine

Latin name: Pinus strobus

Plant family: Pinaceae (Pine)

Physical characteristics: An evergreen conifer tree; commonly reaches 200 years of age and may exceed 450 years; its form is tall and straight, growing to 180 feet tall and 4 feet in diameter with an open crown, long upraised branches near the top (horizontal lower down); bole commonly free of branches for half its length; is in leaf all year, and the seeds ripen in October; pollinated by the wind; grows rapidly to a large size; cones become ripe the second year after the buds are initiated; color of ripe cones ranges from yellowish or beige-brown through reddish brown and dark brown; cones are about 8 to 10 inches long; white pines can begin cone production when 5 to 10 years old

Bloom period: Male strobili open and shed pollen in April through June

Trivia: A valuable timber species; the soft wood is of medium strength, easily worked, and stains and finishes well; it is used for doors, mouldings, trim, siding, panelling, cabinet work and furniture; provides food and habitat for numerous wildlife species, including the bald eagle; was heavily logged in the 1800's; a tan or green dye is obtained from the needles

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Photo courtesy of Paul Wray,
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Habitats and possible locations: Prefers sandy and loamy soils; requires well-drained soil; cannot grow in the shade; requires dry or moist soil and can tolerate drought; can tolerate strong winds; found in a variety of soils, though best specimens are growing in deep, well-drained, moisture-retentive soils; frequently dominates or codominates pine forests; in mixed hardwood forests, it often occurs as a scattered superdominant tree towering above the surrounding hardwoods

Common name: **American Plum**

Other common names: Plum, Native American Plum, Wild Plum

Latin name: Prunus americana

Plant family: Rosaceae (Rose)

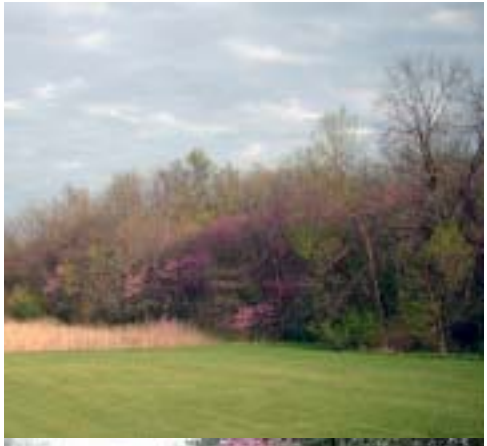
Physical characteristics: Deciduous shrub/tree; grows 10 to 20 feet in height by 8 to 12 feet wide; grows at a medium rate; irregular in form and medium in texture; leaves are a shiny medium-to-dark green; fruit color begins as a bluish-green, turning pinkish-red; fall colors are yellow, orange, red and pink; blooms are white in color; flowers are hermaphrodite (have both male and female organs) and are pollinated by insects

Bloom period: May

Trivia: A green dye can be obtained from the leaves and fruit; a red dye can be obtained from the roots; this species is widely used as a rootstock to cultivate plums in North America; wood is heavy, hard, close-grained and strong, but of no commercial value because the trunk is too small; excellent wildlife habitat

Habitats and possible locations: Prefers sandy, loamy and clay soils; requires well-drained, moist soil; can grow in semi-shade and/or shade; natural habitat includes rich soils in mixed deciduous woodland, by streams, on the borders of swamps and in hedgerows; very common plant in Iowa

Photo courtesy of Paul Wray,
Iowa State University, forestryimages.com



Common name:	**Redbud**
Other common names:	Eastern Redbud, North American Red Bud
Latin name:	Cercis canadensis
Plant family:	Fabaceae (Bean)
Physical characteristics:	A deciduous tree; grows to a height of 25 feet by 30 feet wide; shape is multi-stem or low branching, ascending then spreading branches, somewhat flat-topped; foliage is medium green; fall color is yellow; profuse flowers make this a spring favorite; seeds ripen in October; noted for attracting wildlife, especially bees; flower is reddish purple in bud, rosy-pink when open; flowers are hermaphrodite (have both male and female organs); pollinated by bees
Bloom period:	April or May
Trivia:	Bark of young shoots is used in basket making; wood is heavy, hard, not strong, and close-grained
Habitats and possible locations:	Prefers sandy, loamy and well-drained soils; can grow in semi-shade or no shade; requires moist soil; native to rich woods, ravines and borders of streams

Common name: **Autumn Brilliance Serviceberry**

Other common names: Serviceberries, Juneberries, Shadbushes

Latin name: Amelanchier grandiflora “Autumn Brilliance”

Plant family: Rosaceae (Rose)

Physical characteristics: An excellent serviceberry, with good form and strong branching; grows to a height of 20 feet by 15 feet wide; medium, green foliage; fall color is bright red; fruit color is red turning to dark purple in season in June; bark and wood is light gray colored, has a smooth texture with fissures, branches are brittle; flowers are white clusters; flowers are beautiful, but last only several days

Bloom period: Spring, beginning in April

Trivia: The common name “shadbush” comes from the fact that the plants tend to flower when the shad are running upriver to spawn; birds eat the sweet fruits and the insects that are attracted to the flowers; birds attracted include bluebirds, catbirds, grosbeaks, jays, mocking-birds, robins, thrushes, woodpeckers, towhees, orioles, tanagers and cedar waxwings; plants also attract butterflies; deer browse the twigs

Habitats and possible locations: Tolerant of a wide range of light and soil conditions, but prefers sun and moist, acidic soil

Common name: **Black Hills Spruce**

Other common names: Black Hills White Spruce

Latin name: Picea glauca densata

Plant family: Pinaceae (Pine)

Physical characteristics: Spruces are large, pyramidal, evergreen trees; light, blue-green summer foliage and deep green fall color; grows 30 to 50 feet tall by 10 to 15 feet wide; actually a type of white spruce; grows slower than other white spruces

Bloom period: In leaf all year; seeds ripen in September; scented flowers are monoecious (individual flowers are either male or female, but both sexes can be found on the same plant); pollinated by the wind

Trivia: First seen by French explorers in 1743; official tree of Manitoba Province, Canada, and state of South Dakota; the Black Hills spruce contributed to the name “Black Hills” since the tree-covered hills of South Dakota made up an oasis on the plains; it’s not necessary to visit the Black Hills to see a Black Hills spruce, in addition to trees planted along roadsides, many trees were planted by settlers in Iowa to make shelterbelts and windbreaks; the wood is light weight, soft, straight-grained and light yellow in color, it is sometimes used for interior finishing, but its primary use is for paper pulp; often used as a decorated, living Christmas tree

Habitats and possible locations: Prefers moist, well-drained soils; best in full sun; cannot grow in the shade; found naturally in bogs and woodland areas; one of the most tolerant spruces as it withstands wind, heat, cold, drought and crowding

Common name: **Common Chokecherry**
Latin name: Prunus virginiana
Plant family: Rosaceae (Rose)
Physical characteristics: A large understory 35 to 50 feet tall; forms thicket-like colonies; dark purple to black berries in loose, open pendant clusters; golden yellow to orange fall color; white pyramidal spike 3 to 6 inches long; sweet smelling flowers
Bloom period: Mid through late May
Habitats and possible locations: Prefers sandy, loamy and clay soils; requires moist, well-drained soil; can grow in semi-shade or no shade; found naturally on open wooded slopes and margins of woods, open fields, and fence rows; disease susceptibility to black knot

Photo inset courtesy of Paul Wray, Iowa State University, forestryimages.com

Chapter 6: Shrubs

A. Planting philosophy and benefits

Shrubs have many attributes that make them well suited for roadside use. First, they do not have large trunks that can cause a hazard for errant vehicles. Second, there are many species of shrubs, native and non-native, that thrive in Iowa. This gives designers a large palate to use when selecting shrubs for specific uses such as living snow fence, enhancing medians where sight distance is critical, screening unsightly views, or framing community entry signs.

In addition, shrubs can offer colors throughout the seasons with flowers, berries, fall leaves, and winter twigs. Much of Iowa's small wildlife relies on shrubs for food, nesting and winter cover.

B. Definition

A shrub is defined as a woody, busy plant, branched at or near the base, and usually less than 15 feet in height.

C. Planting styles

The following are some of the ways shrubs are used in Iowa's roadsides.

Living Snow Fence

Iowa has established several hundred miles of living snow fence along its roadways. Living snow fence is made up of two shrub rows approximately 5 feet apart, with shrubs closely spaced (approximately 3 feet apart) within each row. Research has shown that this planting style stores the most snow in the least amount of space.

Shrub Beds

Shrubs are often planted in groups to give a greater visual effect. Large groups and large shrubs are used in higher speed areas where drivers cannot notice small details in the road-sides. In lower speed areas, such as communities or rest areas, smaller groups and smaller shrubs can be used.

The groups can be either formal or informal in their appearance. Formal shrub beds are sometimes used in narrow areas such as medians to give the appearance of order and help guide drivers. Informal beds are sometimes used to enhance community entryways and visually frame entrance signs.

Common name:	**Glossy Black Chokeberry**
Other common names:	Hybrid Chokeberry
Latin name:	Aronia melanocarpa
Plant family:	Rosaceae (Rose)
Physical characteristics:	A deciduous shrub; grows 3 to 6 feet high, spread 10 feet; glossy, pendulous clusters of black fruit suspended before lustrous green leaves; fall color ranges from crimson to wine-red to apricot, the leaves are splendid in later October; most effective en masse; seeds ripen from October to December; white flowers are hermaphrodite (have both male and female organs) and are pollinated by insects; blooms are fragrant white clusters
Bloom period:	Mid to late May through early June
Trivia:	It derives the name “chokeberry” from the extremely astringent taste that some birds supposedly won’t tolerate, but songbirds and upland game birds do enjoy the bitter fruit in winter months, as do many small mammals
Habitats and possible locations:	Prefers sandy, loamy and clay soils; requires well-drained, dry or moist soil; can grow in semi-shade or no shade; natural habitat is swamps and low woodlands, it is sometimes found in drier soil

Common name: **Cardinal Dogwood**
Other common names: Redtwig Dogwood, Red Twig Dogwood
Latin name: Cornus sericea “Cardinal”
Plant family: Cornaceae (Dogwood)
Physical characteristics: Dogwoods are deciduous shrubs or trees with attractive foliage and flowers offering excellent color in the landscape; the Cardinal variety is an easy-to-grow hybrid; it is selected for bright red winter twig color; older branches lose their cardinal color; it has dark green summer foliage with reddish-purple autumn colors; summer twig color is yellowish-green; grows 8 to 10 feet tall by 10 feet wide; fruit is quite attractive to birds; tiny white flowers appear in flat-topped clusters (to 2.5" diameter)
Bloom period: Late spring
Trivia: The outstanding ornamental feature of this plant is its bright red winter stems, which are particularly showy against a snowy backdrop
Habitats and possible locations: Prefers moist, well-drained soils; full to partial sun; best grown in organically rich soil

Photo courtesy of Paul Wray,
Iowa State University, forestryimages.com

Common name:	**Gray Dogwood**
Other common names:	Grey Dogwood
Latin name:	Cornus racemosa
Plant family:	Cornaceae (Dogwood)
Physical characteristics:	A thickly branched, slow-growing dogwood seldom more than 6 feet high at maturity; its leaves are opposite, taper-pointed and oval; flowers are white and loosely clustered, and its white fruit, which appears in September and October, is set off by bright red fruit stalks
Bloom period:	Late May or early June
Trivia:	A useful, low-growing wild hedge which provides summer food and some cover for small animals and birds
Habitats and possible locations:	The gray dogwood has a range of adaptability equaled by few other shrubs, and it tolerates many climatic conditions; tolerance to shade is considered intermediate; performs best in full sun to partial sun; prefers moist, well-drained soils, but is adaptable to many adverse conditions, including poor soils, dry soils, compacted soils, heat and drought; useful for mass plantings, embankments, and at the edge of bodies of water; native to the Midwest

Common name: **Pagoda Dogwood**

Other common names: Alternate-leaved Cornelor Dogwood, Swamp Walnut, Alternate-leaf Dogwood

Latin name: Cornus alternifolia (Cornus is from the Latin word “cornu” meaning horn, antler; alternifolia is from the words “alternus” meaning alternate and “folius” meaning leaf)

Plant family: Cornaceae (Dogwood)

Physical characteristics: Dogwoods are deciduous flowering shrubs and ornamental trees with attractive foliage and flowers offering excellent color in the roadside landscape; the Pagoda variety has a rounded form with horizontal branching habit; grows to 20 feet tall by 20 to 25 feet wide; green foliage turns bright red in fall; produces clusters of star-shaped, yellowish white flowers followed by fruits that are blue-black and ripen in August to September

Bloom period: May to June

Habitats and possible locations: Native to moist woodlands, along forest margins, and on stream and swamp borders; shade tolerant; prefers moist, well-drained soils

Photo courtesy of Paul Wray, Iowa State University, forestryimages.com

Common name: **Redtwig Dogwood**
Other common names: Blood-twig Dogwood, Dogberry, Dogwood, Redosier Dogwood, Red-barked Dogwood, Red Twig Dogwood, White-fruited Dogwood, American Dogwood, Redstem Dogwood
Latin name: Cornus Racemosa
Plant family: Cornaceae (Dogwood)
Physical characteristics: A woody, deciduous shrub; generally 10 to 20 feet tall; bark and twigs are reddish to purple, and fairly smooth from fall to late spring after the leaves have fallen; bark, twigs and leaves are bright green in spring through summer; white berries are smooth on the faces, furrowed on the sides; flowers are hermaphrodite (have both male and female organs) and are pollinated by bees; noted for attracting wildlife
Bloom period: May to June
Trivia: The “oiser” in redoiser dogwood is derived from French, meaning “willow-like”; it is often called red willow because of its red stems; redosier dogwood was widely employed by several native North American Indian tribes; the inner bark was added to tobacco mixtures and used in the sacred pipe ceremony; dreamcatchers, originating with the Potawotami, are made with the stems of the sacred redoiser dogwood; some tribes ate the white, sour berries, while others used the branches for making arrows, stakes or other tools; peeled twigs were used as

Continued on next page

toothbrushes, and the powdered bark as a toothpowder to preserve the gums and keep teeth white; bows and arrows were made from the plant shoots; the inner bark was used for tanning or drying animal hides; it was valued for its astringent and tonic bark; a fiber obtained from the bark is used to make cord; the bark can be twisted into a rope; oil obtained from the seed burns well and can be used in lighting; a red dye can be obtained from the bark mixed with cedar ashes; branches are pliable and used as rims in basket making

Habitats and possible locations: Prefers sandy, loamy and clay soils; found naturally on shore and in thickets along streams, rivers and moist sites; can grow in semi-shade or no shade; requires moist or wet soil

Common name:	**American Elder**
Other common names:	Elderberry, Autumn-flowering Elder, Black-berried Elder, Sweet Elder, Bore Tree, American Elderberry
Latin name:	Sambucus canadensis
Plant family:	Caprifoliaceae (Honeysuckle)
Physical characteristics:	Deciduous shrubby tree; can grow to reach heights of up to 35 feet, but it is more common to see shrubs of 12 to 15 feet; flowers give way to large clumps of blackish berries which stand upright until they ripen; berries are most prevalent in September; new plants may bear fruit in their first year, but more commonly they wait until the second; many of these berries will fall off and seeds germinate below the existing shrub, the remainder of the berries achieve seed dispersal by being eaten; creamy white flower clusters, may be up to eight inches in diameter
Bloom period:	Late June and early July
Trivia:	May yield green, violet and black dyes
Habitats and possible locations:	Grows in fertile, moist soil

Common name: **Common Purple Lilac**
Other common names: Lilac, Common Lilac, Old Fashioned Lilac
Latin name: Syringa vulgaris
Plant family: Oleaceae (Olive)
Physical characteristics: Deciduous shrub; grows 8 to 15 feet tall and wide; this lilac is upright in form and spreads by sucker growth, forming a dense shrub; very fragrant, fairly large flowers; summer leaf color is dark green and yellow, gold or purple in fall; persistent fruit is tannish-pink, turning tan; purple bloom color
Bloom period: Mid-May through early June
Trivia: Makes a wonderful flowering screen
Habitats and possible locations: Lilacs like alkaline soil and light shade; easy to grow in moist, well-drained soil; common lilac has been planted all over the Midwest - one can spot abandoned farmsteads by the still vigorous old lilac originally planted in the middle of the yard

Common name:	**Ninebark**
Other common names:	Atlantic Ninebark, Common Ninebark
Latin name:	Physocarpus opulifolius
Plant family:	Rosaceae (Rose)
Physical characteristics:	Deciduous shrub grows 5 to 10 feet tall by the same width; upright, spreading shrub with stiffly recurved branches and peeling bark; leaves are yellowish-green in summer and fall; used in living snowfence shrub rows in roadsides; flowers are small and pale white
Bloom period:	Late spring
Habitats and possible locations:	Prefers sandy, loamy and clay soils; cannot grow in the shade; requires moist soil; found naturally on the banks of streams

Common name: **Dart's Gold Ninebark**
Other Common Names: Dart's Golden Ninebark, Golden Ninebark

Latin name: Physocarpus opulifolius "Dart's Gold"
Plant family: Rosaceae (Rose)
Physical characteristics: A compact form of Golden Ninebark with excellent yellow foliage and creamy white flowers; grows to a height of 4 to 5 feet; clusters of dry fruit turn deep pink with maturity and are very attractive in late summer; used in living snowfence shrub rows in roadsides
Bloom period: May through July; fruits during this same period
Trivia: Common name comes from the bark, which continually molts in thin strips, each time exposing a new layer of bark, as if it had "nine lives"
Habitats and possible locations: Plants are found on moist soils in thickets, along streams in sand or gravel bars, and on rocky slopes and bluffs; prefers a sunny location

Common name:	**Vanhoutte Spirea**
Other common names:	Spirea, Vanhouttei Spirea, Bridal Wreath Spirea, Van Houtte Spirea, Spirea Vanhouttei
Latin name:	Spiraea x vanhouttei
Plant family:	Rosaceae (Rose)
Physical characteristics:	Large, fast growing, deciduous shrub with rounded growth habit; grows 10 feet tall by 10 to 12 feet wide; summer foliage is deep, bluish-green, holding color well through autumn; small, abundant fruit begins rusty red, turning brown; variable fall colors are combinations of purple, orange, gold, red or yellow; plant known for its arching, fountain-like branches which are covered with great snowy sprays of blossoms; a profusion of dainty, bright white flowers bloom in small clusters
Bloom period:	Mid-May
Habitats and possible locations:	Prefers full sun and moderate water levels

Common name: **Fragrant Sumac**

Other common names: Pubescent Squawbush, Smooth Blackberry, Sweet Sumac

Latin name: Rhus aromatica

Plant family: Anacardiaceae (Cashew)

Physical characteristics: A deciduous shrub; 6 feet (high) by 6 to 10 feet (wide); trifoliate, medium green leaves turn attractive shades of orange, red and purple in autumn; leaves and twigs are aromatic when bruised (hence the species name); although smaller, the leaves resemble in appearance those of the related poison ivy (Rhus radicans), however, fragrant sumac is a totally non-poisonous plant; oils on the stem can irritate the skin; female flowers give way in late summer to small clusters of hairy, red berries which may persist into winter; fruit is attractive to wildlife; seeds ripen in September; scented, yellow flowers are dioecious (individual flowers are either male or female, but only one sex is to be found on any one plant so both male and female plants must be grown if seed is required); pollinated by bees

Bloom period: April

Trivia: Leaves are rich in tannin and can be used as a brown dye; oil extracted from the seeds is used to make candles, these burn brilliantly, though emit a pungent smoke; split stems are used in basketmaking

Habitats and possible locations: Prefers sandy, loamy and clay soils; requires well-drained soils; cannot grow in the shade; requires dry or moist soil, and can tolerate drought; occurs naturally in open woods, glades and thickets

Common name: **Smooth Sumac**
Other common names: Scarlet Sumac, Upland Sumac
Latin name: Rhus glabra
Plant family: Anacardiaceae (Cashew)
Physical characteristics: Deciduous shrub; excellent fall color; height of 8 to 15 feet by 10 to 15 feet wide; native species in the upper Midwest; large shrubs that spread by root suckers to form large thickets from a single plant; they are coarse, sparsely branched plants with attractive pinnately compound leaves; current year stems are smooth; upright panicles of reddish-brown fruit are formed at the tips of branches and remain on all winter; foliage develops excellent fall coloration, ranging from orange to bright red to maroon; seeds ripen from September to November; flowers are dioecious (individual flowers are either male or female, but only one sex is to be found on any one plant so both male and female plants must be grown if seed is required); pollinated by bees; noted for attracting wildlife
Bloom period: July to August

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Trivia: The leaves are rich in tannin and used as a brown dye; a black and red dye is obtained from the fruit; a black dye is obtained from the leaves, bark and roots; and orange or yellow dye is obtained from the roots harvested in spring; a light yellow dye is obtained from the pulp of the stems; oil extracted from the seeds attains a tallow-like consistency on standing and is used to make candles that burn brilliantly, though emit a pungent smoke

Habitats and possible locations: Prefers sandy, loamy and clay soils; requires well-drained, dry or moist soil; found in thickets and waste ground on dry soil and by streams; best specimens are found in rich, moist soil

Common name:	**American Cranberrybush Viburnum**
Other common names:	American Cranberry Viburnum, Cranberry, Cranberry Tree, High-bush Cranberry
Latin name:	Viburnum trilobum
Plant family:	Caprifoliaceae (Honeysuckle)
Physical characteristics:	A deciduous shrub; dense, rounded crown; 8 to 12 feet tall with equal spread; medium texture; moderate growth rate; dark green leaf color in summer; red to purple fall color; seeds ripen from July to September; flowers are hermaphrodite (have both female and male organs); are pollinated by insects
Bloom period:	June
Habitats and possible locations:	Prefers sandy, loamy and clay soils; can grow in semi-shade or no shade; requires moist soil and can tolerate drought; natural habitat includes stream banks and low, moist ground

Common name: **Arrowwood Viburnum**

Other common names: Northern arrow-wood Viburnum, Southern Arrowwood, Roughish Arrow-wood

Latin name: Viburnum dentatum

Plant family: Caprifoliaceae (Honeysuckle)

Physical characteristics: A deciduous small shrub; a dense, multi-stemmed shrub typically 5 to 9 feet tall and wide; native plants can be as tall as 15 feet; spread of 6 to 15 feet; branching is upright and spreading, eventually arching over at the tips; overall shape is rounded; suckers profusely from the base; leaf bases are shallowly heart-shaped, veins are prominent, with the leaf puckering between veins, either a shiny or flat dark green in summer; some plants turn yellow, others turn red to reddish purple in fall; blue-black color fruit, some plants have more intense blue fruit color, held in flattened clusters each fruit is about 1/4-inch in diameter; modest ornamental interest from the fruit; fruit is enjoyed by birds; fruiting August through November; small creamy white flowers held in flattened clusters; flower clusters are around 3 inches across; flower cluster can be numerous; moderately showy in bloom

Bloom period: Late May to early June

Trivia: The common name refers to the Native American use of the straight young stems as arrow shafts

Habitats and possible locations: Occurs naturally in open woods and margins, and stream banks; prefers loamy, neutral to acid soil with ample moisture; adaptable to a range of conditions from dry to fairly wet soil; full sun to partial shade; a good wetland plant

Common name: **Nannyberry Viburnum**
Other common names: Nannyberry, Sheepberry, Wild Raisin
Latin name: Viburnum lentago
Plant family: Caprifoliaceae (Honeysuckle)
Physical characteristics: A large shrub or small tree reaching 15 to 18 feet high by 6 to 10 feet wide, with an open crown and arching branches; leaf is elliptical, shiny dark green; fruit is dark blue, oval drupes, up to 2 inches long, occurring in hanging clusters from red stems, ripen in the fall; bark is gray brown, initially smooth but later becoming irregularly scaly; flower is small, white, occurring in round-topped clusters, 3 to 5 inches across
Bloom period: May
Habitats and possible locations: Prefers moist, rich soil, but is quite adaptable; for fruit production, two or more should be planted; a good wetland variety

Common name:	**Wayfaringtree Viburnum**
Other common names:	Wayfaring Bush, Wayfaringbush
Latin name:	Viburnum lantana
Plant family:	Caprifoliaceae (Honeysuckle)
Physical characteristics:	Deciduous shrub; grows 10 to 15 feet high by same width; leaves are 2 to 5 inches long and dark-green; fall colors are red, orange and purple to begin, turning all red; bark color is whitish-gray; flat, 3- to 5-inch clusters of creamy-white flowers are followed by yellow fruits, which gradually turn red, then blue-black; all three colors may be present at the same time
Bloom period:	Mid-May to early June
Trivia:	Birds like the fruit; Viburnum is the classical Latin name for this species, lantana is an old name for Viburnum; plant is known for its fishy-smelling inflorescence
Habitats and possible locations:	Prefer full sun to partial shade; withstands dry, compacted soils; tolerant of higher pH soils than some viburnums; easily transplanted and established; best growth on fertile, loamy soils

Glossary

Alluvial/alluvium. Clay, silt, sand, gravel or similar detrital material deposited by running water.

Annual. Having one growth and flowering period, usually germinating in the spring and flowering and dying before fall.

Biennial. Having two growth periods and then flowering; germinating and growing the first year, resuming growth the following spring, then flowering and dying that year.

Bunchgrass. A type of grass that has many stems arising from one set of fine, fibrous roots.

Deciduous. Not persistent; falling away, as the leaves of a tree in autumn.

Dominant species. A species in a community that influences that community due to its greater population, size or coverage.

Fauna. Animals or animal life particular to a region.

Fibrous roots. A root system that consists of many fine branches.

Flora. Plants or plant life of a region.

Flower. Sexual reproductive structure consisting of ovary(s) or stamens, or usually both and usually with surrounding petals and sepals producing fruits containing seeds.

Forb. An herb other than grass.

Fruit. Structure containing mature seeds; the ripened ovary; either dry as in milkweed pods or fleshy as in rose hips.

Habitat. Type of environment within which an organism lives; examples are moist prairie and open woods.

Loess. An unstratified, usually buff to yellowish brown, loamy deposit found in North America, Europe and Asia and believed to be chiefly deposited by the wind. The Loess Hills are located in western Iowa.

Ovary. Expanded lower portion of the pistil where seeds will develop in the flower.

Perennial. Producing growth and flowers year after year.

Pistil. Female portion of the flower; in the center of the flower and containing the ovary where the seeds are produced.

Rhizomatous. Plant stems that spread under ground, and produce shoots that 'rise' above ground.

Savanna habitat. A plain or grassland containing scattered trees and drought-resistant undergrowth.

Stamen. Male structure in the flower producing pollen; almost always more than one and frequently three, four, five, six or more per flower.

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Amazing Plant Facts

- If every American family planted one tree, more than 1 billion pounds (500,000 tons) of pollutants would be removed from the atmosphere every year.
- In one day, an average tree exhales enough oxygen to keep a family of four breathing for that day.
- A mature tree can pull one ton of water from the soil each day. This water cools the air through evaporation, acting as an air conditioner.
- Young trees absorb more carbon dioxide during growth than older trees.
- An acre of trees (400 trees), roughly an area the size of a football field, absorbs the amount of carbon dioxide emitted by a single automobile in one year.
- The world's largest living thing, the General Sherman Giant Sequoia in California, weighs 1,400 tons (as much as 300 elephants.)
- Evaporation from a single large tree can produce the cooling effect of 10 room-sized air conditioners operating 20 hours a day.
- The raffia palm (Raffia ruffia) has one of the world's largest leaves; some have been recorded measuring over 65 feet long.

- Fossils of the Ginkgo tree (Ginkgo biloba) date back some 160 million years; it first appeared at the time of the dinosaurs (Jurassic era).

- Duckweed (Wolffia angusta) is the world's smallest flowering plant. It is a mere 1/42nd of an inch long and 1/85th of an inch wide. It bears a tiny fruit. A tablespoon can hold more than 100,000 plants.

- The Coco-de-Mer palm (Lodoicea maldivica), from the Seychelles, has the largest seed in the world. Also known as the double coconut, its seed weighs as much as 40 pounds.

- Speedy tree (Albizzia falcata) is the world's fastest growing tree. One specimen was recorded growing 35 feet, three inches in only 13 months. That's over an inch a day!

- Flowering plants dominate the contemporary flora of the Earth. There are an estimated 250,000 species, with the greatest diversity in the moist tropics.

- The orchids (Orchidaceae) have more species than any other family of flowering plants, with 25,000-35,000 species recognized, mostly in the tropics.

- It is likely that 10 to 15 percent of the Earth's flowering plants have not yet been described. Most will be in the moist tropics, especially remote parts of Latin America.

- A conifer, California Redwood (*Sequoia sempervirens*), is the tallest tree on earth (110 m high).

- The Bristlecone Pine (*Pinus aristata*) was thought to be the oldest, at about 4,900 years, but a huge Huon Pine (*Dacrydium franklinii*) found in Tasmania may be thousands of years older still.

- As plants get smaller, we know less about them. We know 85 to 90 percent of the flowering plants, but only 1 percent or less of some microscopic organisms.

- In developing countries, plants are the main source of medicine.

- Eighty percent of the world's people depend on traditional medicines, made from plants, for their primary health care.

- Two of the largest users of medicinal plants are China and India. Traditional Chinese medicine uses more than 5,000 plant species; India uses some 7,000.

- China has 250,000 doctors trained in traditional medicine, India 460,000. All use plant drugs.

- Latin America, home of a third of the world's plants, also has a long-standing tradition of use of plants as medicine, especially among the indigenous peoples. Nearly 2,000 species are used in the Colombian Amazon for medicinal purposes.

- Plants are the origin of more than 30 medicinal drugs, proven effective by scientifically controlled therapeutic trials.

- Some drugs like aspirin are synthesized copies of chemicals found naturally in plants. Others, like digoxin or morphine, are produced from plants cultivated specially for the purpose.

- An extract from the bark of *Cinchona* (quinine) from the Andes of Ecuador and Peru was for three centuries the standard remedy for malaria. The active alkaloids have been isolated and synthesized, and crude 'botanical' has ceased to be used in western medicine. However, it is now being reinvestigated for use against strains of malaria resistant to modern drugs.

- Meadow Saffron is one of the oldest medicinal plants that is still in the modern pharmacopoeia. Its use was recorded in 100 AD to treat joint pains, and now is used in the treatment of acute gout.

- Plants provide almost every sort of material in everyday use, such as fiber, gums, resins, luxury foods, and stimulants.

- Fibers, extracted from plant stems, are one of the most ancient and valuable of plant products. People use the fibers of over 2,000 plant species.

- Flax, an annual crop originally from Southwest Asia and the raw material for linen, is probably the oldest cultivated fiber.

- Bamboos, huge grasses with hollow, compartmentalized, woody stems, continue to provide one of the major structural materials of tropical regions, especially Asia.

- Reeds, robust aquatic grasses, are an important sustainable resource of temperate and tropical wetlands. Some peoples, like the Marsh Arabs of the Rivers Tigris and Euphrates, build entire houses (even mosques) from reeds. Reed beds also protect against erosion of lake shores and river banks and are important habitats for birds and other wildlife.

- Almost all the world's 65 species of grapevine are native to North America (which the Vikings called Vinland). These North American plants saved the European wine industry after 1867 when root aphids began devastating European vines. Today all European vines are grafted onto American stock.

- Natural rubber, a native of the Amazon basin, is one of the most widely used of all plant products.

- Eighty-four percent of a raw apple is water.

- A cucumber is 96 percent water.

- A notch in a tree will remain the same distance from the ground as the tree grows.

- A pineapple is a berry.

- Advertisements for coffee in London in 1657 claimed that the beverage was a cure for scurvy, gout and other ills.
- Almonds are the oldest, most widely cultivated and extensively used nuts in the world.
- Americans eat more bananas than any other fruit: a total of 11 billion a year.
- An average ear of corn has 800 kernels, arranged in 16 rows.
- Bananas are actually herbs. Bananas die after fruiting, like all herbs do.
- Cranberries are one of just three major fruits native to North America. Blueberries and Concord grapes are the other two.
- Dr. Joel Poinsett, the first U.S. ambassador to Mexico, brought the poinsettia to the U.S. in 1828. The plant, called “flower of the blessed night” in Mexico, was renamed in Poinsett’s honor.
- Eggplant is a member of the thistle family.
- Ginger has been clinically demonstrated to work twice as well as Dramamine for fighting motion sickness, with no side effects.
- In 1932 James Markham obtained the first patent issued for a tree. The patent was for a peach tree.

- In the Netherlands, in 1634, a collector paid 1,000 pounds of cheese, four oxen, eight pigs, 12 sheep, a bed, and a suit of clothes for a single bulb of the Viceroy tulip.
- No species of wild plant produces a flower or blossom that is absolutely black, and so far, none has been developed artificially.
- Oak trees do not have acorns until they are 50 years old or older.
- One ragweed plant can release as many as one billion grains of pollen.
- Oranges, lemons, watermelons and tomatoes are berries.
- Orchids have the smallest seeds. It takes more than 1.25 million seeds to weigh 1 gram.
- Peanuts are beans.
- Plants that need to attract moths for pollination are generally white or pale yellow, to be better seen when the light is dim.
- Plants that depend on butterflies, such as the poppy or the hibiscus, have more colorful flowers.
- Quinine, one of the most important drugs known to man, is obtained from the dried bark of an evergreen tree native to South America.

- Tea was so expensive when it was first brought to the United States in the early 17th century it was kept in locked wooden boxes.
- The California redwood - coast redwood and giant sequoia - are the tallest and largest living organism in the world.
- The fragrance of flowers is due to the essences of oil they produce.
- The largest single flower is the Rafflesia or “corpse flower.” They are generally 3 feet in diameter with the record being 42 inches.
- The pineapple was symbol of welcome in the 1700-1800s. That is why in New England you will see so many pineapples on door knockers.
- The plant life in the oceans make up about 85 percent of all the greenery on the Earth.
- The rose family of plants, in addition to flowers, gives us apples, pears, plums, cherries, almonds, peaches and apricots.
- The world’s tallest grass, which has sometimes grown 130 feet tall or more, is bamboo.

- There are more than 700 species of plants that grow in the United States that have been identified as dangerous if eaten. Among them are some that are commonly favored by gardeners: buttercups, daffodils, lily of the valley, sweet peas, oleander, azalea, bleeding heart, delphinium and rhododendron.

- Wheat is the world's most widely cultivated plant; grown on every continent except Antarctica.

- When a coffee seed is planted, it takes five years to yield consumable fruit.

- Willow bark, which provides the salicylic acid from which aspirin was originally synthesized, has been used as a pain remedy ever since the Greeks discovered its therapeutic power nearly 2,500 years ago.

- Carrots, potatoes and radishes are examples of roots that we eat.

- Leaves have veins that help carry water and minerals to different parts of each leaf. Sometimes many veins are networked within a single leaf.

NOTES: