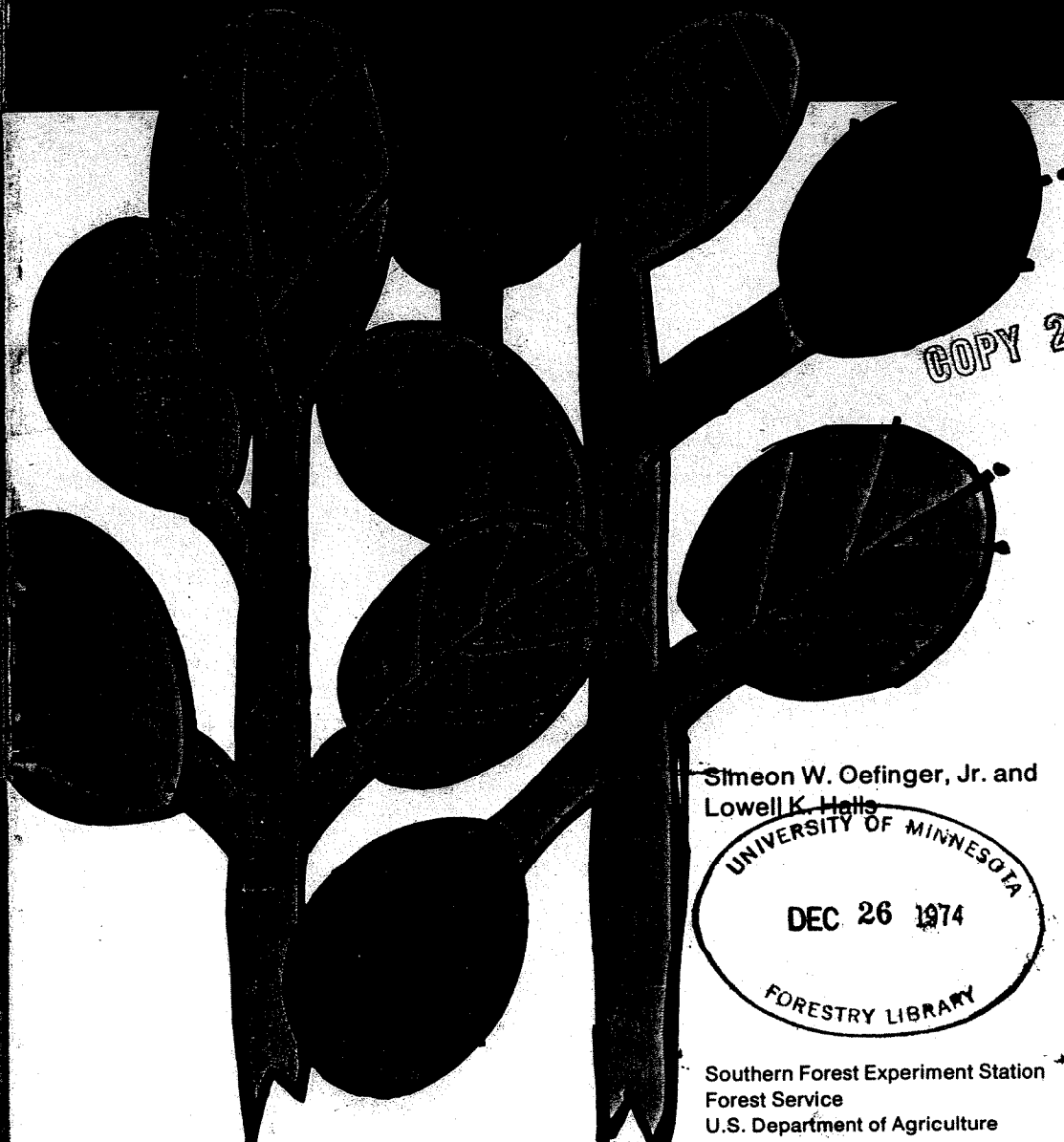


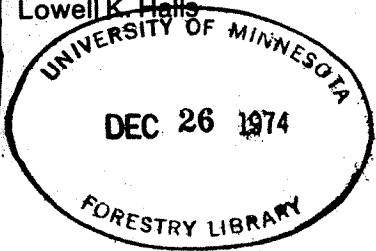
Identifying woody plants valuable to wildlife in southern forests

U.S. Department of Agriculture
Forest Service Research Paper SO-92



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Stmeon W. Oefinger, Jr. and
Lowell K. Halls



Southern Forest Experiment Station
Forest Service
U.S. Department of Agriculture

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**IDENTIFYING WOODY PLANTS
VALUABLE TO WILDLIFE IN SOUTHERN FORESTS**

Simeon W. Oefinger, Jr.,
and
Lowell K. Halls

Southern Forest Experiment Station
Forest Service
U. S. Department of Agriculture

1974

Oefinger, **Simeon W.**, Jr., and Halls, Lowell **K.**

1974. Identifying woody plants valuable to wildlife in southern forests. South. For. Exp. Stn., New Orleans, La. 76 p. (USDA For. Serv. **Res.** Pap. SO-92)

Twigs, buds, and other key identification features are illustrated in color for 70 browse species common to **pine-**hardwood forests of the South.

FOREWORD

Trees, shrubs, and woody vines constitute the major source of food and cover for wildlife in southern forests. One must be able to identify these important plants in order to appraise the habitat. The task is difficult, especially during the winter when the more recognizable plant features such as leaves, flowers, and fruits are often absent.

This publication describes and illustrates some key identification features of 70 species. It stresses the characteristics of stems and buds in winter, since a description of these parts is rarely available in taxonomic references. As an aid in identification the species are grouped according to physical characters such as growth form (vines or shrubs), leaf, stem, and bud arrangement (alternate or opposite), and leaf persistence (deciduous or persistent).

The list consists mainly of woody under-story species that are eaten by wildlife, with special emphasis on those preferred by **white-tailed deer** (*Odocoileus virginianus*). The intention was to include sufficient species for a practical habitat appraisal almost anywhere in the **loblolly-shortleaf** pine-hardwood forest type. It is recognized, however, that the list is not all-inclusive and that other species may be important locally.

The dominant overstory trees such as oaks and hickories are extremely useful to wildlife. For the most part, however, they are omitted here because excellent guides to their identification are readily available elsewhere. Too, limitations of space have made it necessary to represent the large genera of **Rubus** and *Crataegus* by one species each.

References for Latin and common names, listed in order of preference, were:

Little, E. L., Jr.

1953. Check list of native and naturalized trees of the United States (including Alaska). USDA Agric. Handb. 41, 472 p.

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1950. Gray's manual of botany. Ed. 8, 1,632 p. New York: Am. Book Co.

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1970. Manual of the vascular plants of Texas. 1,881 p. Tex. Res. Foundation, Renner.

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ACKNOWLEDGMENTS

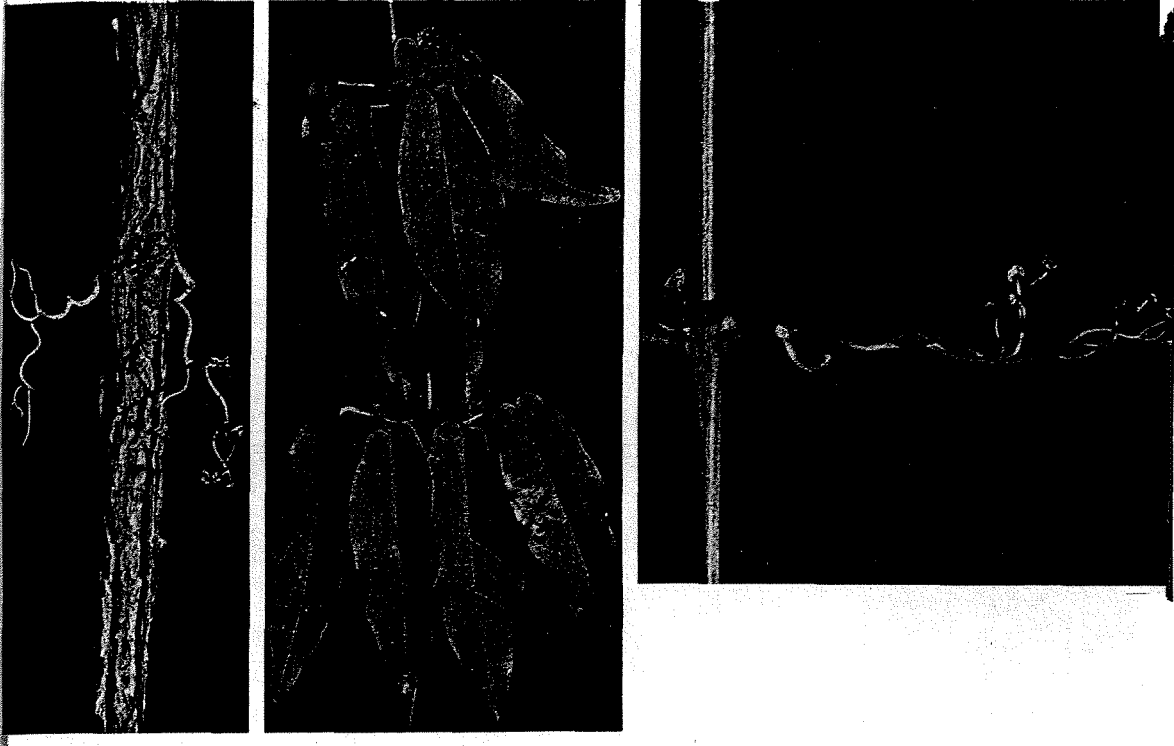
Daniel W. Lay, Texas Parks and Wildlife Department, Phil D. **Goodrum**, Bureau of Sport Fisheries and Wildlife, U. S. Department of the Interior, and Carroll J. Perkins, International Paper Company, helped in the selection of species to be illustrated.

Suggestions on content and organization were given by Stephen F. Austin State University faculty members Elray S. Nixon, Russell C. Faulkner, Jr., Creighton Delaney, and Reesman S. Kennedy.

Several biologists in private industry and government agencies supplied plant specimens for photographing.



VINES WITH STEMS, BUDS, AND LEAF SCARS OPPOSITE OR WHORLED



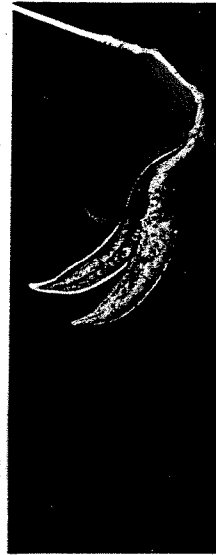
Bignonia capreolata L.-CROSSVINE

Tardily deciduous to evergreen vine with opposite bud and leaf arrangement; climbs by tendrils. Leaves or scars in two opposite pairs. Twigs glabrous, greenish to gray with age; smooth when young. Old stems with rough, curled, papery bark. Leaf-supporting stalks terminated by two leaves or leaf scars and one branching tendril. Tendrils have disk-like tips and are persistent on old growth. Lateral buds small, glabrous to slightly puberulent; wider than tall; with two scales. Leaf scars terete. One bundle scar: curved line or circle. Cross section of larger stems with Maltese cross pattern. Pith later absent.

Leaves two-foliolate, tendril bearing.

Flowers red-orange externally, yellow internally, **axillary** in 2 to 5 flowered cluster, April to June.

Fruit a many-seeded capsule.



Campsis radicans (L.) Seem.
COMMON TRUMPETCREEPER

Deciduous climbing or creeping vine with opposite leaf scars. Aerial rootlets. Stems glabrous, green to reddish-tan, dying back in winter with no terminal bud. Leaf scars large, half round with continuous **stipule** scars. Bundle scars U-shaped to circular.

Leaves odd-pinnate, olive green, lustrous and glabrous above.

Flowers reddish-brown in terminal cluster, June to September.

Fruit a dry, brownish, two-celled capsule, with numerous winged seeds, pods long persistent.



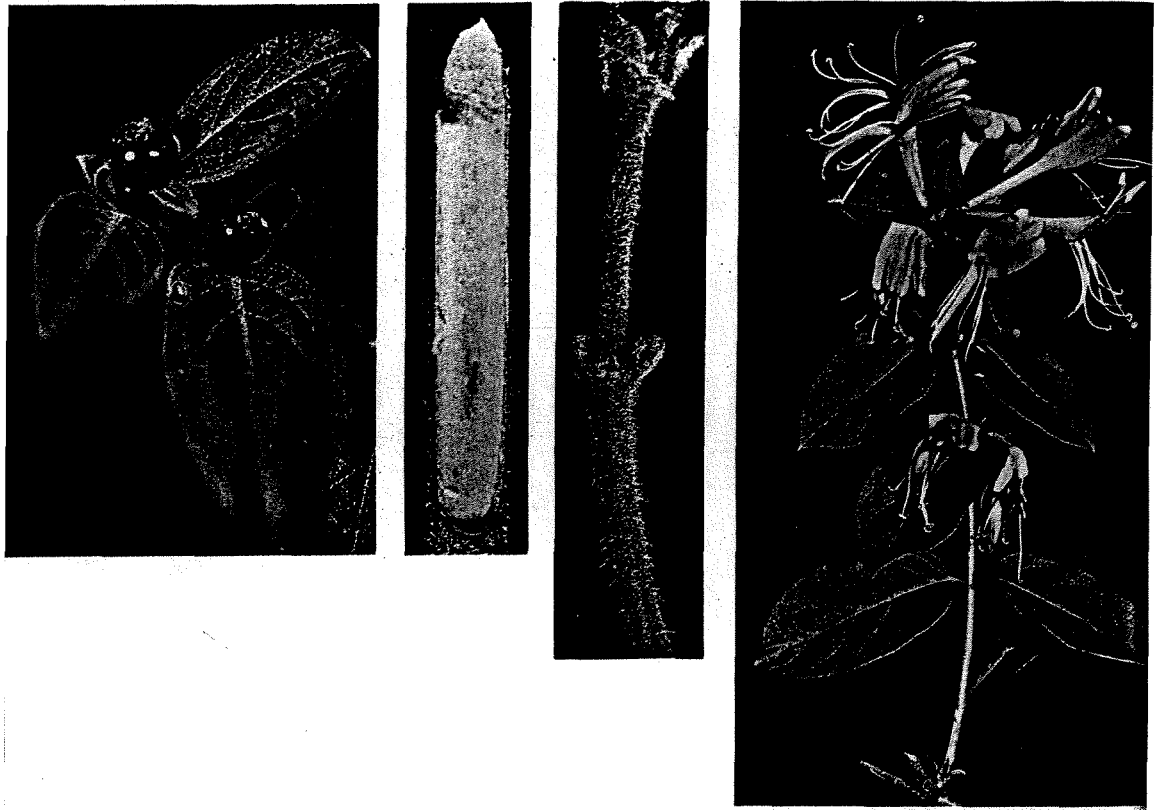
Gelsemium sempervirens (L.) Ait.—CAROLINA JESSAMINE

Evergreen vine with opposite leaves. Creeping to climbing. No tendrils or aerial rootlets. Stems hollow, glabrous, reddish-brown with occasional glaucous bloom. When stems are broken silvery hairlike strands can be seen at the edge of the break. Previous season's four-lobed fruit pods commonly persist through winter. Leaf scars half round to circular. One bundle scar.

Leaves slender, glabrous, entire, mostly three or more times longer than wide.

Flowers trumpet-shaped, deep yellow, fragrant and fragile, February to April.

Fruit a capsule with numerous winged seeds.



Lonicera japonica Thunb.-JAPANESE HONEYSUCKLE

Evergreen vine with opposite leaves. Climbing or creeping without tendrils or aerial rootlets. Stems pubescent, less so with age; becoming hollow. Leaf scars narrow, flat, and covered by remnants of leaf petioles. Bundle scars three with petiole remnant removed.

Leaves pubescent above and beneath, margins commonly entire but occasionally toothed to lobed.

Flowers fragrant, in pairs from leafy **bracts**, white or pink, later yellow, June to August.

Fruit a black pulpy berry with several seeds, September to March.

VINES WITH ALTERNATE STEMS, BUDS, AND LEAF SCARS; STEMS WITH THORNS OR PRICKLES



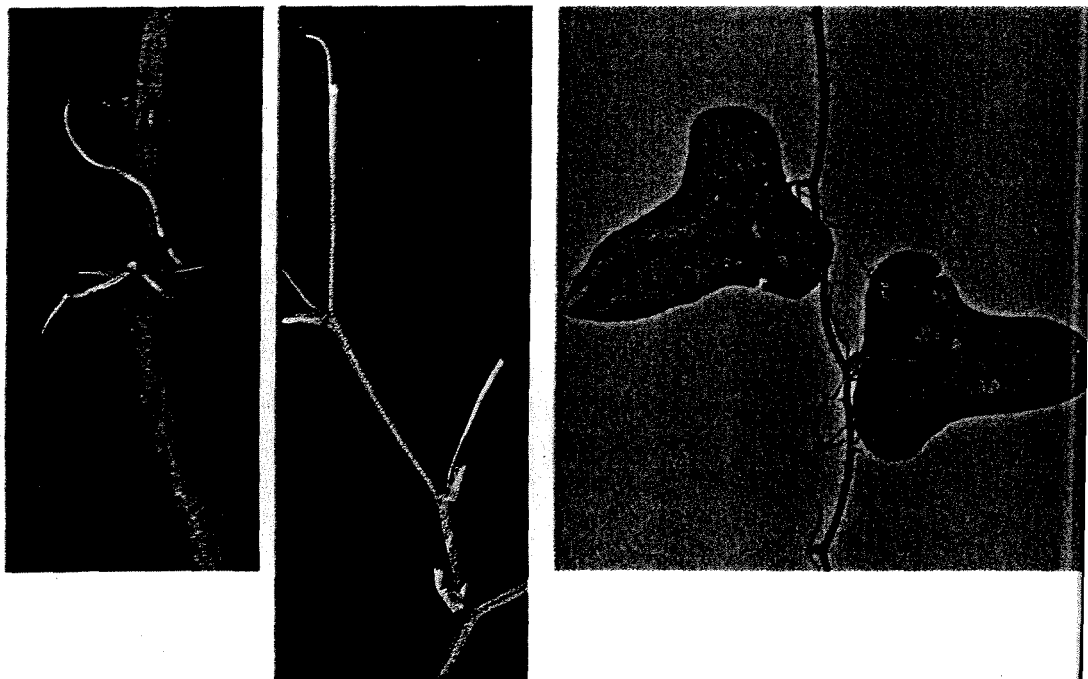
Rubus trivialis Michx.—SOUTHERN DEWBERRY

Deciduous trailing or creeping vine. New stems or **primocanes** with curved or hooked prickles and numerous reddish glandular hairs. Stems becoming stiff and glabrous with age. Prickles persistent. Stems commonly root at tips and nodes.

Dead leaves occasionally persist through winter. **Floricanes** leaves usually S-foliolate and primocane leaves **5-foliolate**; margins coarsely serrate to dentate, petioles with glandular hairs.

Flowers white to pinkish on solitary, erect, armed pedicels, March and April.

Fruit a large-seeded berry, black at maturity, sweet, juicy and attractive, June and July.



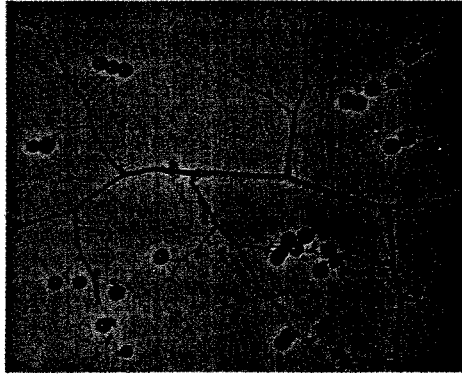
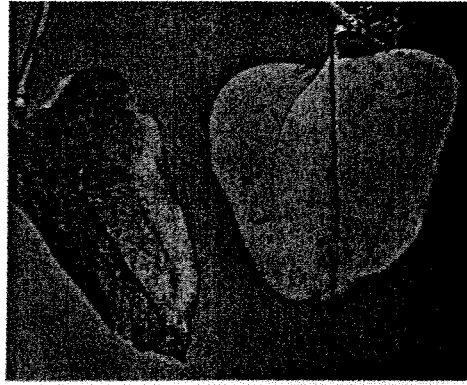
Smilax bona-nox L.-SAW GREENBRIER

Deciduous, spiny, climbing vine with tendrils. Alternate leaf scars. Young stems somewhat square, glabrous, green, and angled at joints. Buds and leaf scars covered by remnants of leaf bases. Pith absent, stems porous in cross section. Spines paired at nodes.

Leaves simple, usually thick and often blotched with white. Margins and main veins usually prickly.

Flowers borne in staminate and pistillate axillary umbels, April to June.

Fruit a shining or dull black berry, usually one-seeded, September to November.

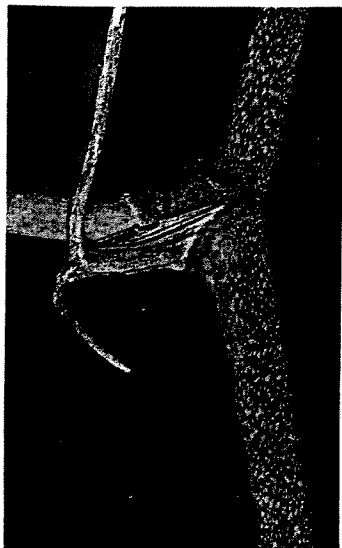


***Smilax glauca* Walt.-CAT GREENBRIER**

Tardily deciduous, spiny, climbing vine with or without tendrils. Alternate leaf scars. Young stems glabrous, green, and angled at joints. Leaf scars and buds covered with remnants of leaf bases. Nodes with or without spines. Pith absent, stems porous in cross section. Leaves simple, green to black-green above, glaucous white below.

Flowers small, greenish, borne in separate staminate and pistillate umbels, May and June.

Fruit a black berry with a bloom, ripens in first year, September and October.



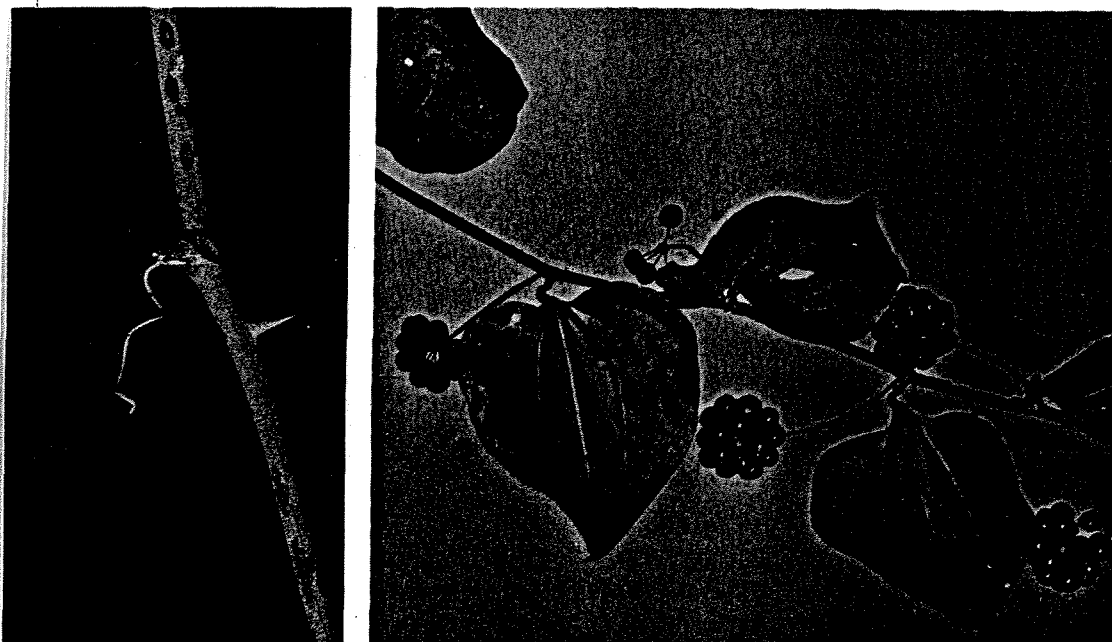
***Smilax laurifolia* L.-LAUREL GREENBRIER**

Evergreen climbing vine with tendrils and alternate leaves. Spines generally sparse, absent from nodes. Stems glabrous, waxy green. Pith absent; stems porous in cross section.

Leaves simple, shiny green, and glabrous, somewhat paler below; thick and leathery with three prominent veins.

Flowers greenish-white, borne in separate staminate and pistillate umbels, July and August.

Fruit a shiny black berry in clusters of 5 to 25, persistent, matures in October of second season after flowering.



Smilax rotundifolia L.-COMMON GREENBRIER

Deciduous, climbing, spiny vine with alternate leaf scars. Leaf scars and buds covered by remnants of leaf bases. Stems glabrous, green to yellowish-green. Pith absent, stems porous in cross section. Spines stout and scattered, absent at nodes.

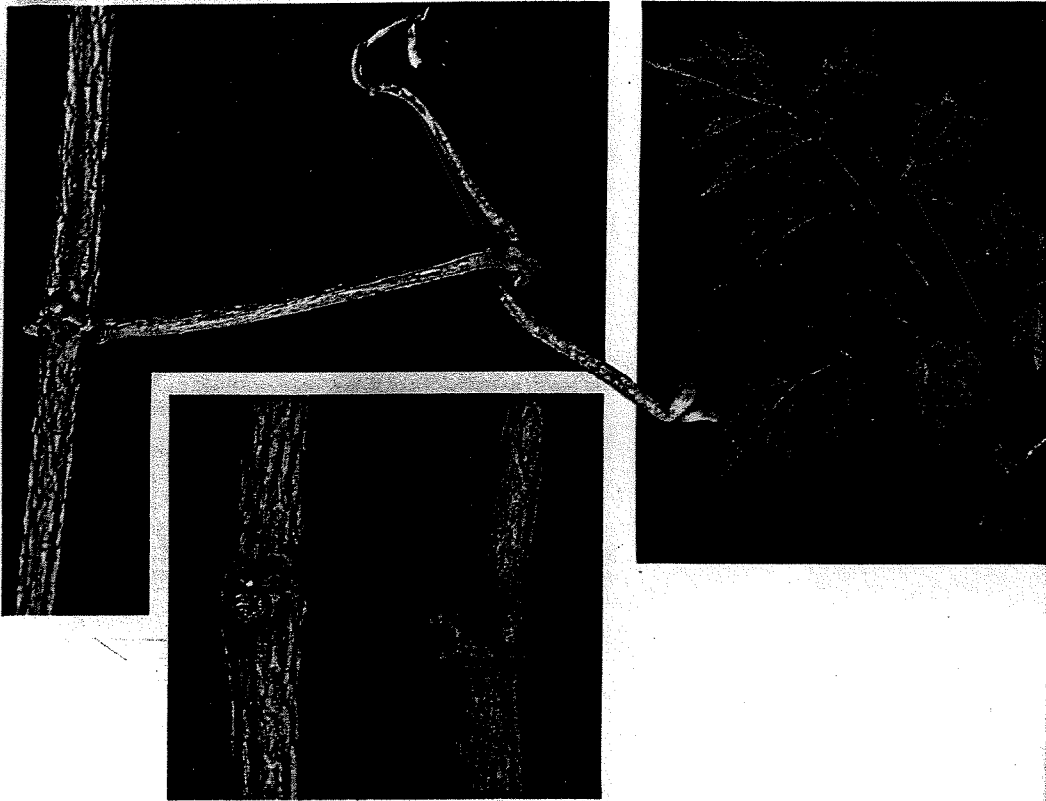
Leaves simple, mostly round and smooth, tips abruptly pointed, green both sides, shiny beneath.

Flowers small greenish-yellow, borne in separate staminate and pistillate umbels, March to June.

Fruit a black berry, persistent, borne in rounded umbellate clusters, matures in 1 year.



VINES WITH ALTERNATE STEMS, BUDS, AND LEAF SCARS; STEMS WITHOUT THORNS OR PRICKLES



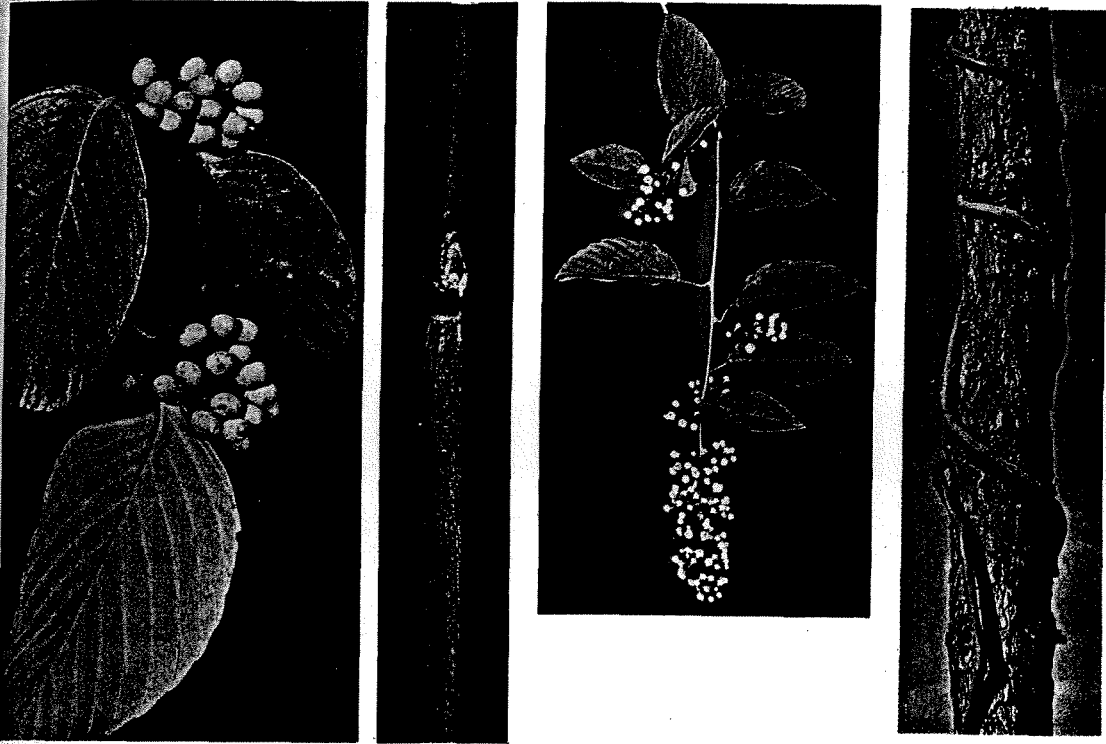
Ampelopsis arborea (L.) Koehne-PEPPERVINE

Trailing or climbing vine with alternate buds and leaf scars. Tendrils branching and occasionally falling, with remaining scars appearing as opposite leaf scars. Twigs glabrous; grayish-tan to light brown in color. Lenticels numerous, especially so toward twig tips, light gray or tan in color. Pith soft, white, homogeneous but interrupted at nodes. Twigs swollen at nodes. Terminal buds absent. Lateral buds small, glabrous, pyramidal in shape. Leaf scars circular. Bundle scars several, arranged in a circle.

Leaves deciduous, bipinnate, coarsely toothed, incised or lobed.

Flowers greenish-white,--small, inconspicuous, in cymes, June and July.

Berries shiny black at maturity, 1 to 4 seeds.

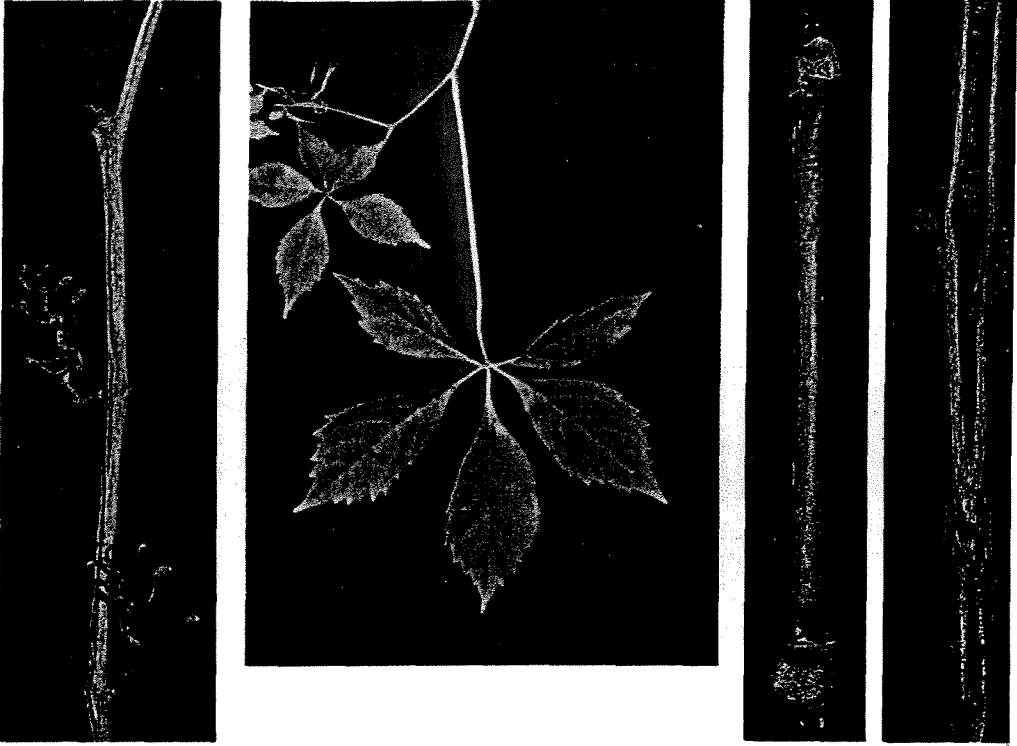


Berchemia scandens (Hill) K. Koch
ALABAMA SUPPLEJACK

Stout, deciduous vine with alternate leaf scars and buds. Climbing without aerial rootlets or tendrils. Very tight and smooth bark. Young stems glabrous and shiny green to red. Leaf scars elliptic, somewhat raised above the stem. One bundle scar, occasionally indistinctly broken into two or three parts. Buds with two scales, glabrous.

Leaves simple, with parallel veins.

Flowers small greenish-white in small panicles, March to June. Fruit a bluish-black drupe containing a two-celled stone, July to October.



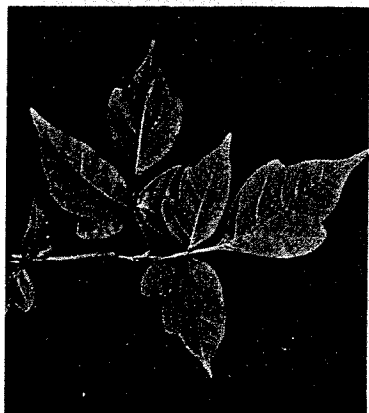
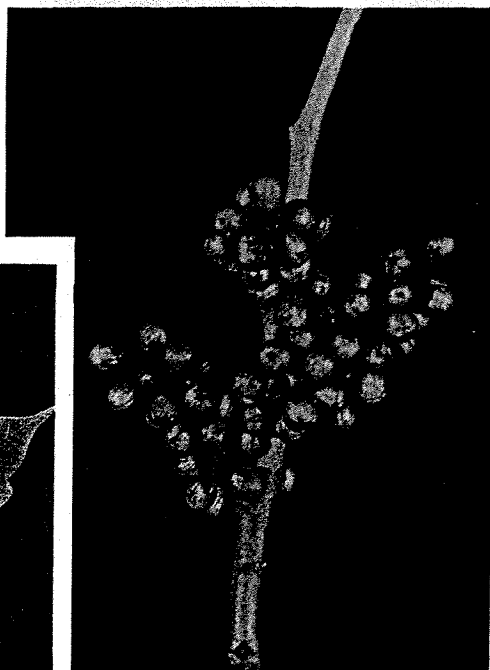
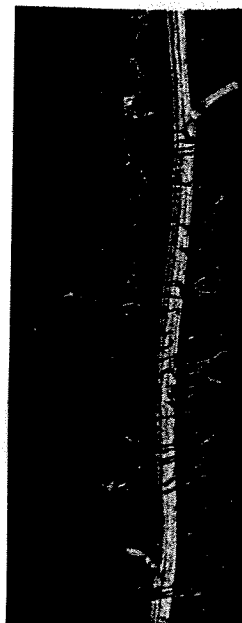
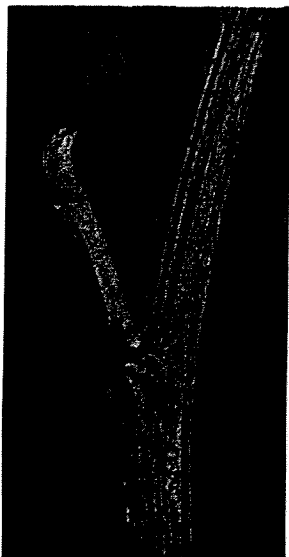
Parthenocissus quinquefolia (L.) Planch.
VIRGINIA CREEPER

Deciduous vine climbing by tendrils. Alternate buds and leaf scars. Twigs light purple-gray to tan-gray and **puberulent**; glabrous with age. Lenticels tan, large, and appearing split longitudinally with ridges remaining at sides. Leaf scars terete. Stipule scars present. Bundle scars four to six dots arranged in a circle. Terminal bud absent. Lateral buds in side-by-side pairs or occasionally absent: glabrous scales. Tendrils branched with terminal disk-like appendages. Tendrils opposite leaf scars. Pith variously chambered to hollow; not interrupted at nodes.

Leaves palmately compound with five leaflets, margins coarsely serrate-dentate except near base and apex.

Flowers in panicles of compound cymes, greenish, May to August.

Fruit a berry in spreading erect cymes, greenish-blue, seeds 2 to 4, ripen in fall.



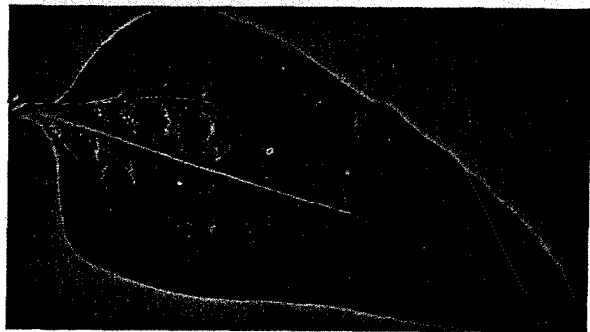
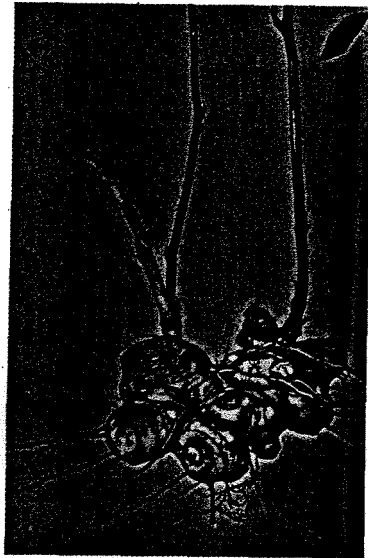
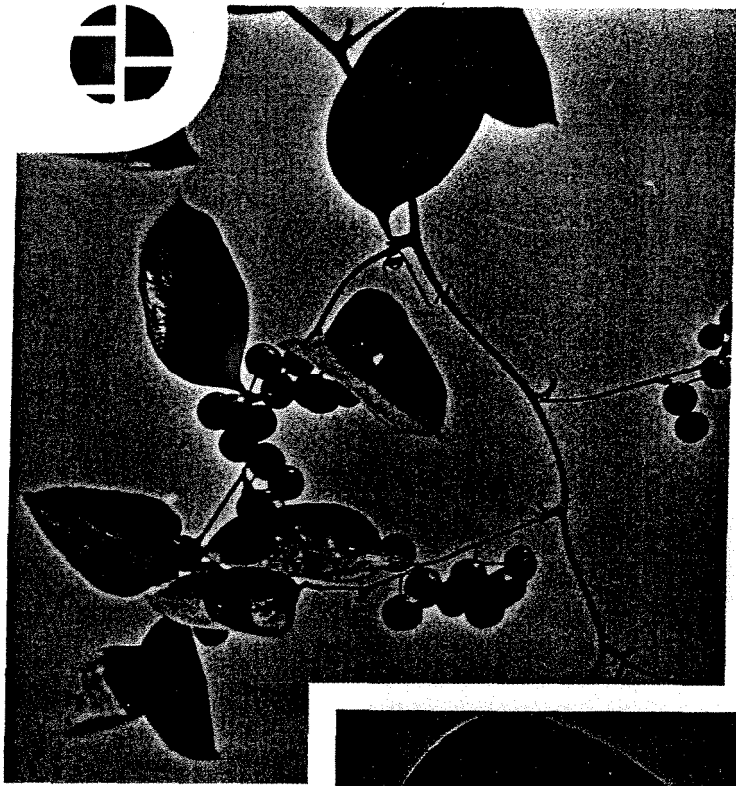
Rhus radicans L.-COMMON POISON-IVY

Deciduous vine with alternate leaves. Climbing with aerial **rootlets** or creeping. **Rootlets** with disk-like appendages. Tendrils and thorns absent. Twigs dark reddish-brown to grayish-tan or brown. New growth pubescent, becoming glabrous. Leaf scars large, U-shaped. Bundle scars five. Buds naked.

Leaves trifoliate, margin entire, dentate or lobed.

Flowers small, greenish-white, fragrant in axillary panicles, May to July.

Fruit a persistent drupe, clustered, dull white, waxy, glabrous or sparsely pubescent, August to November.



Smilax smallii Morong-LANCELEAF GREENBRIER

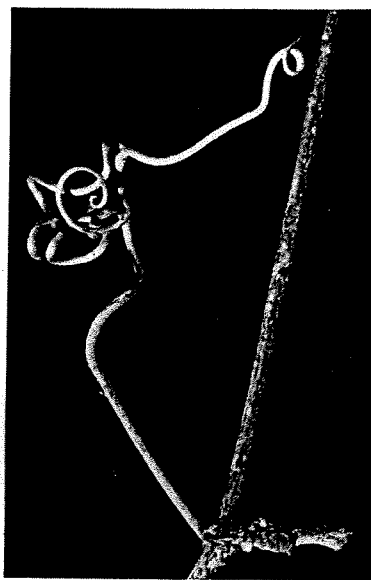
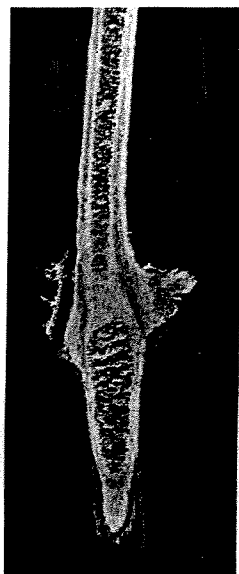
Evergreen vine with alternate leaves and branches. Tendrils present. Commonly climbs high in trees. Thorns uncommon, practically nonexistent on new growth. Stem porous in cross section.

Leaves leathery in texture, ovate to elongate ovate with acute tips, shiny green above and below, margins smooth, five veins, rarely seven.

Flowers yellowish-green, fragrant, staminate and pistillate borne separately in axillary umbellate clusters, April to July.

Fruit a maroon to blackish-red berry, in clusters, matures second year in June.

Underground stems firm, tuberous, up to 2 feet in length.



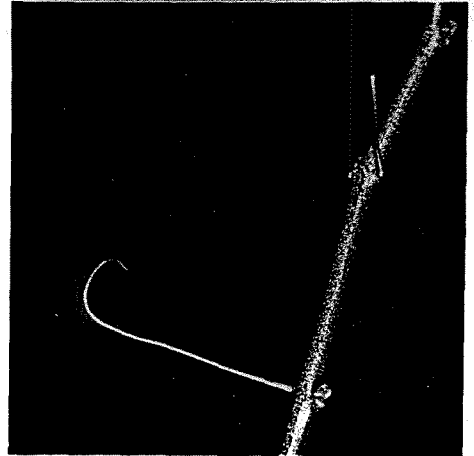
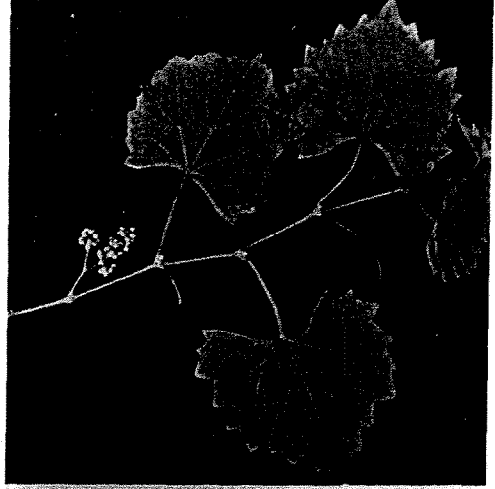
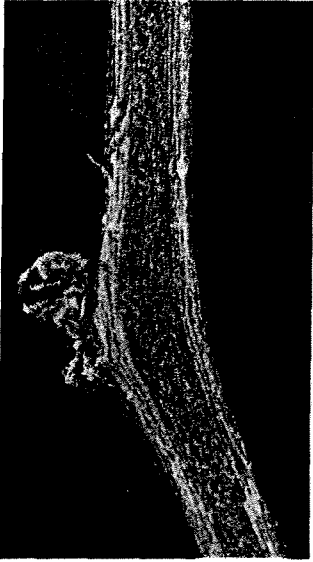
Vitis aestivalis Michx.—SUMMER GRAPE

Deciduous, thornless vine, climbing by forked tendrils. Leaf scars alternate. Stems reddish-brown, pubescent on new growth, becoming glabrous with bluish-gray waxy bloom on old growth. Buds rusty-brown pubescent underneath scales. Pith soft, brown, interrupted at nodes. Lenticels uncommon. Leaf scars triangular to half round. Bundle scars indistinct.

Leaves simple, margin of some irregularly toothed and unlobed, others shallowly to deeply 3 to 5 lobed.

Flowers small, clustered in a slender, loose panicle, May to July.

Fruit a globose, dark blue to black, persistent berry, September and October.



Vitis rotundifolia Michx.-MUSCADINE GRAPE

Deciduous, thornless vine climbing by tendrils. Tendrils not forked. Leaf scars alternate. Stems light rusty-tan to purplish-brown, glabrous. Buds rusty-brown underneath scales. Pith firm, light tan to greenish-tan, not interrupted at nodes. Lenticels profuse and lighter than twigs. Leaf scars half round to circular. Bundle scars indistinct.

Leaves simple, margin coarsely angular-dentate, seldom lobed.

Flowers small in dense short-branched panicles, May and June.

Fruit a purplish-black berry borne in short, loose, globular clusters, dropping singly as soon as ripe, July to September.



**SHRUBS OR TREES WITH
STEMS, BUDS, AND LEAF
SCARS OPPOSITE,
SUB-OPPOSITE, OR
WHORLED; LEAVES
DECIDUOUS**

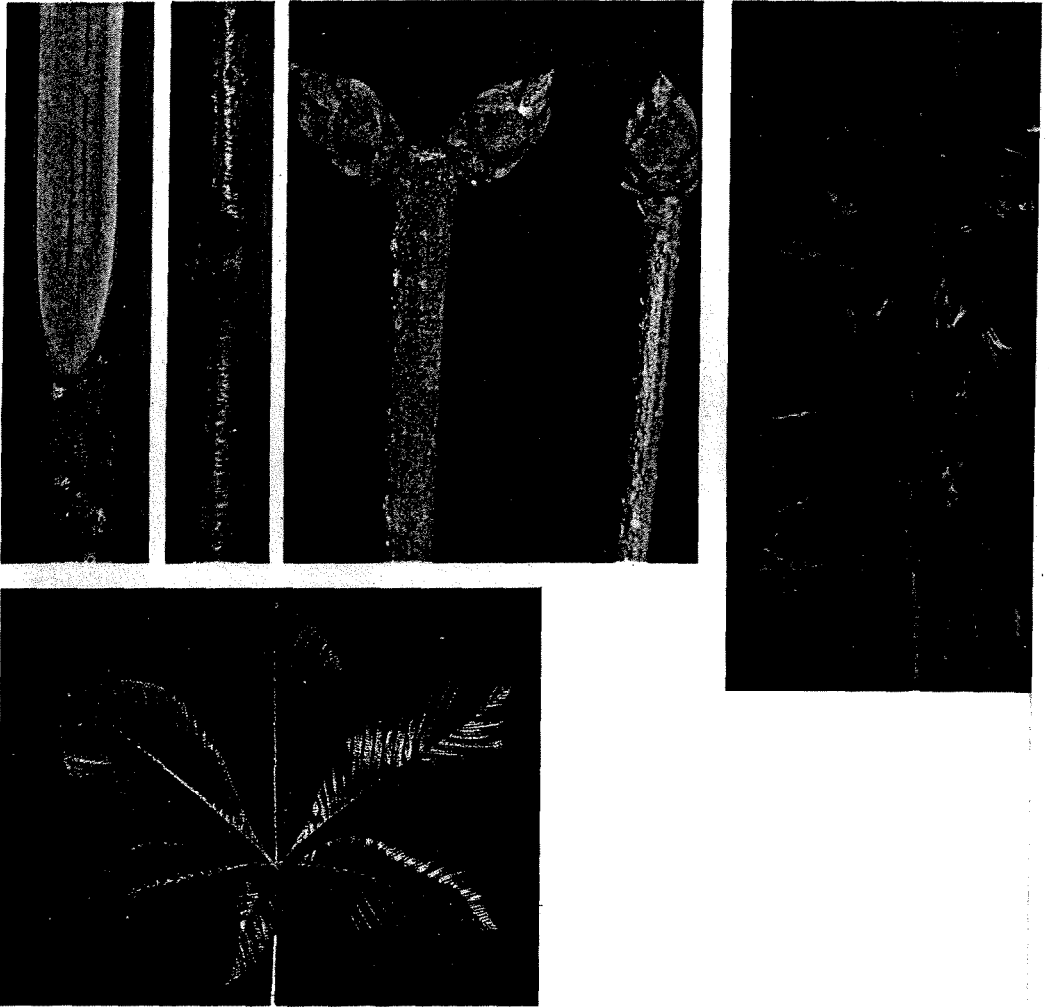
Acer rubrum L.-RED MAPLE

Deciduous tree with opposite buds and leaf scars. Current year's twigs brownish-red to deep red and glabrous. Buds brown to reddish. Bud scales glabrous except for short pubescence on margins. Terminal buds with three sets of two opposite scales. Pith soft, whitish, and homogeneous. Leaf scars crescent-shaped. Bundle scars three. Lenticels numerous, small, dark brown.

Leaves simple, light green on upper surface and silvery beneath, turning yellow, orange, or red in autumn.

Flowers red to yellowish-green in clusters, appearing before leaves in March to May.

Fruit a double samara, ripening in March to June.



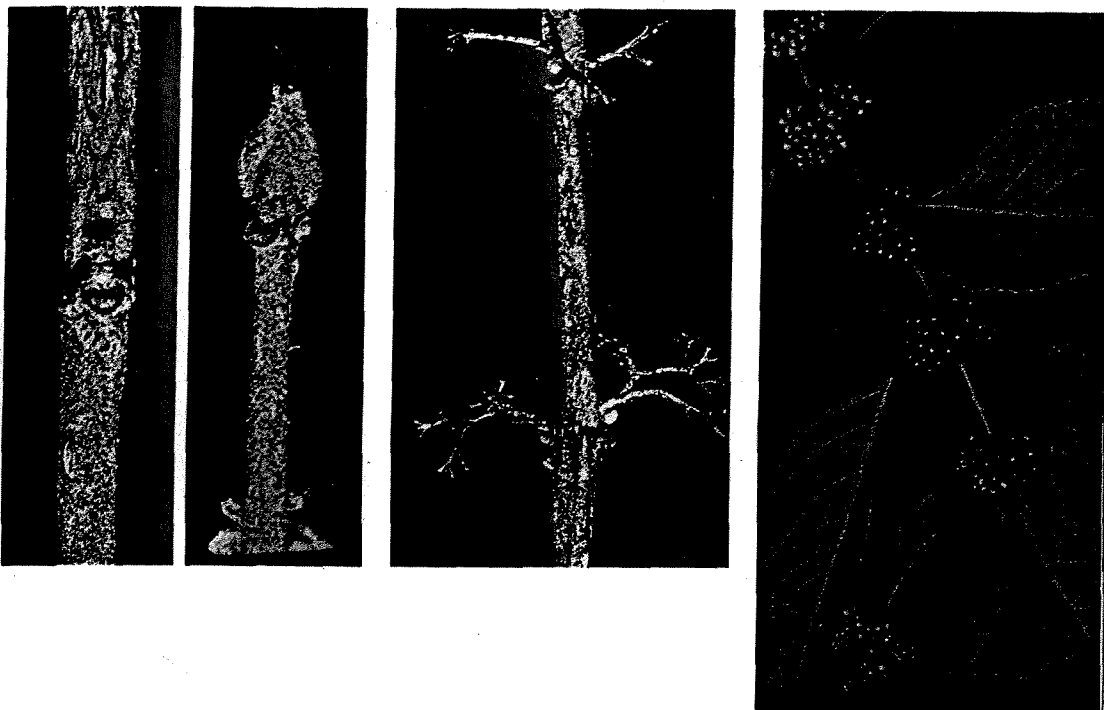
Aesculus pavia L.-RED BUCKEYE

Deciduous shrub with opposite buds and leaf scars. Twigs **greenish-gray** to tan, puberulent, becoming glabrous. Buds large, reddish-gray. Terminal buds usually absent. Leaf scars large, deeply to shallowly **U-shaped**. Bundle scars three or roughly in three groups. Pith heterogeneous with irregular longitudinal chambers. Lenticels warty and numerous.

Leaves palmately compound.

Flowers red, in panicles, March to May.

Fruit a light brown capsule.



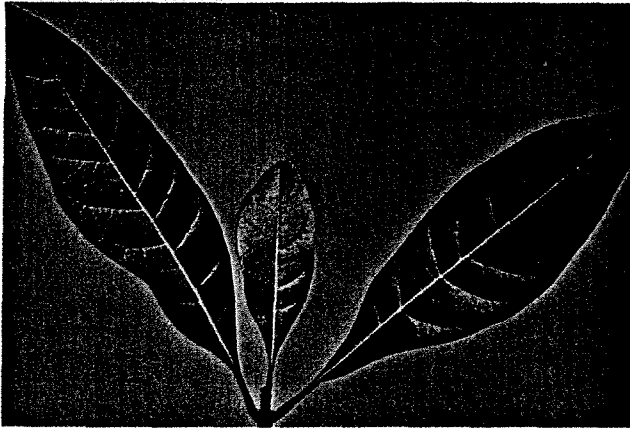
Callicarpa americana L.-AMERICAN BEAUTYBERRY

Deciduous ascending shrub with opposite leaf scars and buds. Generally with several stems arising from one rootstock. Remnants of fruit stalks at tips of stems remain through winter. Leaf scars circular with one U-shaped bundle scar. Current growth puberulent and gray to dark grayish-brown.

Leaves simple, white pubescent beneath, soft-textured.

Flowers small, bluish, clustered in leaf axils, June to November.

Fruit a purplish drupe with four seeds, August to November, persists to January.



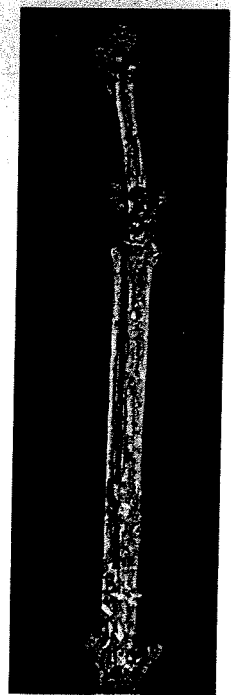
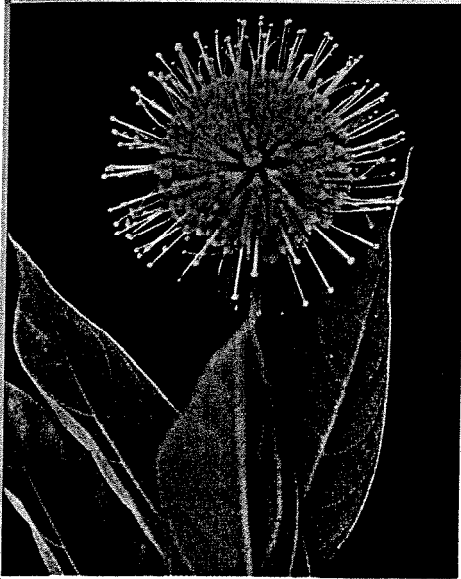
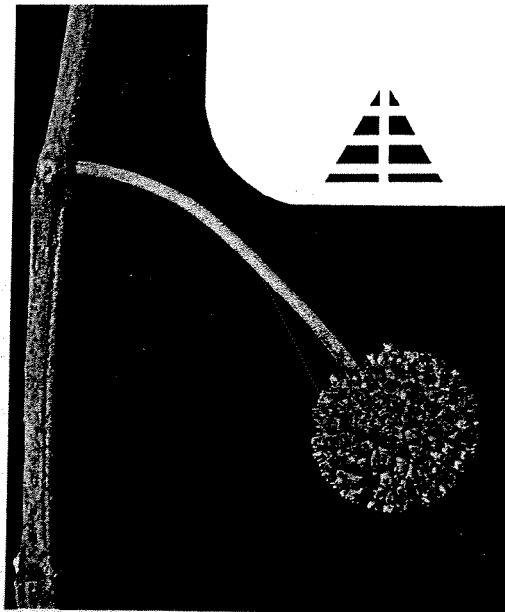
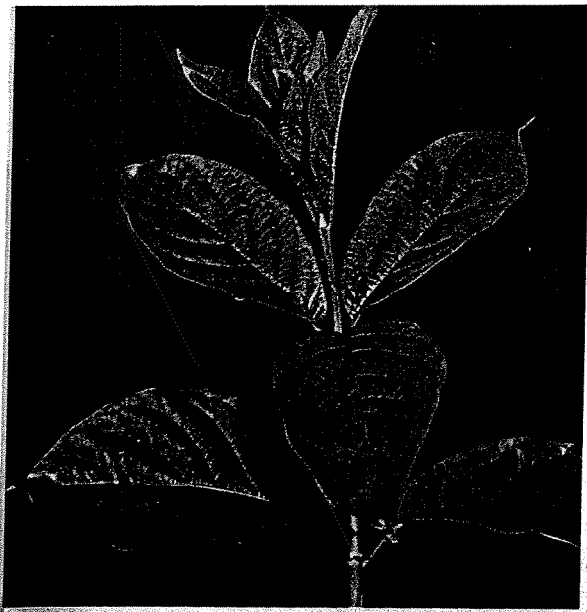
Chionanthus virginicus L.-FRINGETREE

Deciduous shrub to small tree with opposite leaf scars and buds. Twigs light gray to tan, puberulent and stout. Terminal and lateral buds **many**-scaled. Lenticels conspicuously warty. Pith soft, continuous, and white. Leaf scars half-round and somewhat protruding with one circular to **horseshoe**-shaped bundle scar.

Leaves simple, dark green and glabrous above, paler below with hairs on veins.

Flowers white in delicate drooping panicles, March to June.

Fruit a purple drupe borne in loose clusters, August to October.



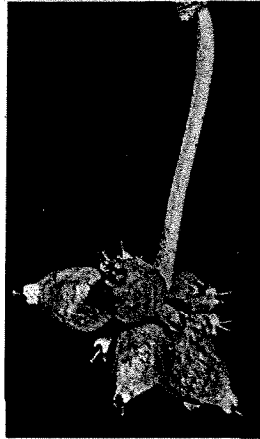
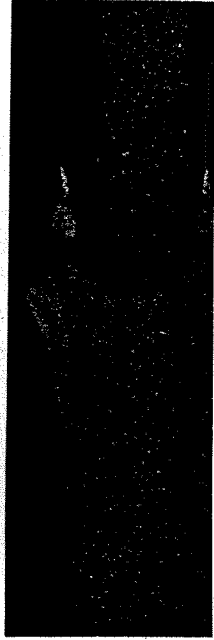
Cephalanthus occidentalis L.-COMMON BUTTONBUSH

Deciduous shrub typically branching near the ground. Buds and leaf scars opposite or **whorled** in threes. Stems upright at first, later bending. Glabrous, light tan to grayish twigs with opposite or **whorled** leaf scars. Commonly three circular leaf scars per node. Bundle scars circular to U-shaped. Stipules connecting to form circle around stem. Pith more than one-third of total stem diameter, soft and light tan in color. Lenticels large and warty. Commonly grows at the edge of or in shallow, slow-moving or still water.

Leaves simple, opposite or in whorls, glabrous above, sometimes pubescent on midrib.

Flowers numerous, white, clustered in spherical heads, June to September.

Fruit a round cluster of reddish-brown nutlets, September and October.



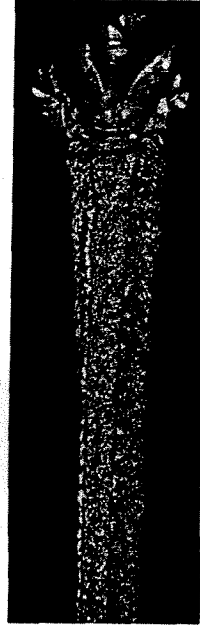
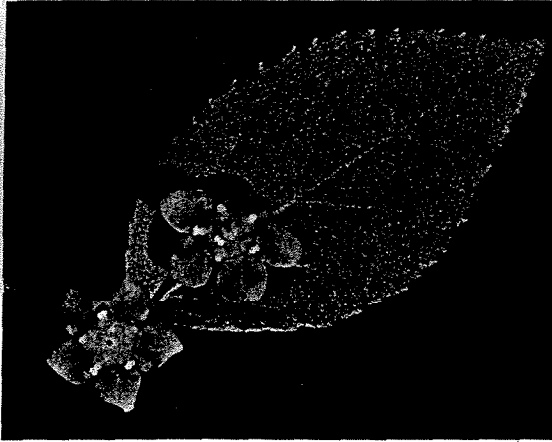
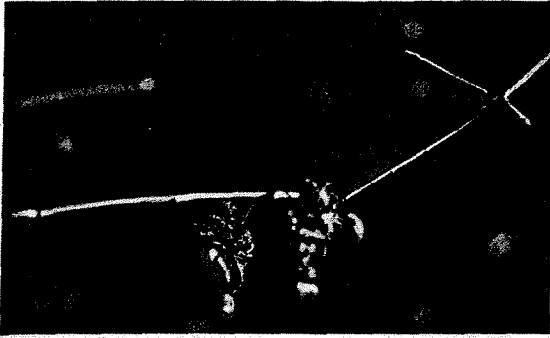
Cornus florida L.-FLOWERING DOGWOOD

Deciduous shrub to small tree. Leaf scars and twigs with opposite arrangement. Twigs green to reddish with telescoping appearance at nodes. Stems with scattered appressed pubescence becoming nearly glabrous. Leaf scars from near linear to U-shaped to half round. Bundle scars three. Flower buds distinct from leaf buds, terminal and with long-stalked globose tip. Pith longitudinally parted with hard resinous glomerules frequently interspersed throughout.

Leaves simple, dark green above, light green and glaucous beneath, often clustered near end of branches.

Flower bracts snowy white or rarely pink, March to June.

Fruit a bright red, clustered drupe. September and October.



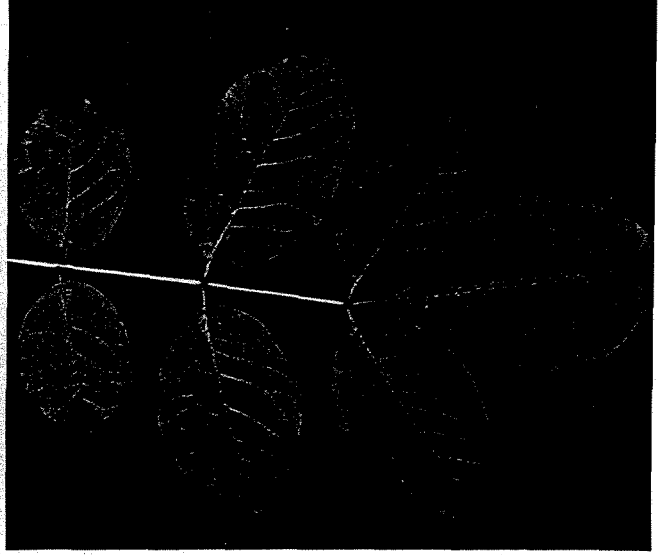
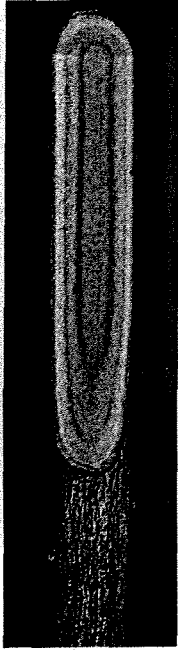
Euonymus americanus L.-BROOK EUONYMUS

Deciduous shrub with opposite branching. Leaf scars on current growth occasionally subopposite to alternate, slit-like to half round. One bundle scar. Stems remain green through several years, occasionally have reddish tinge. Fine longitudinal ridges connecting edges of succeeding pairs of leaf scars. Pith spongy. Terminal and lateral buds reddish.

Leaves simple and sessile.

Flowers in cymes, petals greenish to greenish-purple or reddish, May and June.

Fruit a warty capsule that turns purplish-red and splits at maturity to expose several reddish-orange, pulpy, seed-bearing appendages, September and October.



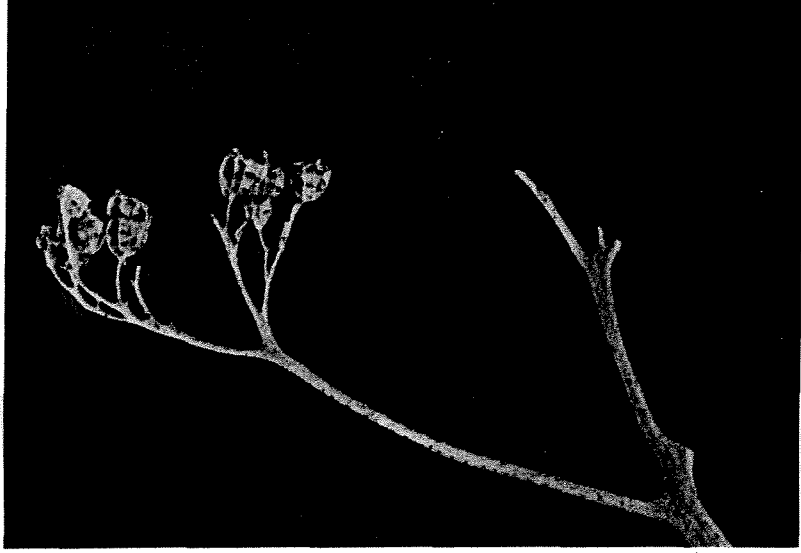
Fraxinus americana L.-WHITE ASH

Deciduous tree with opposite buds and leaf scars. Twigs greenish-gray to purple-gray, glabrous or with few scattered minute hairs towards tips. Leaf scars U-shaped, indented on upper edge. Bundle scar a curved line. Terminal buds punctate, two-scaled, and triangular in outline. Lateral buds smaller, terete, and punctate. Pith white, homogeneous, and interrupted at nodes.

Leaves odd-pinnately compound, usually seven leaflets.

Flowers with or before the leaves. Staminate clusters short and dense, pistillate clusters about 2 inches long and slender.

Fruit samaras in dense clusters, ripening in August and September.



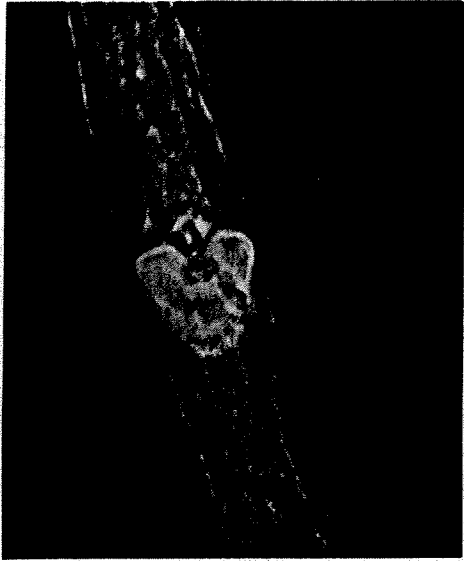
Hydrangea arborescens L.-SMOOTH HYDRANGEA

Deciduous shrub with opposite leaf scars. Grows primarily in clumps. Twigs light tan, pubescent, becoming glabrous. Older stems with very thin, loose, shredding bark. Pith soft, continuous, white, occupying more than one-half of total stem diameter. Leaf scars triangular with tips connecting around stems. Bundle scars three. Flower head remnants commonly persist through winter.

Leaves dark green above, paler beneath.

Flowers borne in creamy white **cyme** which persists through winter, June and July.

Fruit a many-seeded capsule, October to December.



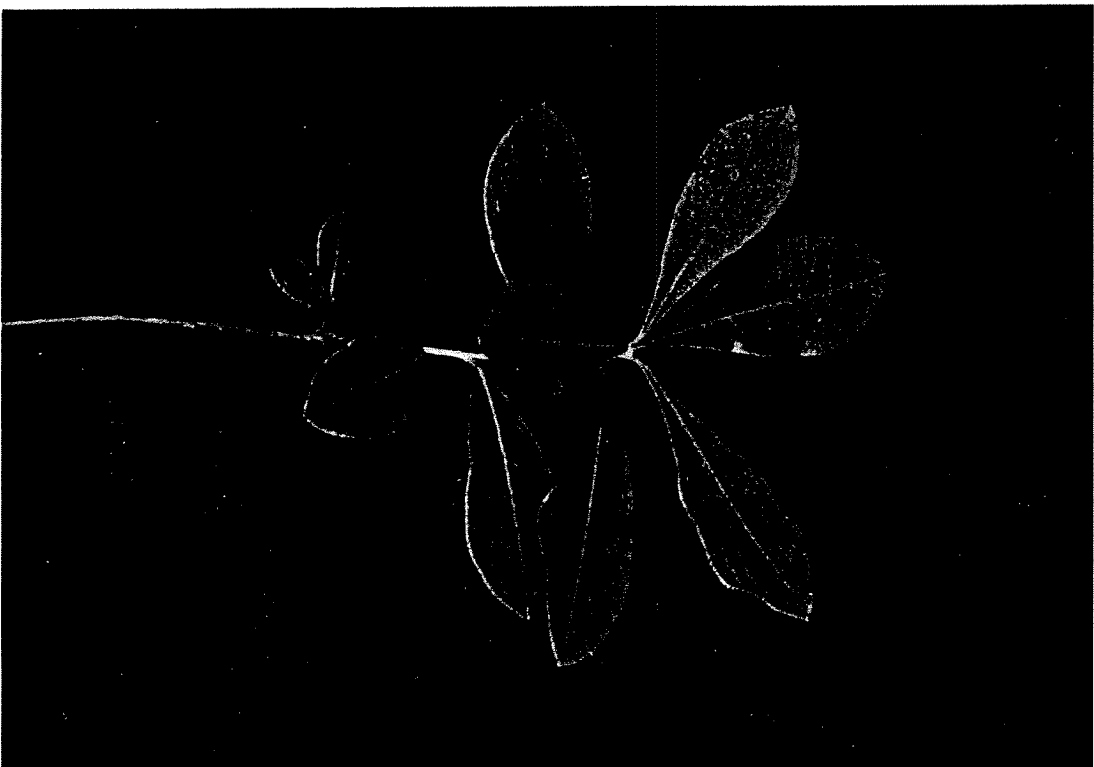
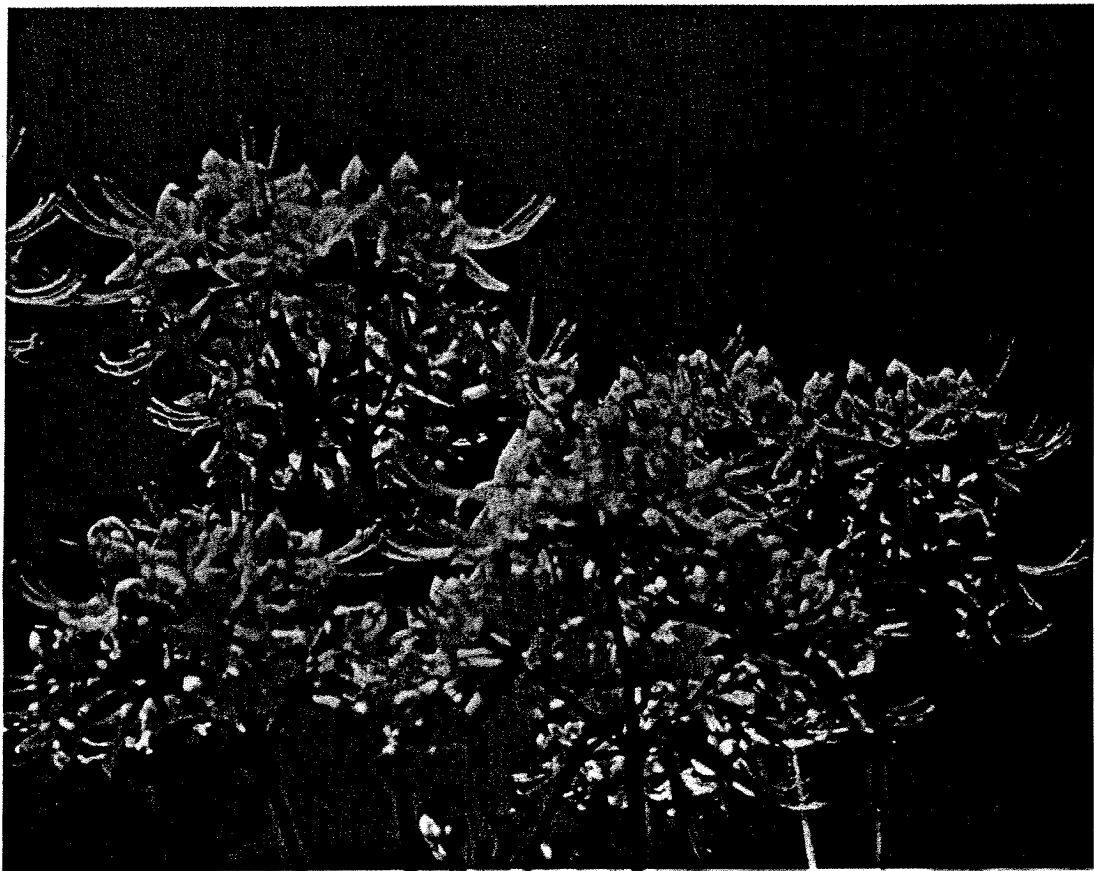
Rhododendron serrulatum (Small) Millais
HAMMOCKSWEET AZALEA

Deciduous shrub up to 20 feet; alternate leaf scars. Twigs reddish-tan to grayish-brown, pubescent becoming glabrous. Buds commonly clustered towards twig tips, giving rise to an almost **whorled** twig arrangement on some stems. Scales of terminal buds with dark mucronate tips. Leaf scars shield-shaped to triangular, with one bundle scar.

Leaves simple, clustered at end of branches, lustrous green on both sides, glabrous except for occasional scattered hairs on midrib beneath.

Flowers borne in few or many terminal clusters, corolla white, sweet-scented, tube slender, cylindric, very viscid glandular hairs, June to August.

Fruit a five-valved capsule.





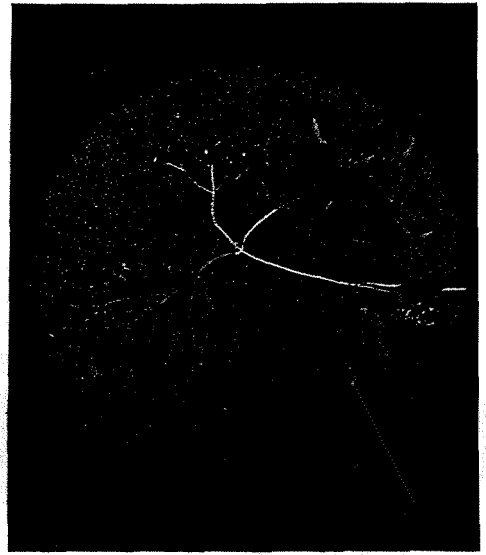
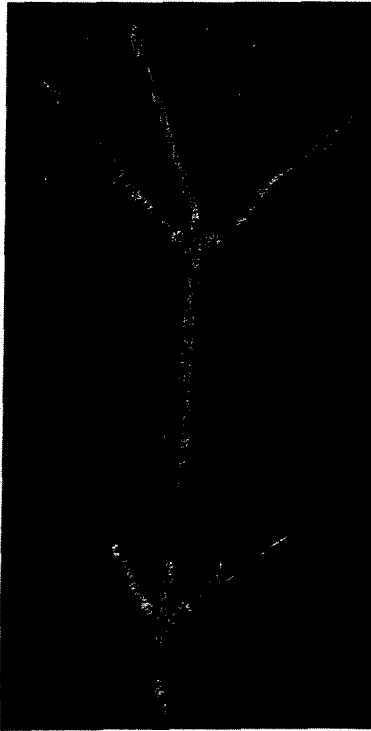
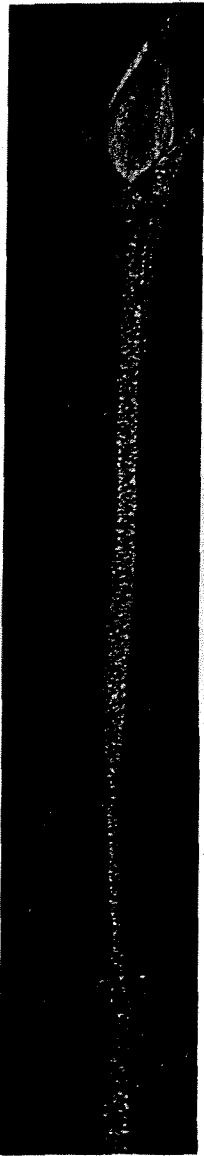
Sambucus canadensis L.-AMERICAN ELDER

Deciduous shrub with many basal stems, rarely a small tree to 30 feet. Leaf scars opposite. Terminal buds absent. Twigs glabrous, gray to brownish-gray with small ridges towards tips. Pith soft, white and predominant, occupying over three-quarters of twig diameter. Lenticels light brown and numerous. Leaf scars large V-shaped or U-shaped with five or more dot-like bundle scars.

Leaves odd-pinnately compound with 5 to 7 leaflets, margin sharply serrate, upper-surface lustrous bright green, lower surface paler.

Flowers white in conspicuous large terminal **cyme**, May to July.

Fruit a berry-like drupe in clusters, deep purple or black, four-celled, August and September.



Viburnum acerifolium L.—MAPLELEAF VIBURNUM

Deciduous shrub with opposite leaf scars and buds. Twigs finely puberulent, becoming glabrous in 1 to 2 years. Twigs gray to brownish-gray, becoming mottled gray. Leaf scars narrow, U-shaped to crescent shaped, connecting around twig. Bundle scars three. Buds yellowish to rusty, lightly pubescent along midrib and toward tips of scales only.

Leaves simple, margin coarsely dentate and often with three lobes, venation palmately three-ribbed.

Flowers creamy white in flattened or convex cymes, May to August.

Fruit a persistent, reddish- to purplish-black flattened drupe with shallow grooves on each side, July to October.



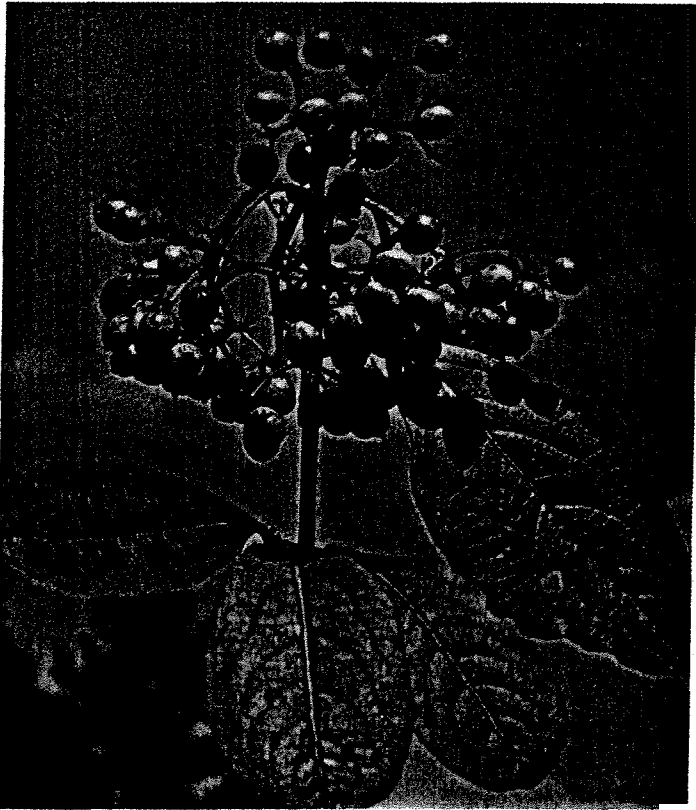
Viburnum dentatum L.-ARROWWOOD VIBURNUM

Deciduous shrub with opposite buds and leaf scars. Twigs reddish-tan to reddish-brown; gray on older growth; **stellate**-pubescent at first, becoming glabrous in 1 to 2 years. Leaf scars narrow and V-shaped, continuous around twigs. Bundle scars three. Buds small, reddish-brown and glabrous except for fringe on edges of scale tips.

Leaves simple, margin serrate to dentate, the teeth rather triangular, many single or tufted hairs at fork of branched veins on underside.

Flowers white in **cymes**, June to August.

Fruit a bluish-black drupe with shallow grooves on one side, August to November.



Viburnum nudum L.-POSSUMHAW VIBURNUM

Deciduous shrub with opposite buds and leaf scars. Twigs reddish-brown to purple-brown; glabrous or with sparse minute hairs. Older twigs gray and glabrous. Leaf scars U- to V-shaped and narrow, encircling young stems but later separated or only inconspicuously connecting. Bundle scars three. Terminal buds slender, elongate to one half-inch or more, with scales. Sides of buds nearly parallel. Roughness due to abundant rusty-brown scales and glands. Pubescence only along margins of scale or absent. Lateral buds similar in appearance but usually much smaller and somewhat more flattened. Pith white and soft.

Leaves simple, leathery, margin entire or obscurely serrulate, olive green to dark green and lustrous above, lower surface paler and with rusty-brown scales.

Flowers white in flat or round-topped cymes, April to June.

Fruit a drupe, pink at first but glaucous blue later, maturing in autumn.



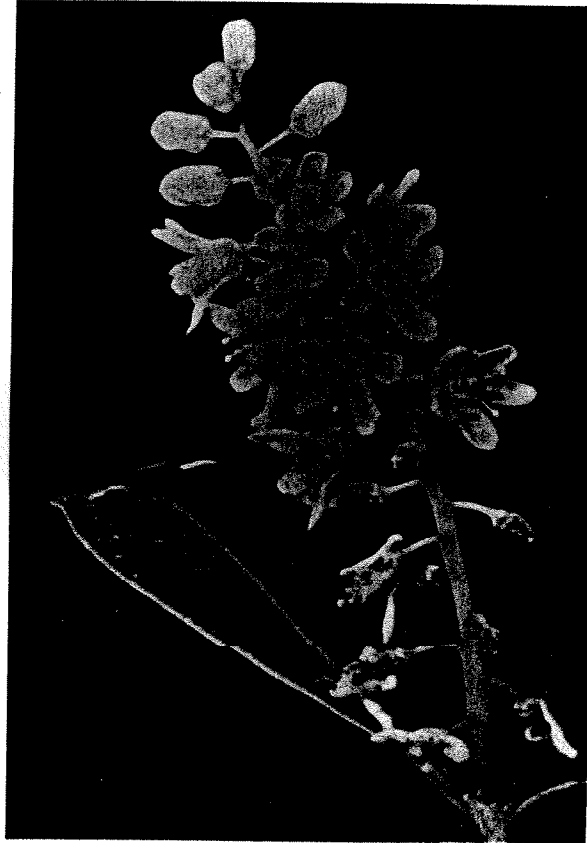
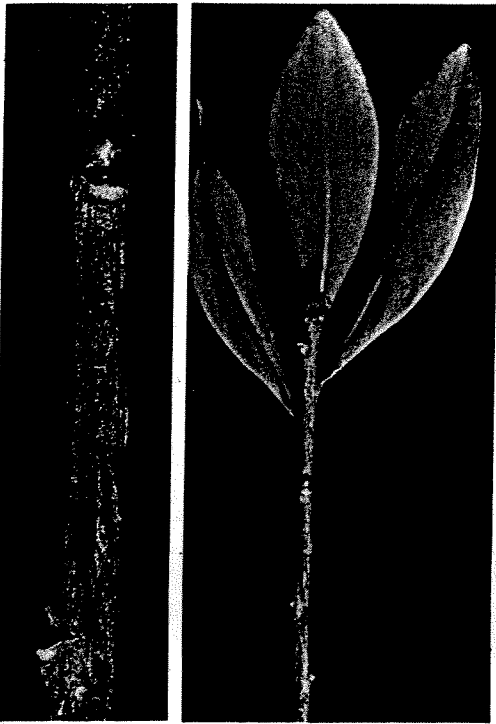
Viburnum rufidulum Raf.-RUSTY BLACKHAW

Deciduous shrub with opposite leaf scars. Twigs glabrous, purple-brown with bluish-gray waxy bloom. Buds naked and covered with short rust-colored pubescence. Leaf scars U-shaped to narrowly V-shaped with three dot-like bundle scars. Pith white, soft, and one-third or less of total twig diameter.

Leaves simple, dark green, leathery, shiny above, paler below; red hairs on veins, margin finely serrate.

Flowers white in flat **cymes**, April and May.

Fruit a bluish-black glaucous drupe in drooping clusters, July to October.



**SHRUBS OR TREES WITH
ALTERNATE STEMS, BUDS,
AND LEAF SCARS; LEAVES
PERSISTENT**

Cliftonia monophylla (Lam.) Britt.-BUCKWHEAT-TREE

Evergreen shrub with alternate leaves. Twigs reddish-brown to gray. Pith at least one half the diameter of stem. Leaf scars shield-shaped. Bundle scars slit-like to U-shaped. Tip of largest scale on terminal bud overtops other scales with long curved tip.

Leaves entire, tapering acutely toward base, firm, green and shiny above, paler beneath.

Flowers fragrant, small, white or pinkish in slender spikes, erect when blooming, late winter or early spring.

Fruit a reddish-brown nut-like drupe with 2 or 3 light brown seeds, August and September.



Cyrilla racemiflora L.-SWAMP CYRILLA

Evergreen shrub to small tree with alternate leaf scars. Leaf scars half round to triangular with one circular to U-shaped bundle scar. Twigs glabrous, gray to brown with pith one-half or more of total stem diameter. Typically found in wet or swampy sites.

Leaves entire, glabrous, acutely tapered at bases and often clustered toward twig tips.

Flowers white in slender **racemes** opening in spring.

Fruit a dry, light yellowish-brown capsule, seeds minute, maturing in late summer.



Ilex coriacea (Pursh) Chapm.-LARGE GALLBERRY

Evergreen shrub to small tree with alternate leaves. Pith one-third or less of total twig diameter. Stems puberulent, becoming glabrous, gray to greenish in color. Leaf scars half round to triangular, with one bundle scar.

Leaves glabrous above, puberulent to somewhat glaucous beneath. Tiny sharp spines sparingly borne on leaf margins from about midpoint to tips.

Flowers small and white, April and May.

Fruit a shiny black drupe, smooth, soft and pulpy, ripening in fall.



Ilex glabra (L.) Gray-INKBERRY

Evergreen shrub with alternate leaves. Twigs mottled green and light brown, very finely puberulent becoming glabrous. Pith one-third or less of total stem diameter. Leaf scars half round to flat oval and protruding. One bundle scar.

Leaves glabrous, green on top and bottom, somewhat lighter underneath; Margins entire or more commonly with few, small, blunt low teeth towards tips.

Pistillate flowers mostly solitary, staminate flowers in small pediceled clusters, petals white, February to July.

Fruit a black globose drupe, persistent, solitary or 2 to 3 together, matures in late autumn.



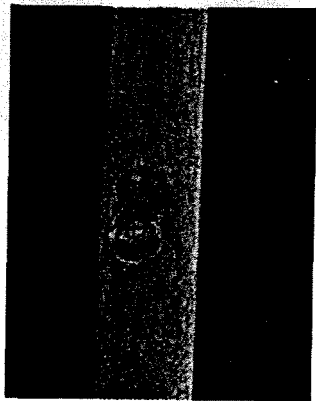
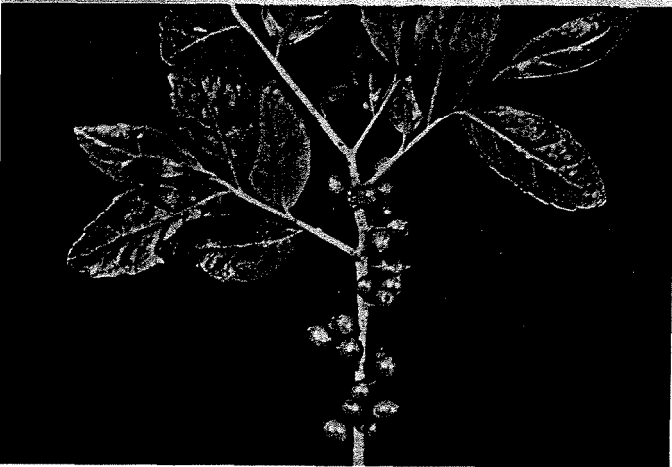
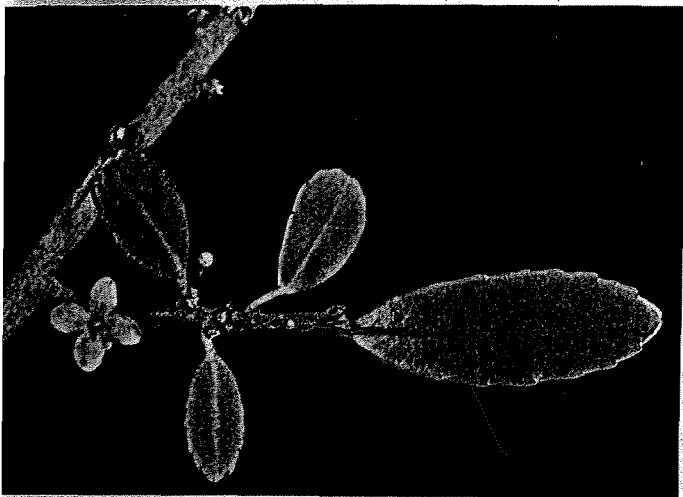
Ilex opaca Ait.—AMERICAN HOLLY

Evergreen tree. Stems stout, green to light brown or gray, glabrous or densely puberulent. Buds nearly globose, single bundle scar.

Leaves alternate, dark green above, paler beneath, ovate to oblong, stiff and coriaceous; margins wavy with sharp, stiff spines, sometimes spineless.

Staminate flowers small and white, 3 to 10 in **cymes**; pistillate flowers solitary or 2 to 3 together, April to June.

Fruit a globose or ellipsoid drupe, red, rarely yellow or orange; **nutlets** prominently ribbed, November and December.



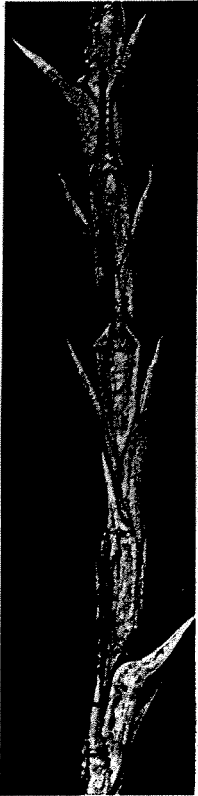
Ilex vomitoria Ait.—YAU'ON

Evergreen shrub with alternate leaves. Twigs stout, reddish-gray to gray, lightly puberulent becoming glabrous. Plants form dense shrubs under excessive utilization. Pith one-third or less of total twig diameter.

Leaves glabrous, shiny dark green above, light green below. Leaf bases rounded to a reddish petiole. Leaf scar small, half round to circular with one bundle scar.

Flowers small and white in warty sessile clusters on branches of previous year, April and May.

Fruit a bright red drupe maturing in October and persisting into winter.



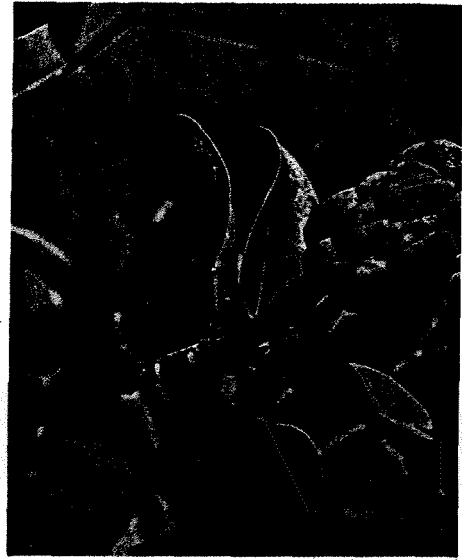
Juniperus virginiana L.-EASTERN REDCEDAR

Evergreen tree with alternate branching. Young stems covered with scales, older stems with flaky and shreddy fibrous bark. Sap clear but sticky. Heartwood of larger stems purple. Characteristic cedar odor to stems when broken.

Leaves tiny, scale-like, overlapping, flat appressed and sharp-pointed.

Flowers small and cone-like, at end of short twigs.

Fruit a fleshy, sweet, pale blue berry-like cone with 1 or 2 seeds, September to December.



Magnolia virginiana L.—SWEETBAY

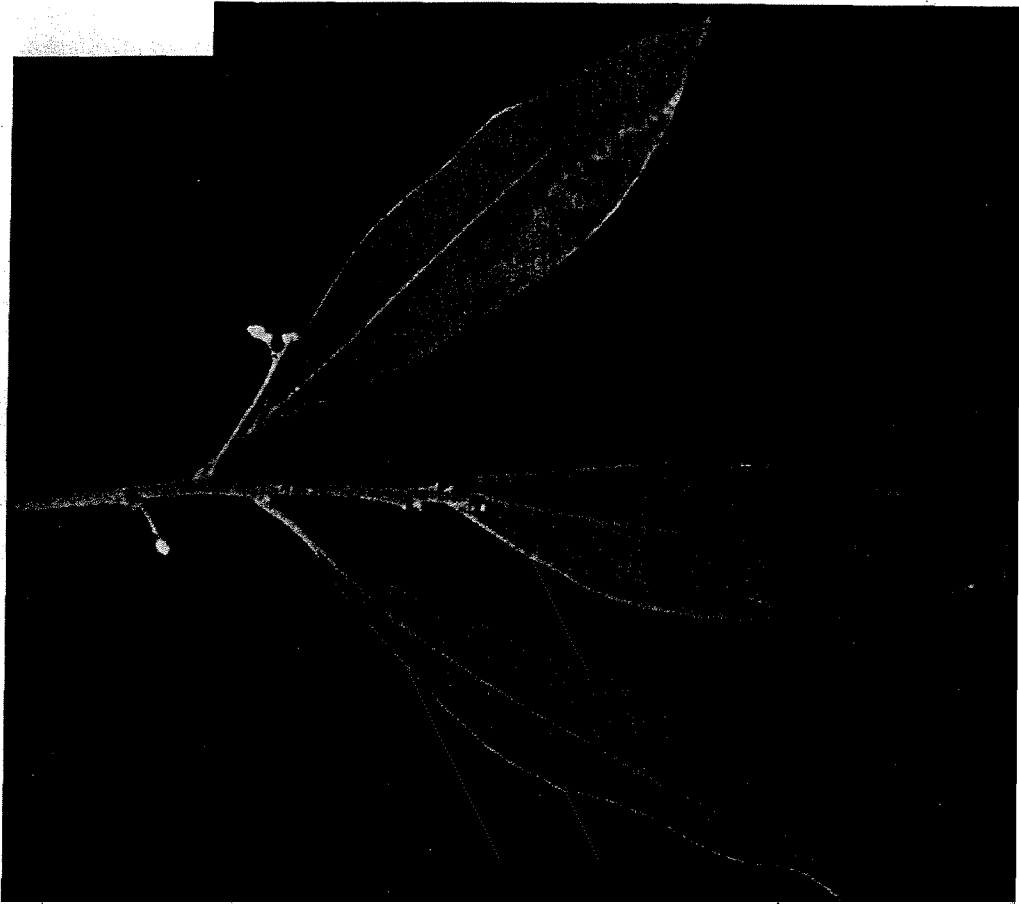
Tardily deciduous tree with alternate leaf scars and buds. Twigs mottled light and dark green to tan, becoming tan with age; softly pubescent on young stems. Terminal buds large, naked, light green with soft silvery pubescence. Leaf scars half round. Bundle scars 10 or more; arranged laterally on the face of the scar as a line or open ellipse paralleling the edges of the leaf scar. Lenticel scars completely encircling twigs. Pith homogeneous but diaphragmed.

Leaves simple, leathery, pungently aromatic: upper surface dark green, lower chalky white and often silky.

Flowers white and fragrant, May to July.

Fruits a cone-like aggregate of small follicles, yellow or reddish when ripe.





Persea borbonia (L.) Spreng.—REDBAY

Evergreen tree with alternate leaves and buds. Twigs dark green with gray woolly pubescence. Older twigs lighter brown, becoming glabrous. Buds small, generally globose with two outer scales gray woolly. Leaf scars terete. One bundle scar, dot-like. Pith near one-half of total twig diameter, firm but softer than surrounding wood, angular in cross section.

Leaves simple, bright green and elliptic to lanceolate, tapering to points at both ends, margins entire.

Flowers small, pale yellow, borne in axillary panicles, May to July.

Fruit an egg-shaped drupe, dark blue or deep purple, seed solitary.



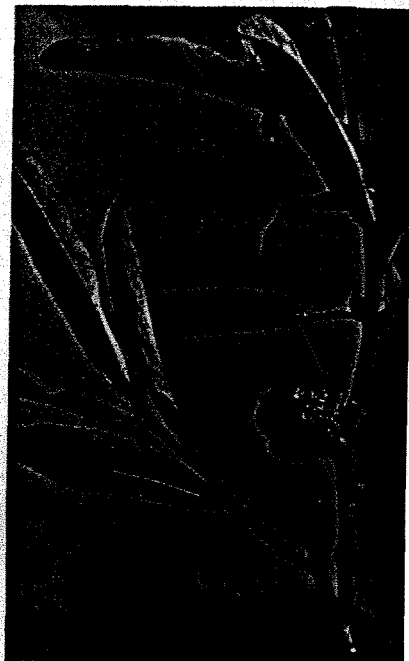
Quercus minima (Sarg.) Small-DWARF LIVE OAK

Evergreen shrub with alternate leaves. Twigs reddish to grayish-brown. Pith star-shaped in cross section, terminal buds obtuse or rounded, clustered. Leaf scars triangular to circular with three bundle scars. No subtending **bracts** encircling buds.

Leaves simple, rounded or short-pointed at apex, often toothed, glabrous above, puberulent beneath.

Flowers staminate and pistillate, borne in separate catkins on same tree.

Acorns often long-stalked, solitary or several on a **peduncle**; cup hemispheric, nut avoid or ellipsoid, inner surface of shells hairless, July to November.



Quercus pumila Walt.-RUNNING OAK

Evergreen shrub with alternate leaves. Twigs reddish-brown to brown with star-shaped pith. Leaf scars triangular to half round with three bundle scars. Buds pointed, with long subtending **bracts**, especially towards twig tips.

Leaves simple, ending in a bristle-tip, usually entire and not toothed, glabrous above and beneath.

Acorns sessile or nearly so, cup saucer-shaped, inner surface of the shells densely hairy, July to November.



Vaccinium myrsinites Lam.-GROUND BLUEBERRY

Evergreen shrub with alternate leaves. Stems green even on 2- and 3-year-old portions. Leaf scars small, half round to circular. One bundle scar, inconspicuous.

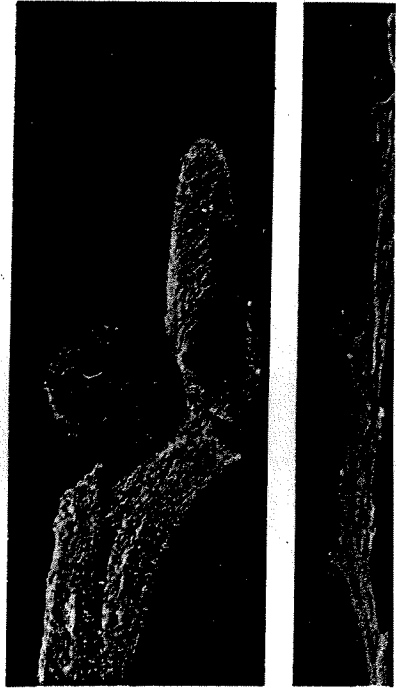
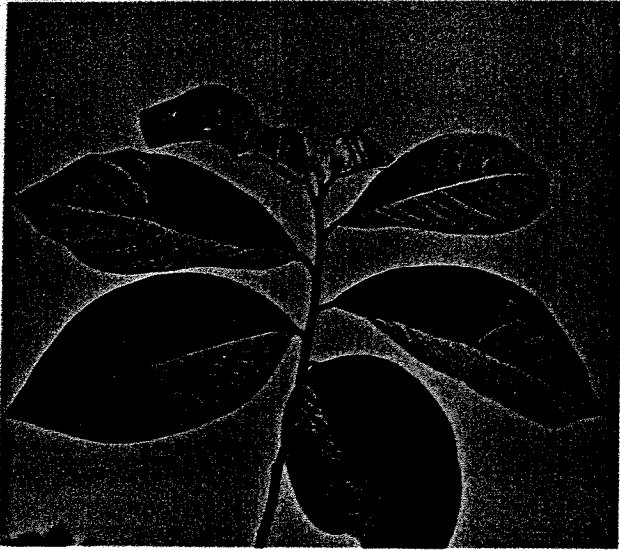
Leaves simple, tapering toward base, less than 1 inch long with serrulate margins, glabrous, green above, paler below with scattered, brown, gland-tipped, short hairs.

Flowers white to deep pink in umbel-like clusters.

Fruit a many-seeded black berry, May.



SHRUBS OR TREES WITH ALTERNATE STEMS, BUDS,
AND LEAF SCARS; LEAVES DECIDUOUS



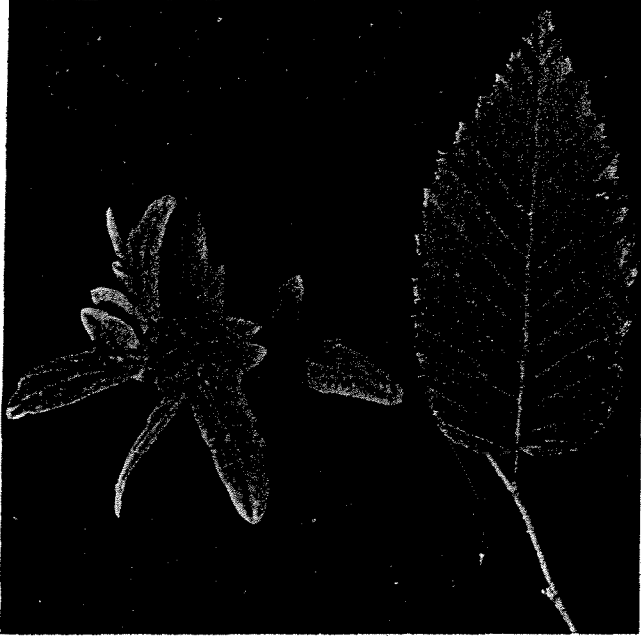
Asimina triloba (L.) Dunal—PAWPAW

Deciduous shrub to small tree, with alternate leaf scars and buds. Twigs dark gray to olive brown; pubescent at first, becoming glabrous with age. Leaf scars slightly raised on lower lip; U-shaped to V-shaped. Bundle scars five and dot-like. Terminal buds elongate and densely covered with dark-brown hairs. Lateral buds globose, covered with **dark-brown** hairs. Pith continuous but diaphragmed.

Leaves simple, rusty-pubescent when young, glabrous later.

Flowers purplish-green, solitary on rusty-hairy stems, appearing with or before the leaves.

Fruit banana-like with several seeds, maturing in autumn.



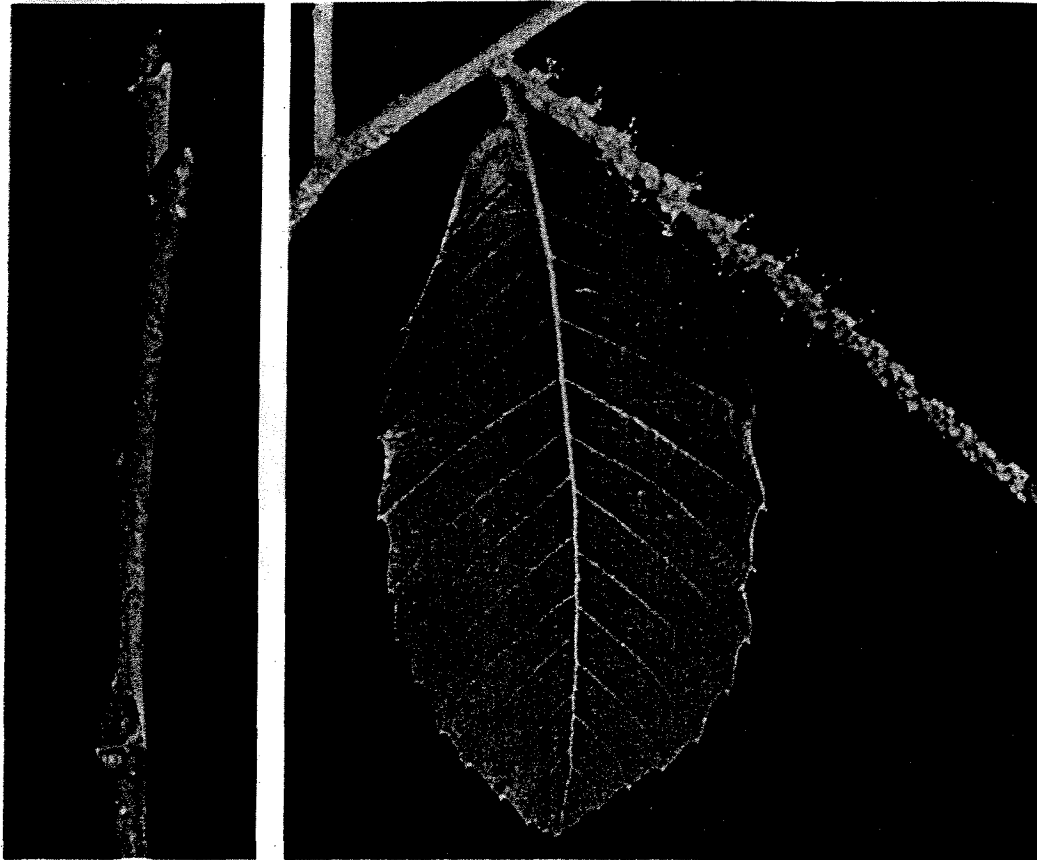
Carpinus caroliniana Walt.-AMERICAN HORNBEAM

Small deciduous tree. Glabrous reddish-brown twigs with alternate buds and leaf scars. True terminal buds absent. Bundle scars three. Trunk of larger specimens fluted. Bark smooth, gray, and tight.

Leaves simple, margin sharply double-serrate.

Staminate flowers green, borne in linear-cylindric catkins; pistillate catkins with arrowhead-like **bracts** that develop into a three-lobed involucre, April to June.

Fruit a **nutlet**, August to October.



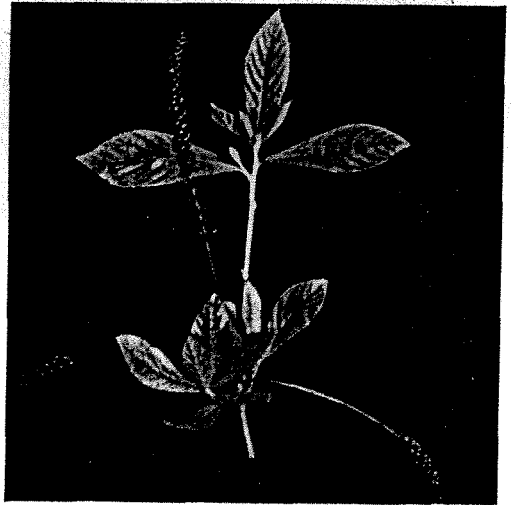
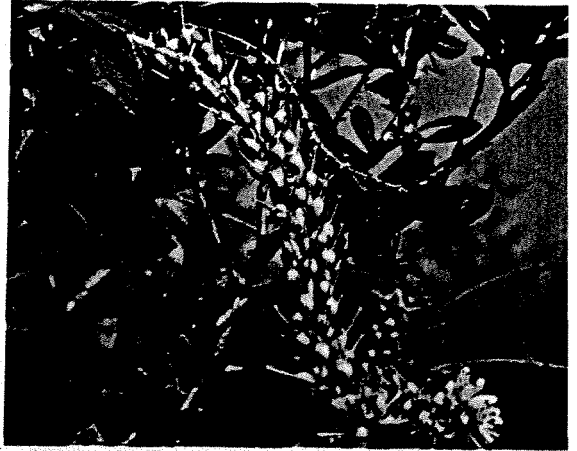
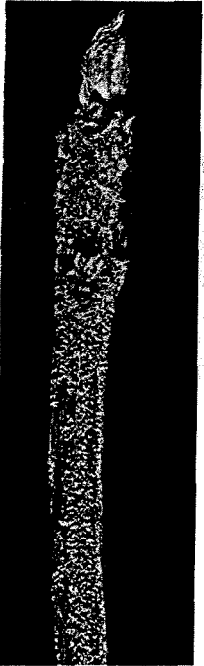
Casranea pumila Mill.-ALLEGHENY CHINKAPIN

Deciduous thicket-forming shrub to tree with alternate leaf scars. Bundle scars several. Twigs pubescent at first, later glabrous. Pith angled or star-shaped in cross section. True terminal bud absent.

Leaves simple, margins coarsely serrate with pointed teeth.

Flowers appearing after the leaves, staminate catkins cylindric, slender, tomentose; pistillate flowers in threes or scattered toward base of catkins; involucre prickly.

Fruit a one-seeded nut enclosed in burs that form **spike-like** clusters.



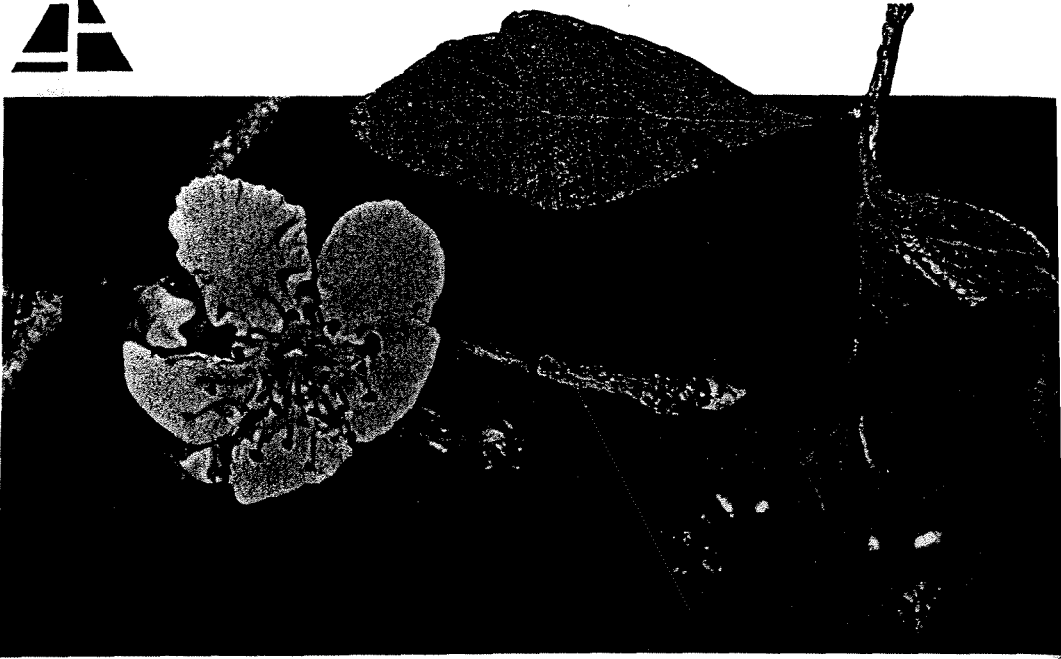
Clethra alnifolia L.-SUMMERSWEET CLETHRA

Deciduous shrub with alternate buds and leaf scars. Stems ascending. Twigs pubescent, becoming glabrous. Gray to reddish-gray. Single bundle scar. Light tan to silvery gray terminal buds with villous valvate scales. Remnants of previous season's fruit stalks persist until spring. Pith soft, pale green, and continuous.

Leaves simple, margins conspicuously serrate.

Flowers white, fragrant, borne in erect **racemes**, June to September.

Fruit a round three-sectioned capsule, erect, persistent.



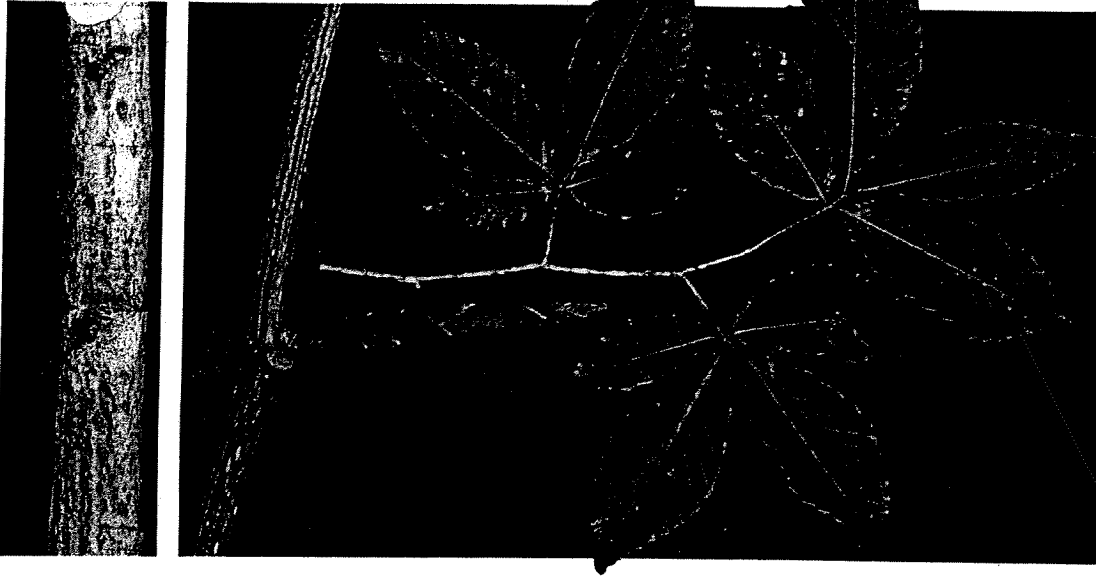
Crataegus opaca Hook. & Arn.—RIVERFLAT HAWTHORN

Deciduous shrub or small tree, with alternate leaf scars and buds. Twigs brown to reddish-brown, becoming gray with some mottling. Scattered white pubescence on young twigs, becoming glabrous. Spines up to 1.5 inches long on most twigs; dark-brown to reddish-brown, becoming brittle and mottled gray with age. On older growth the flower buds commonly occur on short, stout spurs. Buds small, round and glabrous, reddish. Leaf scars slender and flat to slightly U-shaped. Bundle scars three. Pith hard.

Leaves simple, dark green and usually glabrous above, densely rusty-brown pubescent below.

Flowers white, borne before leaves in February or March.

Fruit a pome with 3 to 5 **nutlets**, April and May.



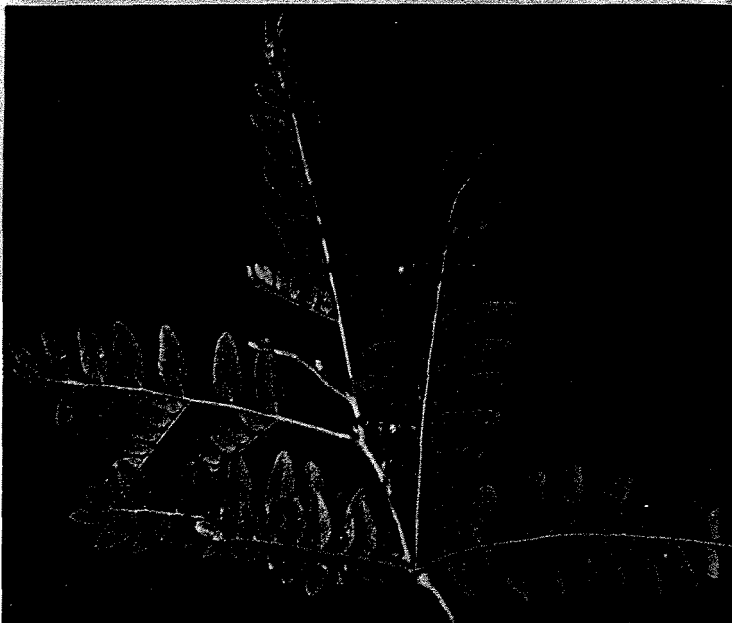
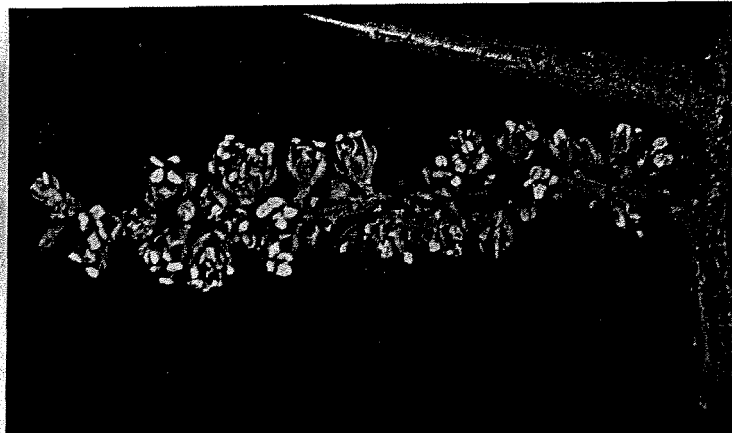
Fagus grandifolia Ehrh.-AMERICAN BEECH

Deciduous tree with alternate leaf scars and buds. Leaf scars small, flat oval to half round with one dot-like **bundle** scar. Buds elongate up to 1 inch; at least six times longer than wide. Bud scales reddish-tan with light gray to tan tips. Terminal buds present. Twigs reddish-brown on new growth, becoming light-gray mottled with darker gray. Light tan lenticels frequent on new growth. Pith hard. Stem cross section with radial rays.

Leaves simple, coarsely serrate on margin; when mature glabrous and dark green above, paler and pubescent beneath.

Flowers form after leaves unfold in April and May, staminate in globose heads pendant on hairy peduncles, pistillate in clusters of 2 to 4 borne on short hairy peduncles.

Fruit a pair of small brown three-angled sweet nuts in a bur-like involucre, full grown in midsummer but becoming brown and persistent on branches. September to November.



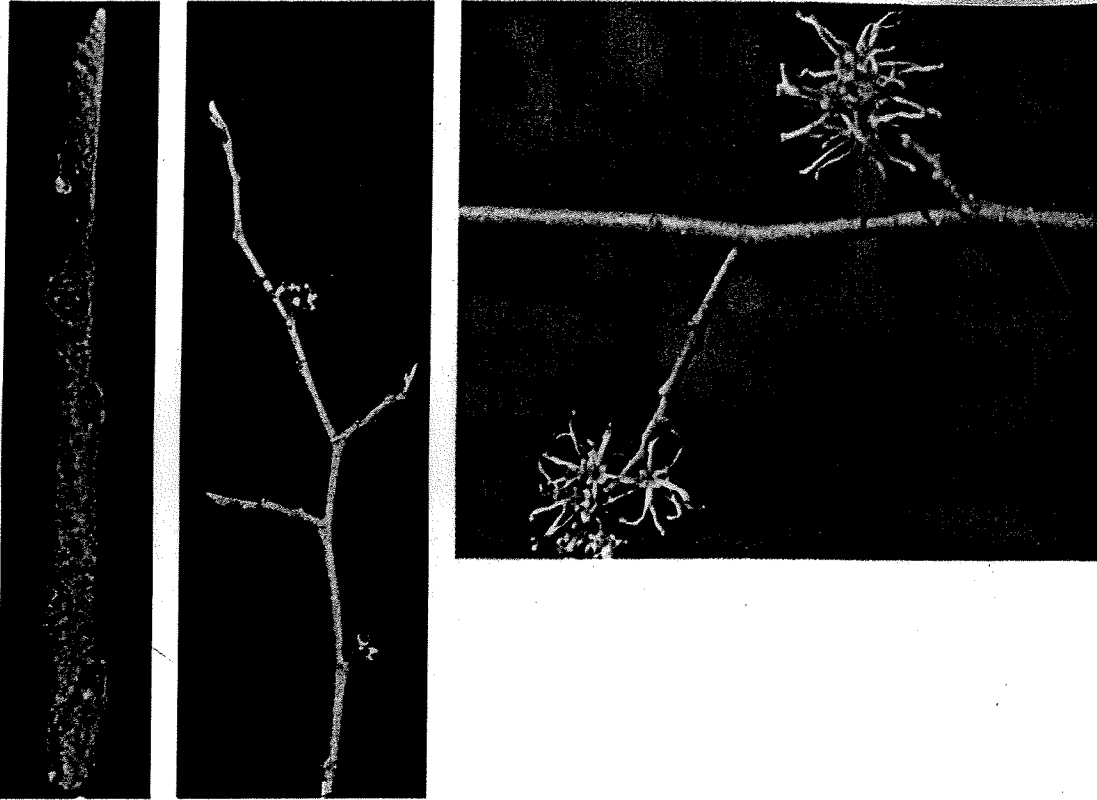
Gleditsia triacanthos L.-HONEYLOCUST

Deciduous tree with alternate buds and leaf scars. Twigs glabrous, **grayish-brown** to reddish-brown. Older twigs greenish-gray to dark gray with **silver-gray** longitudinal striations. Stout, sharp, thorns present at most nodes and positioned above leaf scars and buds. Thorns straight or branched, **purple-red** to purple-black. Terminal buds absent. Lateral buds scaly, small, and oval. U-shaped leaf scars appearing three-lobed with one bundle scar in each lobe. Pith homogeneous, light-colored, and softer than surrounding wood.

Leaves once- or twice-pinnate.

Flowers borne in axillary, dense, green **racemes**. Staminate flowers often clustered. Pistillate flowers few, usually solitary, May and June.

Fruit a legume borne on short peduncles, **usually** in **twos** or threes.



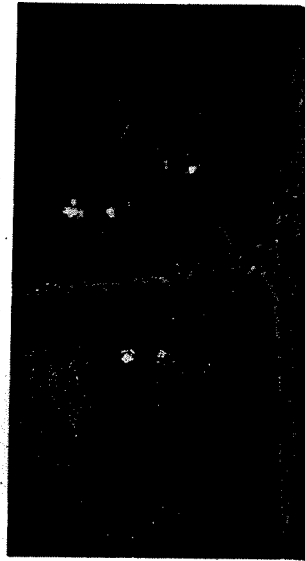
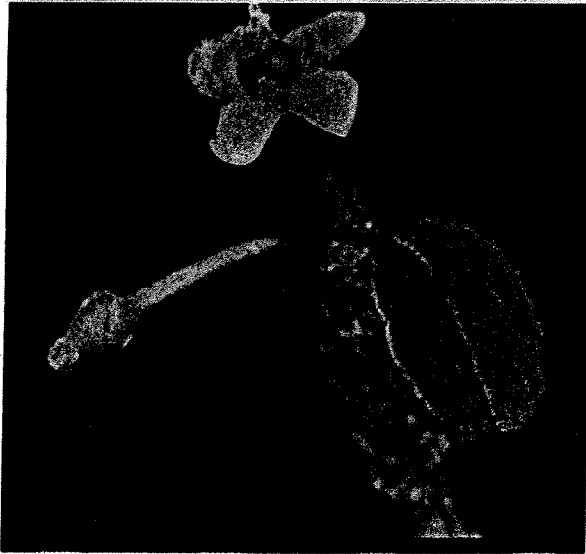
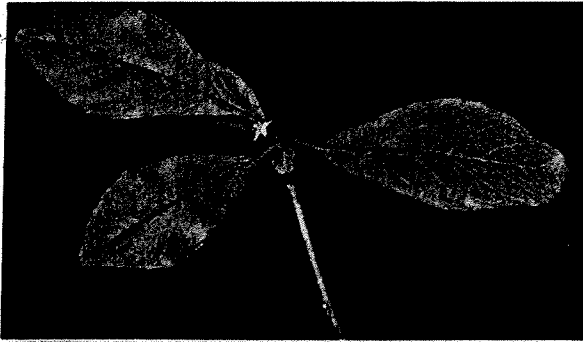
Hamamelis virginiana L.-WITCH-HAZEL

Deciduous shrub to small tree with alternate leaf scars. Twigs pubescent, becoming glabrous. Buds without scales. Lateral buds superposed. Terminal bud on short stalk and asymmetric. Leaf scars half round to triangular with three bundle scars. Pith firm, small, and darker than surrounding wood.

Leaves simple, wavy-toothed, usually glabrous above, somewhat pubescent beneath.

Flowers bright yellow in **axillary** or terminal clusters, usually surrounded by a scale-like three-part involucre, September to November.

Fruit a woody capsule with two bony, shiny, black seeds; matures a year after flowering.

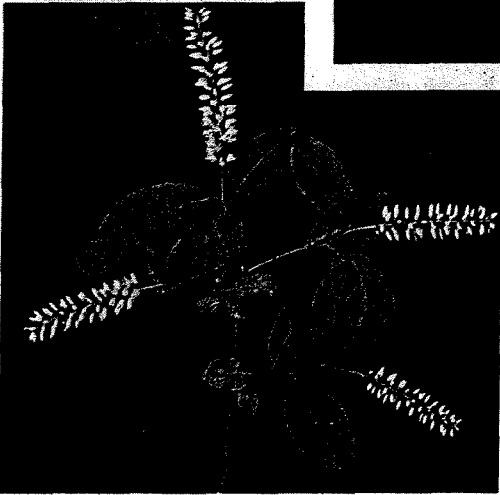
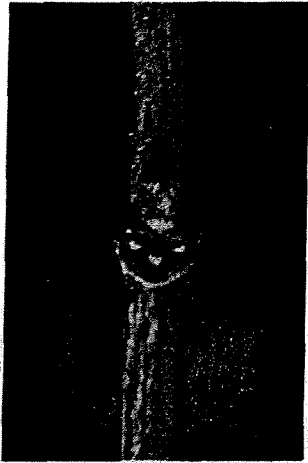
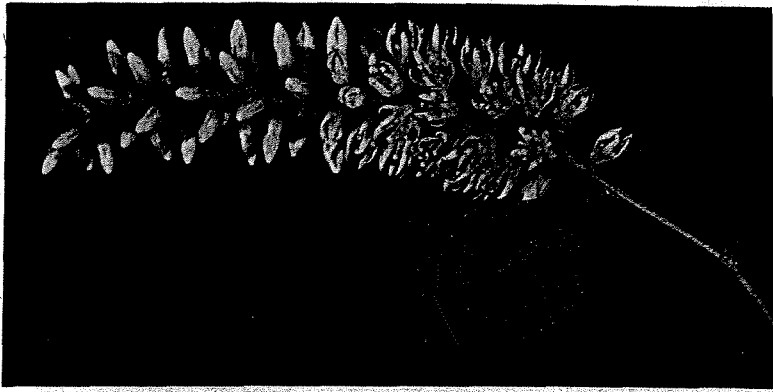


Ilex decidua Walt.-POSSUMHAW

Deciduous shrub to small tree with alternate buds and leaf scars. Twigs greenish-gray and puberulent, becoming mottled gray and glabrous with age, often with spur-like lateral twigs. Buds small with two scales. Leaf scars small, half-circular or occasionally narrow slits. One bundle scar. Pith homogeneous, white, and much softer than surrounding wood. Shiny red to red-orange spherical fruit 0.25 inch diameter commonly persistent long after leaves have fallen.

Leaves in crowded groups at end of short branchlets, thick and firm. Flowers small, whitish, March to May.

Fruit a globose drupe, orange to scarlet, ripens in fall.



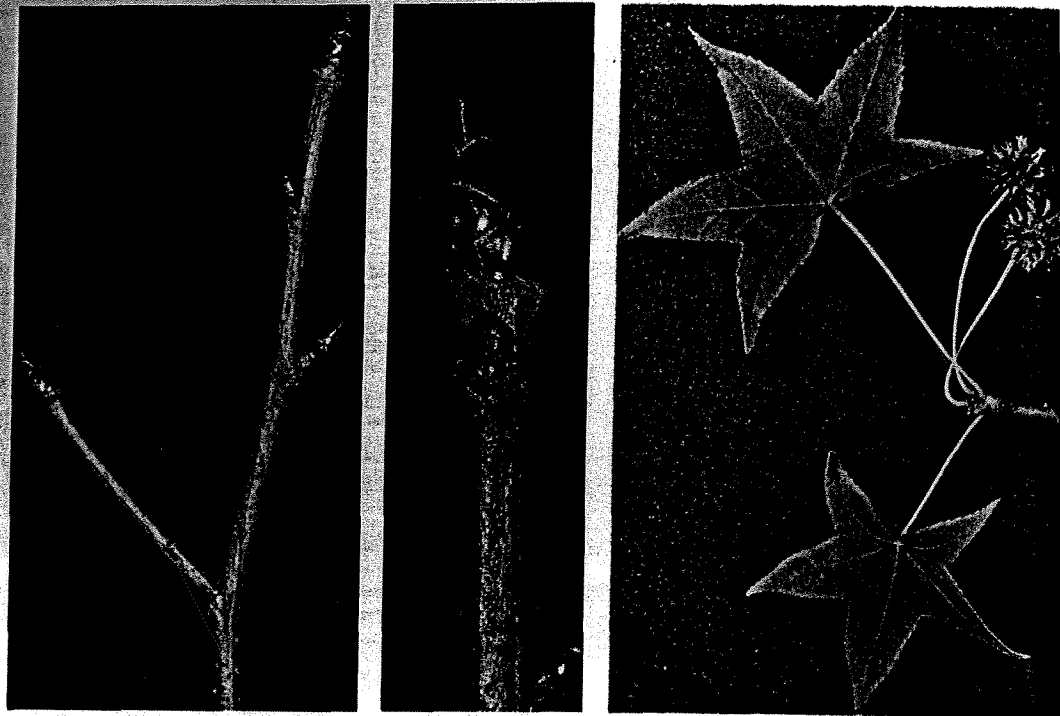
Itea virginica L.-VIRGINIA SWEETSPIRE

Deciduous shrub with alternate leaf scars. Twigs pubescent, becoming glabrous, reddish-brown. Pith interrupted at regular intervals by air spaces. Leaf scars triangular to crescent shaped, with three bundle scars. Terminal racemes persist through winter.

Leaves with finely serrated margin except near base, turn reddish-brown before falling.

Flowers white in conspicuous racemes that persist through winter, April to June.

Fruit a two-grooved capsule, July to September.



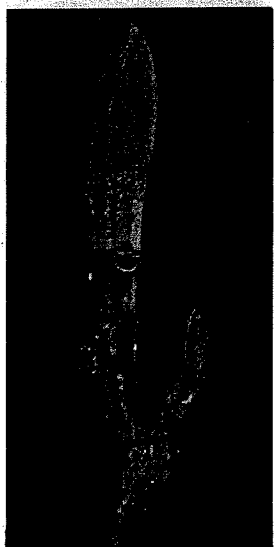
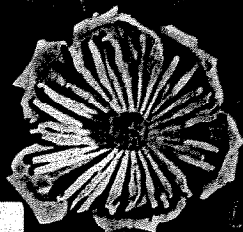
Liquidambar styraciflua L.—SWEETGUM

Deciduous tree with alternate buds and leaf scars. Twigs gray to tan, glabrous; occasionally with **corky** wings. Twigs and buds strongly aromatic if crushed when fresh. Buds shiny and glabrous except for short marginal pubescence on scales. Bud scales greenish-yellow with purple-brown on keel and margins. Leaf scars half circular. Bundle scars three. Pith homogeneous, white, and much softer than surrounding wood.

Leaves simple with 3 to 7 acuminate lobes.

Flowers very small, greenish; staminate flowers in terminal, erect, tomentose **racemes**; pistillate flowers in **axillary**, globose, long-peduncled, drooping heads, March to May.

Fruit an aggregate of many two-celled ovaries tipped by two-beaked or horn-like styles, September to November.

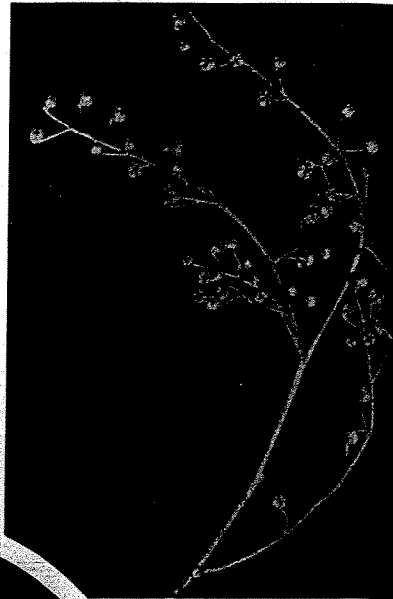
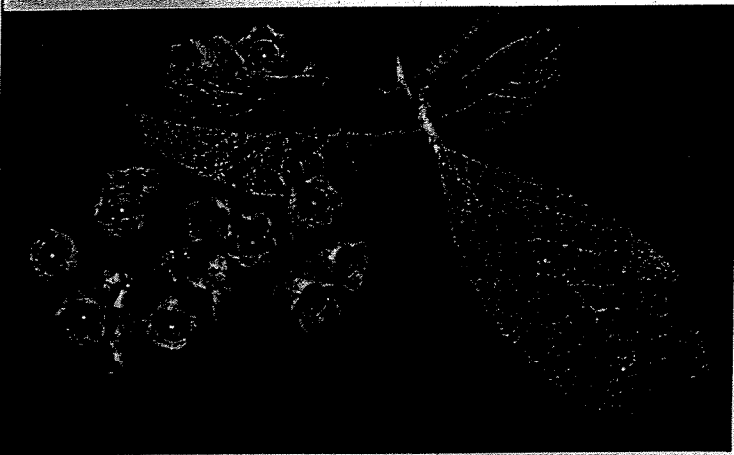


Liriodendron tulipifera L.
YELLOW-POPLAR

Deciduous tree with alternate buds and leaf scars. Twigs glabrous, grayish-tan to reddish-tan; glaucous toward tips. Buds two-scaled and distinctly short-stalked, grayish-green to yellowish and glaucous. Leaf scars circular. Six or more bundle scars roughly arranged in a circle. **Lenticel** scars completely encircling twigs at each node. Pith soft, white, homogeneous but diaphragmed.

Leaves simple, truncate, four-lobed. Flowers conspicuous, greenish-yellow, orange-banded at base, tulip-like, April and May.

Fruit a samara-bearing cone, September to November.



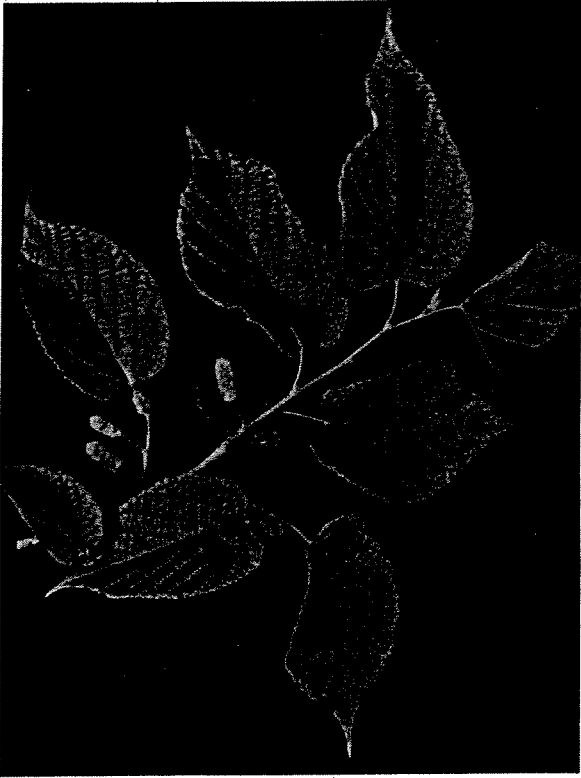
Lyonia ligustrina (L.) D C.-HE-HUCKLEBERRY

Deciduous shrub with alternate leaf scars and buds. Commonly 6 to 12 feet high. Leaf scars somewhat raised; half circular with one dot-like bundle scar. Buds light to dark red; acute tip. True terminal buds absent. New growth puberulent, later becoming glabrous. Stems light yellow-green to dark brown or gray; commonly with small black spots.

Leaves simple, margin entire or obscurely serrulate.

Flowers white in elongate panicles with umbel-like clusters of 2 to 6 flowers, May to July.

Fruit a dry capsule. Panicles remain on plant through winter.



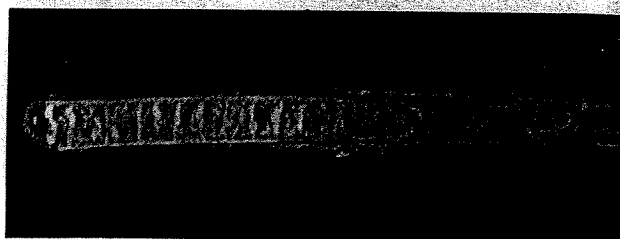
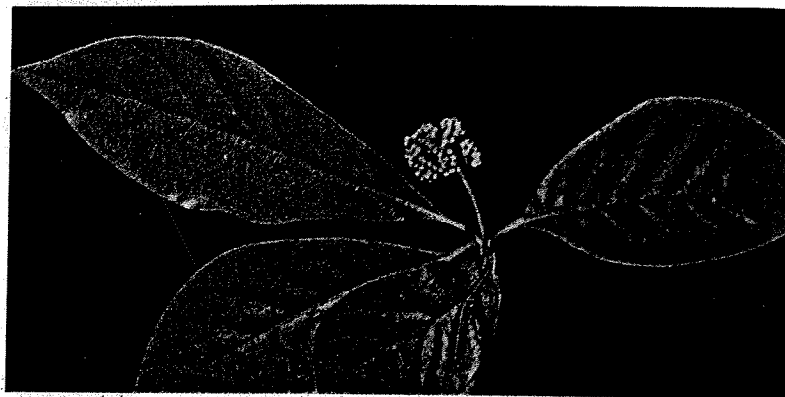
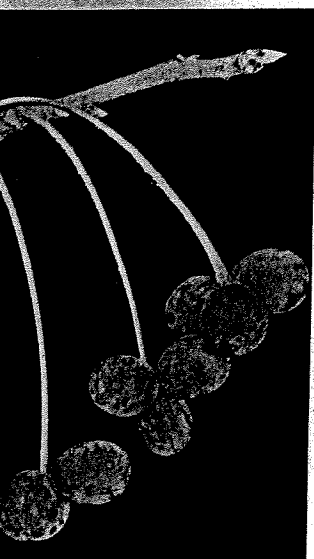
Morus rubra L.-RED MULBERRY

Deciduous tree with alternate leaf scars. Twigs glabrous, yellowish-tan to bluish-gray. Pith soft, continuous, and white. Inner bark of fresh twigs turns orange when outer bark is scraped away. Sap milky and sticky. Bud scales orange-tan with dark edges. Leaf scars half round to flat oval or circular. Bundle scars many in one central cluster.

Leaves simple, doubly serrate, some with numerous lobes, rough and glabrous above, soft pubescent beneath.

Flowers appear with leaves in spring, staminate spikes cylindrical, pistillate spikes cylindrical and sessile.

Fruit resembles a blackberry, red at first and then purplish-black, juicy; May to August.



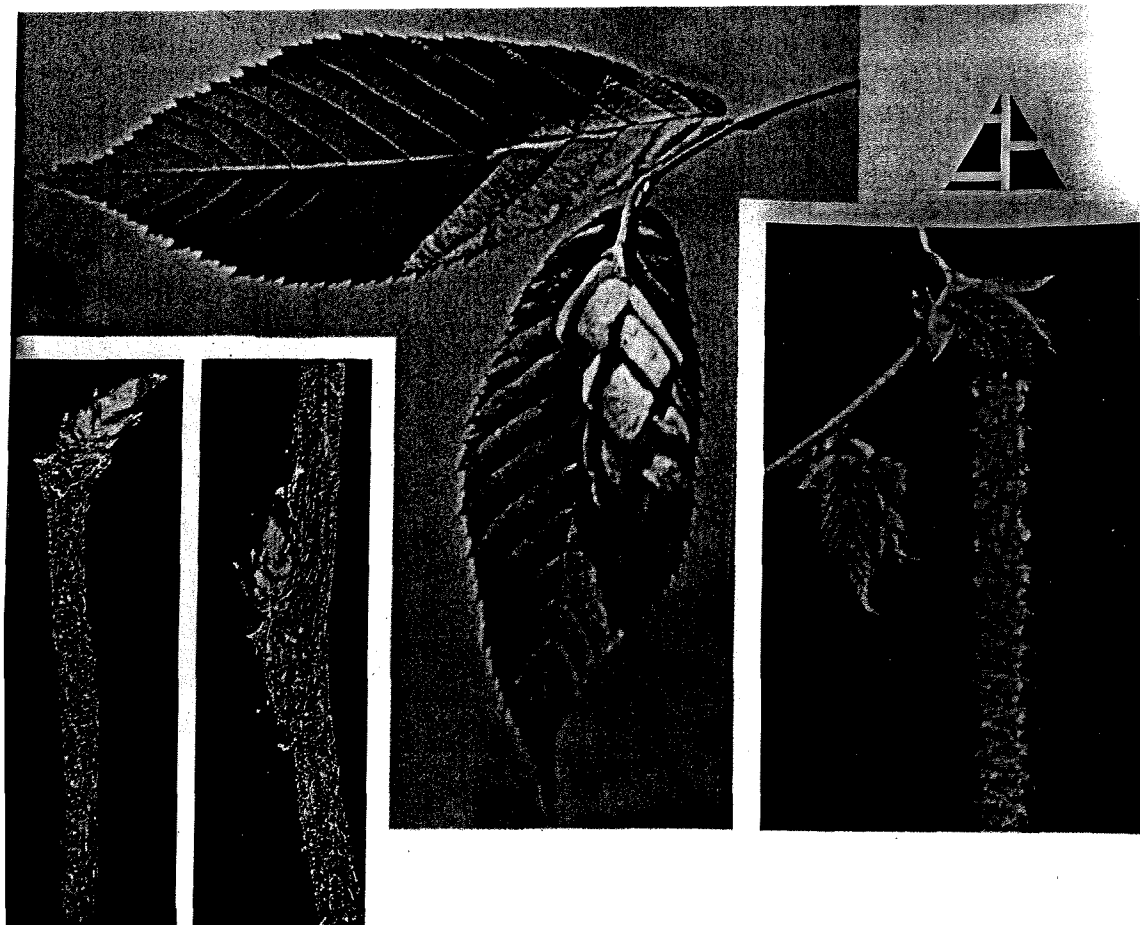
Nyssa sylvatica Marsh.—BLACKGUM

Deciduous tree with alternate branching and leaf scar arrangement. Twigs slightly appressed-pubescent, becoming glabrous, light tannish-gray. Pith continuous but with diaphragms. Leaf scars half round, somewhat protruding particularly towards twig tips. Bundle scars three. Visible terminal bud scales three, two large and one small.

Leaves simple, lustrous green above, paler and hairy below.

Flowers axillary; staminate flowers in long-peduncled **capitate** clusters, pistillate flowers in slender-peduncled clusters of two or more, April to June.

Fruit an egg-shaped drupe, acid, dark-blue to black, September and October.



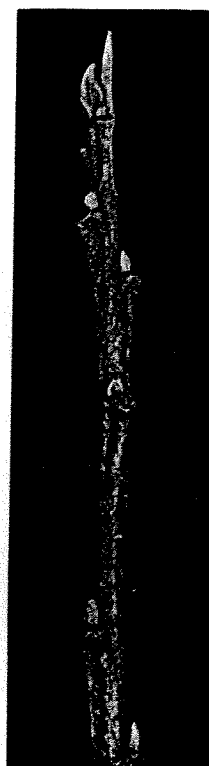
Ostrya virginiana (Mill.) K. Koch
EASTERN HOPHORNBEAM

Deciduous tree with alternate leaf scars. Twigs reddish to brown with white lenticels. Bud scales with fine longitudinal striations, yellow-green with purple-brown edges. Leaf scars half round to crescent shaped, with three bundle scars. Trunk bark on larger specimens broken into small elongate brownish-gray scales.

Leaves simple, margin sharply and doubly serrate, glabrous and yellowish-green above, hairy and paler below, turning yellow in autumn.

Staminate catkins 1 to 3 at end of branches, pistillate catkins small, usually solitary, slender; catkins open with leaves in spring.

Fruit a flattened-ovoid **nutlet** in cone-like imbricate clusters, nuts enclosed in the sac, September and October.



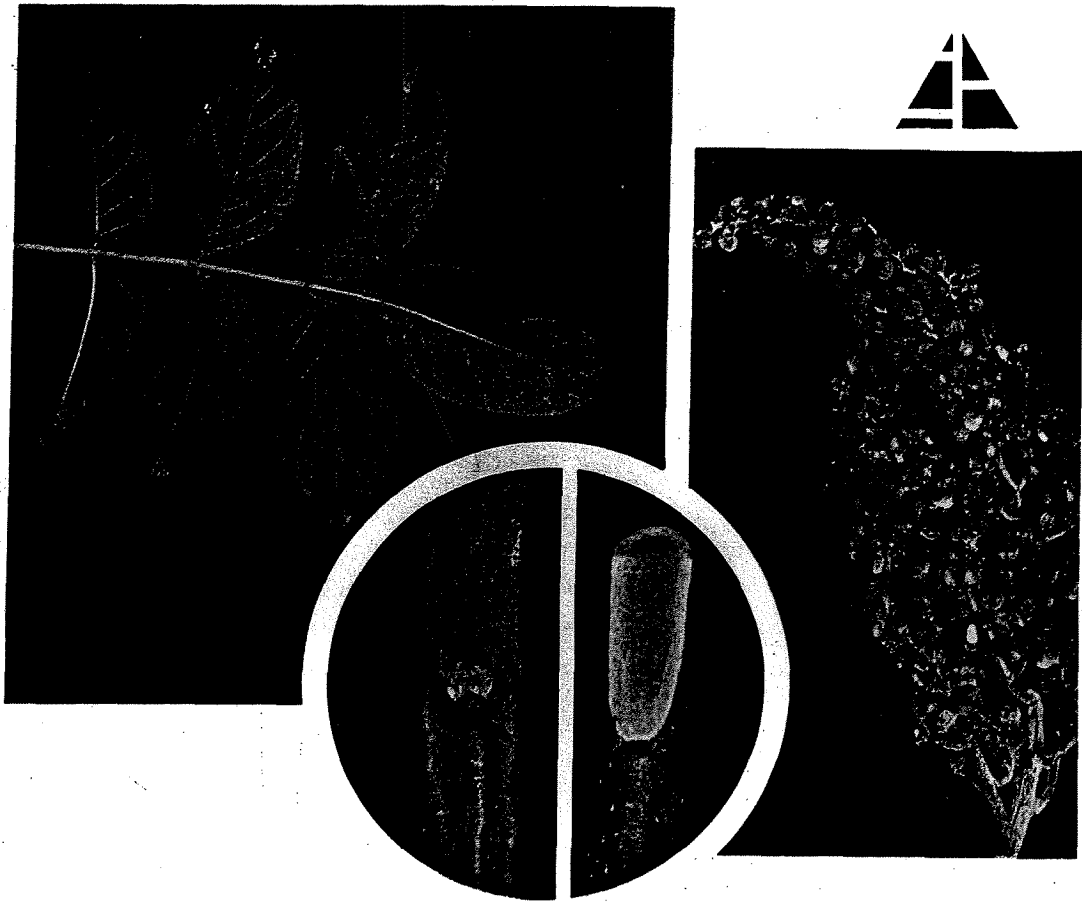
Rhamnus caroliniana Walt.-CAROLINA BUCKTHORN

Deciduous shrub with alternate buds and leaf scars. Twigs purple-gray to purple-brown; fine woolly pubescence near tips, becoming glabrous. Leaf scars half circular to oval with no lobes. Bundle scars three. Lateral and terminal buds woolly, tan, without scales. Terminal buds larger and sessile to twig tips. Stipules persistent, especially toward twig tips. Pith white, homogeneous, and soft. Inner bark of stems greenish-yellow.

Leaves simple, with prominent parallel veins.

Flowers small greenish-yellow, solitary or 2 to 10 in peduncled umbels, May and June.

Fruit a drupe with 2 to 4 (usually 3) seeds, persistent, red at first but turning black and lustrous at maturity, August to October.



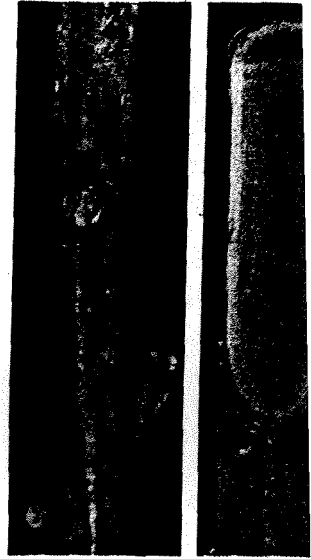
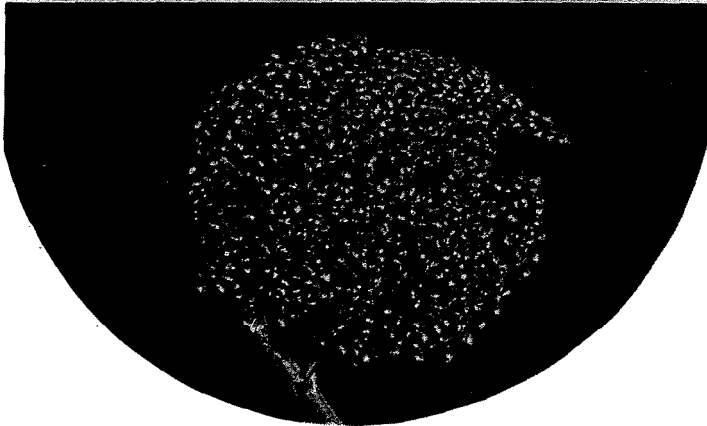
Rhus copallina L.-SHINING SUMAC

Deciduous shrub with one primary stem, occasionally reaching heights of 30 feet. Twigs velvety pubescent becoming glabrous, reddish-brown to gray, Buds silvery-tan, pubescent, and without scales. True terminal buds absent. Leaf scars horseshoe-shaped, encircling buds halfway. Bundle scars many. Pith dark tan, occupying well over one-half stem diameter. Sap milky and sticky. Lenticels dark rusty-brown and numerous.

Leaves alternate, pinnate with 7 to 17 leaflets, entire or with a few teeth, lustrous; rachis pubescent and broadly winged.

Flowers borne in a densely pubescent, compact terminal panicle, petals greenish-white, July to September.

Fruit a red, glandular-hairy drupe in compact panicles, erect or drooping; seed solitary, smooth, ripens in fall and stalks commonly persist through winter.



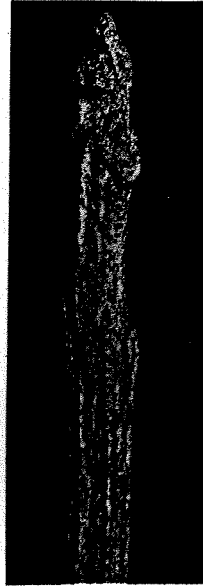
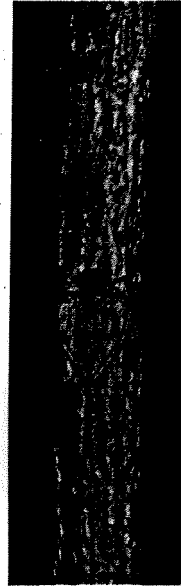
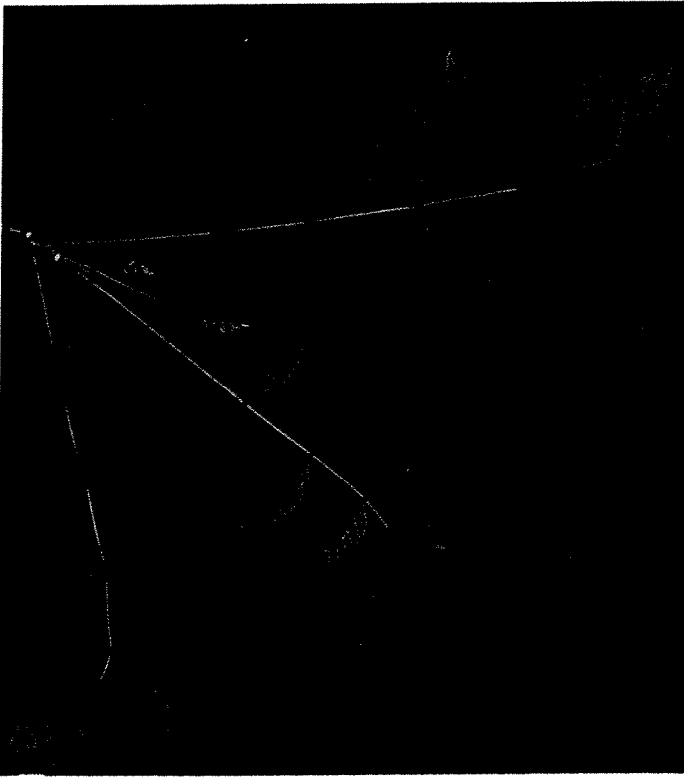
Rhus glabra L.-SMOOTH SUMAC

Deciduous shrub with one main stem up to 20 feet. Twigs glabrous, sparingly puberulent when young, tan to blotchy gray. Buds with tan to silvery dense pubescence. True terminal buds absent. Leaf scars encircle buds. Bundle scars many. Pith orange, occupying over one-half twig diameter. Sap milky and sticky. Lenticels light brown and scattered.

Leaves alternate, pinnate with 11-31 leaflets, sharply serrate, usually dark green above, lighter to white beneath.

Flowers in terminal compact panicles, petals white, June to August.

Fruit a drupe with short red-velvety hairs, one-seeded, smooth; ripens September and October.

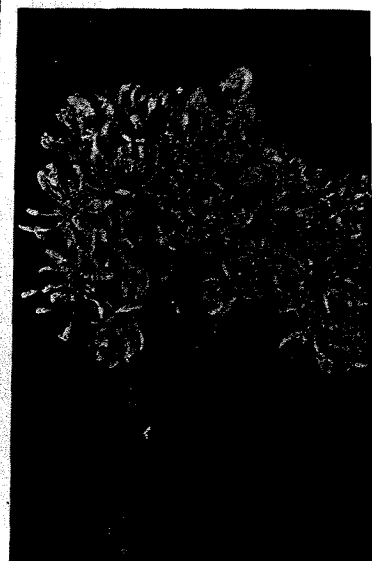
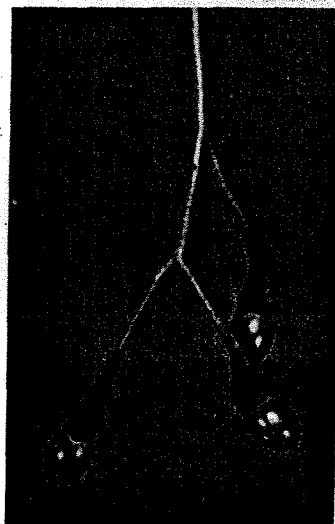


Rhus vernix L.-POISON SUMAC

Deciduous shrub to small tree with one primary stem, 12 to 25 feet high. Terminal buds present. Leaf scars heart-shaped. Bundle scars several, arranged around edges of leaf scars. Twigs light orange-gray to dark gray, with dark gray to black mottling; glabrous but with numerous lenticels. Pith soft and homogeneous. Stem cross section revealing dark strands in outer edges of white pith.

Leaves alternate, odd-pinnate with 7 to 13 leaflets, entire, smooth, shining above and more or less pubescent beneath. Flowers green in axillary panicles, April to July.

Fruit a greenish-white or gray drupe, August to November.



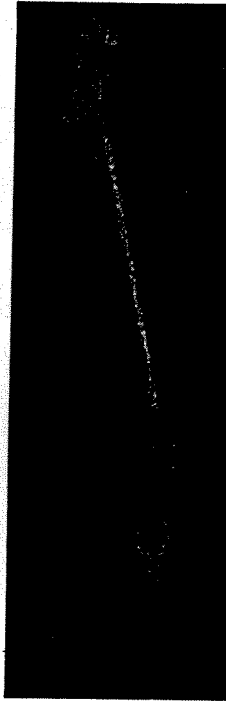
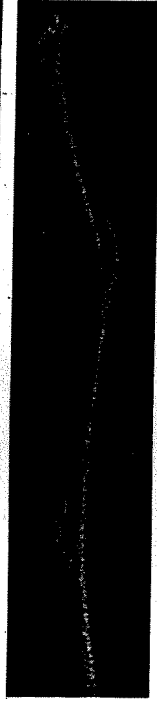
Sassafras albidum (Nutt.) Nees—**SASSAFRAS**

Deciduous tree with alternate leaf scars. Twigs light green, mottled with dark green and grayish-brown, pubescent, becoming glabrous. Stems and roots with strong spicy odor. Pith soft and white. Leaf scars half round to crescent-shaped. One bundle scar, straight to **crescent-shaped**.

Leaves simple, thin, aromatic, entire on the margin or divided into 2 to 3 mitten-shaped lobes, bright green above, glabrous and glaucous beneath.

Flowers greenish-yellow; loose open clusters appear before leaves unfold.

Fruit a blue spicy drupe borne erect on bright red **club-shaped** stalk, August to October.



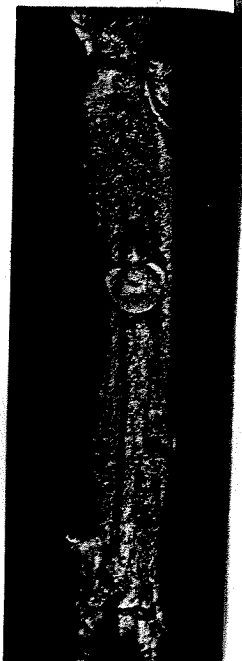
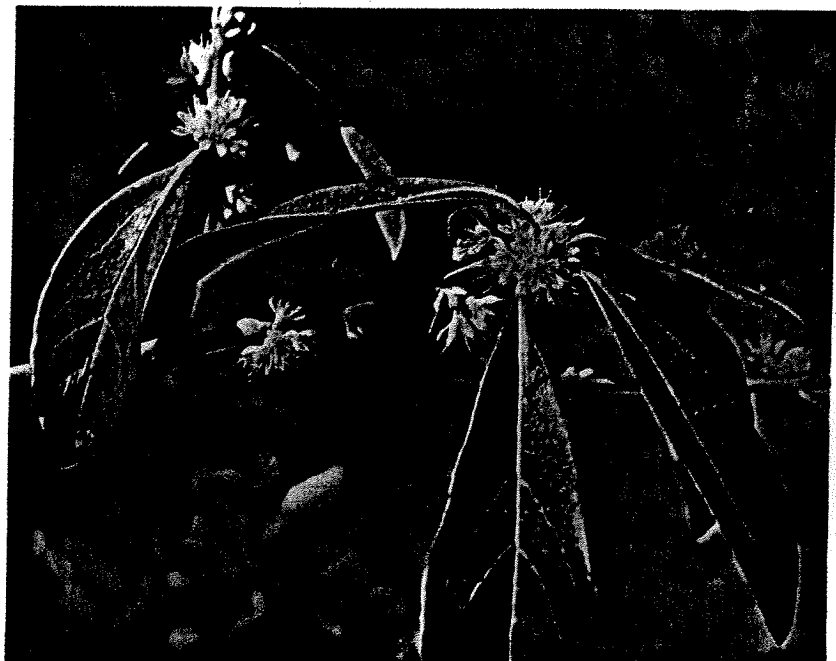
***Styrax americana* Lam.-AMERICAN SNOWBELL**

Deciduous shrub to small tree with alternate buds and leaf scars. Twigs greenish, becoming purple-gray: stellate pubescence at first, glabrous on older stems. Leaf scars U-shaped with V-notch on upper margin. Scar lobes pointed. One bundle scar, curved and raised with short points on both sides. Buds two per joint and superposed. Old fruiting stems commonly persist through winter. Pith homogeneous, white, with a darker center.

Leaves simple, margin varying from entire to serrate or remotely toothed, upper surface dark green, lower surface paler.

Flower fragrant, on short lateral leafy branches; racemes axillary, subtended by small leafy bracts; corolla white; anthers bright yellow; May and June.

Fruit a persistent dry drupe, finely tomentose, seed usually solitary, September and October.



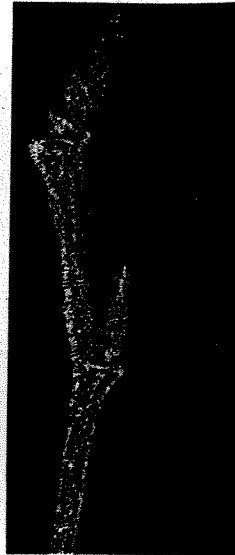
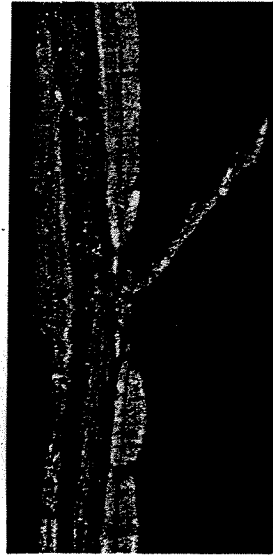
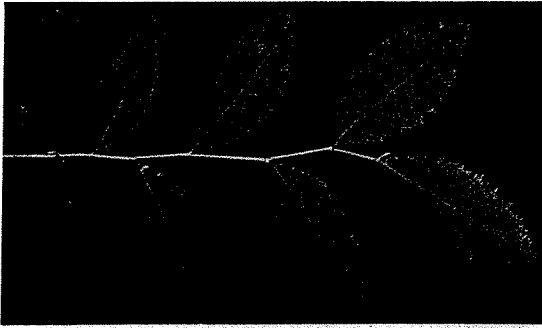
Symplocos tinctoria (L.) L'Her.-COMMON SWEETLEAF

Deciduous shrub arising from one main stem. Alternate leaf scars. Twigs sparingly pubescent, becoming glabrous, gray to reddish-brown. Terminal buds two-scaled, pubescence appressed. Leaf scars half round with one round to crescent-shaped bundle scar. Pith interrupted by air spaces.

Leaves simple, drooping on upcurved twigs, persistent in the South. Margin obscurely and remotely serrate or almost entire, thick and leathery, upper surface dark green, glabrous and lustrous, lower surface paler and pubescent.

Flowers fragrant, small yellowish-white in axillary clusters on branches of previous year, March to May.

Fruit orange-brown drupe, seed solitary, early autumn.



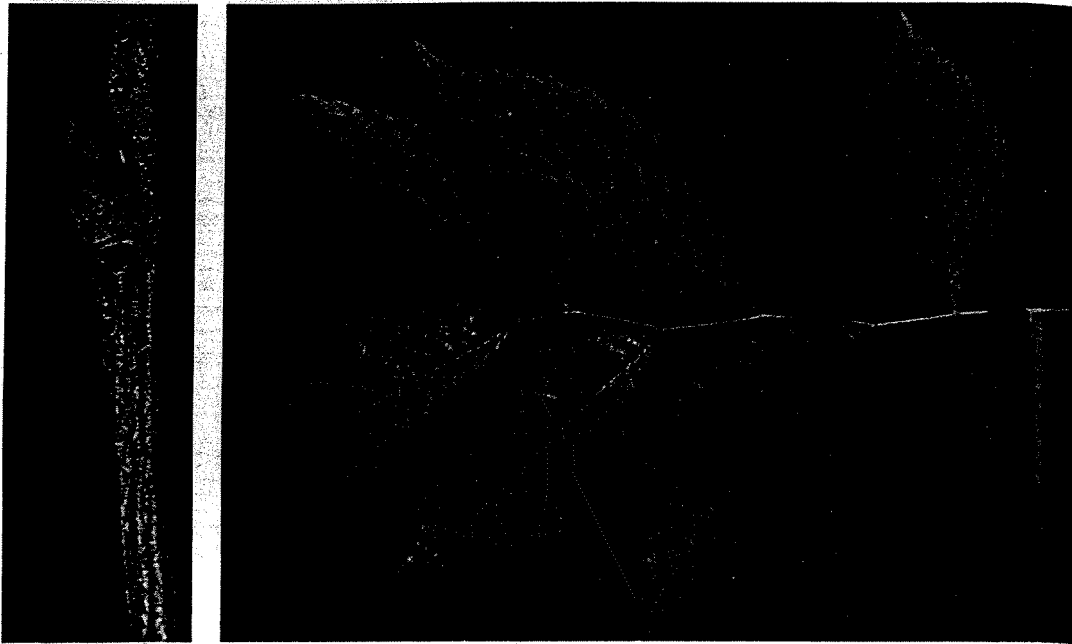
Ulmus alata Michx.-WINGED ELM

Deciduous shrub or small tree with alternate leaf scars. Twigs reddish-brown to gray-brown, pubescent to **puberulent**, becoming glabrous. Corky ridges on older growth. Buds fairly slender, acutely pointed, reddish-brown, and puberulent. Leaf scars half round to flat oval, with three dot-like bundle scars. Pith small, hard, and white.

Leaves simple, coarsely and doubly serrate.

Flowers borne in few-flowered drooping fascicles that appear before leaves in the spring, red to yellow.

Fruit a reddish or greenish samara, seed and wing hairy especially on margin, March to June.



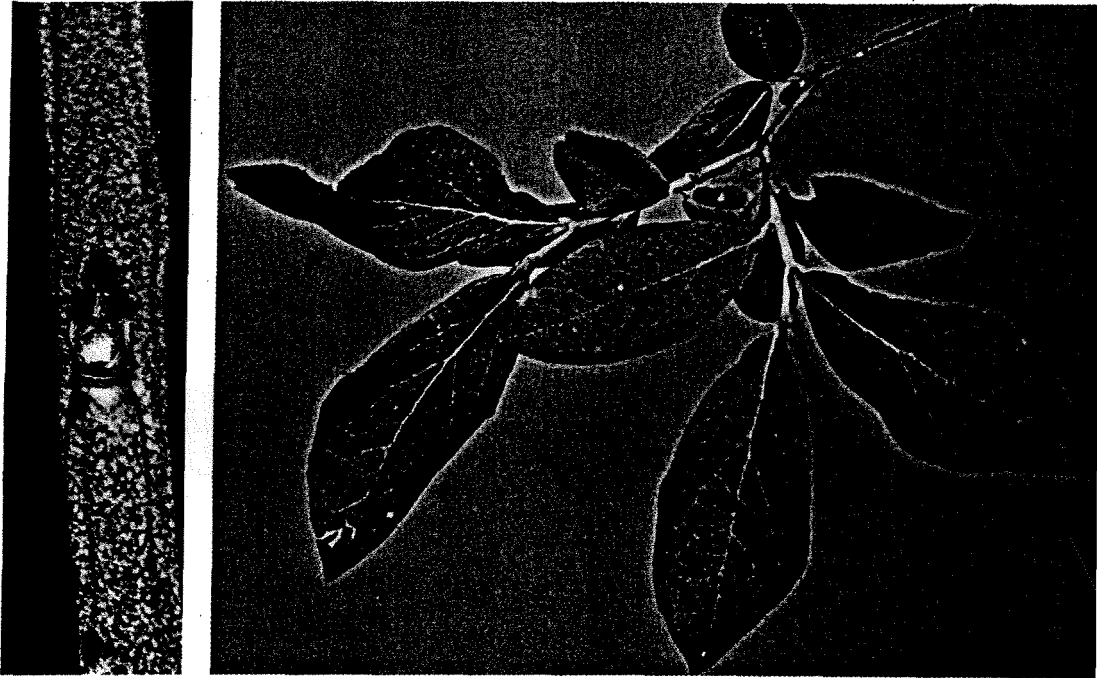
Ulmus americana L.-AMERICAN ELM

Deciduous tree with alternate leaves. Twigs reddish- to grayish-brown, pubescent to puberulent, becoming glabrous. **Buds** acutely pointed, reddish to brown, and puberulent. Leaf scars half round to flat oval with three dot-like bundle scars. Pith small, white, and hard. Twigs without **corky** ridges.

Leaves simple, somewhat **cordate** on one side at base and rounder or cuneate on other side, margin coarsely and doubly serrate.

Flowers borne before leaves in spring, axillary in 3- to, 4-flowered fascicles, calyx red to green.

Fruit a red to green samara consisting of a central flattened seed surrounded by a membranous wing, ciliate on the margin, March to June.



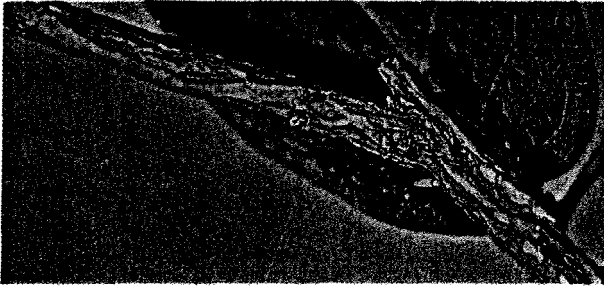
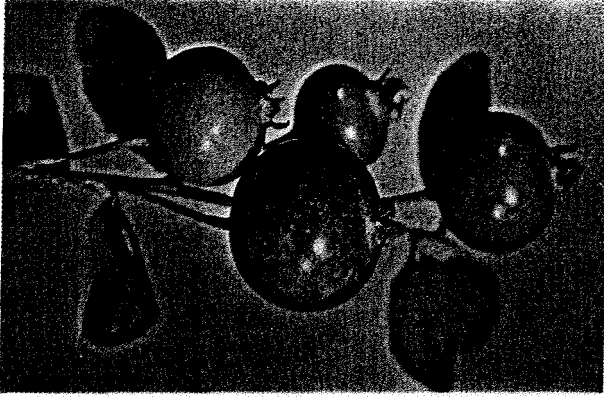
Vaccinium vacillans Torr.-LOW BLUEBERRY

Deciduous shrub with alternate leaf scars. Twigs green on one side and reddish on other, even when 2 to 3 years old. Leaf scars small, narrow, crescent-shaped with one bundle scar. Branchlets erratically bent or zigzag at nodes. Pith hard, exceeding one-third total twig diameter.

Leaves simple, U-shaped at base, leathery when mature.

Flowers greenish to purplish on ends of branchlets or from old axils, appear before leaves are fully expanded.

Fruit a blue to black globose berry, June to September.



Vaccinium stamineum L.-COMMON DEERBERRY

Deciduous shrub with alternate leaf scars. **Twigs**—even when 2 to 3 years old—commonly green on one side, red on the other. Twigs slender, branchlets straight or gently curved. Leaf scars small, half round to circular with one dot-like, inconspicuous bundle scar.

Leaves simple, margin entire and ciliate, rounded at base.

Flowers greenish-white to purple on specialized flowering branches subtended by leafy **bracts**, April to June.

Fruit a green or yellowish globose berry, July to September.

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