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Diospyros virginiana L. Common Persimmon

Ebenaceae Ebony family

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Common persimmon *(Diospyros virginiana)*, also called simmon, possumwood, and Florida persimmon, is a slow-growing tree of moderate size found on a wide variety of soils and sites. Best growth is in the bottom lands of the Mississippi River Valley. The wood is close grained and sometimes used for special products requiring hardness and strength. Persimmon is much better known for its fruits, however. They are enjoyed by people as well as many species of wildlife for food. The glossy leathery leaves make the persimmon tree a nice one for landscaping, but it is not easily transplanted because of the taproot.

Habitat

Native Range

Common persimmon (figs. 1, 2) is found from southern Connecticut and Long Island to southern Florida; westward through central Pennsylvania, southern Ohio, southern Indiana, and central Illinois to southeast Iowa; and south through eastern Kansas and Oklahoma to the Valley of the Colorado River in Texas. It does not grow, however, in the main range of the Appalachian Mountains, nor in much of the oak-hickory forest type on the Allegheny Plateau. Its best development is in the rich bottom lands of the Mississippi River and its tributaries and in coastal river valleys *(9)*. It is exceedingly common in the South Atlantic and Gulf States, often covering abandoned fields with a shrubby growth, and springing up by the sides of roads and fences. It is often the first tree species to start growth on abandoned and denuded cropland. It is well adapted to an environment of high insolation and low water supply.

Climate

Common persimmon grows in a humid climate throughout its range. Its best commercial development is in areas that receive an average of 1220 mm (48 in) of precipitation annually, about 460 mm (18 in) of which normally occurs during the growing season. Over the range of persimmon, the average maximum temperatures are 35° C (95° F) in the summer and −12° C (10° F) in the winter.

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Soils and Topography

Common persimmon grows in a tremendous range of conditions from very dry, sterile, sandy woodlands to river bottoms to rocky hillsides and moist or very dry locations. It thrives on almost any type of soil but is most frequently found growing on soils of the orders Alfisols, Ultisols, Entisols, and Inceptisols.

Associated Forest Cover

Common persimmon is a key species in the forest cover type Sassafras–Persimmon (Society of American Foresters Type 64) *(3)* and is an associated species in the following cover types: Southern Scrub Oak (Type 72), Loblolly Pine–Shortleaf Pine (Type 80), Loblolly Pine–Hardwood (Type 82), Sweetgum–Willow Oak (Type 92), Sugarberry–American Elm–Green Ash (Type 93), Overcup Oak–Water Hickory (Type 96), Baldcypress (Type 101), and Baldcypress–Tupelo (Type 102).

Common associates are elms *(Ulmus* spp.), eastern redcedar *(Juniperus virginiana)*, hickories *(Carya* spp.), sugar maple *(Acer saccharum)*, yellow-poplar *(Liriodendron tulipifera)*, oaks *(Quercus* spp.), boxelder *(Acer negundo)*, red maple *(A. rubrum)*, sycamore *(Platanus occidentalis)*, and cedar elm *(Ulmus crassifolia)*.

Common shrub and noncommercial tree associates include swamp-privet *(Forestiera acuminata)*, roughleaf dogwood *(Cornus drummondii)*, hawthorns *(Crataegus* spp.), water-elm *(Planera aquatica)*, shining sumac *(Rhus copallina)*, and smooth sumac *(R. glabra)*.

In the alluvial bottoms of the Lower Wabash Valley, waterlocust *(Gleditsia aquatica)* and common buttonbush *(Cephalanthus occidentalis)* are close associates.

The Sassafras–Persimmon type is temporary and usually replaced with mixed hardwood types.

Life History

Reproduction and Early Growth

Flowering, Seed Production, and Dissemination—The inconspicuous flowers bloom from March to June within its botanical range and from April through May in areas where it grows best. Staminate flowers are in two- or three-flowered cymes, tubular, 8 to 13 mm (0.3 to 0.5 in) long, and greenish yellow.

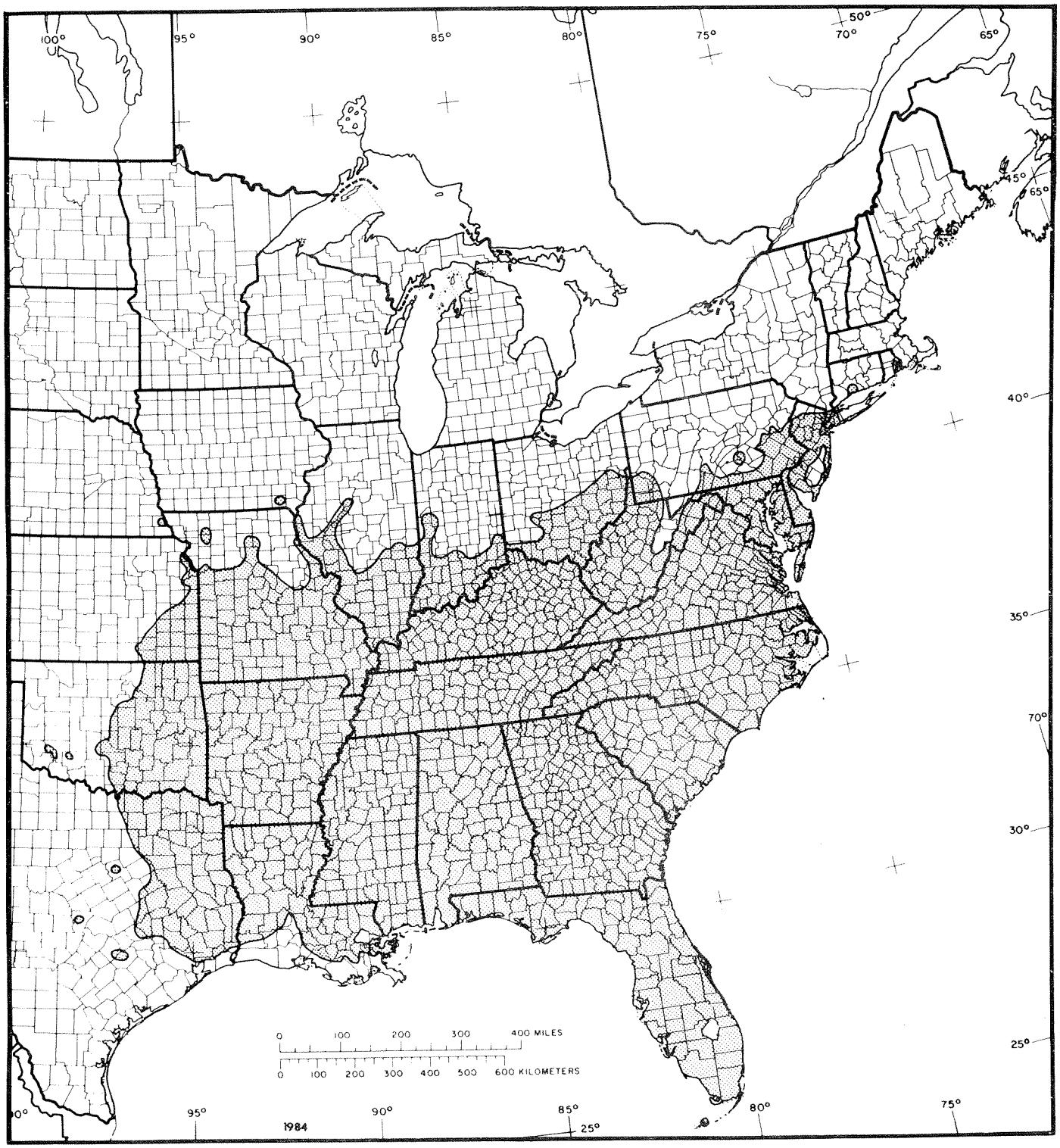

Figure 1—*The native range of common persimmon.*

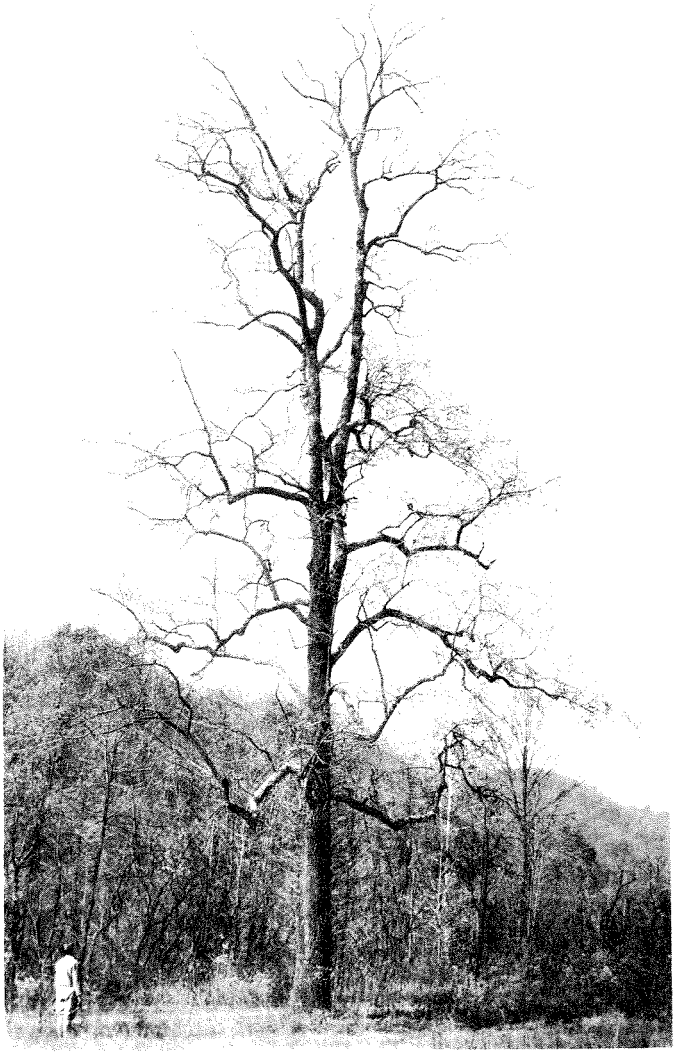

Figure 2—*Open-grown common persimmon with fruit still on the branches. The tree is 27 m (90 ft) tall and 80 cm (31 in) in d.b.h.*

Pistillate flowers are solitary, sessile or short-peduncled, about 1.9 cm (0.75 in) long. The corolla is fragrant with 4 or 5 greenish yellow, thick recurved lobes.

Common persimmon is dioecious; the staminate and pistillate flowers are borne on separate trees on shoots of the current year, when the leaves are more than half grown.

The fruit is a persistent spherical berry 1.9 to 5.1 cm (0.8 to 2.0 in) in diameter. It ripens from September to November or occasionally a little earlier. When mature it is yellow to orange or dark red in color, often with a glaucous bloom. Each berry usually contains one to eight flat, brown seeds about 13 mm (0.5 in) long but is sometimes seedless. Fruits fall from September to late winter.

The optimum fruit-bearing age is 25 to 50 years, but 10-year-old trees sometimes bear fruit. Good crops are borne about every 2 years under normal conditions. About 45 kg (100 lb) of fruit yields 4.5 to 13.6 kg (10 to 30 lb) of clean seed, with an average of 2,640 seeds per kg (1,200 seeds per lb). The seed is disseminated by birds and animals that feed on the fruits, and, to some extent, by overflow water in low bottom lands *(9)*. The seeds remain dormant during winter and germinate in April or May, after about a month of soil temperatures above 15° C (60° F).

Persimmon is easily raised from seed, and if planting is to be done with seeds, they should be cleaned and spread out for drying for a day or two and then stratified under moist conditions for 2 to 3 months at 1° to 4° C (33° to 40° F). They should be soaked 2 to 3 days before planting. Seeds lose their viability through extremes of heat, cold, or drying. They should be planted in spring or fall in shallow drills in light soils with plenty of humus and covered to a depth of about 13 mm (0.5 in).

No insects or animals are known to damage flowers or fruit seriously. Late freeze can damage the flowers and cause premature fruit drop.

Seedling Development—Persimmon is very tolerant, and natural reproduction can normally be expected in the forest understory. It is often prolific in openings. Germination is epigeal. The seedlings develop a strong taproot and after their first year are about 20 cm (8 in) tall or even taller on good sites. Prolonged flooding or submergence during the growing season will kill young trees; however, seedlings usually survive under very adverse conditions.

Vegetative Reproduction—Persimmon may be propagated by root cuttings and grafting *(10)*. Root cuttings 15 to 20 cm (6 to 8 in) long and 8 mm (0.3 in) in diameter can be used provided the ends are sealed with pitch or wax to prevent rot. Older twigs may be used similarly. They can be buried in sand until ready to plant *(15)*.

Trees may be grafted by chip budding, cleft grafting, or whip grafting. Nursery stock should be set about 15 cm (6 in) apart and root pruned each year. Stock 1 to 2 years old may be transplanted, but this should be done in moist deep soil because of the deep root system *(15)*.

Stumps sprout readily and thickets of shrubby persimmon develop from root suckers. Sprouting from

the root collar after fires is common. Seedlings or suckers are difficult to transplant.

Sapling and Pole Stages to Maturity

Growth and Yield—The growth rate of persimmon is generally slow *(9)*. On dry, old-field sites it frequently makes only a shrubby growth 4.6 to 6.1 m (15 to 20 ft) tall. On poor sites the larger trees contain a high percentage of heartwood that cannot be used for lumber because it checks excessively during seasoning.

Approximately 50 percent of the total radial growth is complete in 70 to 90 days, and 90 percent complete in 100 to 109 days after growth starts in the spring *(6)*. Persimmon responds well to fertilizer.

The species normally attains a height of 9 to 18 m (30 to 60 ft) at maturity but in optimum habitats may reach a height of 21 to 24 m (70 to 80 ft) and a diameter of 51 to 61 cm (20 to 24 in). It usually forms an upright or drooping type tree with a rounded or conical crown. Stems may be clumped, either because seedlings develop in close proximity to one another or because they arise from suckers after a tree has been cut down. The leaves are deciduous, simple, alternate, and entire. The bark is brown to black, fissures are deep, and ridges are broken into rectangular checkered sections.

Per acre volume figures for this species are not available because it usually grows as scattered individuals.

Tops of orchard grown trees should be thinned to allow for better fruit production.

Rooting Habit—No information available.

Reaction to Competition—Persimmon is classed as very tolerant of shade. It can persist in the understory for many years *(9)*. Its response to release is not definitely known but is probably not especially good. Persimmon competes with almost any plant under harsh growing conditions.

Damaging Agents—A number of insects attack persimmon but normally do no serious harm *(9)*. A bark and phloem borer *(Agrilus fuscipennis)* infests living persimmon and the persimmon borer *(Sannina uroceriformis)* tunnels in the stems and taproots of young trees and damages nursery stock. Caterpillars may defoliate the trees in early summer and into mid summer. The principal defoliators are a webworm *(Seiarctica echo)* and the hickory horned devil *(Citheronia regalis)*. Unless sprayed, they may defoliate and severely damage a young plant. No serious damage to the merchantable part of living trees is recorded. The twig girdler *(Oncideres cingulata)* retards growth by cutting off smaller branches. The wood of dying and dead trees is often riddled by the false powderpost beetle *(Xylobiops basilaris)*.

Cephalosporium diospyri causes persimmon wilt, a fungus disease that kills many trees in central Tennessee and the Southeastern States *(1)*. The disease is characterized by a sudden wilting of the leaves, followed by defoliation and death of the branches from the top down. An infected tree often lives 1 or 2 years after this symptom appears. Diseased trees should be burned, and cuts and bruises on other trees should be painted to prevent entry by windborne spores. No disease-resistant trees have been found. A wound is necessary for primary infection. The hickory twig girdler and powderpost beetle cause the majority of wounds in healthy trees. As soon as the tree dies, the fungus produces spores in large quantities between the bark and the wood near the base of the tree.

Because common persimmon is often considered noxious in pastures and fields, much effort has been expended in its control and eradication *(2)*. It is easily defoliated with 2,4,5-T at 1.1 kg/ha (1 lb/acre) or less but sprouts readily from both stem and roots after treatment. Treatment is most effective in May when leaves are fully expanded. Additives (Ethephon, MAA, and TIBA) increase both the defoliation and kill of persimmon. Surfactants increase effectiveness of 2,4,5-T. Picloram in combination with 2,4,5-T, and dicamba, alone and in combination with 2,4,5-T, has also given good control. Soil application of picloram and dicamba at 6.7 kg/ha (6 lb/acre) gave kills of 75 and 70 percent, respectively. Complete top kill was possible by injecting undiluted solutions of dicamba or mixtures of 2,4,5-T and dicamba.

Tordon 101 or Esteron 99 at 7.6 liters (2 gal) plus triclopyr at 9.4 liters/ha (1 gal/acre) and Tordon at 37 liters/ha (4 gal/acre) gave 100 percent control of persimmon *(4)*.

Undiluted 2,4-D dimethylamine killed persimmon when applied in 1- or 2-ml (0.03- or 0.07-oz) dosages in injections placed edge-to-edge up to 23 cm (9 in) apart around the stem *(11)*. A 4-to-1 mixture of triisoproponolamine salts of 2,4-D plus picloram was also effective.

Special Uses

The wood is heavy, hard, strong, and very close grained. The average number of rings is 5.5 per cm (14 per in) *(12)*. Specific gravity of light-brown sapwood is 0.79; a 0.028 m^3 (1.0 ft^3) block weighs about

22 kg (49 lb). Because of its hardness, smoothness, and even texture, it is particularly desirable for turnery, plane stocks, shoe lasts, shuttles, and golf club heads.

Persimmon is sometimes planted for its edible fruit. Dried fruit is added to baked goods and occasionally is fermented with hops, cornmeal, or wheat bran into a sort of beer. The dried, roasted, ground seeds have been used as a substitute for coffee.

Several cultivars are available with improved fruit size and quality. In native persimmon areas, top working or grafting on suckers is a good way to get superior cultivars into bearing quickly. One staminate tree seems sufficient to pollinate at least 23 pistillate trees of the same race *(8)*. The pulp is very astringent when not ripe, but after a frost in the fall, when the fruit turns yellow orange, the flesh is pleasing in taste *(12)*. The fruit is eaten by many species of song birds, also by the skunk, raccoon, opossum, gray and fox squirrels, white-tailed deer, wild turkeys, bobwhite, crows, rabbits, hogs, and cattle *(5)*. It may, however, cause sickness in livestock. Deer browse readily on persimmon sprouts, but cattle graze them only lightly.

Seeds and fruits are generally low in crude protein, crude fat, and calcium but high in nitrogen-free extract and tannin *(13)*.

The inner bark and unripe fruit are sometimes used in treatment of fevers, diarrhea, and hemorrhage. Indelible ink is made from fruit.

Persimmon is valued as an ornamental because of its hardiness, adaptability to a wide range of soils and climates, its lustrous leaves, its abundant crop of fruits, and its immunity from disease and insects. It has been introduced into Europe.

The tree is suitable for erosion control on deeper soils because of its deep root system, but this same characteristic makes it difficult to plant.

Persimmon is considered a woody weed in unimproved pastures, and it prevents many areas from being grazed effectively. Inoculation of persimmon stumps with a fungus *(Cephalosporium diospyri)* was found to be an effective means of preventing subsequent sprouting.

Persimmon flowers are useful in the production of honey.

Genetics

Varieties of the common persimmon are the fuzzy common persimmon *(D. virginiana* var. *pubescens* (Pursh) Dipp.); Oklahoma common persimmon *(D. virginiana* var. *platycarpa* Sarg.); and Florida persimmon *(D. virginiana* var. *mosieri* (Small) Sarg.) *(7)*.

Hybrids have been reported between *D. virginiana*, *D. kaki*, and *D. lotus (14)*.

Several cultivars, selected primarily for fruit color, taste, size, and early maturation, have been chosen from wild populations *(8)*.

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