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*Iris*

*"Four Digits"*

*Tree Surgeons*



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Louisiana's fleur de lis, the giant blue iris (*I. giganticaerulea*), is the largest and most common native Louisiana iris species. It is recognized as the official state wildflower. There are four other native Louisiana iris species including the smaller copper iris, cherished for its unusual color. Iris grow along roadside bayous and ditches in Southwest Louisiana and on the edges of swamps in the New Orleans area, among other habitats. The Barataria Preserve of the Jean Lafitte National Historic Park is famous for the dramatic array of Louisiana iris that bloom there each spring.

Photos courtesy of Gary Noel Ross



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# Wild Iris: Louisiana's Fleur-de-lis

Story and photos by  
Gary Noel Ross, Ph D

In Greek mythology "Iris" was the female deity who transported messages between the earth and the heavens. She was



The Louisiana "fleur-de-lis." Although the original fleur-de-lis was inspired by wild irises in Europe, Louisiana irises were so widespread within the lowlands of French colonial Louisiana that the design became the symbol of the state's natural and cultural heritage.

symbolized by the rainbow, and referred to as "Goddess of the Rainbow." In science, the word "iris" is shared by two disciplines of biology: vertebrate anatomy and botany. Anatomically, the iris is the doughnut-shaped, colored part of our eyes. By expanding and contracting, the iris controls the amount of light entering the eye's portal, the pupil. Botanically, iris refers to a group of lily-like, often water-loving species within a genus of the same name. Most *Iris* species produce large, colorful, and elegant flowers—the inspiration for the noble fleur-de-lis ("flower of the lily") in early European artistic design and heraldry which eventually

became the national symbol of France, and the French colonies including Louisiana. In folklore the iris is regarded as a healing herb (used in the removal of freckles), as a pot-pourri fixative, and an ingredient in perfume. More recently, the flamboyant perennial has been referred to as the "poor man's orchid." Throughout the U.S. and Great Britain, its popularity is second only to the rose.

Irises are distributed worldwide. A special group, however, occurs as native wildflowers only in the lower Mississippi delta and along the Gulf coast. These were christened "Louisiana flag" irises ("flag" is a Middle English word for a variety of plants with sword-like leaves) by none other than America's premier 19th century naturalist, John James Audubon, when he painted it as a backdrop for northern parula warblers. Technically, not one but five species are Louisiana irises: *Iris hexagona*, *I. fulva*, *I. brevicaulis*, *I. giganticaerulea*, and *I. nelsonii*. The giant blue iris (*I. giganticaerulea*), the largest and most common species, is recognized as Louisiana's official state wildflower



*Iris giganticaerulea*, or "giant blue flag," is the official Wildflower for Louisiana. The species, however, is only one of five known collectively as "Louisiana iris." While the flower of the *I. giganticaerulea* is usually blue, white forms often emerge from the same plant.

(the bloom of the southern magnolia ranks as the official state flower).

When nature ruled, southern Louisiana boasted one of the grandest displays of spring color to be found anywhere on the North American continent. Early botanical chronicles describe the watery land of what is now Metropolitan New Orleans as a kaleidoscope of color. These same sources report that trainloads of visitors nearly swooned as they traveled between New Orleans and Lake Pontchartrain in response to the surreal displays of color.

Alas, that was then. The problem? Urban sprawl, drainage and pollution of wetlands, coastal subsidence and erosion, incursions of salt water, herbicides, and even exploitation by collectors. All have all contributed to a drastic decrease in native irises. Only two locations now host sizable populations: Cameron Parish in the southwest corner of the state and the Jean Lafitte National Historic Park's Barataria Preserve located near Marrero, across the Mississippi River from New Orleans. [NOTE: Hurricanes Katrina and Rita devastated both of these areas. The storms' impact on irises will be reported in an upcoming issue of Louisiana WILDLIFE Federation magazine.] However, small clumps of Louisiana irises can be observed along drainage channels within populated areas in the southern part of the state. Because of increased publicity, Louisianas are now being marketed by nursery centers, and botanical gardens are increasing their displays. The Baton Rouge Botanic Garden, for instance, has an extensive collection viewable to the public free of charge.

The five species of Louisiana irises are collectively referred to as "Louisianas." All share distinctive traits. For example, the plants require temperate climates with moist, acidic soils—ergo south Louisiana. Individual specimens are usually 2 to 3 feet tall, although records document titans between 5 and 7 feet. Foliage is long and blade-like and springs from a fleshy, shallow underground stem called a rhizome. Irises spread both by seeds and perennial rhizomes, hence the plants naturally grow in





Louisiana's official wildflower can be observed in the marshlands of Cameron Parish where this photo was made, and at the Barataria Unit of the Jean Lafitte National Historical Park and Preserve in Jefferson Parish. *I. giganteaerulea* is the tallest and most abundant of the Louisiana irises. The species can tolerate brackish water, an adaptation making it less vulnerable to hurricane storm surges.

dense clumps. From late March to mid April, mature plants send up a thick bloom stalk, often branched, flaunting 5 to 10 large (3-7 inches across) showy flowers that open sequentially, each lasting only 2-3 days.



Louisiana irises bloom usually in early to mid April. While the species are technically called "beardless irises," they often sport modified pistils that appear as an additional whorl of small petals. White or yellow markings ("signals"), so often common on petals, are thought to guide bumblebees, the irises' principal pollinators, to nectar sources.

Flower parts are "beardless," that is, they do not possess hair-like fringes as do the bearded irises which are the most commonly marketed irises in plant catalogues (see summary following story).

Flower form is unusually diverse, consisting of at least six major elements organized in two alternating whorls: petals (standards) and sepals (falls). Whorls range from open and flaring to arching and pendant. (Characteristically, petals are not as upright as those of the European bearded varieties which served as the model for the fleur-de-lis). Margins may be smooth or crepe-like. Frequently, each flower is augmented with an unusual third whorl: flared styles (a style is the elongate part of the female pistil) or petaloids (extra petals), which vary in length and often have elaborate crests. These are presumed to function as an "umbrella" to protect newly pollinated blooms from rainfall. Occasionally, double and semi-double flowers are produced. Floral colors range from pure white and yellow, to blue, lavender and violet, to orange, rust and red. Some varieties produce bicolored flowers; many sport pronounced "signals," that is, veining or streaking, spray or halo patterns, or blotching-all, presumably, to attract pollinators. Seedpods are large, slightly oblong, and so heavy that they often cause the stalk to bend; when dry, the pods are brown and buoyant in water. A typical pod of a diploid

plant will contain an average of 30 seeds; 10-12 in a tetraploid. Individual seeds are large, brown and typically shaped like a slice of melon; seeds mature within 80-90 days of pollination.

The broad spectrum of flora colors found in Louisiana irises eclipses all other varieties. This uniqueness results from a tendency for the five species to hybridize (cross) amongst themselves. For explanation, two paradigms have been offered. First: bumblebees. Rife in coastal Louisiana, these robust insects are the chief pollinators of irises; consequently, Louisiana irises are relatively fertile. Second: water. With high rainfall (55-60 inches each year) and low topography, land and sea are linked by a dendritic association of swamps, marshes, bayous, rivers, and man-made canals and ditches. The



Seedpod of a cultivated hybrid of *I. giganteaerulea*. Pods can float, making floods and tidal flows the principal means of plant distribution.

rhythm of this topsy-turvy world of mud and water is often punctuated by winter storms and summer hurricanes, many of which produce juggernaut tides that surge far inland. However, although the fields of iris are inundated, the plants possess a tenacious tolerance to water. In fact, seeds take advantage of the opportunity to hopscotch far and wide. The take-home lesson is that south Louisiana is the quintessential habitat for Louisiana irises.

Meanwhile, Louisiana irises have been given an auspicious genetic make over by



man. Enter Mr. Joseph K. Mertzweiler (1920-1997). A native of New Orleans and a retired Baton Rouge research chemist, Mr. Joe exhibited a decided fancy for irises early

considered by many to be the most powerful anti-inflammatory agent known to man. As such, colchicine is employed in the treatment of gout or gouty arthritis (an inflam-

hybrids, worldwide distribution of plants, and public education.

One might presume that plants so provocative would prove finicky to cultivate. Not so. It seems as if the severe conditions of their natural habitats have genetically predisposed the plants for an unusually high tolerance to environments, including non-submerged habitats. Individual plants are relatively resistant to most pests and diseases, also. Because of these adaptations as well as good PR, the hard-knock Louisianas are now cultivated successfully throughout most of the United States and in many other countries. Although Louisiana loses more wetlands each year than any other state, it appears as if the future of Louisiana irises, albeit under cultivation, is secure.

If esthetics and patriotism woo you to garden with Louisiana's technicolor fleur-de-



Many tetraploid (double chromosome) irises developed by native Louisianan Joseph K. Mertzweiler are now cultivated and exhibited in the BREC Independence Park Botanic Garden in Baton Rouge. Each year the "garden" holds plant sales to nurture iris enthusiasts.

in life. As a wee ten-year-old he would often traipse through the mucky swamps north of Lake Pontchartrain collecting irises, which he then transplanted to his family home in New Orleans. As a young adult he began experimenting with traditional methods of cross-pollination within his extensive garden. His goal was to create what technically is termed a tetraploid plant—"tet" for short. Defined as a type of genetic mutant with a chromosome (DNA) constitution double that of normal (diploid), natural tets were what had spawned the diversity in color in Old World bearded irises. No such natural hybrids, however, were ever discovered in Louisianas. Furthermore, laboratory attempts at creating such genetic varieties had always failed. So, in the mid 1960s Mr. Joe—already with a penchant for and training in chemistry—selected colchicine, a poisonous alkaloid originally extracted from the roots and seeds of the autumn crocus or meadow saffron plant (*Colchicum autumnale*), but easily synthesized. The potent chemical is known to inhabit cell division in both plants and animals by interfering with microtubule assembly during mitosis and to produce genetic anomalies or mutations in several non-related groups of plants.

[In the medical field, colchicine is con-

matory disease of the joints caused by the excessive accumulation of uric acid), treatment of certain cancers, management of acute back pain and familial Mediterranean fever, and to retard formation of fibrous or collagen tissue in the body—especially in the liver due to cirrhosis.]

After many failures, in 1973 Mr. Joe finally succeeded in creating two tetraploid irises. The plants were spectacular, and most important, hardy. To honor two botanists at Louisiana State University, Mr. Joe registered the hybrid varieties as "Professor Claude" and "Professor Ike." Other varieties soon followed. (Currently, there are more than 30 tetraploid varieties; all are registered and marketed.) In recognition of his innovative work, Joe Mertzweiler was awarded the prestigious American Iris Society Hybridizer's Medal in 1985. [NOTE: The Society for Louisiana Irises was founded in 1941. Headquartered in Lafayette, SLI is an independent and international organization with nearly 600 members and affiliated with the American Iris Society, established earlier in 1920. These sister organizations promote Louisiana irises by presenting periodic forums for professional discourse, recognition of outstanding members and achievements, research on and registration of new



"Colorific," one of the spectacular genetically altered irises developed by chemist and iris specialist, the late Joseph K. Mertzweiler who developed his first tetraploid iris in 1973.

lis, here are some suggestions. Foremost, plants must be systematically watered, particularly during summer and early fall when they are relatively inactive. Rhizomes must be mulched all year to avoid scorching by the summer sun and freezing during winter. Other requirements include at least a half-day of sunlight, acidic soils (pH 6.5 or

*Continued on page 25*

Transportation and Development and Wildlife and Fisheries. Although addressing this problem is a long-term effort, I am optimistic that it can be fixed for the benefit of this great swamp and the fish and wildlife that depend on it. We also received a positive response from LA DOTD regarding a resolution issuing concern with impacts of highway



Keith Saucier and Clint Mouser reach high to install a bluebird nest box at Coturie Forest in New Orleans City Park as part of the NWF Annual Meeting Restoration Day activities.

construction on stream water quality. Seems that the agency is willing to take extra precautions when scenic streams and sensitive habitat is involved. LWF's resolution calling for the establishment of a Prescribed Fire Council is well on its way to being implemented by a concurrent resolution of the Legislature sponsored at our request by Senator Robert Barham of Oak Ridge. Another, proposing to nominate Drake's Creek in Vernon Parish for designation as a state Scenic Stream has already passed the Legislature thanks to the sponsorship of Senator Joe McPherson of Woodworth. We are continuing to work on some of these and other resolutions adopted at this year's convention and I will have additional information to report on them in future columns.

So, you can see we have been busy and getting a lot done, thanks to your support. I hope next time I will have some good fish stories and other accounts of outdoor adventures to relate. Until then, I am

Yours in conservation,

Terry L. Melancon  
President

*Iris: Continued from page 6*

lower), and heavy fertilization during autumn with manures, compost and/or acidic commercial preparations.

Louisiana irises are a natural for water gardens. Whether in container or in-ground pool, the crucial consideration involves periodic regulation of the water level, which must be kept no greater than 4-8 inches above the rhizomes during the summer, but then dropped to ground level each fall (the reduction encourages seed germination and renewed foliage, which must be water-free since complete submersion for the entire year will usually result in rot of the entire rhizome). Since Louisianas have a limited blossoming season, the water garden should be enhanced with an amalgam of summer and fall blooming aquatics. The verdant, upright foliage then acts as backdrop in a tableau that enables the plants to be enjoyed long past their spring dazzle.

#### Irises Cultivated in Louisiana Gardens

**Louisiana iris** (described above).

**Bearded Iris** (*Iris x germanica* variety *florentina*). Native to Mediterranean region and a popular perennial in most areas of the United States except the Gulf South. Prefers loose, dry, alkaline soils in climates with relatively low moisture and cool to cold winters. Many with large, multicolored flowers in March and April. Foliage silvery green, bladelike and short. The popular old garden "White Flag" does well in Louisiana as a perennial; plants have escaped cultivation and are often encountered in clumps at old homesites.

**Yellow Flag Iris** (*Iris pseudacorus*). Often considered a Louisiana native, but indigenous to Europe, western Asia, and northern Africa. Well adapted to soggy conditions in Louisiana, often escaping and establishing itself in dense stands in marsh-swamp habitats in association with native Louisianas. Blooms (March/April) are yellow and beardless, but sparse in the deep South. Tallest foliage of all irises; plants are often cultivated for the attractive foliage. Plants do well in both sun and partial shade, but are extremely invasive, out-competing most other plants, especially other irises.

**Dutch or Wedgewood Iris** (*Iris xiphium x I. tingitana*). Native to western Europe. Prefers loose, well-drained, alkaline soil.

Flowers (March) beardless in shades of purple, blue, yellow, bronze, and white. Foliage reedlike and short. Repeat bloomers for only 3-4 years along the Gulf coast.

**Japanese Iris** (*Iris kaempferi*). Native to Japan and China. Prefers moist, acid soil and morning sunlight in climates with distinct, cold winters. Flowers (April to early May) crepe-like but beardless, ranging from white to purple. Foliage thin, stiff, and tall. Not for the Gulf coast.

**Siberian Iris** (*Iris siberica*). Native to central Europe and Russia. Prefers moist, acid soil and sunlight or partial shade in climates with distinct, cold winters. Many varieties; flowers (March to April) beardless, on slender stalks, and usually small except in some cultivars; intense colors. Foliage short, grass-like and arching. Not for the Gulf coast.

For additional information on the Louisiana iris see: *The Louisiana Iris: The History and Culture of Five Native American Species and their Hybrids*, edited by Marie Caillet and Joseph K. Mertzweiller. 1988. Published by the Society for Louisiana Irises, Texas Gardener Press, P.O. Box 9005, Waco, Texas 76714.



Perhaps the most unusual member of the Louisiana iris group is *Iris fulva*, the "copper iris." The reddish color of this species was originally unknown in native or cultivated irises in Europe in the early nineteenth century.