

elder, and in some areas, silver maple are invaders preceding the next successional stage.

Geographic distribution. — The type is characteristic of the fronts and banks of most major streams through the central and southern forests but extends also into the northern forest. Along the East Coast, the black willow type has only minor distribution and then generally in swamps rather than in river bottoms.

Ecological relationships. — Black willow is a temporary, pioneer type of very rapid growth. Along with cottonwood, it is the first to appear on newly formed sandbars and river margins, almost to the exclusion of other species. It is also frequently found in front land, sloughs, and low flats and occasionally in shallow swamps and deep sloughs throughout the first bottom. Where willow and cottonwood occur together, cottonwood outgrows willow and becomes dominant except where frequent and extended growing-season flooding covers the trees and kills the cottonwood. Sites may silt in 6 m (20 ft.) during the life of the stand, and any one flood may increase the elevation from 2.5 cm (1 in.) to 1.5 m (5 ft.).

Black willow is relatively short lived and cannot regenerate under shade. As the soils build up and the willow and cottonwoods drop out, the type is usually replaced in the central forest by the silver maple—American elm type and by boxelder; and in the southern forest by the sycamore—sweetgum—American elm type and by boxelder and, on the lower sites, by swamp-privet. The type merges with the cottonwood—willow type in the prairie-plains area.

Variants and associated vegetation. — Common understory tree species are boxelder, red maple, red mulberry, swamp-privet, and planertree (water-elm). Undergrowth may consist of buttonbush, possumhaw, poison-ivy, trumpet-creeper, redvine, and peppervine. Herbs may or may not be present, depending on length of growing season overflow and density of overstory.

Levee systems and stream channelizations have restricted the area available for formation of this type.

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Black Willow

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Definition and composition. — Black willow and other species of *Salix* together comprise a majority of the stocking. Cottonwood is the chief associate, particularly in the early stages, but green ash, sycamore, pecan, persimmon, waterlocust, American elm, baldecypress, red maple, sugarberry, box-