Ilex glabra—The Inkberry Holly

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This native evergreen shrub has finally stepped into the landscape limelight.

Ilex glabra (L.) Gray, the inkberry or gallberry, is a wallflower among the hollies, lurking in the shadows where few gardeners now notice its existence. Such a pity, for the species, a broadleaf evergreen shrub, is an under-utilized native, with wide geographical adaptability and a plethora of other admirable landscape attributes. A quote from the *Holly Letter*, October 1974, puts it aptly: "If inkberry had come from Japan, people would rave about it."

Several nurseries have introduced compact cultivars with improved foliage such as 'Compacta,' 'Nordic,' and 'Shamrock,' all of which have helped raise the species to a higher level of consumer acceptance. However, these cultivars are scarcely garden buzz words compared to the better-known 'Convexa,' 'Helleri,' and 'Hetzii' cultivars of *Ilex crenata* (the Japanese holly), or the 'Nana' and 'Stokes Dwarf' cultivars of *Ilex vomitoria* (the yaupon holly). *Ilex glabra* offers great opportunities for future selection and some of the best forms may still be in the crystal-ball stage.

Usually found in moist to wet soils, *Ilex glabra* has an extended distribution from Nova Scotia to as far south as Florida and west to Missouri. In the deep South, Godfrey (1988) describes the species as growing in pine savannas and flatwoods, shrub-tree bogs and bays, open bogs, seepage areas in woodlands, and on the lower slopes and bottoms of wooded ravines. It also occurs near the ocean and displays a high degree of salt tolerance. In controlled studies (Eberwine and Dirr, 1978), it was found to be essentially resistant to soil-applied sodium chloride.

Characteristics of the Species

To our knowledge, inkberry is one of the few stoloniferous evergreen holly species (*I. coriacea* is another), and colonies a century or more old have been described (Hume, 1953). As colonies increase in size, billowy masses of green are formed that create a soft, pleasing texture foreign to most of the *I. crenata* and *I. vomitoria* cultivars. Size is extremely variable within the species, but 1.5 to 2.5 meters tall (5 to 8 feet) and 2 to 3 meters wide (8 to 10 feet) encompass reasonable biological boundaries. For years, an elegant, dark green-foliaged compact form that graced a display bed in front of Longwood Gardens in Kennett Square, Pennsylvania, was a suspected "named selection." Inquiring as to its exact identity, we were informed that proper pruning was the reason for the shape.

Nurseries from Massachusetts to Georgia are experiencing increased demand for inkberry and are increasing production in response. As part of the native plant movement, and with its superior adaptability, *I. glabra* is a natural for increased landscape use. Recent emphasis on wetland mitigation is another plus for the species. Inkberry has been utilized around the Cape Cod National Sea Shore Visitor Center in Eastham, Massachusetts, where the large irregular foliage masses make the building look as if it were set among them rather than the reverse.

Frequently confused with *I. crenata* and *I. vomitoria*, inkberry has a longer leaf, 2 to 5 centimeters, with a few serrations, often oppo-

site one another at the apex of the leaf. The other two species have smaller leaves and are serrated from the apex to near the base of the leaf. The leaves are a lustrous medium to dark green throughout the year; however, in excessively sunny or windy locations, some yellowing (bronzing to purplish tints) may result.

The dioecious flowers are produced in the axils of the current season's growth from mid- to late June in Boston, and in late May in Athens, Georgia. On male plants, the flowers occur in groups of threes; on females, they occur singly or in clusters up to three. Five to eight cream-colored petals are present in the small flowers, which are a source of pleasant-tasting honey in the South. Unlike the fruit of many other hollies, the flattened, globose drupes of the inkberry are a lustrous black color but seldom a cause for celebration. In fact, they are generally produced underneath the foliage and remain obscure from an ornamental point of view. Fruits generally ripen in October, persist throughout the winter, and are often still present when the new flowers emerge. White- and red-fruited forms are known and will be discussed in the cultivar section below.

Compelling reasons for the rebirth of interest in *I. glabra* are its landscape toughness and environmental adaptability. The species displays a penchant for survival under conditions ranging from full sun to moderate shade and from wet to dry, clayey to sandy soils of acid to neutral pH. Inkberry is easily transplanted, literally by pulling it out of the ground and relocating it. Jim Cross of Environmentals Nursery of Cutchogue, New York, relates that it is one of the few broadleaf evergreens that survive in heavy clay soils where irrigation systems continue to operate whether needed or not. Most cultivars, as well as the species, are both field- and container-grown, and are easily transplanted on a year-round basis. Dr. Donald Wyman (1970) mentioned the rejuvenation of weak and spindly plants at the Arnold Arboretum: plants 2.5 meters tall (8 feet) were cut to about 15 centimeters (6 inches) from the ground in April,

The glossy black fruit of inkberry. Photo by Rácz and Debreczy.

and by fall these plants were 30 to 45 centimeters (12 to 18 inches) and quite dense.

Ilex glabra, at least the northern forms, should be cold-hardy to −15 to −20 degrees F. Contributing factors of winter sun and wind may compound low-temperature injury. It would be worthwhile to compare the cold hardiness of selections from the New England, Middle Atlantic, and Southeastern provenances. Surprisingly, the white-fruited forma *leucocarpa* from Florida is hardy to at least −15 degrees F.

Propagation

Propagation is frighteningly easy, and firm cuttings root year-round when provided with 1000-parts-per-million indolebutyric acid (IBA) quick dip (five seconds), or a commercial rooting powder under either mist or polyethylene tent. Even without such treatments, a somewhat lower percentage of cuttings will root. The species can also be propagated by transplanting the suckering shoots that develop around the base.

Since cuttings are easily rooted, seed propagation is not routinely practiced. In general, seeds of the genus *Ilex* have immature embryos at the time of ripeness, necessitating a period of after-ripening before germination will occur. Experiments performed at the Arnold Arboretum by former propagator Alfred Fordham in 1963, and again in 1973, suggest that the best results are obtained by sowing the seed in a warm greenhouse and then waiting for germination to occur. After eight months, 57 percent of the freshly collected, cleaned seeds germinated. The seeds of the inkberry are easier to germinate than those of many *Ilex* species, which have germination times of eighteen months or longer.

Significant variation in growth habit, foliage color and retention, and fruit color has encouraged nurseries and plant collectors to select forms for greater uniformity and increased consumer palatability. The following cultivar list is based on the authors' personal observations, discussions with nursery people, and a review of the literature.

Cultivars

'Bronze'— According to Hume (1953), this form has closely spaced, coriaceous, bright green leaves (2.5 to 4 centimeters long and 1 to 1.5 centimeters wide), that assume a pleasing bronze color in winter. The glossy black, globose fruits are produced abundantly on compact plants, 1.5 to 1.8 meters tall (5 to 6 feet). The plant was selected by Elizabeth C. White of Whitesbog, New Jersey, but the authors have no idea whether or not this cultivar remains in cultivation.

'Compacta'— This clone, selected and introduced by Princeton Nursery of Princeton, New Jersey, is notable for its (1) compact, oval-rounded habit, (2) fine-textured branches, (3) dark green leaves (3 to 4 cm long by 1 cm wide), and (4) lustrous, jet-black fruits that persist through the winter. Originally described as maturing to between 1.5 and 1.8 meters tall (4 to 6 feet), we encountered a specimen 3 meters tall (10 feet) and 5 meters wide (15 feet) on the campus of Swarthmore College outside Philadelphia. So much for plants reading their press releases! This form, like the species, becomes leggy at the base and loses a portion of the lower foliage, but if pruned in a timely and artistic manner, it will remain a handsome plant. The original plant grows next to the Princeton Nursery office and was described by William Flemer III in recent correspondence:

> The Princeton clone of *Ilex glabra* 'Compacta' was selected in 1937 by William Flemer II from a block of seedlings on our nursery. These seedlings came from seed collected in the New Jersey pine barrens near Whiting, New Jersey. The parent plant was planted near the nursery office for further observation.
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> It proved to be of interest as a compact, very hardy, broadleaf evergreen shrub and was first listed for sale in the Princeton Nursery's wholesale price list for the fall of 1948. Some plants may have been sold a couple of seasons earlier than this, but no record of such sales survives.
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> It has been successfully grown in northern Vermont and Maine. It has also been shown to be somewhat more resistant to winter feeding of deer than regular seedling-grown *Ilex glabra*, as well as being much more resistant than *Ilex crenata* plants. However, it is by no means totally immune to deer damage in areas with a very high deer population.

'Densa'— This clone develops an oval-rounded uniform outline with upright branches. The

Ilex glabra *'Densa,' photographed at Longwood Gardens by M. Dirr.*

leathery dark-green leaves average 4 centimeters long and 1.5 centimeters wide. Sparse fruit set was observed on Arnold Arboretum plants. Longwood Gardens has a planting in front of the west side of the conservatory complex that is reasonably full and dense; however, on a visit in April, 1991, we noticed slightly naked lower branches. In the Arnold Arboretum collections, a 2- to 3-meter-tall (6- to 10-feet) specimen is devoid of leaves over the lower 30 to 40 percent of the plant.

Frederick (1975) notes that 'Densa' was selected by Bert Flemer at F & F Nursery from a batch of five hundred seedlings planted in 1938. He mentioned its mature size as around 2.5 meters by 2.5 meters (8 feet by 8 feet).

'Georgia Wine'— This selection develops lovely burgundy winter foliage coloration. The leaves, 4 centimeters long by 2 centimeters wide, are lustrous dark green in summer. The plant was discovered and named by William Craven, Twisted Oaks Nursery, Waynesboro, Georgia, and will be released to the public within the next few years. The parent colony ranges from 0.8 to 1.0 meter high (2.5 feet to 3 feet) and 2 to 2.3 meters wide (6 to 7 feet). The plant is female and produces abundant black fruits.

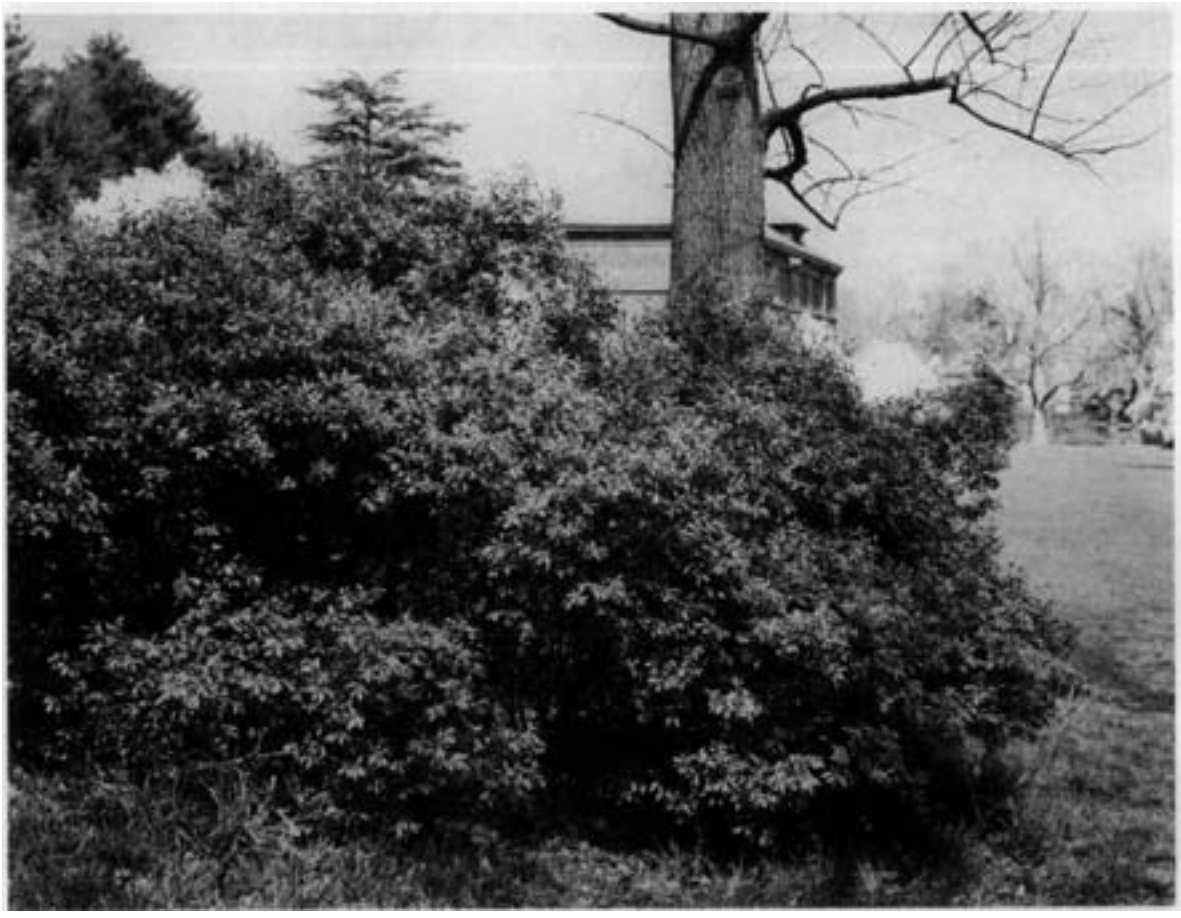
Forma *leucocarpa*— This unusual white-fruited form was discovered by Frank W. Woods in Jackson County, Florida, in 1955, and was distributed by the U.S.D.A. as #275847 and by the U. S. National Arboretum as #14278. This form has been cultivated at the Arnold Arboretum since 1961. The leaves are a lustrous medium to dark green and average 4.5 centimeters long by 1.5 centimeters wide. The habit is distinctly broad-rounded, and a specimen at the University of Georgia's Experiment Station in Griffin is 2.6 meters tall (8 feet) and 4 meters wide (12 feet).

Forma *leucocarpa* 'Ivory Queen'— This white-fruited selection was discovered by C. R. Wolf of the New Jersey Silica Sand Company of Millville, New Jersey. It was apparently a branch sport, and the fruit is ivory white with a black dot at the apex of the fruit due to the stylar scar. We originally considered this a rename of the above-mentioned forma *leucocarpa*, but after examining both herbarium and living specimens, realized that they were distinct. 'Ivory Queen' has leaves that are more leathery, darker green, and more densely set than those of f. *leucocarpa*; leaves average about 5 centimeters long by 1.5 centimeters wide.

'Nigra'— Although this selection is described as having purple foliage in winter, this is not the case on the specimen of 'Nigra' at the Arnold Arboretum. Indeed, its foliage color is a lustrous dark green, and the plants, relatively compact, do not appear to be as leggy as other clones. Wayne Mezitt of Weston Nurseries mentioned that 'Nigra' was not as cold-hardy as 'Compacta' or 'Viridis.' The leaves are 3 to 4 centimeters long by 1 to 2 centimeters wide.

'Nordic'— James Zampini of Lake County Nursery Exchange, Perry, Ohio, selected this patented clone for its compact growth habit and dark green foliage. Mr. Zampini relates that while surveying a field of more than two thousand inkberry seedlings in early March, he noticed one plant in the middle of the field that was distinct from the others. This plant had the best foliage color and a distinct broad, pyramidal growth habit. 'Nordic' has a mature height and width of about 1.7 meters (5 feet). The leaves, slightly larger than those of the species, maintain their dark-green color through the winter. Mr. Zampini also mentioned that 'Nordic' has performed admirably in areas where the winter temperatures range from −20 to −30 degrees F.

'Shamrock'— This cultivar is receiving considerable attention from gardeners, designers, and producers. It was selected in 1977 from a block of approximately five hundred seedlings by John Tankard, Tankard Nursery, Exmore, Virginia. Distinguishing characteris-



Ilex glabra *growing under the tulip trees at the Arnold Arboretum. Photo by Rácz and Debreczy.*

tics include compact habit and bright, glistening new green foliage that overlays the previous year's mature dark green foliage, the leaves averaging 4 centimeters long by 1.3 centimeters wide. Mature plants are 1.5 meters tall (5 feet) and equally wide. Mr. Tankard feels that 'Shamrock' holds its lower leaves better than other forms.

'Viridis'— This plant has a distinct pyramidal form with upright branches and dense foliage. The leaves, 3.5 centimeters long by 1 centimeter wide, are distinctly lighter green than those of 'Compacta' and 'Densa.' We estimate a maximum height of 1 to 1.3 meters (3 to 4 feet) for the plant, and slightly less in spread for a mature landscape specimen. At Weston Nurseries and the Arnold Arboretum, plants held their lower branches better than 'Compacta,' but did develop slight legginess.

The Future

Exciting activities are occurring in holly breeding, and while wandering through Rutgers University Ornamental Test Garden, we spotted what we thought was a rose-red-fruited form of *Ilex glabra*. Dr. Elwin Orton, who hybridized this unusual form, crossed *I. serrata*, the fine-tooth holly, a red-fruited deciduous species, with a white-fruited *I. glabra*. While Dr. Orton had hoped to produce a non-leggy *Ilex glabra*, he ended up with a

plant 2 meters tall by 3.2 to 4 meters wide (6 by 10 to 12 feet), with more or less red fruit. Fifty-eight years ago J. K. Small (1933) reported finding a red-fruited form of the inkberry in Florida, but he did not name it, and apparently it has never been cultivated.

Other cultivar names found in the literature but elusive in the nursery trade include 'Cole's Compacta' and 'Steed,' both compact-growing plants, and 'Hatfield,' an upright hybrid between *I. glabra* and *I. crenata*, described by Robert Clark in *Holly Letter* No. 5 (1974) (this cross occurred at the Hunnewell Estate, Wellesley, Massachusetts).

Undoubtedly, the selection story of *Ilex glabra* is not yet complete. The species and its current cultivars are highly functional landscape plants, and the renewed interest in their use assures continued selection and improvement.

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