

TREES and SHRUBS of North Dakota



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Trees and Shrubs of North Dakota

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Preface

This 2003 revision of the booklet by John Molberg first published in 1950 retains the features of having foliage pictured against a background of inch squares. Previous revised editions were published in 1960, 1964, 1968, 1972, 1985, 1990, and 1995.

The late John Molberg authored **Common Trees and Shrubs of North Dakota**. Molberg served as Associate State Forester from 1946-1972, in charge of state tree nursery operations and head of the Forestry Department at the School of Forestry in Bottineau. He was designated Professor Emeritus by the North Dakota Board of Higher Education in 1981.

Dale Herman, Professor of Horticulture, and Larry Chaput, Research Specialist, at North Dakota State University, Fargo, prepared this revised edition. Other revisions and additions were done by Robert Heintz, Vernon Quam and Earl Behrens, formerly with the NDSU Extension Service, and Richard Gilmore, formerly with the North Dakota Forest Service.

Forest Areas and Forestry in North Dakota

North Dakota is a plains state, but about 1 percent of its area is covered with forest vegetation. The wooded areas of the state are:

Turtle Mountains: These rolling hills in Bottineau and Rolette Counties rise about 500 feet above the surrounding prairie. Originally they were covered with a good growth of quaking aspen, balsam poplar, bur oak, green ash, paper birch, and American elm, but repeated fires and land clearing for agriculture have reduced the forest area by half leaving approximately 90,000 acres of forest, most of it in a low state of productivity. The numerous lakes and surrounding timber make the Turtle Mountains a favored spot for swimming, camping, fishing, and hunting. It is also the site of the renowned International Peace Gardens.

Killdeer Mountains: These rolling hills in northwestern Dunn County are smaller and not as heavily timbered but support essentially the same vegetation.

Pembina Gorge: An eroded escarpment of the Red River Valley in northwestern Pembina County, this area differs from the Turtle Mountains in that it has no lakes, does not rise over the prairie, and basswood is added to the timber species.

Devils Lake Region: Much of the shoreline and upland of Devils Lake is covered with timber growth similar to that in the Pembina Gorge. Unfortunately, large numbers of trees have been lost to flooding.

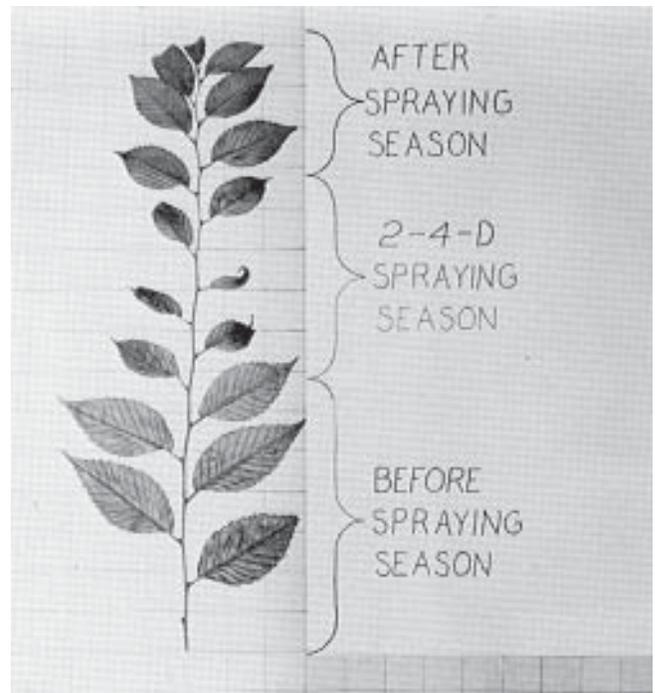
Bottom Lands of Missouri, Red, and Sheyenne River Valleys: Good stands of cottonwood, elm, ash and boxelder are found in the bottoms, much of which have been flooded by water backed up by dams.

Little Missouri Drainage: One isolated stand of limber pine, several stands of ponderosa pine, and scattered Rocky Mountain juniper make this area unique. Common juniper and creeping juniper are also present.

A major portion of forestry activity in North Dakota is the planting and care of farm windbreaks, an activity in which North Dakota leads all the plains states. The Soil Conservation Districts operate tree nurseries at Oakes and Bismarck and plant most of the trees distributed for windbreaks. Coniferous trees are grown at the Towner State Nursery, Towner, ND.

The North Dakota Forest Service is the state agency responsible for administering cooperative forestry programs, forest fire control, timber sales on state-owned land, management of state recreational forest lands, and management of the state tree nursery at Towner. Lands have been acquired for state forests in the Turtle Mountains, Pembina Hills, and Sheyenne River Valley near Fort Ransom. Over 10,000 acres of timbered lands are owned by the State Forest Service in the Turtle Mountains, with lesser amounts owned in the other areas.

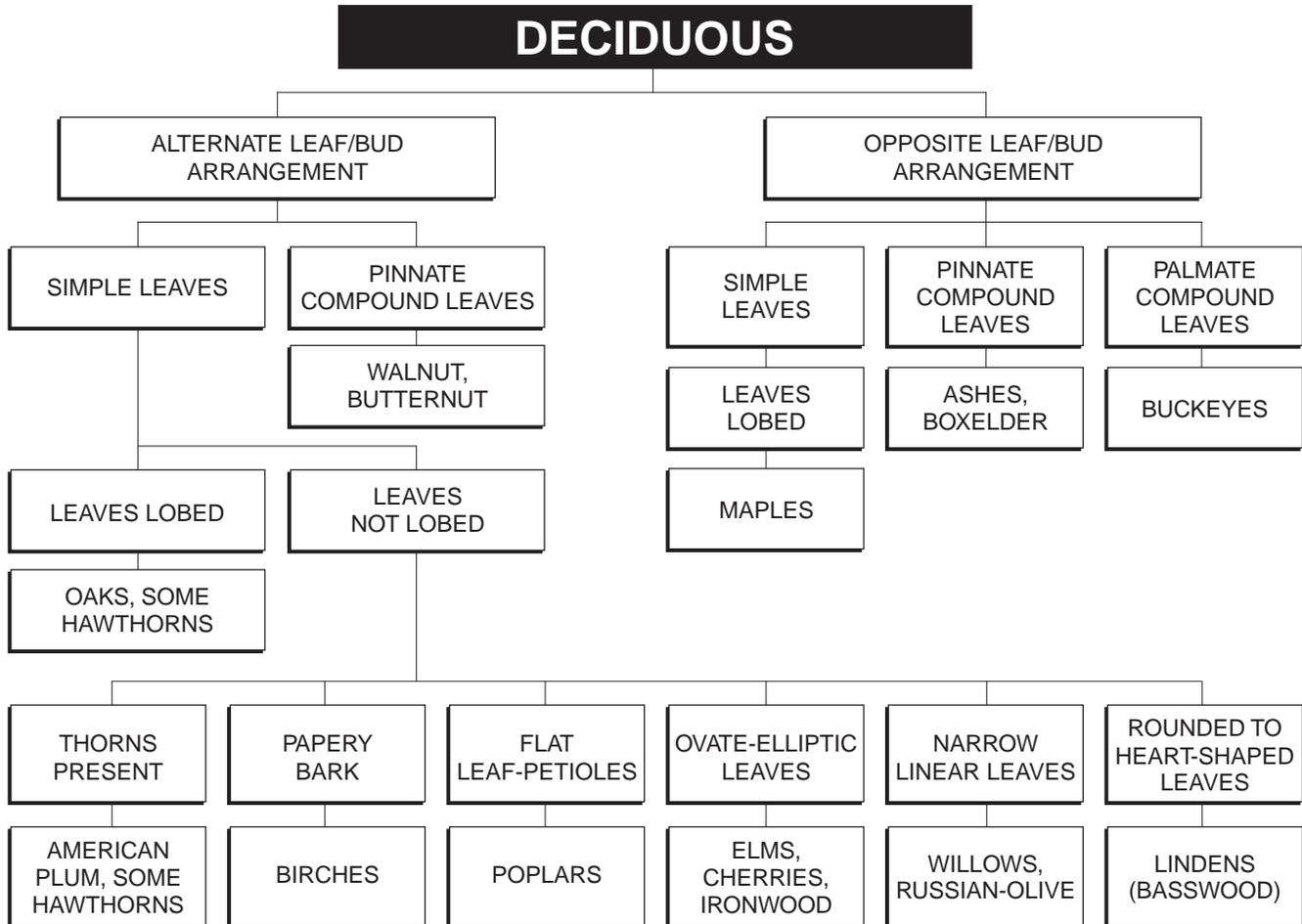
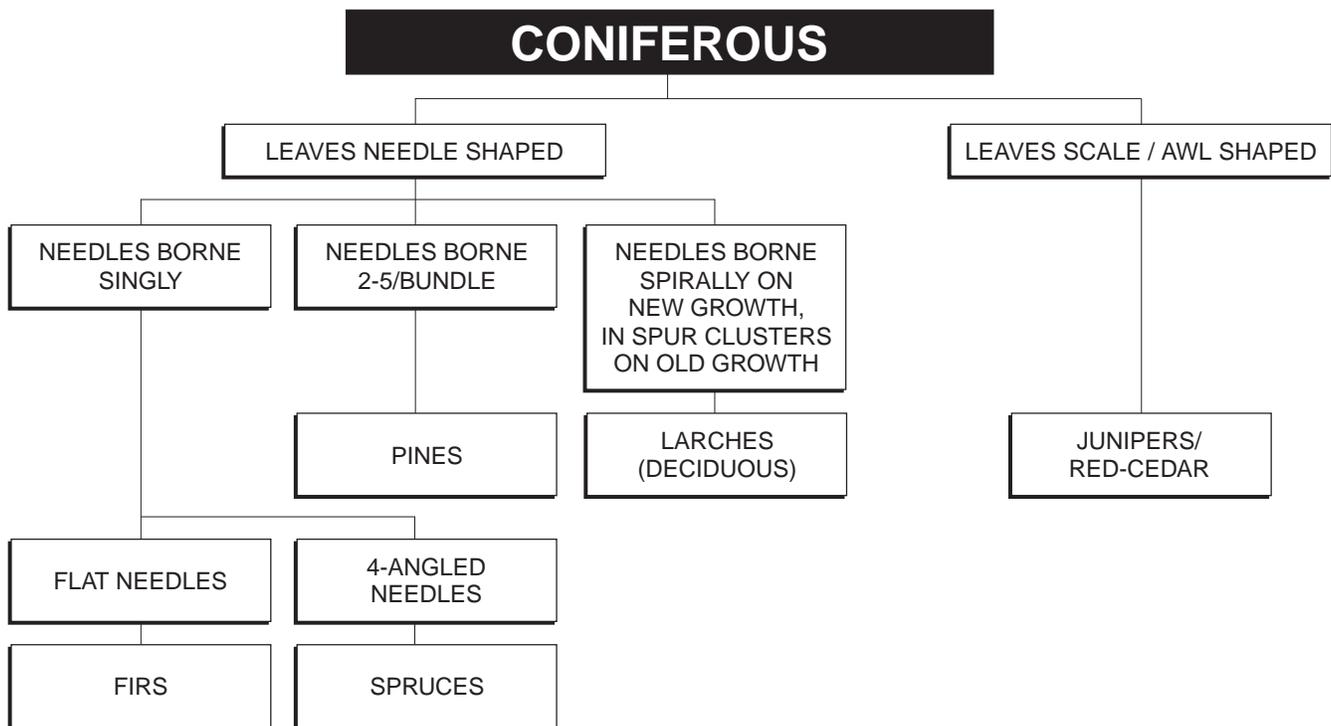
The widespread use of herbicides has had a significant effect on the growth of trees in the state. Exceedingly sensitive trees such as boxelder are no longer planted. Many boxelder and Siberian elm have been killed. Resistant trees, especially conifers, have increased in popularity for shelterbelts. One study indicates that tree growth on sensitive species has been reduced about 25 percent since the advent of herbicides.



Names of Trees

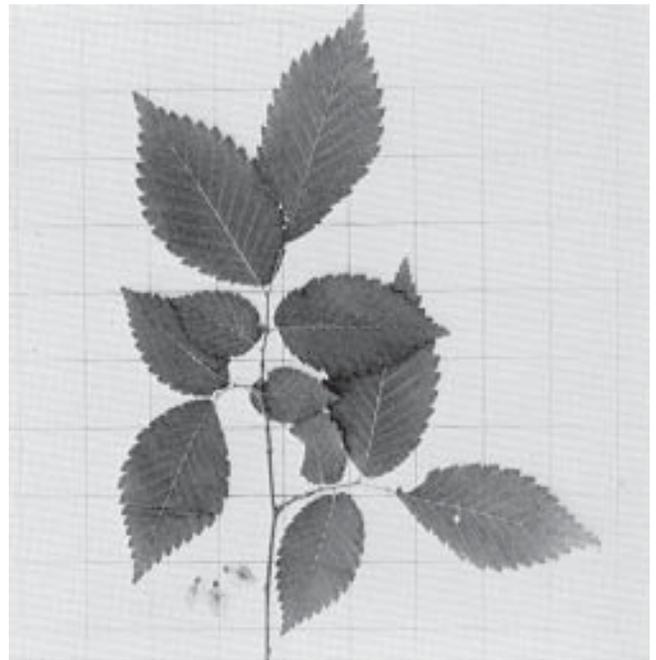
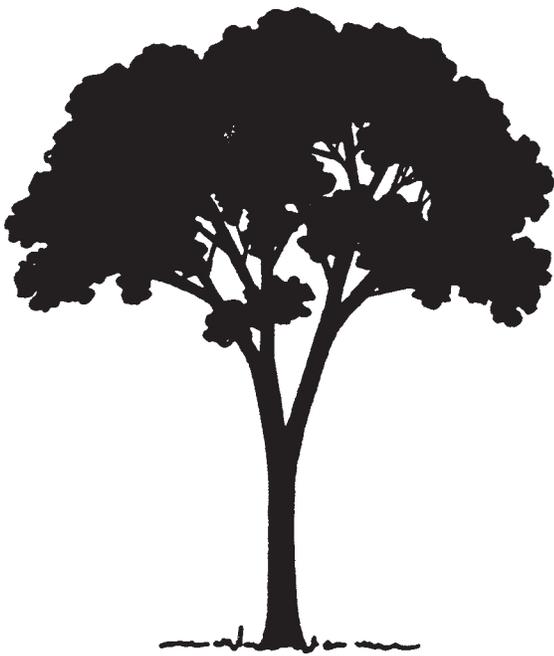
Trees have both common and scientific names. A tree may be known by several common names in different localities. For instance, the tree known as “quaking aspen” is also called “trembling aspen.” Each language may have one or more common names for the same tree. This confusion can be avoided by using a scientific name which is universal the world over. The scientific name of quaking aspen is *Populus tremuloides*. The first word, corresponding to a surname, refers to the genus to which the tree belongs, and the second word refers to a specific tree species within the genus. Thus, *Populus* and the specific name following, *tremuloides*, *balsamifera*, *deltoides*, etc. identify the particular tree species as “quaking aspen,” “balsam poplar,” and “cottonwood,” respectively. The scientific names are in Latin, used worldwide and rarely change.

Tree Identification Keys



Our State Tree

American Elm — *Ulmus americana*



Leaves: Simple, alternate, doubly serrate, sometimes rough on surface, with the base of the leaf blade inequilateral.

Buds: Small, smooth, reddish brown, sharp pointed.

Twigs: Slender, smooth, reddish brown to gray, bitter in taste.

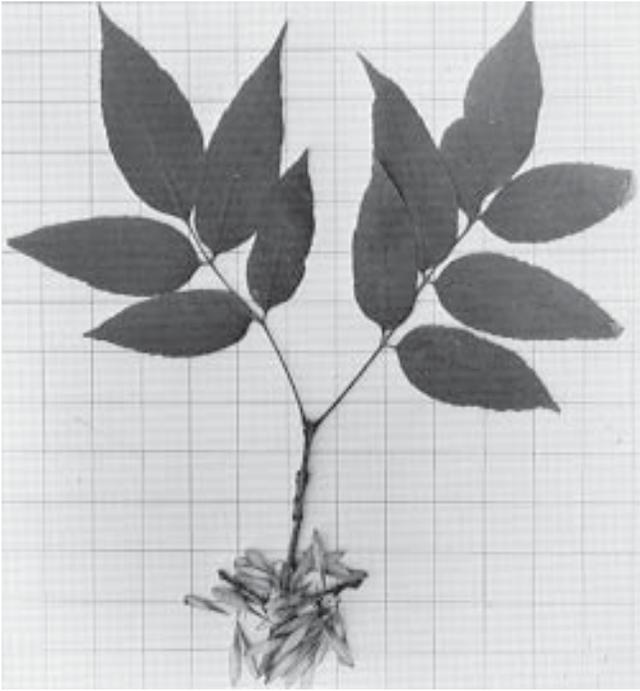
Fruit: Samara with disc-like, hairy, membranous wing containing a keyhole shaped notch. Ripens in May.

Bark: Irregularly ridged and deeply furrowed, ashy gray-brown.

The Tree: Selected as the state tree of North Dakota, the American elm is our most beautiful shade and street tree. It is native throughout the state, especially along streams and lake shores. The vase-like shape, large size, and rapid growth in moist locations all commend it, but it has the drawback of being a preferred host to aphids and cankerworms. Dutch Elm Disease continues to decimate the native American elm stands in North Dakota. Research work is important to identify DED resistant selections. Currently NDSU is evaluating a number of American elm cultivars with high resistance to Dutch Elm Disease, and has named a new cultivar, 'Lewis & Clark' - Prairie Expedition™.

Wildlife Value: Good, used for food (wood, seeds, buds, twigs, foliage), cover and insect habitat. Used by water-fowl, upland game, song birds, fur bearers, game and hoofed browsers.

Deciduous Trees



GREEN ASH

Fraxinus pennsylvanica

Leaves: Opposite, compound, with five to nine finely serrated leaflets.

Buds: Broad, stubby, rusty brown.

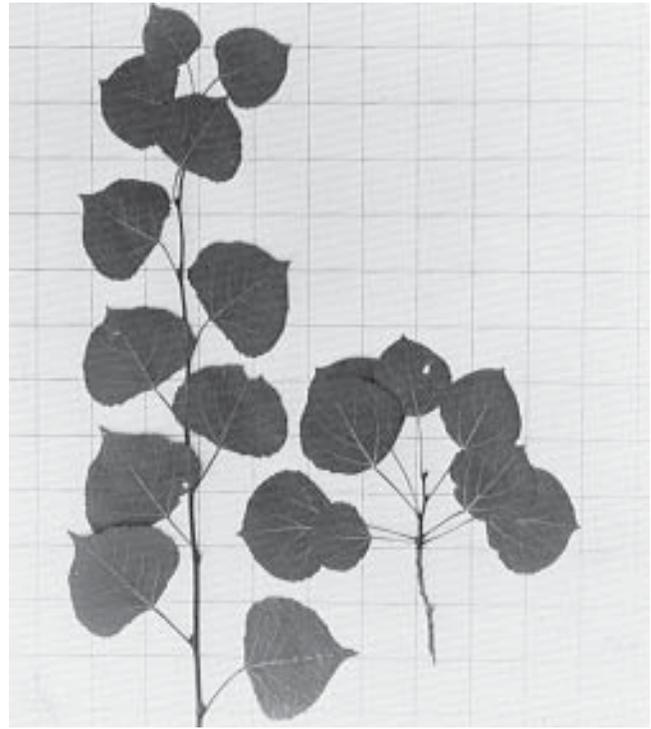
Twigs: Brownish gray, stout, smooth, with light spots.

Fruit: A narrow-winged samara, ripening in the fall.

Bark: Finely furrowed, dark gray; inner bark creamy tan.

The Tree: Although a slow growing tree in early life, it is very hardy and persistent, often outgrowing temporary fast-growing trees when established on good sites. While one of the last trees to leaf out in the spring and first to drop its leaves in the fall, it is still one of our best shade trees and probably our most valuable shelterbelt tree. It is native throughout the state and furnishes wood for posts, fuel, and some rough dimension lumber. Superior cultivars are readily available in the nursery trade, including 'Bergeson', 'Patmore', and the NDSU cultivars 'Rugby' - Prairie Spire® and 'Leeds' - Prairie Dome®.

Wildlife Value: Good to excellent, fall food (seeds, buds, twigs, foliage) source and cover to many wildlife, including waterfowl, upland game, song birds, fur bearers, game animals, small mammals, and hooved browsers.



QUAKING ASPEN

Populus tremuloides

Leaves: Simple, alternate, serrate margin; petioles flattened.

Buds: Sharp, slender, incurved, small, dark colored.

Twigs: Slender, reddish-brown.

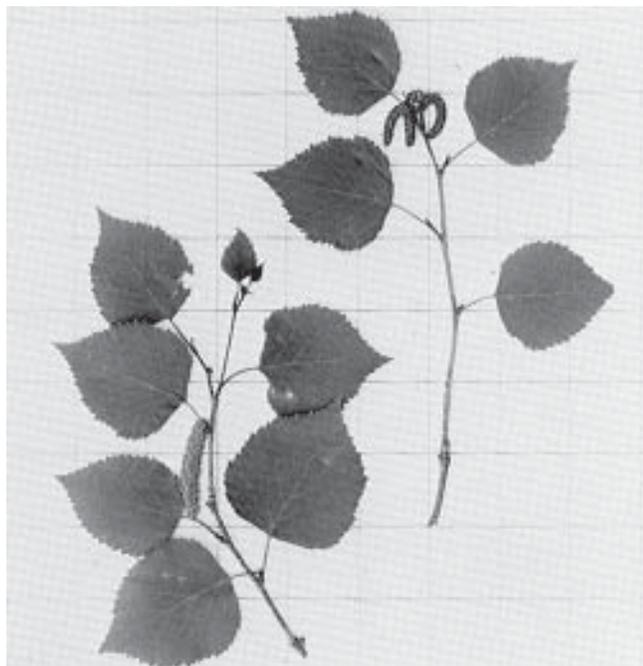
Fruit: A capsule ripening in the spring, containing numerous small seeds with a cottony covering.

Bark: Smooth, greenish white, becoming furrowed and darker on old trees.

The Tree: A slender short-lived tree found in clumps throughout the state, the aspen reaches its best development in the Turtle Mountains where it is the most common of all the trees. The flattened petioles permit the leaves to tremble in the slightest breeze, hence its common name. Its short life expectancy and high moisture requirements are two good reasons for not planting it in shelterbelts. It is one of the North Dakota trees producing locally-sawn lumber, but the wood is very susceptible to rot and should be used only where it is not exposed to moisture.

Wildlife Value: Good to excellent, winter source of cover and food (buds, catkins, bark, foliage) to wildlife species; upland game, song birds, fur bearers, game animals, small mammals and hooved browsers.

Deciduous Trees



PAPER BIRCH

Betula papyrifera

Leaves: Alternate, simple, margin serrate.

Buds: Terminal bud lacking; lateral buds somewhat gummy, chestnut-brown in color, small, sharp-pointed.

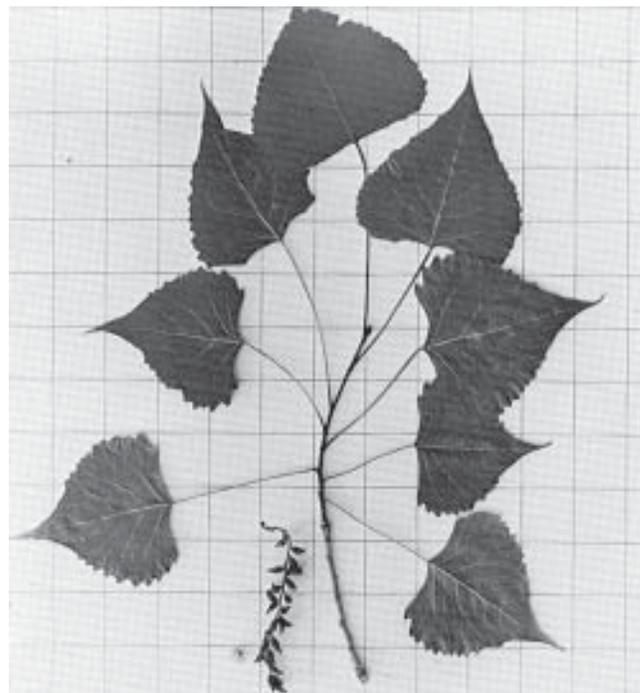
Twigs: Slender, reddish brown, with prominent lenticels.

Fruit: A cylindrical, pendent, conelike strobile 1 inch long, disintegrating in the fall and winter, and liberating small winged nutlets.

Bark: At first dark brown but eventually becoming creamy white and separating from the tree in long, horizontal, papery strips which are highly flammable.

The Tree: Although common in the Turtle Mountains, it is of very scattered occurrence in other parts of the state. Short-lived at best, it quickly disappears from any heavily grazed area. A small amount of birch is cut into lumber for rough construction. The native species and the similar European white birch are popular ornamentals, but are susceptible to dieback injury from bronze birch borers. In 2003, NDSU introduced a superior paper birch named 'Varen' - Prairie Dream® with high bronze birch borer resistance.

Wildlife Value: Fair, food (catkins, buds, seeds, twigs, foliage) source for butterfly caterpillars and other wildlife species such as upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



COTTONWOOD

Populus deltoides

Leaves: Simple, alternate, margin coarsely serrate; petiole flattened.

Buds: 1/2-inch long, light brown, pointed, shiny, and resinous.

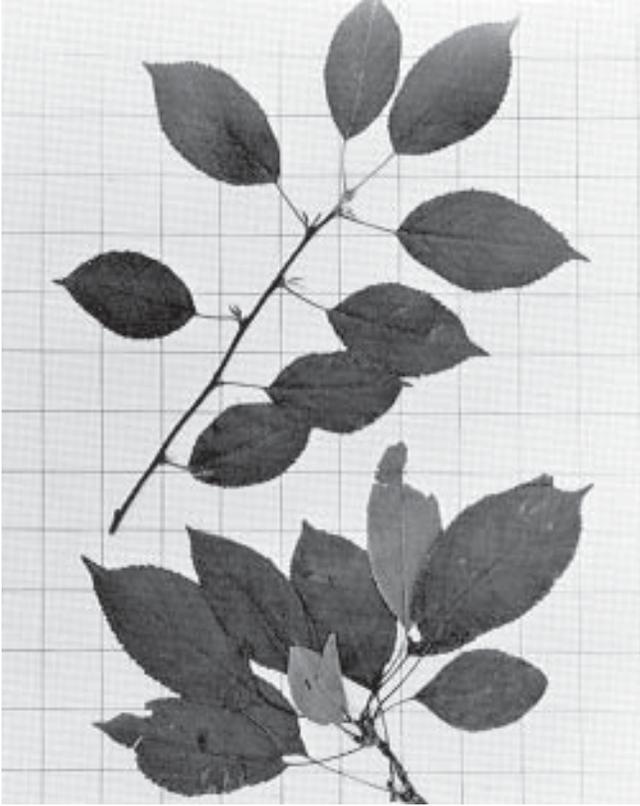
Twigs: Moderately stout, grayish green.

Fruit: A June-ripening capsule containing numerous small seeds with a cottony covering.

The Tree: Although the largest and fastest growing tree in the state, the cottonwood is relatively short-lived and on dry upland sites is susceptible to many diseases and insects. It is native to moist soils along streams throughout the state and furnishes a considerable amount of rough sawn timber for home consumption. One of the most widely planted trees in the early days. Hybrid poplar cultivars such as 'Walker' and 'Northwest' differ in leaves, bark, petiole, and general shape but the growth characteristics are similar. 'Siouxland' is a male clone propagated vegetatively to eliminate the cotton problems of the female tree.

Wildlife Value: Fair, summer cover and foods (buds, catkins, bark, foliage) to a number of wildlife species, including upland game, song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Trees



CRABAPPLE

Malus spp.

Leaves: Alternate, simple, finely serrate.

Buds: Brown, stout, usually hair.

Twigs: Usually stout and varying in color, but usually some shade of brown.

Fruit: Pomes of varying sizes and colors.

Bark: Smooth, usually some shade of brown, lenticels quite prominent. Bark becomes flaky or platelike on older trees.

The Tree: The numerous horticultural cultivars are popular in that all have beautiful white to rose-pink spring flowers and colorful, sometimes edible, fall fruits. Fire blight and apple scab may cause disease problems, but some cultivars have high resistance.

Wildlife Value: Fair to good, food (fruit, seeds, buds, twigs, foliage, bark) and nectar source for hummingbirds and orioles. Used by upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



SIBERIAN ELM

Ulmus pumila

Leaves: Similar to American elm but smaller, darker green, smoother, and glossier, and base of leaf blade more equilateral.

Buds: Smaller, lighter colored, and more blunt than American elm.

Twigs: Very slender.

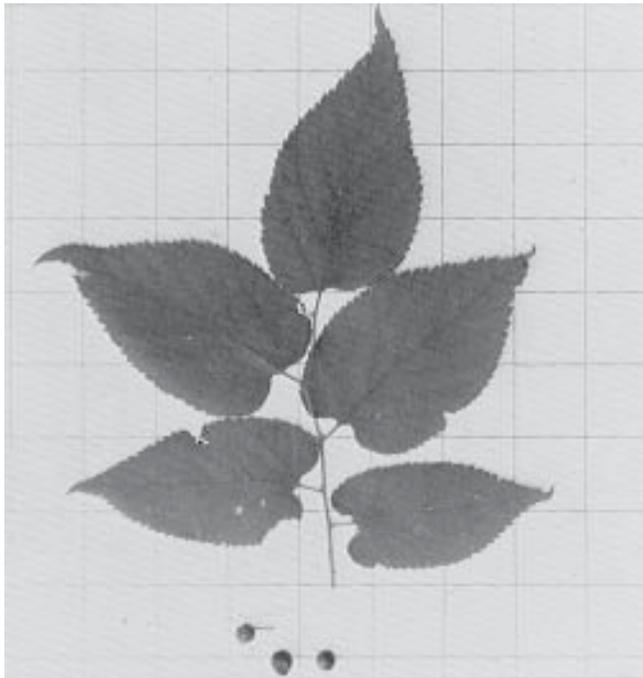
Fruit: Similar to American elm but glabrous and twice as large, without a keyhole shaped notch in the wing.

Bark: Grayish green and smooth on young trees; dark and furrowed on older trees.

The Tree: Commonly and improperly called "Chinese elm," a name properly applied to a similar species planted in the south which matures its seed in the fall. It has been a widely planted shelterbelt tree with a rapid growth rate and good drought resistance. Its susceptibility to herbicide and its relatively short life expectancy have discouraged its use in many parts of the state. It is not recommended for ornamental purposes. The 'Dropmore' elm is a seed strain credited with being more winter-hardy. An invasive, weedy species.

Wildlife Value: Fair to good, used for food (wood, seeds, buds, twigs, foliage) by waterfowl, upland game, song birds, fur bearers, game animals and hoofed browsers.

Deciduous Trees



COMMON HACKBERRY

Celtis occidentalis

Leaves: Simple, alternate, serrate, with acuminate apex and pinnate venation.

Buds: Small, light brown, appressed to twig.

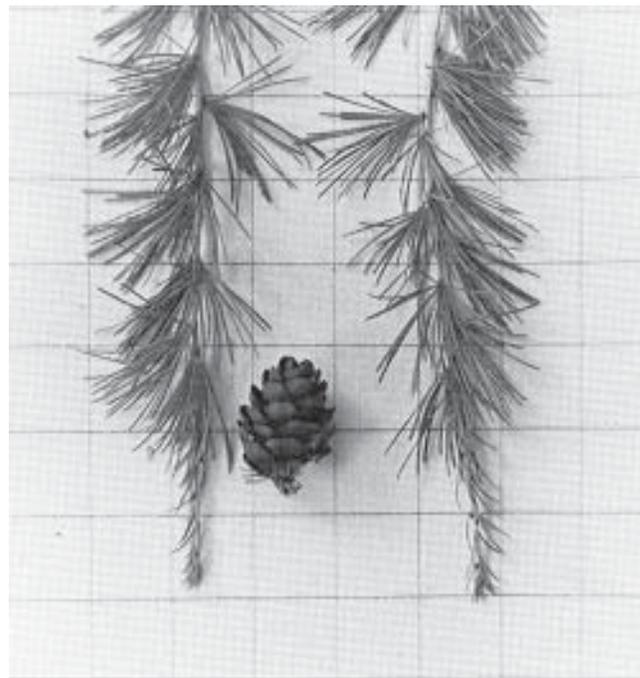
Twigs: Zigzag, slender, reddish brown, pith finely chambered at the nodes; sometimes hairy.

Fruit: A drupe with dark maroon or purple skin, yellow flesh, and netted pit. It ripens in late fall and persists.

Bark: Grayish brown with characteristic eroded warts or ridges.

The Tree: A native tree of the eastern half of the state. Although a good shade or street tree, it is used sparingly in shelterbelts because of slow growth, difficulty of nursery propagation, and susceptibility to frost damage in the first five years of life.

Wildlife Value: Fair to good, winter food (fruit, twigs, foliage) and cover to over 40 wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



SIBERIAN LARCH

Larix sibirica

Leaves: About 20 needles coming from spur shoots on old growth but spirally (singly) arranged on first year twigs: deciduous.

Buds: Resinous, round or conical.

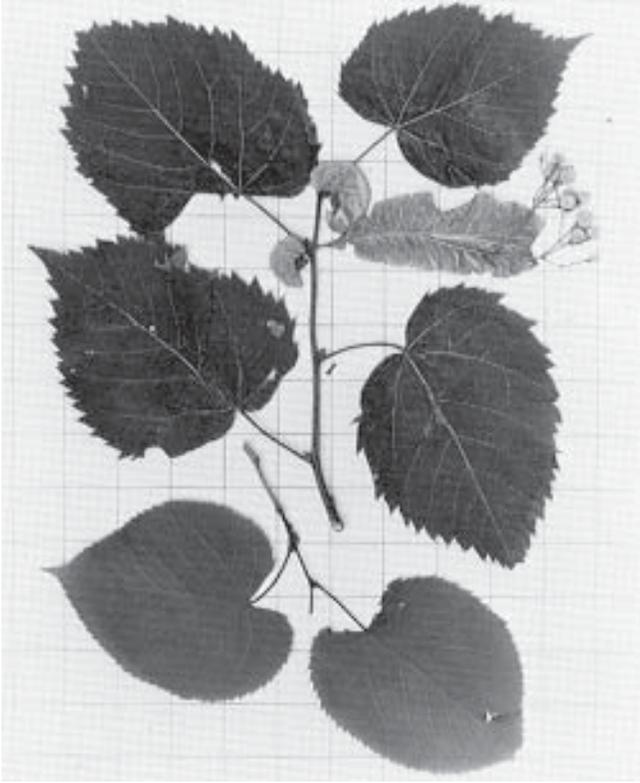
Twigs: Slender, marked by spur shoots on twigs over one year old.

Fruit: Cone matures in one season and consists of few scales.

The Tree: This introduction from Siberia has potential for shelterbelt use. The early flush of growth in the spring presents some problems in planting. The rapid growth rate, open crown, and deciduous needles seem to offer the features currently sought after in shelterbelts. The American larch (tamarack), native to the lake states, and European larch, native to Europe, are similar, but the former has smaller cones and the latter has more cone scales. Larch are attractive for landscape trees.

Wildlife Value: Fair, summer cover and food (leaves, buds, seeds, bark) to wildlife, including upland game and song birds, fur bearers and game animals.

Deciduous Trees



AMERICAN LINDEN

Tilia americana

Leaves: Alternate, simple, coarsely serrate.

Buds: Terminal bud lacking; lateral buds reddish brown in color, 1/4-inch long.

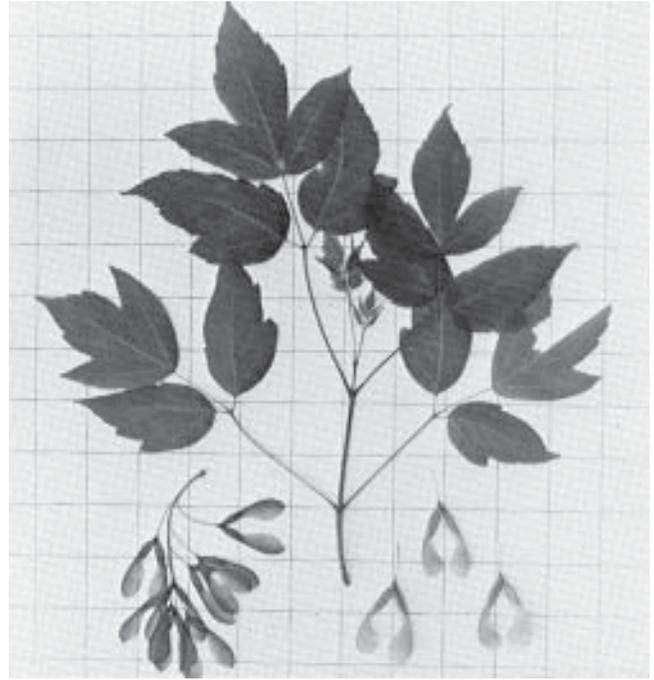
Twigs: Gray or red, zigzag.

Fruit: Nut-like, round, woody, containing 1 or 2 seeds; several nutlets suspended from a leaf-like bract.

Bark: Gray-green to gray-brown; somewhat scaly.

The Tree: Native to the Red River, Sheyenne River and Devils Lake regions; this tree is rarely planted in the western half of the state. It is not used in shelterbelts because it is not drought resistant. The larger trees yield lumber of good quality. Basswood is another name used for American Linden. Lindens are increasing in popularity for planting in heavy clay soils of the Red River Valley.

Wildlife Value: Fair to good, summer cover and food (seeds, bark, twigs, foliage) for wildlife including upland game, fur bearers, game animals, small mammals and hoofed browsers.



BOXELDER MAPLE

Acer negundo

Leaves: Opposite, compound, with three to five leaflets.

Twigs: Stout, green to purplish, covered at first with a bluish white bloom.

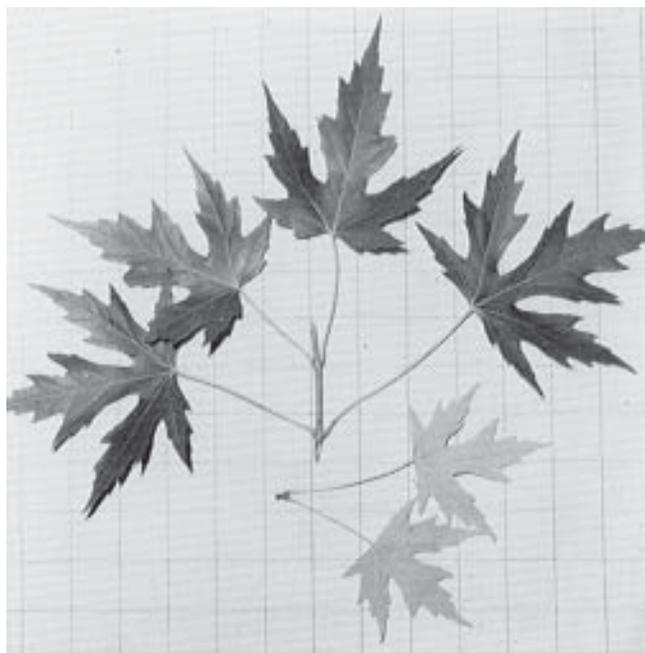
Fruit: A winged schizocarp borne in pairs, maturing in the fall and persisting on the tree into winter.

Bark: Finely ridged, light brown to almost black, with sometimes a greenish tinge.

The Tree: A fast-growing, relatively short-lived tree with a short-stemmed, branchy, irregularly widespreading crown, it has been one of the most widely planted trees in North Dakota. Native to the river bottoms, ravines, and hilly regions of the state, it survived the dry thirties by dying back to the ground and then springing up anew with the coming of moisture. Boxelder is highly sensitive to herbicide spray drift.

Wildlife Value: Fair, summer cover and food (buds, twigs, seeds, flowers, foliage) to several wildlife species, including upland game, song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Trees



SILVER MAPLE

Acer saccharinum

Leaves: Opposite, simple, palmately five lobed, toothed margin, silvery on bottom side.

Buds: Dark, reddish brown, 1/8-inch long, globose, often many buds together.

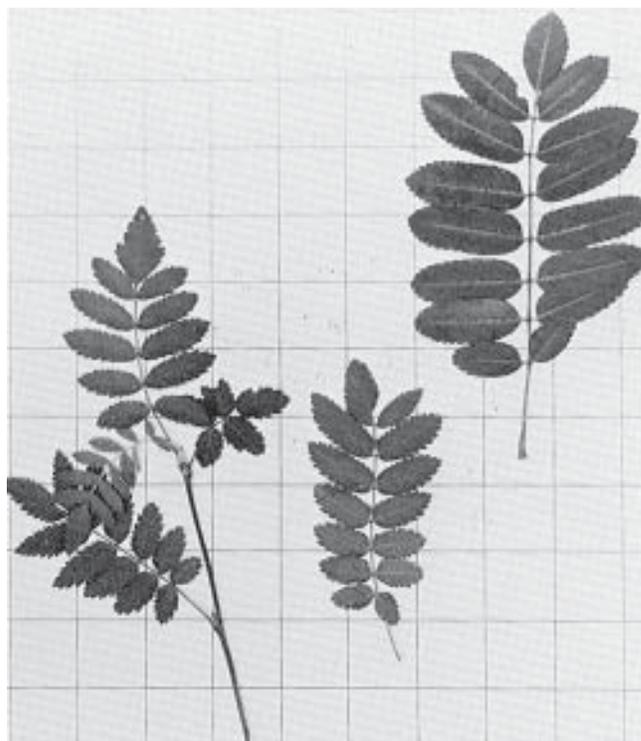
Twigs: Moderately stout, reddish brown.

Fruit: Paired schizocarps.

Bark: Silvery gray, flaky or platelike on mature trees.

The Tree: A few shelterbelts contain this tree. It is occasionally planted as a specimen tree, but lack of drought resistance discourages broader usage. The branches are easily broken by sleet or snow and it is susceptible to iron chlorosis on alkaline soils. 'Silver Cloud' is a cultivar rated as more winter hardy than the typical species.

Wildlife Value: Fair, summer cover and food (buds, twigs, seeds, flowers, bark, foliage) to many wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



EUROPEAN MOUNTAIN-ASH

Sorbus aucuparia

Leaves: Alternate, pinnately compound, margin serrate.

Buds: 1/2-inch long, 1/4-inch diameter, reddish brown, scales covered with white hairs.

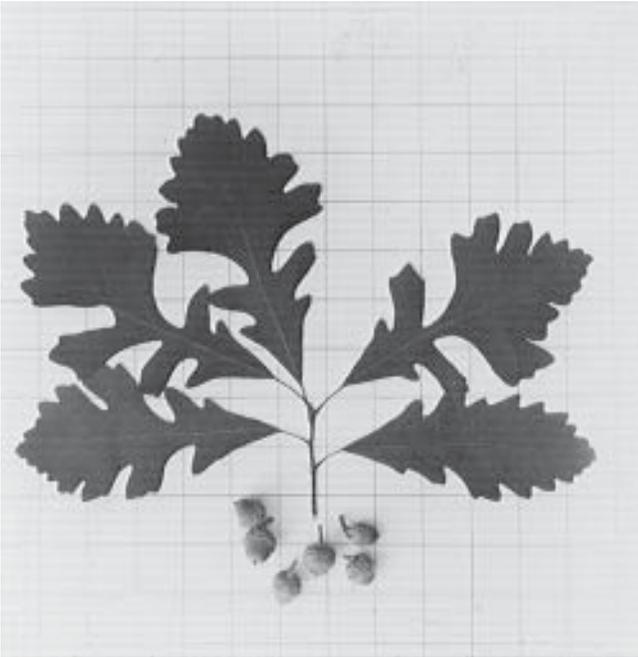
Twigs: Stout, reddish brown, lenticels quite prominent.

Fruit: An orange-red pome 1/4-inch in diameter borne in clusters and ripening in September.

The Tree: A decorative tree introduced from Europe where it is often called "Rowan Tree." This popular landscape tree is planted on many boulevards and lawns. Usually it does not exceed 18 feet in height nor 12 inches in trunk diameter. The white flowers of June and reddish fruits of September are very colorful. Some trees are damaged by fire blight. Several cultivars available.

Wildlife Value: Good, fall food (seeds, stems, foliage) source to wildlife species including marsh, shore, upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Trees



BUR OAK

Quercus macrocarpa

Leaves: Alternate, simple, dark green, variable in shape, often with the middle sinuses (opening between leaf lobes) nearly reaching the midline of the leaf.

Buds: Small, light brown, clustered near the end of the twig.

Twigs: Stout, rough, often corky-barked.

Fruit: Acorn with mossy-fringed cup.

Bark: Distinct ridges with deep furrows, dark gray to nearly black in color.

The Tree: Native throughout the state on a great variety of soil types, it is drought resistant, perfectly hardy, slow growing, and may live for as many as 400 years on the best sites. The bur oak has a tremendous tap root.

Wildlife Value: Excellent, used for cover and food (acorns, twigs, buds, bark) source to numerous wildlife, including waterfowl, marshbirds, shorebirds, upland game, song birds, rodents, game animals and hoofed browsers.



OHIO BUCKEYE

Aesculus glabra

Leaves: Opposite, palmately compound with five to seven leaflets. The leaflets are 3 to 5 inches long, acuminate shape and finely serrate, hairy underneath. Yellow to red fall color.

Buds: Large, tan, with overlapping pointed scales.

Twigs: Stout, reddish brown changing to ash-gray, hairy becoming smooth and hairless.

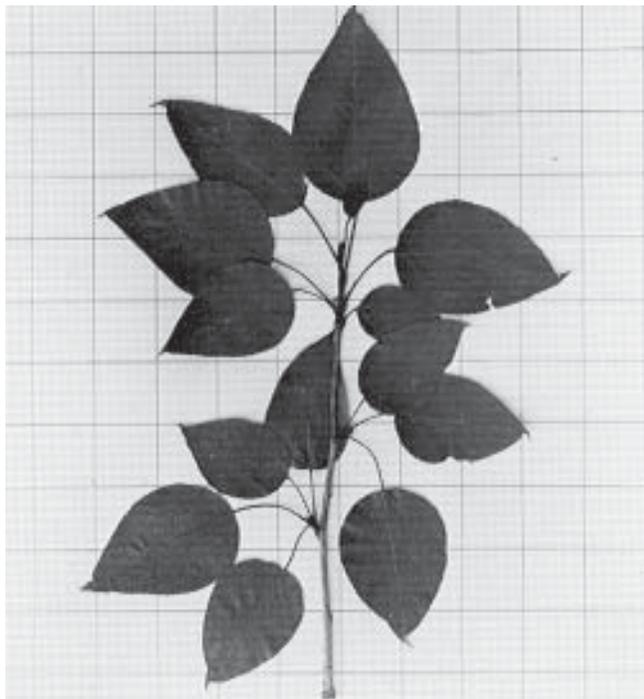
Fruit: Large prickly round capsule, 1 to 2 inches in diameter which releases 2 to 3 dark brown seeds. The seeds resemble deer buck eyes.

Bark: Ashy-gray, thick, deeply furrowed and plated.

The Tree: Rounded canopy, the foliage has a fine texture and trees grow to about 35 to 40 feet. Native from Pennsylvania to Nebraska and south but is adapted to southeastern North Dakota and in many cities across the state. New released cultivars are far superior to the species in foliage quality, including autumn coloration. These hybrid cultivars include 'Autumn Splendor', 'Homestead' and 'Bergeson' - Prairie Torch®.

Wildlife Value: Good, squirrels harvest nuts in late August at ripening. The nuts or seeds are considered poisonous but do not seem so to some wildlife.

Deciduous Trees



BALSAM POPLAR

Populus balsamifera

Leaves: Alternate, simple, margin finely serrate; petiole round.

Buds: Large, long, pointed, brownish, resin-coated, sticky, fragrant.

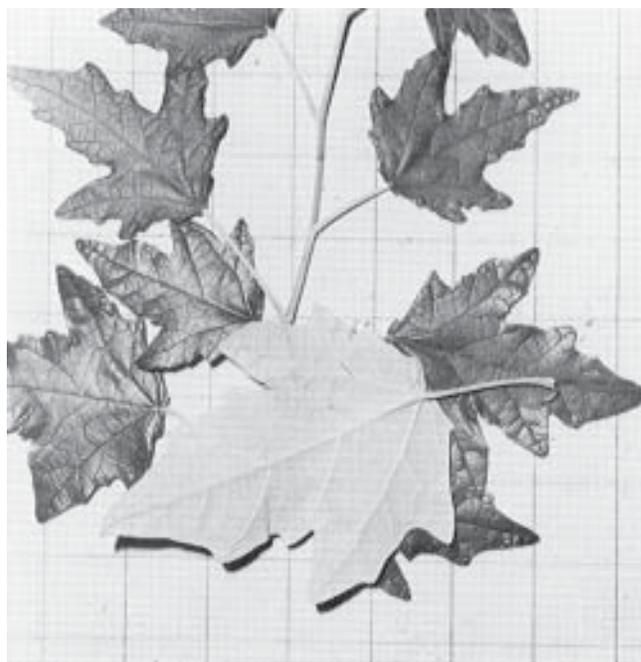
Twigs: Stout and darker in color than quaking aspen.

Fruit: Similar to quaking aspen.

Bark: Darker, rougher, and thicker than quaking aspen.

The Tree: A short-lived tree similar to the aspen. Found in association with it in the Turtle Mountains, particularly in areas adjacent to lakes. The odor of the wood and its tendency to warp discourage extensive use of the tree for purposes other than fuel wood.

Wildlife Value: Fair to good, food (buds, catkins, bark, foliage) source to butterflies. Used by upland game, song birds, fur bears, game animals, small mammals and hoofed browsers.



WHITE POPLAR

Populus alba

Leaves: Alternate, simple, silver white and hairy below, variable in shape; commonly lobed, margin variable.

Buds: 1/4-inch long, reddish brown, often with white hairs.

Twigs: Slender, greenish, usually with short white hairs.

Fruit: Similar to cottonwood.

Bark: Smoothish, whitish or light gray.

The Tree: This European native has several horticultural strains, including Bolleana Poplar, a clone with a columnar shape. It is never planted in windbreaks but has been used as an ornamental. It is sensitive to drought, and unless well cared for, may not live long in North Dakota. Its suckering habit further limits its use as an ornamental tree, including a narrow, upright hybrid cultivar, 'Tower'.

Wildlife Value: Fair, food (buds, catkins, bark, foliage) source for butterflies and wildlife species including upland game and song birds, game animals, small mammals and hoofed browsers.

Deciduous Trees



RUSSIAN~OLIVE

Elaeagnus angustifolia

Leaves: Simple, alternate, grayish green on upper surface, silvery gray beneath.

Buds: Small, light brown to silvery.

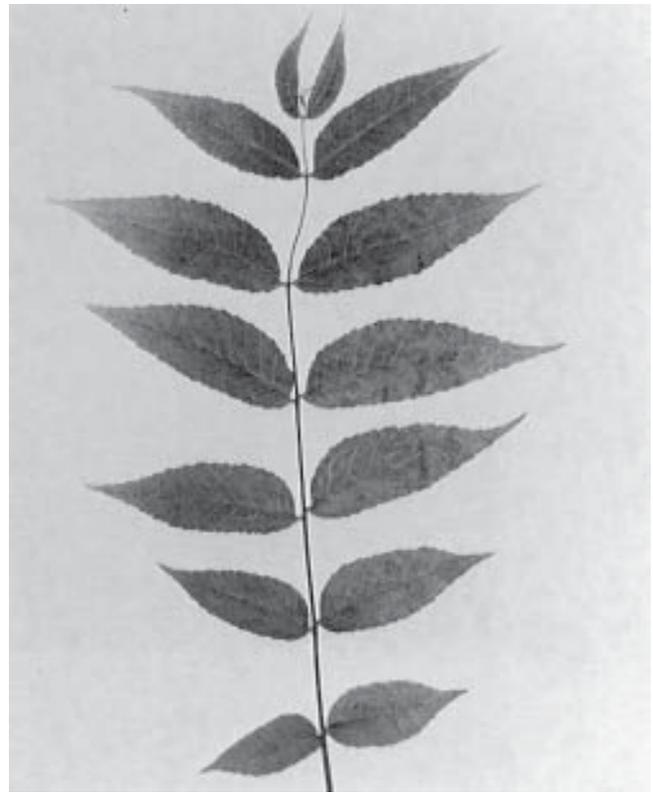
Twigs: Young shoots silvery gray, older shoots reddish brown.

Fruit: Drupe-like, silvery, more or less pulpy.

Bark: Irregular furrowed, dark brown colored.

The Tree: An introduction from Russia, this small tree is characterized by spiny thorns, silvery leaves and fruits. It is drought and alkali resistant, fast-growing in early life, and widely planted in shelterbelts. Susceptibility to stem canker diseases have reduced its popularity in the northern and eastern parts of the state. Naturalizes by seed and can become weedy.

Wildlife Value: Good, winter food (fruit, twigs, foliage) and cover to over 50 wildlife species including upland game, song birds, and hoofed browsers.



BLACK WALNUT

Juglans nigra

Leaves: Alternate, pinnately compound with 15 to 23 lime green leaflets. The leaflets are 1 to 2 inches long, irregularly serrate, sharply pointed, smooth above, pale and hairy below. Leaflets have a fragrant odor when crushed and produce a yellow fall color.

Buds: Pale, silky-downy, 1/3-inch long, lateral buds smaller gray, often superposed.

Twigs: Stout, gray to reddish downy to smooth and bitter to the taste. Heart-shaped leaf scar.

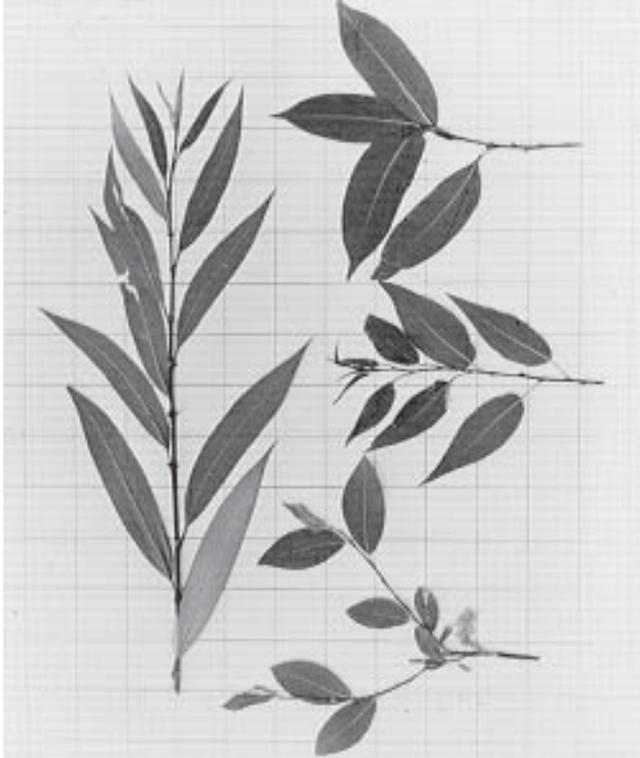
Fruit: Rounded, 1 to 2 inches, greenish rind, borne singly or in pairs, ripening in late fall. The nut is black with a very hard, thick, finely ridged shell, enclosing a rich, oily nut which is nutritious and used by many confectioners.

Bark: Thick, very dark brownish to black, with deep, roughly diamond shaped furrows and rounded edges.

The Tree: A slow growing, long-lived tree with an oval to rounded crown. It's native range is in eastern United States but has been planted throughout North Dakota. The wood of the black walnut is highly prized for furniture, veneer and gunstocks. A good shade tree. Plant northern seed sources.

Wildlife Value: Good, used for habitat and food (nuts), by song birds, fur bearers and game animals.

Deciduous Trees



WILLOW

Salix

Leaves: Alternate, simple, serrate.

Buds: Single caplike scale, appressed to the twig.

Twigs: Thin, flexible, tough.

Fruit: A spring ripening capsule containing numerous small seed with a cottony covering.

Bark: Varies greatly by species, from smooth on small forms to deeply furrowed on large trees.

The Tree: A great number of native species are found along rivers, coulees, and drainages in the state. Pictured are leaves of the peachleaf willow (*Salix amygdaloides*), which becomes a large tree. Other species may be small and brushy. European introductions such as white, golden, and laurel willows are the most popularly planted species and are often seen in shelterbelts.

Wildlife Value: Good, mainly cover along wetlands and food (buds, twigs, bark, wood, foliage, catkins) for wildlife. Nectar source to butterflies. Used by upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Shrubs



COMMON BUCKTHORN

Rhamnus cathartica

Leaves: Subopposite, simple, dark green, oval, serrate, arcuate venation.

Buds: 1/4-inch long, slender, sharp pointed, appressed to twigs, reddish brown.

Twigs: Tan on current years growth, but dark gray on old twigs; ends of twigs modified into thorns.

Fruit: 1/4-inch in diameter, a blackish juicy drupe-like fruit containing one to four seeds.

Bark: Dark gray, fairly smooth.

The Shrub: This introduction from Europe is the alternate host to the crown rust of oats. Birds have widely distributed the seed, however, and the plant is very common in old groves. A highly invasive, weedy species. The similar Dahurian buckthorn has leaves of the same width, but about three times as long and usually lighter green in color. A closely related tree of the West Coast furnishes the bark from which most of our organic laxative is extracted.

Wildlife Value: Fair, food (fruit, stems, foliage, twigs) source for upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



SILVER BUFFALOBERRY

Shepherdia argentea

Leaves: Simple, opposite, densely silvery-scurfy on both sides.

Buds: Small, silvery.

Twigs: Slender, stiff, silvery-scurfy or brown, quite thorny.

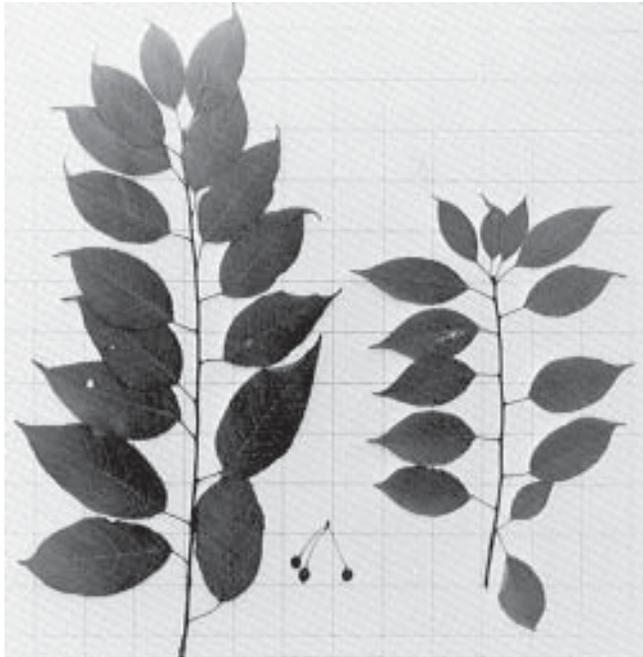
Fruit: Red drupe when ripe; fruit is found on older branches. Male and female flowers occur on separate plants.

Bark: Gray.

The Shrub: Native to many of the drier areas of the state but usually found in ravines and coulees, this shrub is only of minor importance in shelterbelt plantings because of its susceptibility to heart rot and wind breakage. Occasionally growing up to 15 feet high, it forms impenetrable low thorny wildlife cover. The fruit is used for jelly.

Wildlife Value: Good, food (fruit) source the year round. Used by upland game and song birds, fur bearers, game animals and small mammals.

Deciduous Shrubs



PIN CHERRY

Prunus pensylvanica

Leaves: Simple, alternate, finely and sharply serrate.

Buds: Small, blunt, brownish, smooth.

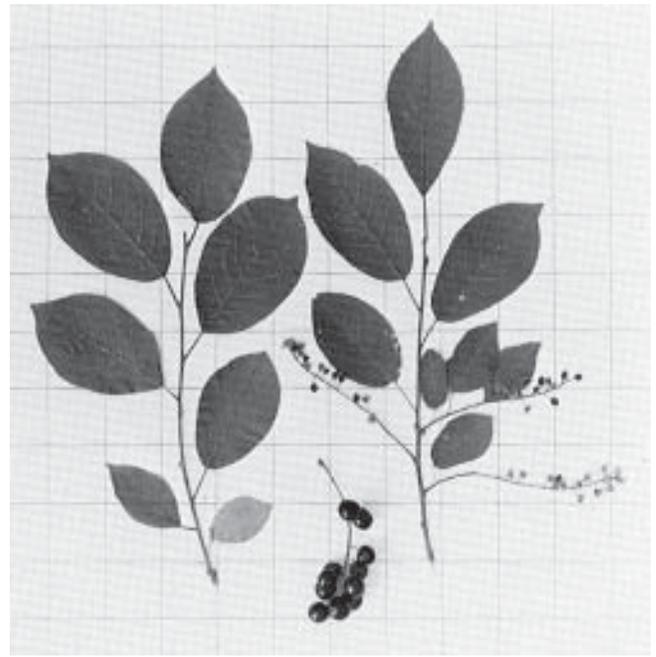
Twigs: Slender, reddish brown to gray.

Fruit: Light red drupe ripening in August.

Bark: Reddish brown, thin, peeling horizontally in broad papery plates.

The Shrub: Usually a shrub with a tree-like habit of growth. Native to the northern and eastern part of the state. Under favorable circumstances it may reach the height of 25 feet and a stem diameter of 8 inches. The open pyramidal crown makes it easily recognizable from a considerable distance. The fruit makes the finest of jelly.

Wildlife Value: Excellent, summer food (fruit, buds, bark, wood, foliage) source to over 80 wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



CHOCKECHERRY

Prunus virginiana

Leaves: Simple, alternate, finely and sharply serrate with prominent glands on the petiole.

Buds: Quite large, pointed.

Twigs: Stout, light brown to dark reddish brown, somewhat mottled. Inner bark with strong disagreeable odor.

Fruit: Drupe borne in racemes; black when ripe.

Bark: Dark gray.

The Shrub: Although found in all parts of the state along streams, ravines, and native woodlands, this shrub is also widely planted in shelterbelts. The fruit is a favorite for jelly making. Many enemies, including "X disease," "black knot," "shot hole disease" and several insects have discouraged the planting of this species, but its popularity remains. It is recommended that it be planted at least 500 feet from other stone fruits as a precaution against the transmittal of "X disease." Red-purple leaved forms are sold as 'Schubert' (Canada Red Cherry).

Wildlife Value: Excellent, cover and summer food (fruit, buds, bark, wood, foliage) source to over 80 species of wildlife including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Shrubs



SHRUBBY CINQUEFOIL

Potentilla fruticosa

Leaves: Alternate, pinnately compound with usually five dull green, hairy leaflets.

Buds: 1/8-inch long, reddish brown.

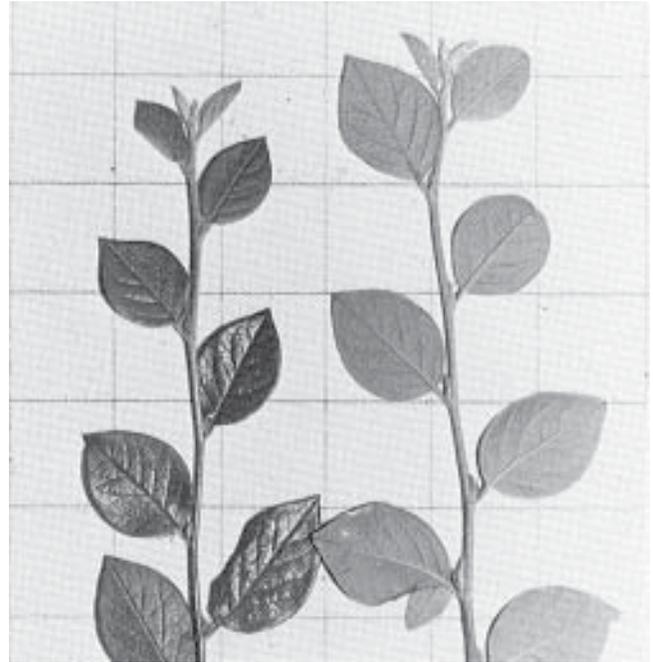
Twigs: Reddish brown with somewhat shreddy bark.

Fruit: Globose, achenes persisting into winter.

Flowers: Yellow, about 1 inch across; like single roses, blooming throughout the summer into October.

The Shrub: This is a compact, fine-textured shrub 1 to 4 feet high, widely used in landscape plantings. Susceptible to red spider mite in dry weather. Many excellent cultivars.

Wildlife Value: Fair, food (seeds, foliage) and nectar source for insects, upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



HEDGE COTONEASTER

Cotoneaster lucidus

Leaves: Alternate, simple, entire, with very short white hairs on the margin. Brilliant autumn colors develop.

Buds: Small, brown, stipulate, irregularly short.

Twigs: Slender, reddish brown, irregularly scurfy.

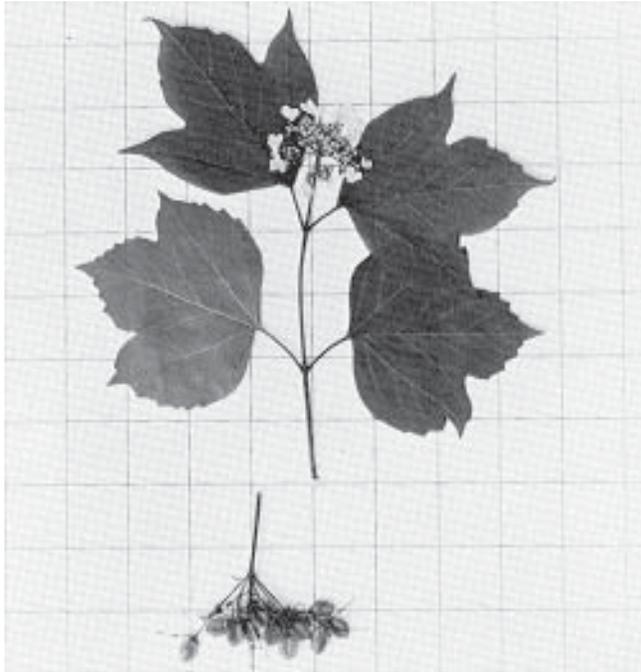
Fruit: Berrylike pomes, mealy, red to black, about 3/8-inch in diameter.

Bark: Reddish brown.

The Shrub: The dark green glossy foliage, resistance to blister beetles and grasshoppers, and retention of leaves late into the fall are characteristics contributing to the popularity of this shrub as a landscape plant. It is susceptible to oyster shell scale, a small sucking insect that spends most of its life beneath a protective scale. It is also susceptible to fire blight so the popularity for hedges and shelterbelt use is waning. It is best to use individual plants in the landscape.

Wildlife Value: Good, cover and fall food (fruit) source to over 30 wildlife species.

Deciduous Shrubs



AMERICAN CRANBERRYBUSH VIBURNUM

Viburnum trilobum

Leaves: Simple, opposite, acuminately three-lobed, variable in size.

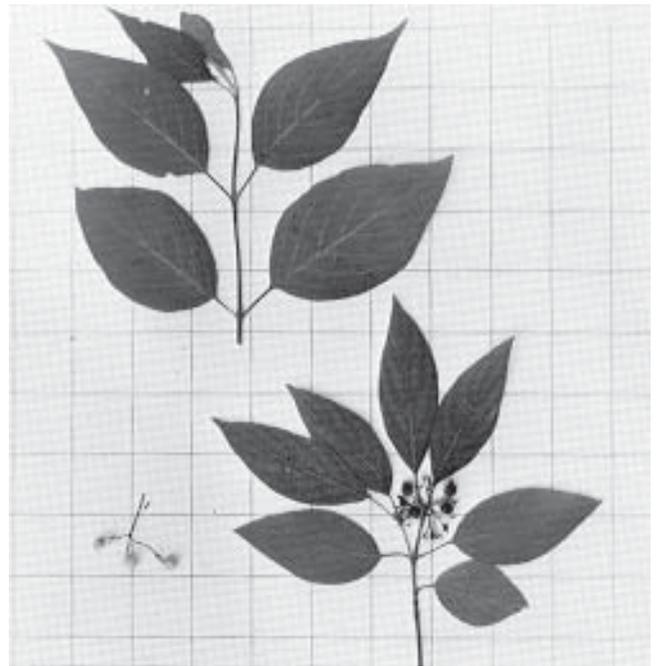
Buds: Reddish brown, stalked, blunt with caplike scales; buds appressed to twig.

Twigs: Moderately stout, light brown.

Fruit: Drupe occurring in large clusters, red when ripe; seed flattened.

The Shrub: Abundant in wooded areas of the Turtle and Pembina Mountains, it is native to moist sites of the state. The highly colored and edible fruit commends it for use as an ornamental in moist shady locations. The bark has medicine value and in past years was widely collected for that purpose. It displays brilliant leaf colors in autumn.

Wildlife Value: Excellent, food (fruit, wood, twigs, foliage) source to over 30 wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



REDOSIER DOGWOOD

Cornus stolonifera

Leaves: Opposite, simple, with smooth margins; the veins tend to parallel the leaf margin.

Buds: Long, pointed, reddish.

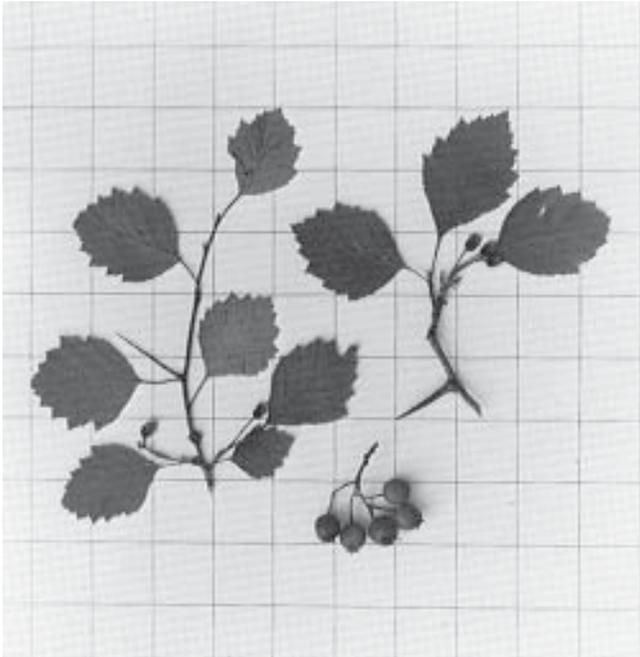
Twigs: Slender, flexible, red.

Fruit: A white drupe ripening throughout the summer.

The Shrub: This large spreading shrub, usually 6 to 9 feet in height, is native to the wooded areas of the state. The white inedible fruits, red stems, and nicely colored leaves are attractive, so it has found favor as an ornamental. It will flourish in shady moist areas. Superior dogwood species and cultivars are available for landscapes.

Wildlife Value: Good to excellent, food (fruit, wood, foliage, twigs) source to over 40 wildlife species year round, including waterfowl, upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Shrubs



ROUND-LEAVED HAWTHORN

Crataegus rotundifolia

Leaves: Alternate, simple, doubly serrate, glossy upper surface.

Buds: Round, small, reddish brown, glossy.

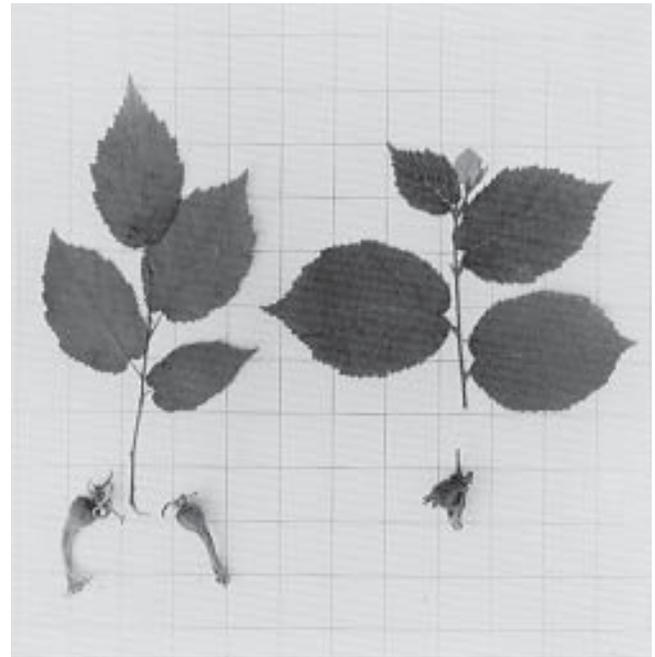
Twigs: Reddish brown to gray, stiff, moderately stout.

Fruit: A red pome ripening in the fall.

Bark: Gray.

The Shrub: Native throughout the state in ravines and wooded areas, it is usually a shrub 10 feet or less in height. The fruit is not consumed by humans but is sought out by birds who find that the numerous slender thorns, up to 2 inches long, form an effective barrier to predators.

Wildlife Value: Excellent, cover and food (fruit, buds, wood, twigs, foliage) source to many wildlife species. Flowers provide nectar for hummingbirds. Used by upland game and song birds, fur bearers, game animals, small mammals, small and hoofed browsers.



BEAKED HAZELNUT

Corylus cornuta

AMERICAN HAZELNUT

C. americana

Leaves: Simple, alternate, double serrate.

Buds: Small, reddish brown.

Twigs: Slender, reddish brown.

Bark: Reddish brown.

The Shrub: The beaked hazelnut or filbert is a small shrub rarely more than 6 feet tall and is found throughout the state in naturally timbered areas. The similar, but usually smaller, American hazelnut pictured on the right is probably more common and differs from the beaked hazelnut in that the fruit does not have the long beak and the current year's twig is densely covered with short red hairs. The American hazelnut fruit is often roasted and eaten but the beaked hazelnut has bristly hairs on the fruit and is usually left alone.

Wildlife Value: Excellent, food (catkins, nuts, stems, foliage, twigs) source to over 20 wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Shrubs



TATARIAN HONEYSUCKLE

Lonicera tatarica

Leaves: Simple, opposite, smooth margin.

Buds: Small, tan, pointing out from twig.

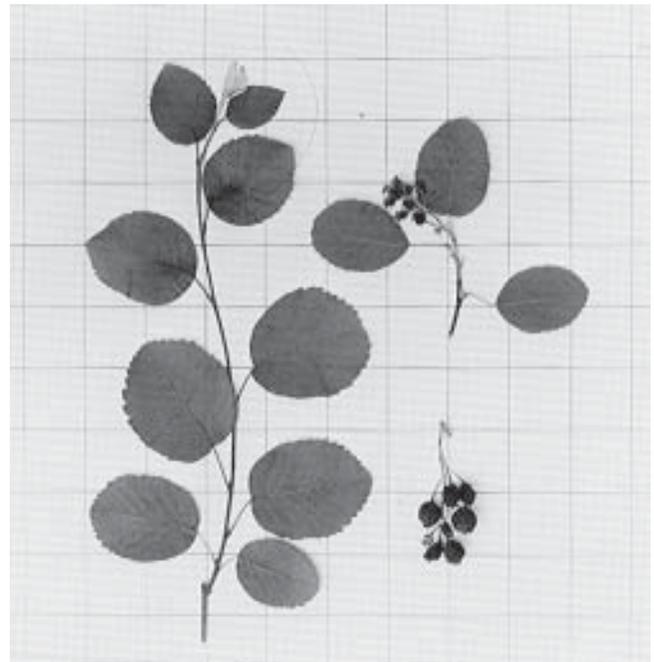
Twigs: Smooth, slender, tan-colored, with hollow pith.

Fruit: Red or orange berry containing a few seeds; usually united at the base in pairs; ripens in August.

Bark: Gray, sometimes shreddy.

The Shrub: This shrub, an introduction from Siberia, was a widely planted ornamental and a popular shelterbelt species. Under shelterbelt conditions it rarely exceeds a height of 8 feet, but as a specimen plant it may exceed 12 feet in height. The beautiful flowers and colorful but inedible fruit made it a favorite around farmsteads. Damage from the Russian aphid now severely limit its usefulness and only resistant cultivars, such as 'Arnold Red' and 'Honey Rose,' should be planted.

Wildlife Value: Fair, source of food (fruit, foliage, branches) and nectar to many butterflies, upland game and song birds, fur bearers, game animals and hoofed browsers.



JUNEBERRY

Amelanchier alnifolia

Leaves: Simple, alternate, serrate above the middle.

Buds: Sharp, reddish brown, the scale borders often with short, white hairs.

Twigs: Reddish brown.

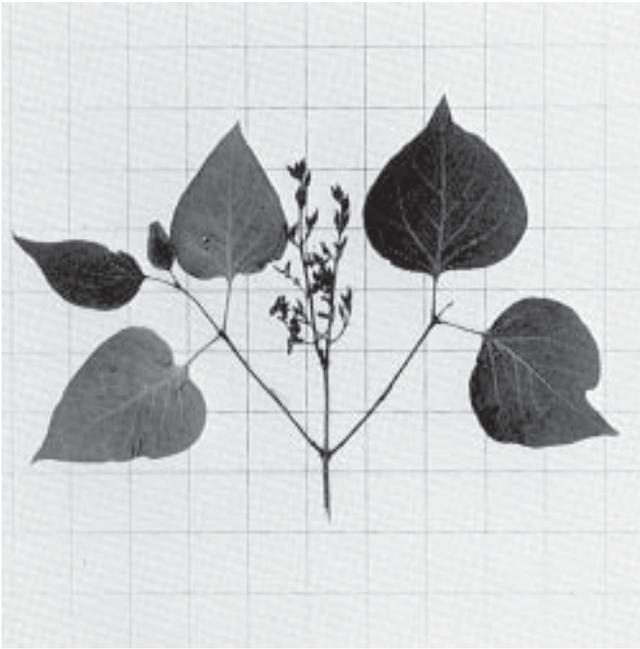
Fruit: Dark blue berry-like pome, containing many seeds; ripens in July.

Bark: Light brown or gray.

The Shrub: A shrub up to 10 feet tall, the Juneberry, also called saskatoon and serviceberry is native to ravines, river banks and wooded areas throughout the state. The widespread use of the fruit for preserves has caused many people to express a desire that it be used as a shelterbelt shrub but inadequate drought resistance has prevented widespread planting. Cultivars producing larger berry size are gaining recognition and u-pick orchards are in production, particularly in Manitoba.

Wildlife Value: Excellent, summer food (fruit, buds, bark, twigs, foliage) source for over 50 species of wildlife, including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Shrubs



COMMON LILAC

Syringa vulgaris

Leaves: Simple, opposite, smooth-margined.

Buds: Large, stubby, pointed, divergent from the twig, green to reddish brown, usually two buds at the tip.

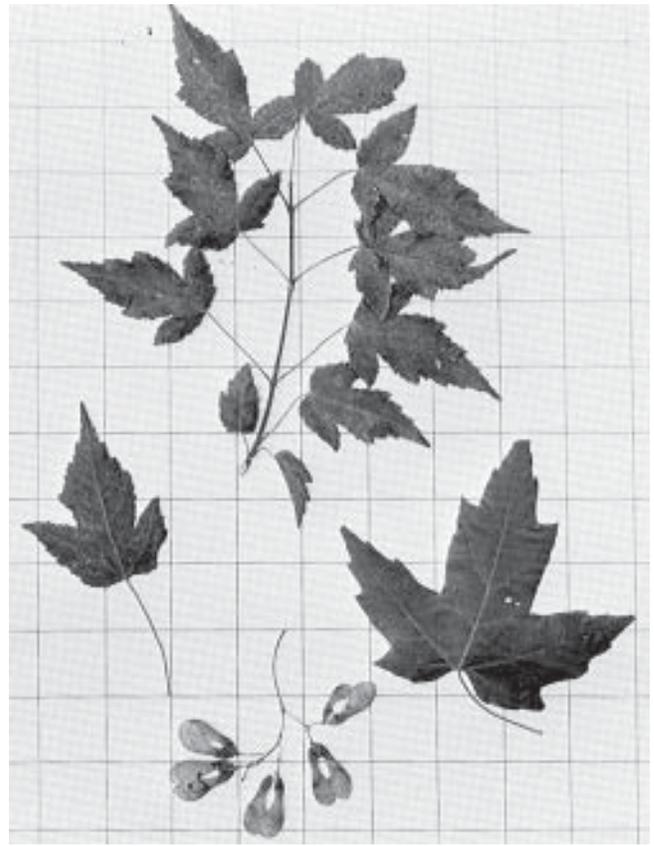
Twigs: Stout, reddish brown.

Fruit: Small, woody capsule liberating two or more seeds in the fall.

Bark: Gray.

The Shrub: Another introduced species, the lilac is also widely planted both as an ornamental and as a shelterbelt shrub. The fragrant lavender-purple flowers lend color and essence to the North Dakota landscape in late May. Many improved nursery hybrid cultivars do not have the objectionable suckering of the common lilac. It is similar to honeysuckle in size and growth habits.

Wildlife Value: Good, source of cover and nectar for butterflies and bees.



AMUR MAPLE

Acer tataricum ssp. ginnala

Leaves: Opposite, simple, three lobed, remotely serrate; center lobe long.

Buds: Small, reddish brown, pointed.

Twigs: Fine, reddish brown.

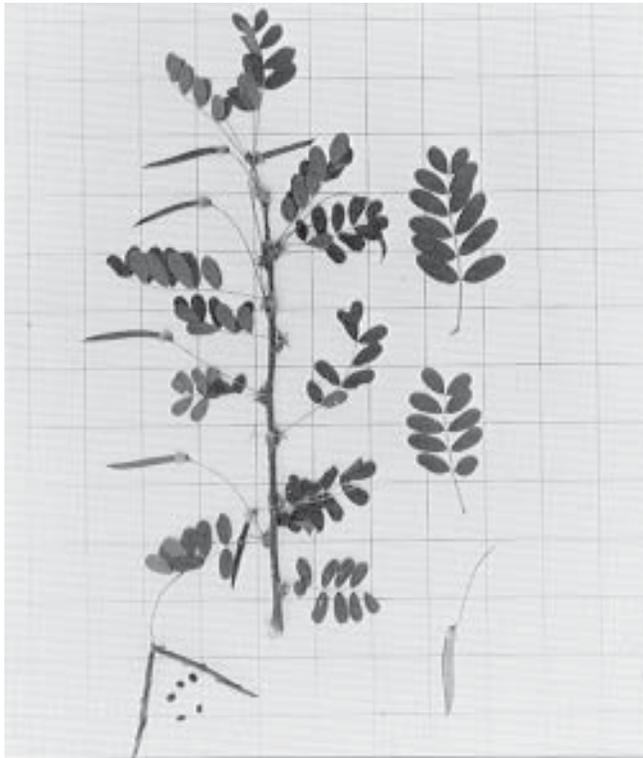
Fruit: Schizocarps, similar to boxelder.

Bark: Relatively smooth, gray to reddish brown.

The Tree: It is sparsely found in shelterbelts because it is sensitive to herbicide spray drift, iron chlorosis, and is not very drought resistant. The reddish fall coloration makes it popular as a specimen plant. Several compact as well as red-seeded cultivars are now available for landscape plantings, including 'Bailey Compact', 'Embers' and 'Red Wing'.

Wildlife Value: Good to excellent, summer cover and food (buds, twigs, seeds, flowers, bark, foliage) to wildlife including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Shrubs



SIBERIAN PEASHRUB

Caragana arborescens

Leaves: Pinnate compound, alternate, margins of leaflets smooth.

Buds: Small, light-colored, pointed, with sharp stipules on each side.

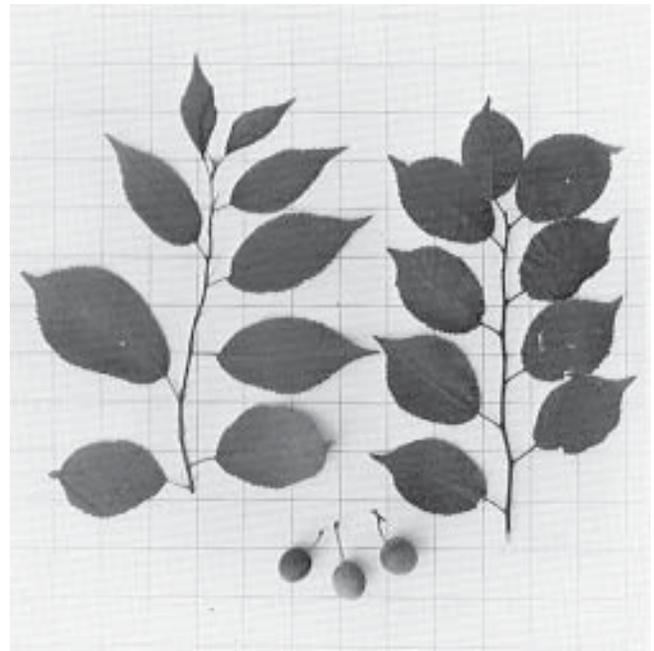
Twigs: Slender, yellowish green, with stipular spines.

Fruit: Pod which liberates several seed in July.

Bark: Gray or green, smooth.

The Shrub: A rapid-growing, hardy, drought-resistant introduction from Siberia, it is probably the most widely planted shrub in the state. It is subject to defoliation by grasshoppers and blister beetles but such attacks do not kill the shrub. Under favorable conditions it may get 15 feet high but usually not over 8 to 10. Many old hedges of this species were planted and when properly trimmed will persist for over 25 years, but become very leggy.

Wildlife Value: Fair to good cover to wildlife.



AMERICAN PLUM

Prunus americana

Leaves: Simple, alternate, sharply serrate with prominent veins.

Buds: Small, reddish brown, often three at a node.

Twigs: Slender, reddish brown, some thornlike.

Fruit: A large red or yellow drupe when ripe.

Bark: Dark gray, scaly on old trunks.

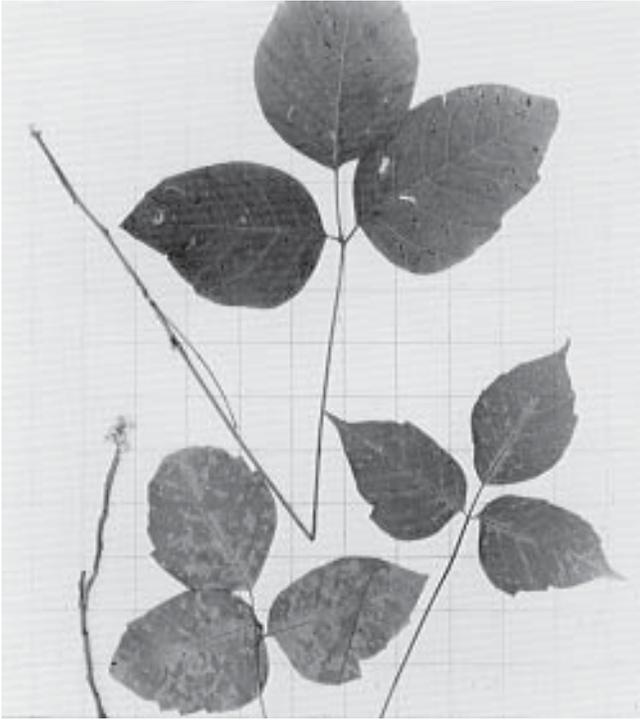
The Tree: This large shrub or small tree is native to many parts of the state. It is also widely planted in shelterbelts because of the fruit which is extensively used for jelly, jam, and preserves. It is thorny, branchy, and forms an effective refuge for wildlife. It can sucker objectionably under cultivation.

Wildlife Value: A food (fruit) source and cover to several species of song birds, fur bearers and game animals.

Nanking cherry (*P. tomentosa*) has similar leaves but they are smaller and very hairy. This small unarmed shrub is sometimes planted for its tasty red fruit, but is sometimes short-lived.

Nanking cherry is used in farmstead windbreaks for aesthetics, fruit and wildlife. It provides cover and food (fruits, buds, bark, wood, foliage) for wildlife, including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Deciduous Shrubs



POISON IVY

Toxicodendron radicans

Leaves: Compound, with always three entire margined or irregularly toothed leaflets. The color may vary from light to dark green to red in the early fall.

Buds: Not evident.

Twigs: Not evident.

Fruit: Round, shiny, white or greenish white drupe 1/4- inch in diameter.

The Plant: This plant is included because it can cause so much grief to unwary individuals who make physical contact with any part of the plant at any time of the year. Usually less than 2 feet tall, it can be found in wooded or brushy areas throughout the state. It is often confused with wild sarsaparilla but the latter has finely serrate leaflets in threes or fives while the poison ivy leaflets are entire or unevenly toothed and always in threes. Thorough washing with strong soap immediately after exposure will often prevent the severe dermatitis which may send some particularly sensitive people to the hospital.

Wildlife Value: Fair, food (seeds, leaves, stems, foliage) source for some wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



SILVERBERRY

Elaeagnus commutata

Leaves: Simple, alternate, undulating, densely silvery-scurfy on both sides.

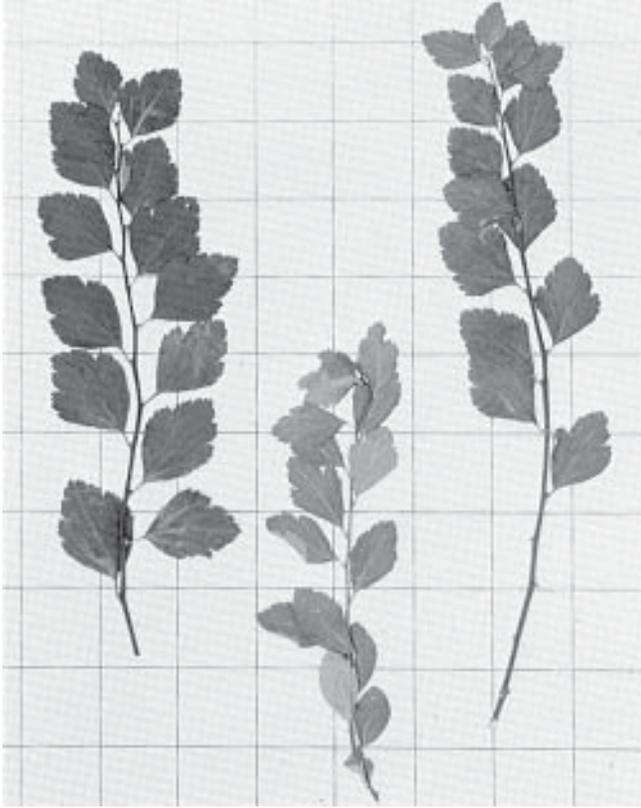
Buds: Small, reddish brown, scurfy, close to twig.

Fruit: Silvery drupe with mealy flesh; ripens in August.

The Shrub: A native throughout the state on a variety of sites including open prairie, this branched unarmed shrub is usually from 3 to 6 feet high and can readily be distinguished from a distance by its silvery foliage. While occasionally planted as an ornamental, it is not used in shelterbelts because of its characteristic small size. It forms thickets due to suckering growth habit.

Wildlife Value: Good to excellent, cover and food (fruit) source to upland game and song birds, fur bearers, game animals and small mammals.

Deciduous Shrubs



VANHOUTTE SPIREA

Spiraea x vanhouttei

Leaves: Alternate, simple, with rounded teeth and often appearing lobed.

Buds: Small, inconspicuous, rounded.

Twigs: Fine, often arching, glabrous, reddish brown.

Fruit: Inconspicuous follicle 1/4-inch in diameter.

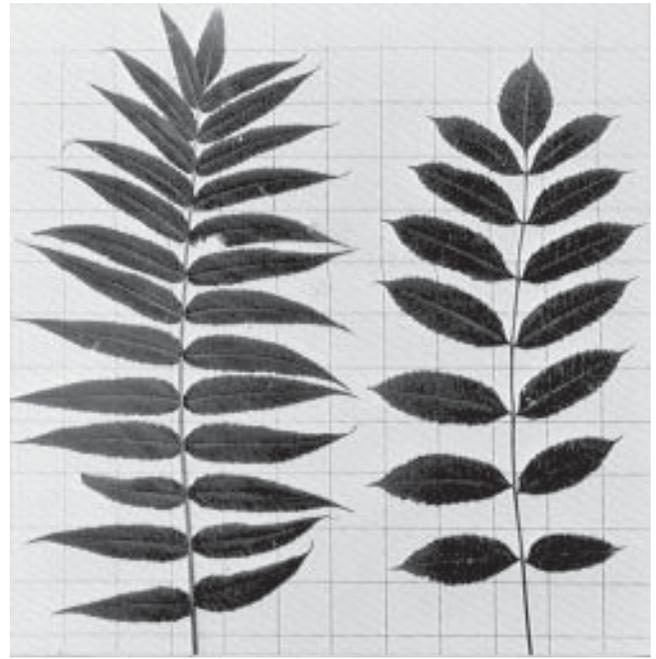
Bark: Reddish brown.

The Shrub: This upright spreading hybrid shrub is often used for landscaping near buildings. The clusters of small white flowers open in late May. The twigs and leaves are fine in texture. Occasionally, the plant may need rejuvenation by pruning back severely, but if soil and moisture conditions are good, recovery is rapid. Threelobe spirea (*Spiraea trilobata*), one of the hybrid parents, is a superior landscape plant.

Wildlife Value: Good, food and nectar source to butterflies, bees and moths; hoofed browsers.

R. typhina

R. glabra



SMOOTH SUMAC

Rhus glabra

STAGHORN SUMAC

Rhus typhina

Leaves: Alternate, pinnately compound, serrate.

Buds: Small, rounded, located under the base of the petiole.

Twigs: Stout, brittle, hairy on the staghorn and glabrous on the smooth.

Fruit: A dry drupe borne in a tight, red cone-like cluster about 3 inches long.

Bark: Smooth, gray.

The Shrubs: Both have a ferny texture with coarse twigs and are usually planted in back yards where the unusual growth habits lend variety to the landscape scene. The leaves assume brilliant red colors in the fall. Both sucker. Attractive cut-leaved cultivars are available. Smooth sumac is very hardy. Staghorn sumac usually freeze back in the Northern Plains.

Wildlife Value: Excellent, winter food (fruit, bark, twigs, foliage) source to over 50 wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Evergreen Trees



J. scopulorum (left)

J. virginiana (right)

ROCKY MOUNTAIN JUNIPER

Juniperus scopulorum

EASTERN RED- CEDAR

Juniperus virginiana

Leaves: Of two types on the same tree; scale-like and awl-like, with the scale-like usually predominating.

Buds: Inconspicuous.

Twigs: Fine, usually covered with scale-like needles.

Fruit: Blue or blue-black, berry-like cone requiring one or two seasons to mature.

Bark: Dark reddish brown, shreddy.

The Tree: The Rocky Mountain juniper pictured on the left and the Eastern red-cedar on the right are similar but have the following differences:

Rocky Mountain Juniper

Branches definitely ascending

Fruit requires two years to mature

Foliage remains bluish green in winter

Point of facial needles just meeting diamond above

Under bark red

Eastern Red-cedar

Branches nearly horizontal

Fruit matures in one year

Foliage turns purplish-brown in winter

Point of facial needle entering into diamond above

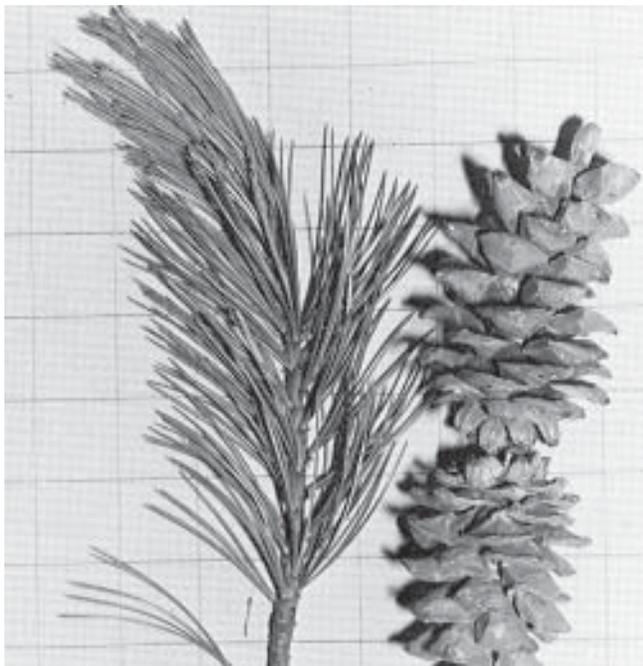
Under bark grey

Both trees are somewhat difficult to germinate and transplant but are very drought resistant and long-lived. Both are widely planted in shelterbelts. The Rocky Mountain Juniper is native to the Badlands but the taller and more rapid growing Eastern red-cedar is not native to the state. Both yield excellent rot-resistant fence posts. Dwarf forms from other species commonly planted as ornamentals are Savin and Pfitzer junipers.

'Medora' is an excellent, popular columnar selection of Rocky Mountain Juniper used for landscaping.

Wildlife Value: Good to excellent, cover and food (fruit, twigs, foliage) source for upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Evergreen Trees



LIMBER PINE

Pinus flexilis

Leaves: Five needles per fascicle (bundle) persistent as long as five years.

Buds: 3/8-inches long, ovoid, sharp pointed.

Twigs: Extremely flexible, hence the common and scientific names.

Fruit: The scales are fairly thick, woody and roughened on the tip of the scale. The seeds are large with very small or lacking wings.

Bark: Thin, smooth and silvery white on young stems but dark brown and scaly on old stems.

The Tree: This native to a small area west of Amidon and next to the Montana line has distinct possibilities as an evergreen for the state. It seems out of place on the prairie because it is usually found near timber line in the western mountains. It is hardy to low temperatures, thin soils, wind, and short growing seasons. Both eastern and western white pines also have five needles per fascicle, but their needles are finer textured and usually longer. It is susceptible to white pine blister rust, limiting its usefulness in eastern North Dakota.

Wildlife Value: Fair, cover and food (seeds, needles, bark, foliage, twigs) to wildlife including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.



PONDEROSA PINE

Pinus ponderosa

Leaves: Two or three needles per fascicle (bundle), persistent until the third year.

Buds: Large, pointed, brown.

Twigs: Stout, exhaling a turpentine odor when bruised.

Fruit: A rather large cone containing two seeds under each scale and requiring two seasons to mature.

Bark: Brown to black and furrowed on young vigorous trees; yellowish brown and broken up into scaly plates on old trees.

The Tree: Although a large timber tree in the western U.S., this tree rarely exceeds 2 feet in trunk diameter in North Dakota where it is native to a small area in the Badlands. Widely planted as a shelterbelt species because of its high drought resistance and persistence in growth, it probably will increase in popularity. A rather difficult tree to successfully plant bare root; it grows slowly the first years after planting, but then will grow at a moderate rate.

Wildlife Value: Good to excellent, used for cover and food (seeds, needles, bark, foliage, twigs) to many wildlife, including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Evergreen Trees



SCOTCH PINE

Pinus sylvestris

Leaves: Two needles per fascicle (bundle) persistent about three years.

Buds: 1/4-inch long, pointed; scales free at tips.

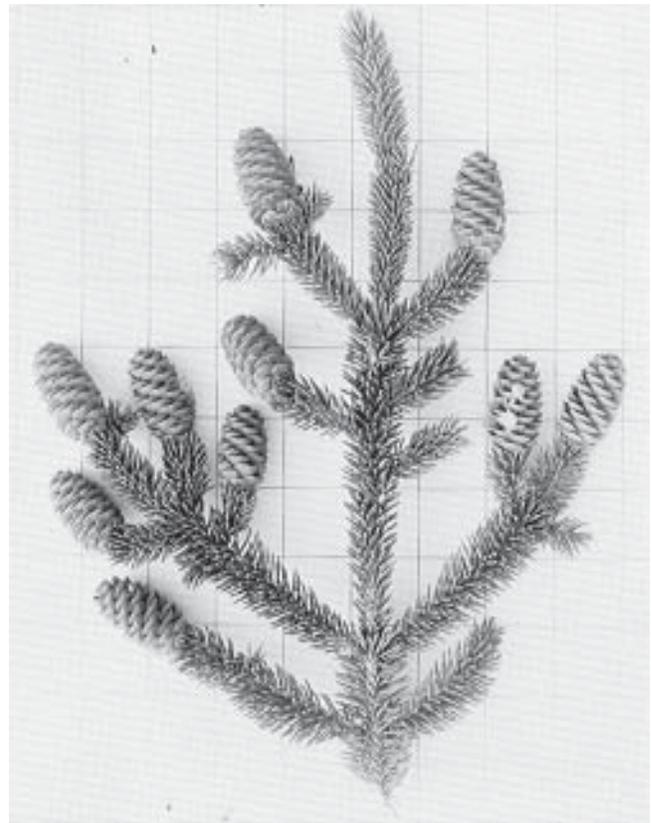
Twigs: Slender.

Fruit: The scales have raised bumps on the back. The cones stay green until late October. The seeds are winged and quite small.

Bark: The flaky orange-brown bark of the upper bole is the best recognition feature. The ridged bark of older stems is not so distinctive.

The Tree: This introduction from Eurasia has many forms and colors because of the varied conditions of its geographic range. The tree is very popular as a Christmas tree and its rapid juvenile growth encourages its use for shelter and landscape. It is not as drought resistant as Ponderosa pine but equally winter hardy. Jack pine (*P. banksiana*) is quite similar, but its needles are shorter and more divergent, the bark is not orange-brown or flaky and much less attractive for landscape use.

Wildlife Value: Fair, cover and food (seeds, needles, bark, foliage, twigs) to wildlife, including upland game and song birds, fur bearers, game animals, small mammals, and hoofed browsers.



BLACK HILLS WHITE SPRUCE

Picea glauca var. *densata*

Leaves: Fairly sharp, four-angled needles.

Buds: Sharp, light reddish brown.

Twigs: Fine to stout, light brown, with needles growing on peg-like projections that remain on the twig after older needles have fallen.

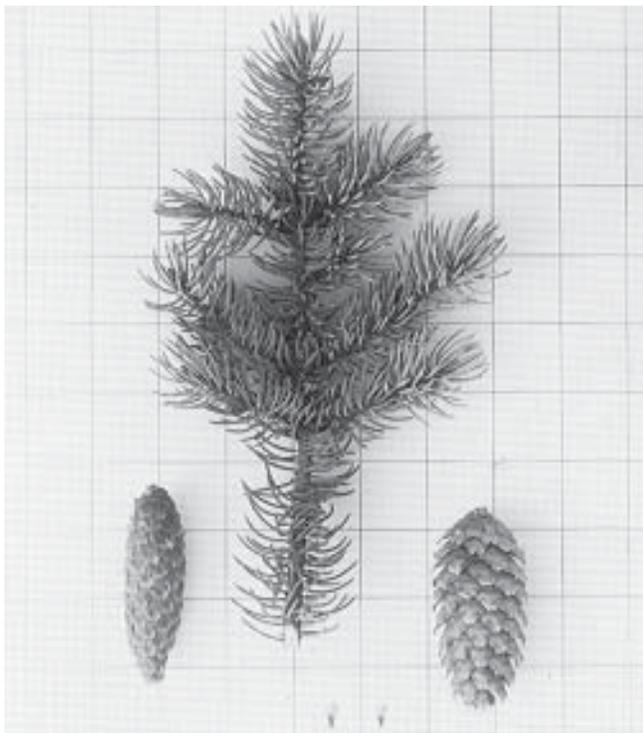
Fruit: Tan, scaled, flexible cone maturing in one season, with a smooth, rounded edge on the cone scale.

Bark: Scaly, brownish black.

The Tree: The least drought resistant of the commonly planted evergreens in North Dakota, this tree is very popular because of its conical shape, good color, rapid growth, and ease of establishment. Many of the large evergreens in the northern and eastern parts of the state, where it grows well in shelterbelts and as an ornamental, are of this species. Red spider, readily controlled by miticides or forceful spraying of water on the tree, and spruce budworm are enemies that occasionally damage the tree. Resistance to *Rhizosphaera* needle cast and *Cytospora* canker is far superior to Colorado spruce.

Wildlife Value: Good to excellent, cover and food (needles, bark, seeds, twigs) for wildlife including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Evergreen Trees



COLORADO SPRUCE

Picea pungens

Leaves: Longer, sharper, more rigid and often more blue in color than on the Black Hills white spruce.

Buds: Rougher and usually larger than on the Black Hills spruce.

Twigs: Stoutier than on Black Hills spruce, tannish brown.

Fruit: Larger and lighter colored than Black Hills spruce and with erose margins to the cone scales.

Bark: Similar to Black Hills spruce.

The Tree: This tree has been the most popular ornamental evergreen in the state and plays an important role in shelterbelt plantings. Its greater drought resistance more than compensates for its slightly lower ease of establishment so it became more important than the similar Black Hills spruce. The two can be distinguished at a distance by the denser growth habit of the Colorado spruce and the fact that the upper branches come out at right angles from the trunk on the latter but at an angle pointing slightly upward on the other. Attractive blue-needled cultivars are available at nurseries and often planted as specimen trees. Unfortunately, many trees are dying due to susceptibility to *Rhizosphaera* needle cast and *Cytospora* canker. Space sufficiently to allow proper aeration between trees. Fungicide sprays are also recommended.

Wildlife Value: Excellent, used for cover and food (needles, bark, seeds, twigs) source by over 30 wildlife species including upland game and song birds, fur bearers, game animals, small mammals and hoofed browsers.

Glossary

Achene: Small, dry, one-seeded fruit.

Alkaline: Referring to soil pHs of 7.0 and higher, performance of some tree and shrub species is affected in these soils because needed minerals eg., iron, are not available to the tree.

Alternate: Bud or leaf arrangement (singly) along a stem at spiraled intervals.

Appressed: Flattened against.

Arcuate venation: To arch or curve like the veins in Dogwood (*Cornus*).

Ascending: Rising somewhat obliquely and curving upward.

Awl-shaped: Oval shaped, with sharp pointed end.

Blade: The broad, flat, green part of the leaf.

Bract: A modified leaf from the axil of which a flower or flower cluster arises.

Browsers: Large mammals that feed on the young growing parts of trees or shrubs.

Capsule: Pod consisting of two or more chambers.

Catkin: A scaly-bracted spike of unisexual flowers.

Chlorosis: A leaf symptom due to mineral deficiencies where the leaf will remain green next to the veins and yellow from margins inward.

Compound: A leaf that is made up of more than one leaf blade, termed leaflets.

Conical: Cone shaped.

Coniferous: Cone bearing trees and shrubs.

Cultivar: A cultivated variety as distinguished from a botanical variety.

Deciduous: Not persistent, leaves falling in autumn.

Drupe: Fleshy fruit with a pit or stone.

Drupelet: A small drupe.

Entire margin: Unbroken, without teeth or lobes.

Erose: Irregularly toothed or eroded.

Evergreen: Retains leaves year-round.

Fascicle: A small bundle.

Follicle: A dry, dehiscent fruit developed from a simple ovary and splitting along one suture.

Glabrous: Without hair, smooth.

Glandular: Small, usually shiny bumps on the surface.

Globose: Spherical.

Imbricate: Overlapping, like shingles on a roof.

Inconspicuous: Small, not readily noticed by the naked eye.

Incurved: Curved inward.

Lateral buds: Those buds below the terminal buds where side branches arise.

Leaflet: A single segment of a compound leaf.

Lenticel: A breathing pore in young bark, appearing as a light-colored, often lens-shaped, dot.

Miticide: A chemical that is used to control or kill mites.

Mottled: An irregular spotting or alternating color on leaves, stems and other plant parts.

Needle: Elongate, linear, sharp-pointed leaves.

Opposite: Growing in pairs but separated by a stem.

Palmate: With three or more lobes, veins or leaflets arising from one point.

Pendulous: Hanging down.

Petiole: The stalk of a leaf.

Pinnate: Compound leaf with leaflets on either side of central axis.

Pith: Spongy center of a twig; if it has crosswalls, it is called "chambered."

Pome: Fleshy fruit with a core, such as a crabapple.

Resinous: Sticky with resin.

Samara: Dry seeded fruit with a membranous wing.

Scale: Bud covering or tiny, blunt leaf.

Schizocarp: Winged, samara-like fruits borne in pairs.

Scurfy: Scaly or flaky on the surface.

Serrate: With sharp teeth along the margin pointing forward.

Sessile: With no stalk or petiole.

Sinus: The space between lobes.

Spur: A saclike or tubular projection on a sepal or petal.

Stomatiferous: Many pores on the epidermis of a leaf and appearing as many white dots or lines.

Subopposite: A bud/leaf arrangement in which they are close to being opposite from each other, but one is slightly lower than the other.

Two-ranked: Appearing to come from only two sides of the twig; not equally distributed around the twig.

Venation: Pertaining to the vein pattern in the leaf blades.

Wildlife species: Those creatures that are associated with woody plants, such as insects, mammals and birds.

Wildlife value: A rating value of woody plants to wildlife species.

Early Fall Key to Common North Dakota Trees and Shrubs

A "key" is similar to a road which forks repeatedly and which has signposts indicating what may be found along each branch. This key is based on a system of couplets, 1, 1'; 2, 2'; etc. This gives the reader one of two choices. A number at the right of a description indicates the next step to take. The number in parenthesis after the number at the left indicates where you came from and allows you to back track. Numbers 1-16' on the left cover the evergreens; numbers 17-20' the woody vines; and 21-76' the deciduous trees and shrubs. One herb was included because many people confuse it with poison ivy, a small shrub with which everyone should become familiar in order to avoid it.

The key includes a number of species not pictured but is by no means all-inclusive. The relatively rare species and the horticultural cultivars have been left out because their inclusion would necessarily have increased the complexity of the key and the volume of the publication.

A glossary at the end of the publication explains terms that may be unfamiliar.

- | | | |
|---------|--|---|
| 1. | Trees or shrubs whose foliage is needle-like or scale like 2 | 11.(10') Low spreading landscape shrubs (Ornamental) Junipers |
| 1'. | Foliage not needle-like or scale-like but with normal leaves 17 | 11'. Treelike 12 |
| 2.(1) | Many needles from spur shoots on older twigs; deciduous Larches | 12.(11') Foliage turning purple-brown in winter Eastern Red-cedar |
| 2'. | Not over five needles from one point; evergreen 3 | 12'. Foliage remaining blue green in winter Rocky Mt. Juniper |
| 3.(2') | Needles in fascicles (bunches) 4 | 13.(7') Peglike projections supporting needles; no resin blisters on bark 15 |
| 3'. | Needles born singly, not in fascicles 7 | 13'. Needles fastened directly to twig, leaving a circular leaf scar when removed; resin blisters on bark 14 |
| 4.(3) | Needles per fascicle, 5..... Limber Pine and White Pine | 14.(13') Needles sessile; cones disintegrating when mature; buds blunt and resinous Balsam Fir |
| 4'. | Needles per fascicle, 2 or 3 5 | 14'. Needles petiolate; cones not disintegrating; papery bracts extending beyond cone scale; buds sharp-pointed, dark purple and not resinous Douglas-fir |
| 5.(4') | Needles over 4" long, in both 2's and 3's..... Ponderosa Pine | 15.(13) Needles somewhat flattened, 2 ranked; woody cones over 3"long Norway Spruce |
| 5'. | Needles less than 3" long, only in 2's 6 | 15'. Needles 4 angled, not 2 ranked; cones 3" long or less 16 |
| 6.(5) | A tree; bark orange and flaky; cone scales not crowded Scotch Pine | 16.(15') Needles very sharp; cones over 2" long with ragged scales Colorado Spruce |
| 6'. | Usually multi-stemmed and cone scales crowded; shrub-like; bark dark Mugo Pine | 16'. Needles only moderately sharp; cones less than 2" long with smooth, rounded edge on cone scales..... Black Hills White Spruce |
| 7.(3') | Leaves scale-like or awl-shaped, not over 1/2" long 8 | 17.(1') Vines 18 |
| 7'. | Needles linear or needle-like, about 1" long 13 | 17'. Trees, shrubs, or herbs 21 |
| 8.(7) | Branchlets flattened; woody cones only 1/2" long American Arborvitae | 18. Leaves compound 19 |
| 8'. | Branchlets 3 or 4 angled; fruit berrylike 1/4" in diameter 9 | 18'. Leaves simple 20 |
| 9.(8') | Long trailing native groundcover rarely over 5-10" high Creeping Juniper | 19.(18) Leaves alternate; 5 leaflets; fruit a berry Virginia Creeper |
| 9'. | Shrub at least 2 feet high when mature 10 | 19'. Leaves opposite; 3 leaflets; fruit an achene Virgin's Bower |
| 10.(9') | Needles 1/2" long, strongly boat shaped or awl like, all sharp Common Juniper | |
| 10'. | Some or all needles scale-like 11 | |

20.(18')	Margin coarsely serrate; leaves sometimes lobed, fruit a black berry Wild Grape	34.(23')	Most or all leaves lobed 35
20'	Margin fine serrate, leaves never lobed; fruit orange, splitting to show red interior American Bittersweet	34'	Not lobed 43
21.(17')	Shrubs or herbs less than 2' high when mature 22	35.(34)	Leaves opposite 36
21'	Shrubs or trees over 2' high when mature 23	35'	Leaves alternate 38
22.(21)	Small shrub, herb-like; always 3 leaflets, not serrate but sometimes irregularly toothed Poison Ivy	36.(35)	Some leaves not lobed, when lobed always 3, a coarse shrub; fruit a drupe American Cranberrybush
22'	Perennial herb with 3-forked stem, each with 3 or 5 serrate leaflets Wild Sarsaparilla	36'	All leaves lobed, 3 or 5, trees or shrubby trees; fruit a paired samara, called a schizocarp 37
23.(21')	Leaves compound 24	37.(36')	Leaves silvery beneath; lobes of nearly equal length; a large tree Silver Maple
23'	Leaves simple 34	37'	Leaves not silvery beneath; terminal lobe longer than others; small tree or shrublike Amur Maple
24.(23)	Compact branchy shrubs with compound leaves; each leaflet 1/4" wide or less 25	38.(35')	Trees 39
24'	Coarser shrubs or trees with pinnately compound leaves; each leaflet over 1/4" wide 26	38'	Shrubs 41
25.(24)	Stipular prickles present; fruit a pod Pygmy Peashrub	39.(38)	Palmately lobed, white hairy below; bark greenish or gray White Poplar
25'	No stipular spines; fruit globose; achene Shrubby Cinquefoil	39'	Pinnately lobed, not white hairy below 40
26.(24')	Branches with either stipular or corticular spines 27	40.(39')	Bark white and papery Cutleaf Weeping Birch
26'	Branches without spines 28	40'	Bark dark and ridged Bur Oak
27.(26)	Spines stipular; fruit a pod; bark greenish Siberian Peashrub	41.(38')	Leaves 1" long, rhombic ovate to rhombic obovate; fruit a small capsule ... Vanhoutte Spirea
27'	Spines corticular; fruit a fleshy hip, about 1/2" in diameter; bark reddish or brownish Rose	41'	Leaves 2" or 3" long, variably orbicular, fruit a berry 42
28.(26')	Leaves opposite 29	42.(41')	Stems spiny Gooseberry
28'	Leaves alternate 31	42'	Stems not spiny Currant
29.(28)	Palmate five-leaflet leaves; fruit a nutlike capsule Ohio Buckeye	43.(34')	Leaves silvery both sides 44
29'	Leaves not palmate; fruit not a nutlike capsule 30	43'	Upper leaf surface not silvery 46
30.(29')	Leaves regularly serrate; twigs gray; buds brown; fruit (samara) Green Ash	44.(43)	Leaves opposite; fruit red when ripe Silver Buffaloberry
30'	Leaves irregularly toothed; twigs green or reddish brown with a bloom; buds silvery; fruit (schizocarp) Boxelder Maple	44'	Leaves alternate, fruit silvery when ripe 45
31.(28')	Base of petiole encasing bud 32	45.(44')	Petiole 1/8" long; leaves ovate, wavy-curved; fruit globose; shrubby Silverberry
31'	Base of petiole below bud 33	45'	Petiole 1/2" long; leaves lanceolate, flat; fruit ellipsoidal; treelike Russian-olive
32.(31)	Twigs hairy Staghorn Sumac	46.(43')	Leaves opposite or sub-opposite 47
32'	Twigs glabrous Smooth Sumac	46'	Leaves alternate 53
33.(31')	Pith chambered; leaflets 3" long, 1 1/2" wide Black Walnut	47.(46)	Leaves sub-opposite; end of twig modified into a thorn 48
33'	Pith solid; leaflets 1 1/2" long, 1/2" wide European Mountain-ash	47'	Leaves opposite; twigs not thorny 49
		48.(47)	Leaves nearly as broad as long Common Buckthorn
		48'	Leaves over twice as long as broad Dahurian Buckthorn
		49.(47')	Leaves finely serrate, creased Nannyberry Viburnum
		49'	Leaves entire, not creased 50

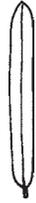
50.(49')	Pith hollow; petioles less than ½" long	51	64.(63')	Leaves over 2" long, dull above; twigs coarse	American Elm
50'	Pith solid; petioles ½" long or more	52	64'	Leaves 2" long or less; shiny above; twigs fine	Siberian Elm
51.(50)	Small native shrub; fruit white, twig reddish brown	Snowberry	65.(62')	Buds large and gummy; leaves gray or rusty below	Balsam Poplar
51'	Large shrub; fruit orange or red; twigs tan, hollow pith	Tatarian Honeysuckle	65'	Buds not so; leaves not so	66
52.(50')	Twigs bright red; venation arcuate; fruit a white drupe	Redosier Dogwood	66.(65')	Bark and twigs light brown; twigs coarse; fruit a pome	Crabapple
52'	Twigs a greenish or brownish; venation netted; fruit a capsule	Lilac	66'	Bark and twigs a reddish or gray; twigs fine; fruit a drupe	67
53.(46')	Trees	54	67.(66')	Serrations glandular tipped; bark reddish; central stem noticeable	Pin Cherry
53'	Shrubs	69	67'	Serrations without glands; bark gray; branchy crown	68
54.(53)	Leaves conspicuously heart shaped; fruit a nutlet suspended from a bract	American Linden (Basswood)	68.(67')	Petiole hairy; veins prominent; some short twigs thornlike	American Plum
54'	Leaves not so; fruit not so	55	68'	Petiole glabrous; veins not prominent; not thornlike	Chokecherry
55.(54')	Bark white; peeling horizontally, marked by horizontal lenticels	56	69.(53')	Buds with several imbricate scales	70
55'	Bark not so	57	70.(69')	Dark glossy green leaves without serrations; insignificant pinkish-white flowers; black pea-sized pomes	Hedge Cotoneaster
56.(55)	Non-native tree; branches pendulous	Cutleaf Weeping Birch	70'	Leaves at least partially serrate	71
56'	Native tree; branches not pendulous	Paper Birch	71.	Leaves usually double serrate	72
57.(55')	Petioles flattened, about as long as a leaf blade	58	71'	Leaves usually singly serrate	73
57'	Petioles round, less than ¾ as long as leaf blade	59	72.(71)	Petiole hairy; fruit husk without beak	American Hazelnut
58.(57)	Leaves deltoid; bark dark and rough	Cottonwood	72'	Petiole glabrous; fruit husk with a long beak	Beaked Hazelnut
58'	Leaves oval orbicular, bark light and smooth	Quaking Aspen	73.(71')	Leaf apex rounded; leaf shape oval; leaf base entire	Juneberry
59.(57')	Leaves lanceolate; buds with single caplike scale	Willow	73'	Leaf apex pointed; leaf shape ovate, obovate or elliptical; serrate to base of leaf	74
59'	Leaves broader; buds with several imbricate scales	60	74.(73')	Serrations glandular tipped; bark reddish; central stem noticable	Pin Cherry
60.(59')	Twigs usually with definite thorns; leaves prominently doubly serrate	Hawthorn	74'	Serrations without glands; bark gray; branchy crown	75
60'	Twigs without definite thorns; if tree somewhat thorny, leaves singly serrate	61	75.(74')	Petiole hairy; veins prominent; some short twigs thornlike	American Plum
61.(60')	Leaf apex rounded; leaf shape oval; leaf base entire	Juneberry	75'	Petiole glabrous; veins not prominent; not thornlike	76
61'	Leaf apex pointed; leaf shape ovate, obovate, elliptical; serrate to base of leaf	62	76.(75')	Leaves narrowly elliptical; leaf base acute	Sand Cherry
62.(61')	Leaves 2 ranked	63	76'	Leaves ovate or obovate; leaf base rounded or obtuse	Chokecherry
62'	Leaves not 2 ranked	65			
63.(61)	Pith chambered at nodes; fruit a drupe	Common Hackberry			
63'	Pith not chambered; fruit a spring ripening samara	64			

Glossary

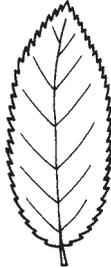
■ Leaf Arrangement and Composition



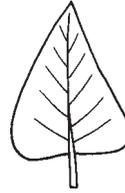
Needle
Fascicle



Linear,
Petiolate
Needle



Elliptical,
Serrate



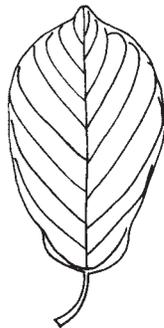
Deltoid,
Entire
(no teeth)



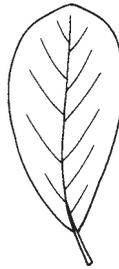
Oval



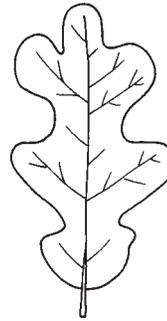
Lanceolate



Ovate,
Arcuate Venation



Obovate

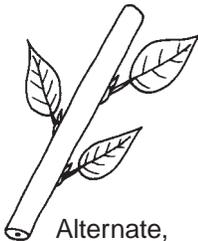


Pinnately Lobed,
Pinnate
Venation



Palmately Lobed,
Palmate
Venation

■ Leaf Arrangement and Composition



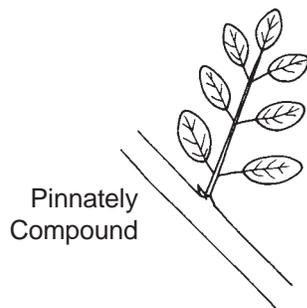
Alternate,
Simple



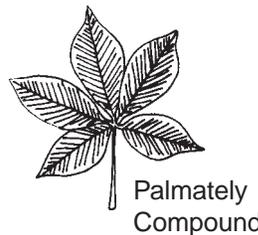
Subopposite,
Simple



Opposite,
Simple



Pinnately
Compound



Palmately
Compound

Cover photos by members of the ND 4-H Youth Workers Association.

For more information on this and other topics, see: www.ag.ndsu.nodak.edu



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