BIGLEAF MAPLE

Acer macrophyllum, Maple family—Aceraceae

The Midwest, East, and South have several species of large, spreading maples, whereas the West has only one: bigleaf maple, which nevertheless is an admirable representative. Bigleaf maple is in a class by itself, being North America's largest maple and having by far the biggest leaves. Unlike Eastern maples that are quite cold hardy, bigleaf maple is adapted to the mild climate west of the Cascades. Also, it is a trademark species of the coastal rain forest because it hosts long, heavy drapes of hanging moss and lichens, reminiscent of scenes from a Southern swamp. Bigleaf maple is familiar to people living west of the Cascades as the most common and eminently suitable shade tree in residential areas and parks—and many of these highly valued maples sprang up on their own.

Where It Grows

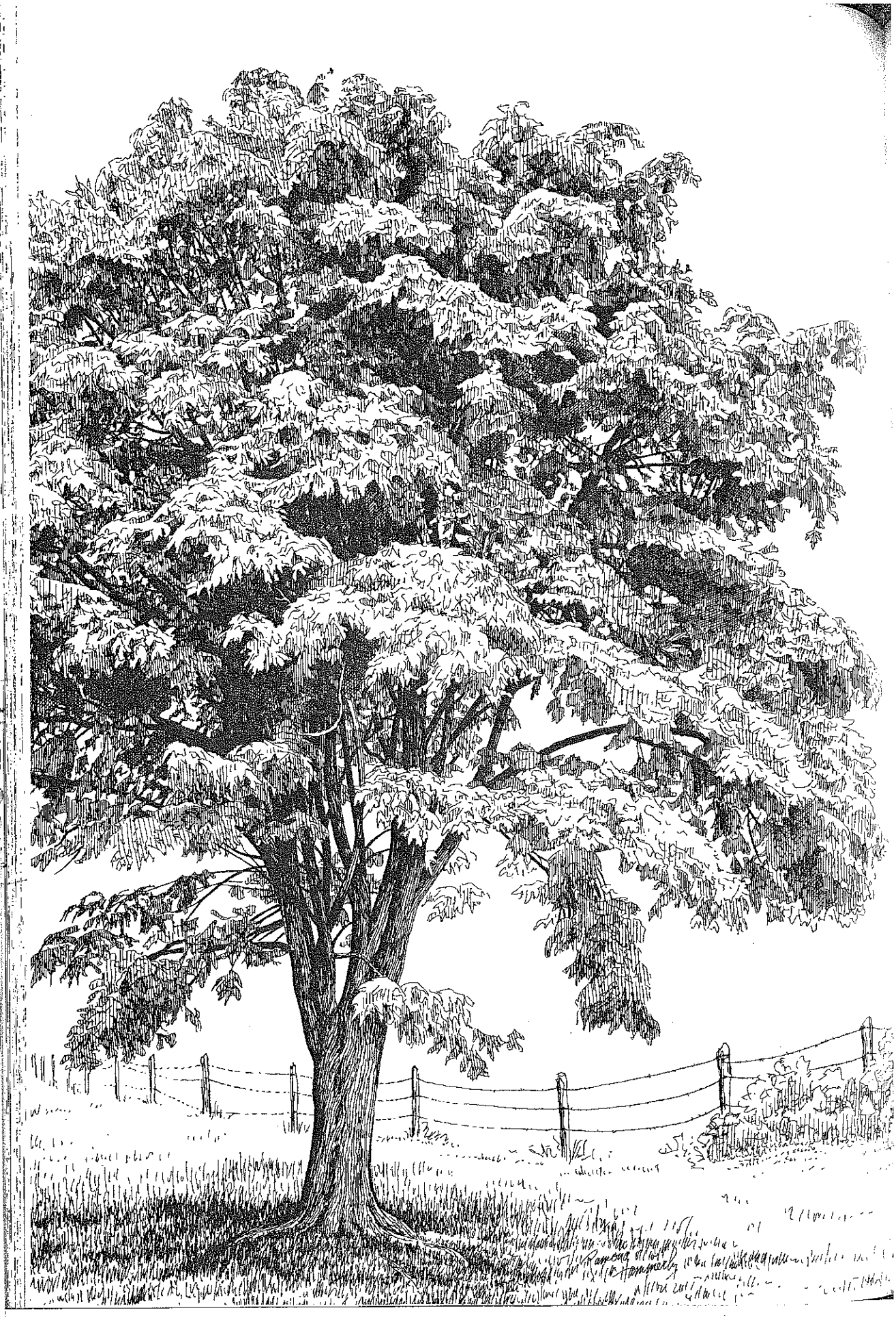
Bigleaf maple is widespread west of the Cascades and British Columbia Coast Ranges, from the north end of Vancouver Island and nearby Sullivan Bay on the mainland, southward to California. In much of the coastal Northwest, it grows from sea level to about 1500 feet (450 m) in elevation, but it ascends as high as 4000 feet (1200 m) in southwestern Oregon and sometimes higher in the mountains of California, where it becomes less common. Small populations are reported in a few moist canyons on the east slope of the Cascades; otherwise, it is absent from the inland Northwest. The species' northern limit and its scarcity east of the Cascade crest probably reflect sensitivity to cold temperatures. Its relatively low upper-elevational limits suggest an inability to complete its annual growth in a short, cool summer that is bracketed by occasional dumps of heavy, wet snow, disastrous to trees with large leaves and spreading crowns.

Appearance

In productive valley sites where it is not crowded by conifers, bigleaf maple develops a broad, outstretched crown. The stout bole is commonly 36 to 48 inches (90 to 120 cm) in diameter and separates into great branch-trunks 10 to 15 feet (3 to 4.5 m) above ground. The canopy of an open-grown bigleaf maple is nearly as wide as the tree is tall. Exceptionally large bigleaf maples attain 6 feet (1.8 m) in diameter, and the tallest ones attain 125 feet (38 m) or so. According to the American Forestry Association, the country's largest maple is one of this species in Clatsop County, Oregon: 11 feet (3.4 m) in diameter and 101 feet (30 m) tall. In contrast, when bigleaf maples grow in dense stands, they develop a narrow crown situated high up on a relatively slender trunk. The bark on young trees is light gray-brown and smooth but becomes darker and with interlacing ridges on old trunks.

This species is easily distinguished from other native and introduced maples by its exceptionally large leaves. The leaf blades are 8 to 12 inches (20 to 30 cm) across, and their stalks are 6 to 12 inches (15 to 30 cm) long. The leaves have five lobes deeply cut into them, in a palmate pattern like fingers and thumb on a hand. The leaf stems also differ from most other maples in exuding milky sap when cut. All maples bear their leaves, twigs, and buds opposite each other in pairs, which aids identification year-round.

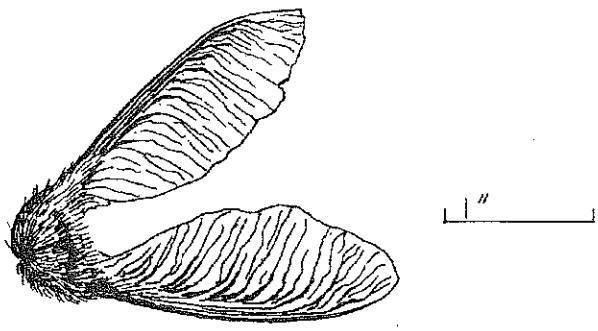
In late April and early May, the translucent, yellow-green new leaves are unfolding and only half-grown while copious clusters of fragrant yellow blossoms 4 to 6 inches



bigleaf maple twig with seeds

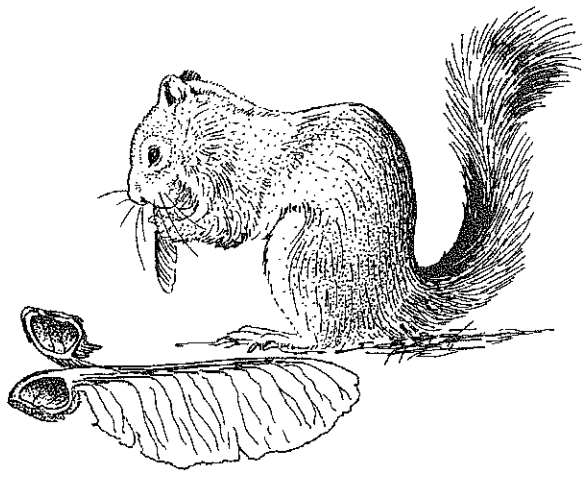
(10 to 15 cm) long fill the canopy. These hanging blossoms teem with honeybees and other insects gathering nectar and pollen on warm spring days.

Bigleaf maple depends on insects to fertilize its flowers, and evidently this works well since it is a prolific seed producer. Its fruit, like that of all maples, is a double samara, meaning it consists of two large, hair-covered seeds fused together. In bigleaf maple, the joined seeds each have a 1½-inch (4-cm) wing attached so that



bigleaf maple fruit

bigleaf maple blossoms



squirrel extracting bigleaf maple seed

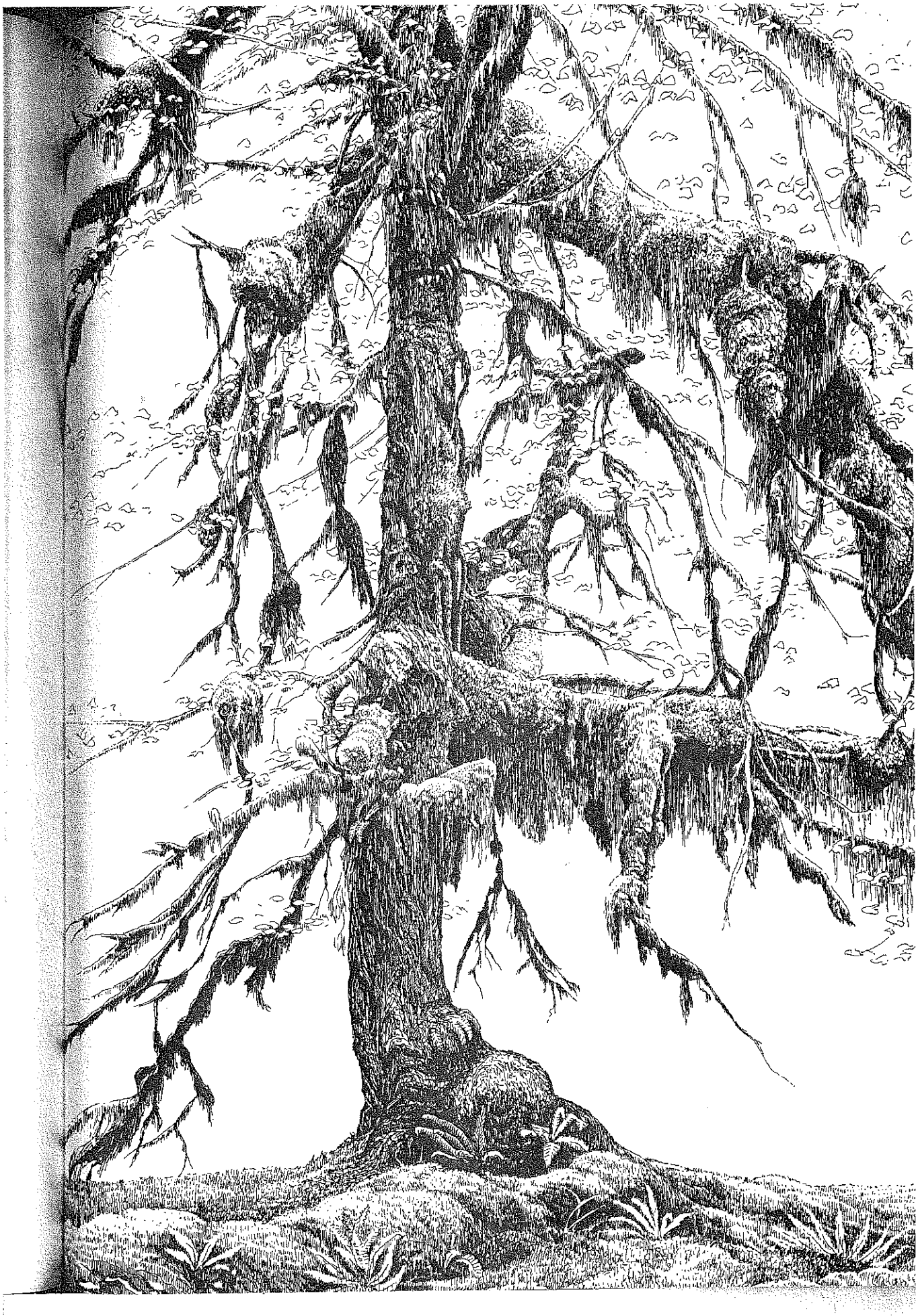
the fruit resembles a broad V. When launched from the tree into a stiff breeze, the fruit spins like a helicopter. Bigleaf maples begin to produce fruit when only ten years old, and some of the crop hangs on the trees through fall and winter, providing nutritious food for Douglas squirrels, finches, and evening grosbeaks when other seeds are scarce.

Ecological Role

Bigleaf maple is not a pioneer species comparable to red alder, which readily colonizes disturbed areas. Instead, it is considered relatively tolerant of shade and competition. However, it is not as tolerant as vine maple, which is able to survive beneath a dense conifer canopy. Bigleaf maple gradually increases in areas that are recovering from fire or logging, and later it is gradually shaded out as conifers overtop it. It sprouts vigorously from cut stumps and produces seedlings readily in open areas as well as beneath established conifer stands, but successful establishment is unlikely beneath conifers. Each spring, countless seeds from the previous season's crop germinate on the forest floor and in suburban flower beds, in vacant lots, and even from cracks in sidewalks. In the forest, perhaps only one in a million of these new seedlings is able to root into mineral soil in a spot where there is adequate growing space for it to grow up and become a tree.

Bigleaf maple is a major constituent of river bottom and streamside hardwood communities along with red alder, black cottonwood, and willows, but it cannot tolerate long-term flooding as cottonwood can. It inhabits meadows, pastures, old fields, and many young forests that arise after logging or fire. It occupies a broad range of habitats, from the hot, dry valleys of southwestern Oregon to the rain forests of the Olympic Peninsula and

Opposite: bigleaf maple in rain forest



the west side of Vancouver Island. In these ultrahumid habitats, old, spreading maples survive in small openings among conifers three times as tall. The maples are draped with hanging club moss (*Selaginella oregana*) and other mosses and lichens that can weigh up to four times as much as the tree's foliage—and more yet when saturated with rain or clinging wet snow (Nadkarni 1984). Bright green licorice ferns (*Polypodium glycyrrhiza*) grow out of the moss litter high up in these 200- to 300-year-old rain-forest maples.

Bigleaf maple can grow on nutrient-poor soils (albeit as a smaller bushy tree), including rock slides, but wherever it grows, its abundant leaf litter enriches the soil. The fallen leaves, blossoms, and seeds contain high concentrations of potassium, calcium, and other important nutrients.

Human History

Northwest Native peoples used bigleaf maple in many ways. They sprouted seeds for food (comparable to alfalfa sprouts today), wove inner bark into baskets, covered food in cooking pits with the leaves, and carved the wood into dishes, spoons, and canoe paddles (Moerman 1998).

Bigleaf maple's wood is valued for specialty lumber and fuel, although the oldest trees often have heart rot. The heartwood is light reddish brown, fine-grained, moderately heavy, and moderately hard and strong. The wood is not suitable for flooring but is used in furniture and decorative veneer. It is a preferred wood for piano frames. It takes a high polish and often has interesting grain, such as in curly or bird's-eye maple. Some mature trees have large burls on their lower trunk, which are prized by skilled wood crafters for their beautiful grain patterns.

Bigleaf maple has sweet sap that can be collected in winter and made into syrup, although this is not done commercially because the produce is of lower quality than syrup made from the eastern sugar maple (Ruth and others 1972). John Worrall, of the University of British Columbia, also points out that the Northwest coast doesn't have the crisp February weather that induces sap flow in eastern maples.

Today, bigleaf maple is probably the most common native shade tree west of the Cascades. Its stout, spreading limbs are a favorite site for children's tree houses. The tree turns a beautiful bright orange-yellow in fall, and for better or worse, its prodigious leaf-fall can be turned into compost. It is sometimes planted as a shade tree in England but is not successful in climates having cold winters.