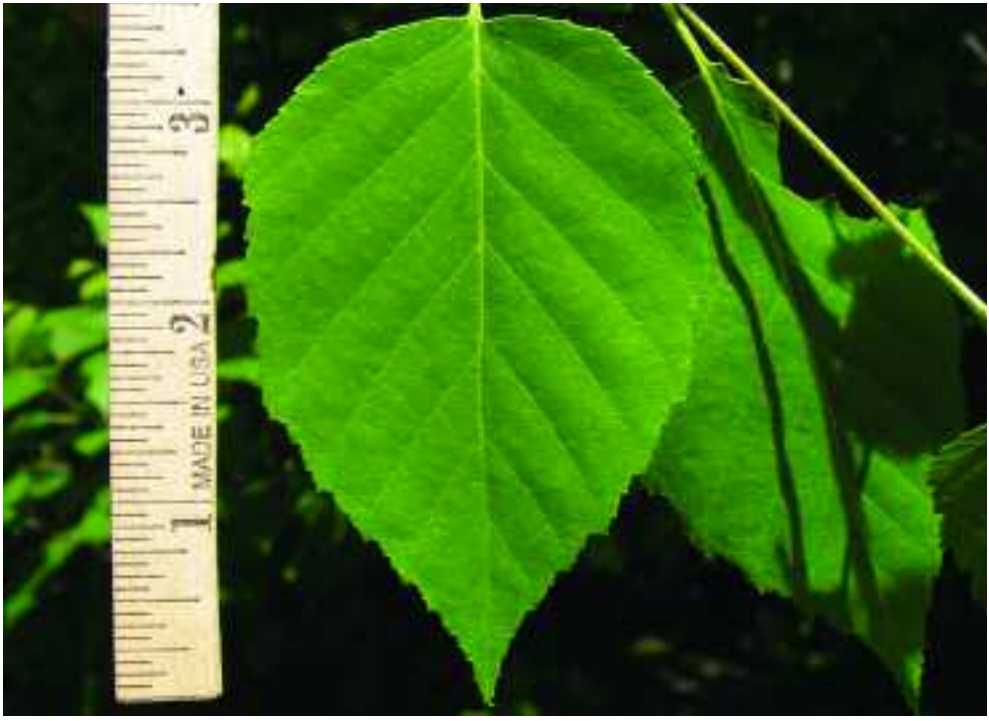
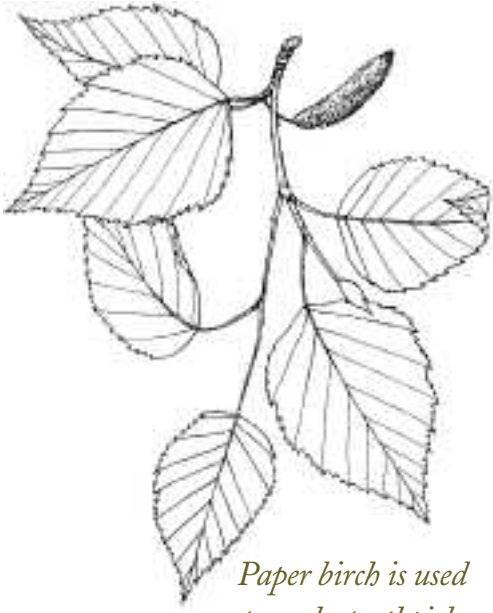
BIRCHES *The Important Distinctions*

	Paper Birch *Betula papyrifera*	Gray Birch *Betula populifolia*	Yellow Birch *Betula alleghaniensis*
BARK			
TEXTURE	Separates into thin, horizontal, papery layers	Does not separate into papery layers	Separates into thin, horizontal, ribbon-like strips
COLOR	Outer, chalky or grayish white; inner bark orange	Outer, chalky or grayish-white, dirty-looking; inner bark orange	Bright silvery gray or light yellow
ODOR	No odor	No odor	Wintergreen odor when young branches are scraped
LEAVES			
LENGTH	2–4 inches	2½–3 inches	3–4½ inches
OUTLINE	Egg-shaped	Triangular	Egg-shaped
MARGIN	Doubly toothed	Coarsely and doubly toothed	Coarsely and doubly toothed
SHAPE	Tip short pointed; base rounded	Tip long pointed; base truncated	Base unevenly rounded
SURFACE	Upper dark green, dull	Upper dark green and glossy	Upper dark green, dull and hairy
FLOWER			
STRUCTURE	3 catkins	Single or paired catkins	3–4 catkins
ARRANGEMENT	Clustered	Not clustered	Not clustered
BUDS			
TEXTURE	Sticky when squeezed	Not sticky	Smooth
SHAPE	Long, tapered	Short, globose	Long, sharp-pointed
SCALES	Without hairs	Without hairs	Hairy
COLOR	Reddish-brown	Red-brown to greenish-brown	Reddish-brown
TWIGS			
TEXTURE	Hairy, with spur shoots	Very fine, warty but not hairy, without spur shoots	Somewhat hairy, with spur shoots
COLOR	Depends on age	Dull gray or brown	Greenish or yellow-brown
ODOR	No wintergreen odor	No wintergreen odor	Slight wintergreen odor

	Sweet Birch *Betula lenta*	Mountain Paper Birch *Betula cordifolia*
BARK		
TEXTURE	Smooth on young trees; broken into irregular plates on older trees	Small portions peal away in thin sheets
COLOR	Dark to almost black	Whitish with a pink to salmon-colored tinged to reddish-brown
ODOR	Wintergreen odor when young branches are scraped	No odor
LEAVES		
LENGTH	3–5 inches	2–4 inches
OUTLINE	Egg-shaped	Egg-shaped
MARGIN	Singly and sharply toothed	Doubly toothed
SHAPE	Base heart-shaped	Tip short pointed; base heart-shaped
SURFACE	Upper dark green, dull; lower light yellow-green	Upper dull green
FLOWER		
STRUCTURE	3–4 catkins	2–4 catkins
ARRANGEMENT	Not clustered	Clustered
BUDS		
TEXTURE	Smooth	Sticky when squeezed
SHAPE	Long, sharp-pointed	Long, tapered
SCALES	Without hairs	Without hairs
COLOR	Chestnut brown	Brown
TWIGS		
TEXTURE	Smooth with spur shoots, no hairs	Sparsely hairy, often warty, with spur shoots
COLOR	Reddish-brown	Yellowish-brown to dark brown
ODOR	Strong wintergreen odor	No wintergreen odor



Paper Birch *Betula papyrifera* Marsh.



Paper birch is used to make toothpicks and golf tees.

Paper, white or canoe birch is a common tree in all parts of the state; it occurs in pure stands or in mixture with other species. It reaches 60–70 feet in height and 1–2 feet in diameter. It grows along streams and on the borders of lakes and ponds, thriving best in a rich, moist soil.

When young, the branches are short, slender, spreading, somewhat drooping, and form a narrow, regular head. In the forest, the trunk is free from branches well up from the ground; and the tree forms an open, narrow and round-topped head.

The **bark** is a protective layer and should never be removed from living trees. On the trunk and limbs, it separates freely and easily into thin, papery sheets. The outer surface is white, the inner part bright orange. Seedlings or

Paper birch bark will peel off in large sheets, but it should never be removed from living trees.

very young trees have a darker colored bark, which gradually changes to a creamy-white.

The **leaves** are alternate, ovate, short-pointed, 2 –4 inches long, thicker than those of gray birch, doubly-toothed, with the upper surface dark green and dull.

The **flowers** are in catkins. They open in early spring before the leaves. Those appearing in fall are dormant, staminate catkins and occur mostly in clusters of three.

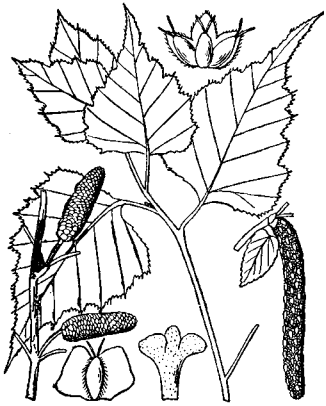
The **twigs** are usually hairy and, unlike yellow birch, without a wintergreen taste. The buds are slightly sticky.

The **wood** is close-grained, moderately hard, and strong. It is used for woodenware, flatware and turned products including toys, dowels, furniture parts, pulp and firewood.

The tree gets the name of "paper birch" from how the bark was used by early settlers, and that of "canoe birch" because the bark was used to make canoes. In the early spring paper birch sap contains considerable sugar. Historically paper birch was one of the most valuable tree species in Maine. In the past, the wood was used to make shoe pegs (used instead of nails in the manufacture of shoes) as well as a number of products that used to be made in Maine, but are now manufactured off-shore. These include clothespins, yarn spools, toothpicks, paper roll plugs and plywood.

MAINE REGISTER OF BIG TREES 2008
Paper Birch
Circumference: 148"
Height: 72'
Crown Spread: 22'
Location: Alton

Gray Birch *Betula populifolia* Marsh.



Gray birch is a short-lived and not particularly valuable tree. It occurs to some extent statewide, but is only abundant in the southern and eastern sections of the state. It is frequently found in old fields, burns and heavily-cut areas. This is a small tree that commonly reaches 20–30 feet in height and 4–8 inches in

Gray birch is a short-lived and not particularly valuable tree that is used primarily for pulp and firewood.

Gray birch has single or paired catkins in winter and spring.

diameter. It usually occurs in clumps and often leans. The branches are short, slender, frequently pendulous and contorted, and bend toward the ground when the tree is not crowded. The head is long, narrow, pointed and open.

The **bark** is close and firm, and does not easily separate into thin layers. The outer part is dull grayish-white or chalky. The inner portion is orange.

The **leaves** are 2½–3 inches in length, thin, long-pointed, triangular, alternate and doubly toothed. The upper surface is dark green and glossy. The slightest breeze causes them to flutter like those of the poplars, hence the scientific name Betula populifolia which means "birch with poplar leaves."

The **flowers** are produced in catkins. They open in early spring before the leaves. Those that appear in fall are male and usually solitary.

The **twigs** are the most slender of our native hardwoods. They are tough and wiry, dull gray or brown, hairless, and have a rough, warty surface. Dead twigs tend to stay attached to the trunk. This, plus the dirty appearance of the bark, makes this tree easy to recognize.

The **wood** is light, soft, often coarse-grained, and decays rapidly when exposed. It is occasionally used for pulp and firewood; in the past it was used for paper roll plugs.

MAINE REGISTER OF BIG TREES 2008
Gray Birch
Circumference: 71"
Height: 65'
Crown Spread: 27'
Location: Richmond

Yellow Birch *Betula alleghaniensis* Britt.

The yellow birch is one of our most valuable timber trees and makes excellent firewood.

Yellow birch is the largest of the native birches, growing to a diameter of 3 feet and a height of 70–85 feet. The spreading branches are somewhat pendulous; they form a broad, round-topped head in the open, but an irregular head in the woods. It grows well statewide on cool, moist sites, and is frequently mixed with beech and sugar maple, or with hemlock.

The **bark** on the branches and on the stems of young trees is very shiny, silvery-gray or yellowish-brown, separating into loose, thin, horizontal, often ribbon-like layers. On old trees, it is divided into large thin plates and is dull gray or black.

The **leaves** are 3–4½ inches long, ovate or nearly oblong, alternate; the edges are doubly toothed, the upper

Yellow birch's bark peels in small curls. Very old trees have platy bark.

side dull, dark green and hairy. Leaves closely resemble those of eastern hophornbeam.

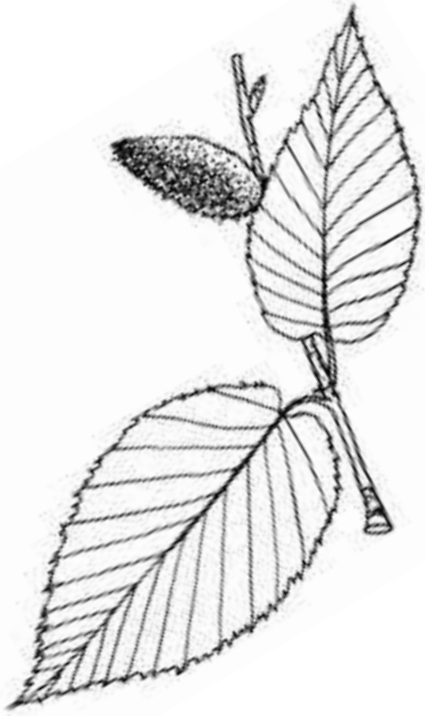
The **flowers** are in catkins. In winter there are 3–4 pre-formed staminate catkins on the shoots, but not in clusters. They open in the early spring.

The twigs are yellowish to dark brown and somewhat hairy. The young twigs are aromatic like sweet birch, although to a lesser degree. Both the buds and twigs have a pronounced wintergreen taste.

The **wood** is hard, strong, heavy and will take a good polish. It is close-grained and evenly textured. The heartwood, which makes up the bulk of the wood, has a pleasing reddish color; this is why it is sometimes called red birch. It takes stains easily, makes excellent veneer wood, and does not easily warp. It is also used for furniture, flooring, woodenware, lumber for interior finish, plywood, railroad ties, pallets, pulp, gunstocks and dowels. The yellow birch is one of our most valuable timber trees and makes excellent firewood. As with sweet birch, wintergreen oil was formerly distilled from twigs and branches.

MAINE REGISTER OF BIG TREES 2008
Yellow Birch Circumference: 200" **Height:** 48' **Crown Spread:** 91'
Location: Deer Isle

Sweet Birch *Betula lenta* L.



Sweet, black or cherry birch is found, though uncommonly, in the southern third of the state. It inhabits the banks of streams or moist, rich upland soil. It is a handsome tree with a tall dark stem, and spreading, slender, horizontal branches that are pendulous at the ends. It has a graceful, open, narrow head, which in full sun becomes round and symmetrical. It grows to a height of 60–70 feet and a diameter of 1–2 feet.

The **bark** on the trunk of old trees is dark to almost black, and separates into large, thick, irregular plates. On young trees and branches, it is smooth, shiny, dark brown tinged with red, aromatic, and has a very pronounced wintergreen flavor.

The **leaves** are alternate, 3–5 inches long, aromatic, ovate or somewhat

The name "cherry birch" is applied to this tree because of the resemblance of the bark on old trunks to that of the black cherry.

oblong, and sharply toothed. The upper surface is dark green and dull; the lower surface is light yellow-green.

The **flowers** are produced in catkins. The winter shoots support 3 to 4 staminate catkins. They open just before the leaves unfold in the spring.

The **wood** is hard, heavy, strong and can be beautifully polished. It is prized for use in the manufacture of furniture and it makes excellent firewood. Limited amounts are used as pulpwood. Historically, oil with some medicinal value was obtained from the branches and bark by distillation, and was generally known as wintergreen oil.

The name "cherry birch" is applied to this tree because of the resemblance of the bark on old trunks to that of the black cherry.

MAINE REGISTER OF BIG TREES 2008
Sweet Birch Circumference: 139" **Height:** 82'
Crown Spread: 48' **Location:** Gorham

Sweet birch twigs have small spur branches and taste like wintergreen.

Mountain Paper Birch

Betula cordifolia Regel.

Mountain paper birch is closely related to paper birch, and has been designated as a variety of the species by some authors (*Betula papyifera var. cordifolia* (Regel) Fern.). It is known at many points in Maine, particularly on mountain slopes, coastal headlands and islands east of Mount Desert Island. It often grows as a clump of several stems. It can grow to about 60 feet in height and 1 foot or more in diameter.

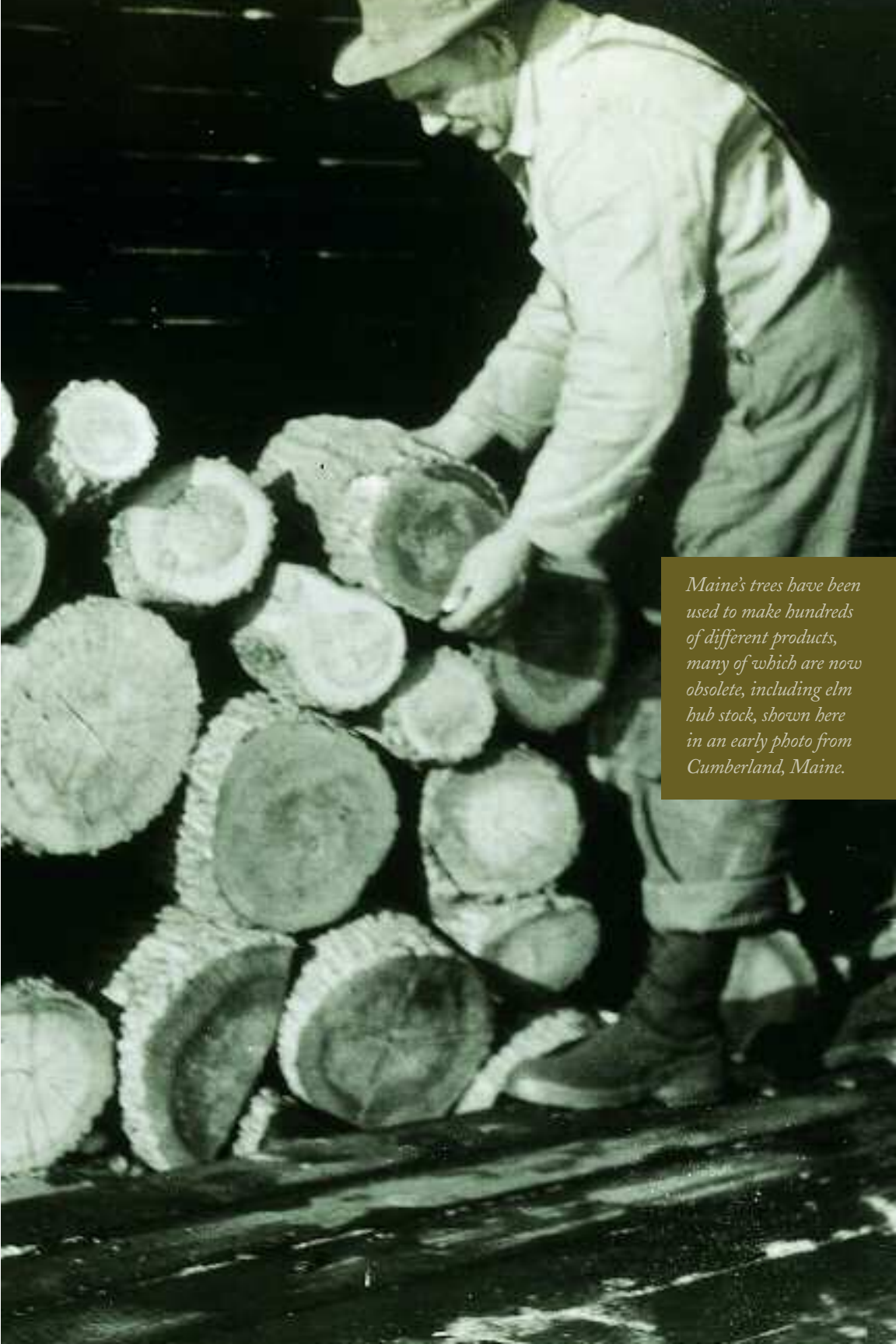
The **bark** of young trees and branches is dark reddish-brown and does not peel. The bark of older trees will separate into thin, papery layers. In mature trees, bark color ranges from whitish with a pinkish or salmon-colored tinge to reddish-brown or bronze.

Mountain paper birch is most often found along the coast and at high elevations.

The **leaves** are egg-shaped with heart-shaped bases, abruptly pointed, and coarsely doubly-toothed. The flowers are borne in catkins. Dormant male catkins in clusters of 2–4 are visible during winter. Both male and female catkins expand in spring.

The **fruit** is a tiny nutlet with 2 small lateral wings. It matures in fall and is dispersed during the fall and winter. Large numbers of birch seed can often be seen on the surface of the snow.

The **wood** is similar to that of paper birch; and the two species are usually not separated. It is used for turnery products, cabinetry, pulp and fuel.



Maine's trees have been used to make hundreds of different products, many of which are now obsolete, including elm hub stock, shown here in an early photo from Cumberland, Maine.

Eastern Hophornbeam

Ostrya virginiana (P. Mill.) K. Koch

The name "hophornbeam" refers to the fruit, which closely resembles the true hops.

Eastern hophornbeam or ironwood is a small tree with either an open or rounded crown. It reaches a height of 20–30 feet and a diameter of 6–10 inches. The branches are long and slender, with ends that are somewhat drooping.

It is a fairly rapid grower, especially in good soil. It grows on slopes and ridges having a dry, gravelly soil, and is often found in the shade of other species.

The **bark** is gray, and separates easily into thin, narrow, vertical scales, becoming finer and stringy on older trees.

The **leaves** are 2–3 inches long, egg-shaped to nearly oblong in outline, widest in the middle, hairy on both surfaces, alternate and sharply toothed. They are somewhat like those of yellow birch.

The **flowers** occur in catkins, which open with the leaf buds. The male catkins are pre-formed in the fall and are usually in clusters of three.

The **fruit** is bladder-like, encloses a ribbed nutlet and occurs in clusters. It ripens in September. The name

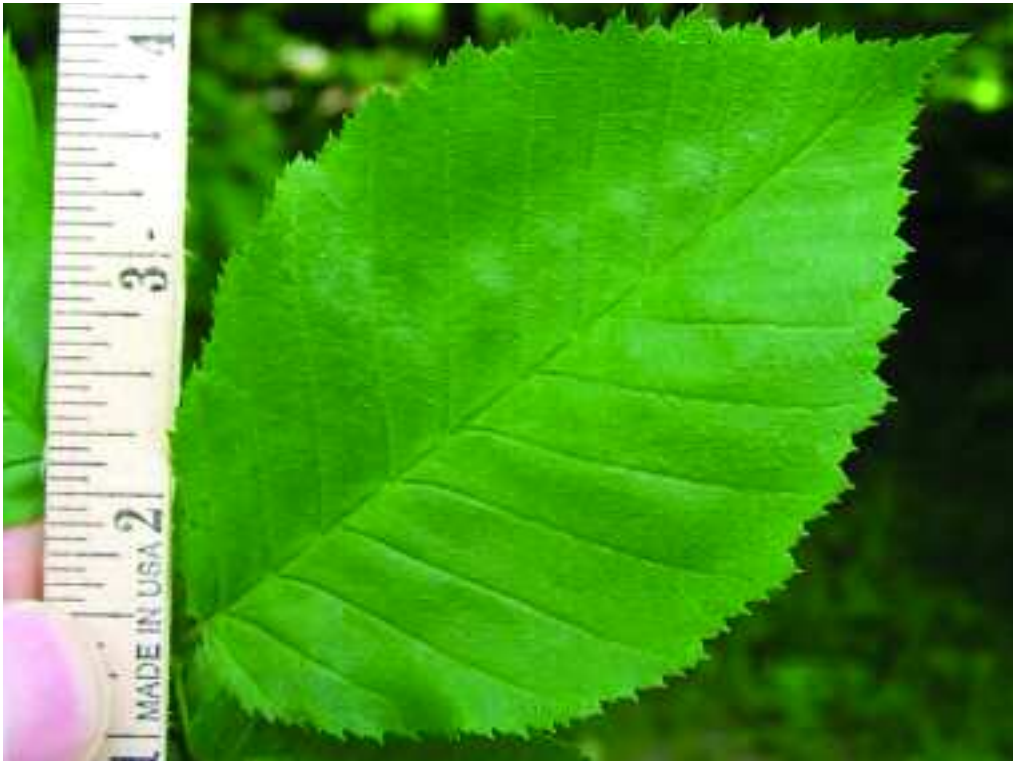
"hophornbeam" refers to the fruit, which closely resembles the true hops.

The **twigs** are light brown, fine, tough and wiry, and have a small green pith.

The **wood** is very close-grained, heavy, very strong and is exceedingly hard when seasoned. It is used for tool handles, wedges for directional felling of trees, and firewood. In the past, it was used to make trip stakes on log hauling trucks (which contain, then release the logs from the truck beds), wagon tongues (the shaft where the horses are hitched) and other parts.

Eastern hophornbeam buds have tiny vertical grooves that can be seen with a magnifying glass.

MAINE REGISTER OF BIG TREES 2008
Eastern Hophornbeam*
Circumference: 77"/70" **Height:** 63'/67'
Crown Spread: 38'/42'
Location: Livermore Falls/Pownall
*Tie



American Hornbeam

Carpinus caroliniana Walt.

Close-grained, strong, tough and durable, American hornbeam wood is used for levers, handles and wedges.

American hornbeam, blue-beech or musclewood occurs west of the Penobscot River in the southern third of the state. The American hornbeam is most commonly found inhabiting wet woods and the borders of swamps and streams. It is a small, slow-growing tree 10–25 feet tall and 4–10 inches in diameter. The branches are crooked. The trunk is characteristically ridged, or fluted longitudinally.

The **bark** is smooth and grayish-blue. The leaves are alternate, egg-shaped or oval, 2–3 inches long, sharply toothed, smooth above and hairy below. They turn a brilliant scarlet in autumn.

American hornbeam bark has a sinewed appearance that gives it its alternate name, "musclewood."

The **flowers** are produced in catkins that open in spring before the leaves.

The **fruit** is a ribbed nutlet, which is attached to the base of a three-lobed bract, and is borne in open clusters.

The **twigs** are reddish-brown, slender and tough. Buds are also reddish-brown and slender, and sharp-pointed.

The **wood** is close-grained, compact, strong, tough and durable. It is used for levers, handles, and wedges.

Speckled Alder

Alnus incana ssp. Rugosa (Du Roi) Clausen

Speckled alder is very common in Maine, usually growing in wet areas along brooks, in swamps and in pastures. It sprouts readily and is a nuisance on pasture land. Alder usually occurs as a shrub, rarely as a small tree. It is seldom more than 4 inches in diameter and 20 feet in height.

The **bark** is smooth, dark chocolate brown, and marked with white, horizontal, elongated spots called lenticels.

The **leaves** are alternate, 2–3 inches long, usually broadly ovate; and the texture is rough or rugose as the scientific name implies. The edges are unevenly or doubly-toothed.

The **flowers** are in catkins, and open before the leaves in spring. The purplish, wax-like male catkins are pre-formed the previous fall. The fruit is woody and cone-like, with a very short stalk.

The **winter buds** are short-stalked and maroon, with few scales showing. The **twigs** are reddish-brown; the pith is triangular in cross section.

The **wood** is light and soft, and has very little commercial use. The wood discolors very rapidly on exposure to air. Baskets for the florist industry are made from small diameter stems. In the past, the wood was used in hand forges, because of the intense heat it produces when burned.

Two other species, **green or mountain alder**—*Alnus viridis* (Vill.) Lam. & DC. *Spp. Crispa* (Ait.) Tirrill)—and **hazel alder** (*Alnus serrulata* (Ait.) Willd.) occur as shrubs.

Mechanical equipment, including the Lombard log hauler, began to replace horses in the Maine woods in the early 1900s.

American Beech *Fagus grandifolia* Ehrh.

American beech nuts are sweet and are an important food source for wildlife.

American beech occurs statewide, growing up to 70 feet in height and 1–3 feet in diameter. Although it grows best on rich upland soil, beech is common and sometimes forms nearly pure stands, with shoots often springing up from the trees' roots. Beech bark disease causes significant mortality in Maine. The disease results when bark, attacked and altered by the beech scale insect, *Cryptococcus fagisuga* is invaded and killed by fungi, primarily *Nectria coccinea* var. *faginata.*

The **bark** is light gray and smooth unless affected by beech bark disease. The bark of trees affected by the disease is rough and pockmarked with small cankers.

Smooth barked beech (left) have become a rarity in Maine. The bark of most trees (right) is roughened by cankers caused by beech bark disease.

The **leaves** are alternate, 3–5 inches long, elliptic, acutely pointed, with coarse and hooked teeth. The margin between the teeth is nearly straight. Dead leaves are light tan and tend to remain on trees into winter.

The **fruit** consists of a bur, which usually contains 2 triangular edible nuts. These nuts are sweet and are an important food source for wildlife. Trees that bears have climbed to eat beech nuts show claw marks on the bark. The **winter buds** are long, slender, many scaled, and sharp-pointed.

The **wood** is strong, hard and tough, but not durable. Current uses include for pulp, pallet stock and firewood. In the past, it was used for clothespins, furniture, handles, woodenware, railroad ties, dowels and flooring.

European beech (*Fagus sylvatica* L.), Purple (*Fagus sylvatica var. atropunicea* Weston) and Copper beech (*Fagus sylvatica var. cuprea* L.) are species of European origin planted in southern and central Maine as ornamentals.

MAINE REGISTER OF BIG TREES 2008
American Beech
Circumference: 104"
Height: 87'
Crown Spread: 58'
Location: Hallowell