Preservation of the Native Species of Louisiana Irises

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A New World in America

The landscape, plants and wildlife that existed in North America before European explorers first arrived in 1492 were wonders to behold. The early explorers were overwhelmed by the diversity of animal and plant species that were unknown to Europe, Asia, and Africa. These discoveries were the first ever in which an advanced civilization had come in contact with a world that had been scarcely impacted by human settlement. These explorers described America as a pristine "Garden of Eden", and almost a world in which mankind could start anew. But in subsequent centuries, settlers brought the ability to make drastic changes to the landscape by altering drainage patterns, or by exterminating whole species by commercial hunting, or by devastating native populations with diseases common in Europe for which they had no immunity. Wide-spread agriculture perhaps had the greatest impact: forests were cleared, swamps were drained, and the diversity of animals and plants was diminished, slowly at first, but accelerating with the invention of tractors and mechanical harvestors. Until then, the population of Native Americans had been relatively small, and the technologies they had available were not sufficient to make major impacts on the landscape and on the native flora and fauna.

Eventually, the passenger pigeon *(Ectopistes migratorius)* became extinct, and the American buffalo *(Bison bison)* and whooping crane *(Grus americana)* very nearly disappeared, and much of the vast prairies and forests had become mono-cultures of corn or wheat. The ancestors of today's ecology and conservation movements began to see that a part of America's "soul" and its image of itself was at risk. So came the beginnings of preservation movements to prevent and reverse at least some of the destruction that our settlement of America had caused. The first national park, Yellowstone, was established in 1872, and included a beginning herd of buffalo.

The preservation movements continued to grow, and in 1891 the first U.S. National Forest was established near Yellowstone. In 1930, Kisatchie National Forest was established in central and northern Louisiana, driven by the efforts of one of the original founders of the Society for Louisiana Irises, Caroline Dormon. Ms. Dormon was among the first ecologists in America, and saw nature as a complex of interwoven species each dependent on diversity for the health of the whole. Dormon also saw and appreciated beauty in nature, and in ornamental gardens, and was a noted watercolor artist. She was a prolific author of books, magazine and newspaper articles, and received an honorary Doctorate from Louisiana State University. Ms. Dormon appreciated also the beauty of hybrid cultivars of Louisiana irises in private and public gardens. Today, she would be concerned about the rapid loss of the native species in the wild, and we believe would be most supportive of our efforts in preservation: we can be both a gardening club which honors its roots, as well as today a preservation movement connected to the broad range of today's environmentalists, naturalists, conservationists and those seeking to mitigate the impacts of wetlands loss and climate change.

The Five Species of Louisiana Irises

There are collectively five species in the *Iris hexagonae* series of Louisiana irises, native only to North America, which readily form hybrids with each other, but not with any other species. *Iris virginica*

is also native to many of the same regions in the eastern United States, but is not cross-fertile with the five Louisiana iris species.

The Louisiana irises include colors from white to blue, to red to yellow, and everywhere in between, and vary in bloom form, height, and bloom period. Even within an individual species, there is substantial color variation. *Iris hexagona*, the first to be named (Walter, 1788), is typically blue, but varies from rare white to very rare purplish-pink. *Iris fulva* (Ker Gawler, 1812) is typically copper-colored, but varies from red to orange to lemon yellow to burgundy-purple. The short and late-blooming *Iris brevicaulis* (Rafinesque, 1817*)*, is most often light to dark blue, but is occasionally white, and a very rare pink. The early-blooming and tall *Iris giganticaerulea* (Small, 1929) also ranges from dark to light blue to white. The exceedingly rare and endangered *Iris nelsonii* (Randolph, 1966), is typically red, but varies from golden yellow to orange to burgundy-red.

These five species are collectively called "Louisiana" irises because only in Louisiana were all five species found; they were most abundant in Louisiana; and the popular hybrids of today trace the vast majority of their ancestry to Louisiana. The first image in print showing a Louisiana iris is in the 1821 watercolor by John James Audubon of the Northern Parula warbler (*Setophaga americana*) perched on a red *Iris fulva*, referred to as a "Louisiana flag". It reached wide public attention in Audubon's "Birds of America", published in volumes from 1827 to 1838 in Edinburgh, Scotland. *Iris fulva* was the first species discovered in the entire Iris genus, worldwide, that was red.

When the early French explorers, beginning with LaSalle in 1687, came down the Mississippi River and into coastal Louisiana in springtime, they saw expanses of color as far as the eyes could see. And even as recently as the 1920's, wetlands that are now the suburbs of New Orleans were covered by a mass of color, as were the coastal marshes and prairies from Texas to Alabama. Today, these irises are threatened by hurricanes, land erosion and subsidence, and especially by agriculture and land development. But there are a few places remaining where you can still see "color as far as they eye can see", as in the San Bernard National Wildlife Refuge (NWR) in Brazoria County, TX, and increasingly in places like Bayou Sauvage NWR near New Orleans. It is the intent of the Society for Louisiana Irises that such protected reserves and arboreta in every U.S. state will once more have similar expanses of their own native irises. And while our emphasis has been primarily on Louisiana irises, it will be appropriate to partner with other like-minded organizations to establish colonies of *Iris virginica* as well.

Diversity of Habitats of the Individual Species

Iris hexagona was named for its distinctive six-sided seed pods. It grows in wet areas in full sun or partial shade along ditches and swamps in sandy soils of high organic matter. The native habitat extends from South Carolina, Georgia, and Florida to coastal estuaries of Alabama. Either *hexagona* is now extinct in Louisiana, or the previously claimed presence in Louisiana may actually have been the fairly similar *Iris giganticaerulea*.

Iris fulva's distribution extends from east Texas, through Louisiana, into the Mississippi River floodplains of Mississippi, Arkansas, Missouri, Tennessee, Kentucky and southern Illinois. Flower color ranges from orange to red to burgundy red. Rare color forms of lemon yellow to purple are found in Louisiana, as well as two-toned yellow and red. Typical habitats are in partial shade in damp areas that are seldom flooded year-round. Bloom period in south Louisiana is usually from late March through early April, and later as one travels north.

Iris brevicaulis is the latest blooming of any of the species, typically from mid-April to mid-May in south Louisiana, and in July in Ohio. Habitat is usually in partial shade in damp but never flooded locations within upland deciduous forests. It is sometimes found within 1000 ft. of *Iris fulva*, but always on higher ground than fulva. This species usually has zig-zag stems, with blooms held lower than the foliage, and with foliage shorter than the other species. Bloom color is found in various shades of blue, to rare white, to very rare pink, with occasional pronounced veining.

In 1929, Dr. John K. Small, of the New York Botanical Garden, named the giant blues and whites of coastal Louisiana *Iris giganticaerulea*. The typical habitat is full sun in marshes, or mostly-sunny swamps, in standing water in winter and spring, to damp or flooded soil in late summer. The range of colors includes subtle shades of blue, lavender, purple, white to pink. Dr. Small also named what is considered by some as a sub-species of *Iris hexagona*, *Iris savannarum*, native through almost all of Florida and portions of southern Georgia and Alabama. Distinct differences between closely related species are contentious among biologists and ecologists. For our purposes, we would agree that the three are subspecies of *Iris hexagona* because they appear similar but occupy different ecology zones and are found in different habitats.

The photo of the author taken in 2020 at the San Bernard National Wildlife Refuge in Brazoria County, TX is an example of what early explorers found all along the Gulf Coast, not just in Louisiana. The straight line of blue *giganticaerulea* might appear to have been planted intentionally. But the line of blooms is at the intersection between standing water in the marsh, and the edge of a road built by dredging decades ago. *Giganticaerulea* prefer constantly wet soils, but generally not more than one foot of submersion. Rhizomes from elsewhere in the marsh floated away and took root at the edge of the road. The rhizomes stay in their "happy place": farther away from the water's edge the soil becomes too dry, and further into the water it becomes too deep. This phenomenon of rhizomes detaching from a clump, floating away and taking root elsewhere, is observed in the author's own home pond. No white irises were planted on the west bank twenty years ago, but there are some now.

The registered iris G06 - 'Ruth Holleyman' was collected in Cameron Parish before Hurricane Audrey devastated the coastal marshes in June of 1957, with prolonged salt-water intrusion. This was the most severe storm to ever hit the Gulf Coast in the month of June when rhizomes are still growing. Had a storm of this magnitude hit in August when rhizomes have become semi-dormant, they might have survived. This giganticaerulea is now extinct in the wild, but is maintained in our collection, and is available from one or two small nurseries. It is especially worth re-establishing in the wild: it has perhaps the largest blooms and the thickest petals of any giganticaerulea.

In 1939, W. B. MacMillan of Abbeville, LA, discovered the stable red natural hybrid of *Iris fulva x Iris giganticaerulea* in a swamp in the south of Vermilion parish. These very large and vigorous reds were initially called just "Abbeville Reds" or "Super Fulvas". In 1966, Dr. L. F. Randolph, professor of botany at Cornell University, named them as a stable species *Iris nelsonii*, for Professor Ira Nelson at the University of Southwestern Louisiana (now the University of Louisiana at Lafayette). This species gets its bloom color of red to orange to golden-yellow to tan from *Iris fulva*, as well as its preference for shade among bald cypress and tupelo forests. From *Iris giganticaerulea* it gets its exceptional height (up to 65 inches), large rhizomes (up to 12 to 15 inches long and 1.5 inch diameter), and preference for standing water. Its native habitat is a "rain swamp" in which water input comes mainly from rainfall, and water flows out but very seldom flows in. This water pattern was presumably conducive to forming stable hybrids

because seeds and rhizomes were seldom introduced from outside the Abbeville swamp. In swamps or marshes with flowing water there is continual new rhizomes and seeds entering from upstream which would make the formation of stable hybrids difficult. This explains why *Iris nelsonii* is rare, and why it became a stable hybrid. It also suggests that finding other habitats to colonize with nelsonii is difficult. Fortunately, at the LSU – Burden Arboretum in Baton Rouge, and at Mercer Arboretum in Houston, there are locations (smaller than the Abbeville swamp), yet with similar isolation from flowing rhizomes or seeds.

These irises almost immediately became a focus of amateur hybridizers seeking to emphasize particular features and colors, with crosses from collected variants of *Iris giganticaerulea* and *Iris brevicaulis*. Unfortunately, in an excess of enthusiasm, wagon-loads of rhizomes were removed from their native habitat: the need for very modest and judicious collecting only for future re-colonization was not recognized in the 1940s. There is no justification today for removing any nelsonii from its remnant populations in the Abbeville swamp except for scientific study. (There are ethical opportunities to rescue fulvas, giganticaerulea, hexagona and brevicaulis from roadside ditches or sites about to be cleared for construction.). Producing more nelsonii can be achieved by reproduction from the unique clones already in preservation collections, or by on-purpose pollination from previously collected specimens. The winter 2024 article in the journal of the SLI, the *Fleur de Lis*, covers recent work by Kent Benton. He is using selective cross-pollination of the existing nelsonii that are considered "pure nelsonii", to match the detailed description of Dr. Randolph of the large blooms and wide range of colors he had documented. He is getting progress towards re-achieving the full range of form and color that existed in 1939. That work is possible today because the second generation of collectors in the 1970s to 2000 or so, chiefly Benny Trahan, Buddy Manuel and Patrick O'Connor preserved specimens and documented their locations of origin: their collections form the foundation for most of our collection of nelsonii and and fulva. Benton's own rescues since about 2015 of fulvas and brevicaulis from the Louisiana parishes north of New Orleans and east of the Mississippi River have added considerable diversity in color and form of those species.

Most of the genetic origins of the extraordinary range of color and form of modern hybrids comes from *Iris nelsonii*, understandly so since the inherent hybrid genetics from fulva and giganticaerulea give a much wider gene pool than starting from the more ancient species. The first generations of hybrids had flower petal form not much different from the species. But eventually came the deeply ruffled, multi-color, deeply-veined flowers of greater petal substance that were present deep within the genes of the species, only waiting to be emphasized by subsequent hybridizers.

Species Definitions

The definition of a species is a concept originated by scientists in establishing nomenclature order in plants and animals. In most mammals, the biological definition is straightforward: the off-spring of a horse and an ass is a mule, which is infertile. So, a mule is a hybrid, and horses and asses are species. But sometimes plant species are unique to particular eco-systems, and have developed over centuries for particular adaptation to unique habitats. All five of the Louisiana iris species readily cross with each other, and are fertile, but not with *Iris virginica* or other non-Louisiana iris species. There is some academic controversy regarding whether *Iris nelsonii* is a species, or a stable hybrid of two species. And there is some controversy over whether or not *Iris giganticaerulea* is a species distinct from *Iris hexagona*, although they have different habitats: *giganticaerulea* is native to clay soil, and *hexagona* to

sandy soils. If you followed strictly the horse x ass = mule biological example, some would say, since all Louisiana iris crosses are fertile, they are all *Iris hexagona*, with *brevicaulis, fulva*, etc. as sub-species.

But from the perspective of preservation, our focus is on preserving the genetic diversity of color, form, habitat and geographic origin of species or sub-species which are all mutually fertile. It is not sufficient for our efforts to preserve only the copper-red color of the most prevalent *Iris fulva*, but also to preserve the naturally-occurring lemon-yellow, gold, orange, deep red, purple and two-toned variants. And we consider it worthwhile also to preserve the color variants in *Iris giganticaerulea* from white to various shades of blue, purple and pink, and petal forms including cartwheel shapes. We seek especially to preserve variants that are now extinct in the wild, including the *Iris giganticaerulea* registered as 'Ruth Holleyman', collected in Cameron Parish, LA, but now extinct in the wild following the prolonged salt-water intrusion after Hurricane Audrey in 1957. (It is noteworthy that Hurricane Audrey was the most damaging tropical storm ever to strike the mainland U.S. coast in the month of June when Louisiana iris rhizomes have not yet become semi-dormant. Dormancy from July to October protects rhizomes from the stress of drought, and perhaps detrimental effects of salt-water too.)

Similarly, *Iris savannarum* is considered either a species of its own, or by many, as a subspecies of *Iris hexagona*. But *Iris savannarum* has a much wider distribution in Florida, and while the blooms are similar, the bloom times vary by a month, so it is sufficiently distinct to merit preserving as a distinct subspecies.

Geographic Distribution

One or more species is native in 17 states and the province of Ontario, from Texas to Florida, to South Carolina, up the Mississippi River delta through Arkansas, Missouri, Illinois, and into the Ohio River Valley, the southern tip of Ontario, Canada, and islands in Lake Erie. Iris rhizomes of all five species, as well as their seeds, float so they were easily distributed along the Gulf of Mexico and south Atlantic coasts by storms and floods, and throughout the Mississippi River valley. The USDA BONAP maps for each species show a remarkably wide distribution for a native plant that has been assumed by many to be almost only native to Louisiana. (The map for Iris nelsonii is omitted since it is found only in one small swamp in Vermilion Parish, LA.)

The USDA BONAP map for *Iris fulva* shows an interesting feature in that it is much more prevalent on the western portions of the Mississippi River delta than on the eastern. Baton Rouge is on the east bank, and was settled at the first spot coming up the Mississippi River that did not flood in the Spring, and did not need levees. North of Baton Rouge, the western bank is very noticeably lower than the eastern bank, often by 150 feet or more. And Vidalia, LA is noticeably lower than Natchez, MS, and West Memphis, AR is noticeably lower than Memphis, TN. Since iris rhizomes and seeds float and are distributed by flooding in the Spring, they are readily carried from the higher elevations of the eastern bank to the western bank, but seldom in the reverse direction. *Iris fulva* is prevalent in the Atchafalaya basin which in previous millennia was the path of the Mississippi River. *Iris fulva* is also distributed along the Red River which flows into the Mississippi.

We may not ever know where the ancestors of today's Louisiana iris species first originated. Since they are all cross-fertile, it is reasonable to assume they all have one common ancestor. If we consider that Louisiana is at the end of the Mississippi River delta, and at the northern center of the coast of the Gulf of Mexico, and that water flows down-hill along the Mississippi from north to south,

and is distributed east and west by tides along the Gulf, it is plausible that Louisiana irises originated in the northern reaches of the Mississippi River. The *Iris fulva* that are in southern Illinois, and the *Iris brevicaulis* that are on islands in Lake Erie, could not have readily migrated from Louisiana northward, against the current of the Mississippi River. The *Iris hexagona* in South Carolina and Florida appear similar to the *Iris giganticaerulea* in Texas and Louisiana. There may have been a time in the distant past when rhizomes or seeds could have flowed in either direction from the Atlantic Ocean connection of St. Mary's River in Florida/Georgia through the Okefenokee Swamp basin to the Suwannee River in Georgia, and into the flood plains of the Gulf of Mexico and then as far as Texas.

The Species Preservation Project Approach

Beginning in the 1940's, about coincident with the founding of the Society for Louisiana Irises (SLI), and soon after the discovery of the "Abbeville Reds", naturalists including Caroline Dormon and Dr. Ira Nelson, horticulture professor at the Southwestern Louisiana Institute (now the University of Louisiana at Lafayette), began informal collecting in the swamps and prairies of Louisiana. This effort continued through the first decade of 2000 with SLI members Benny Trahan and Buddy Manuel and others assembling large private but largely disconnected collections. Eventually, a few members of the Society, including Kent Benton (of Livingston, LA) and five other stewards, in about 2015 began an organized effort to establish Preservation Stewards at five different geographic locations, and to expand the collections to include specimens from every state in which they were native. These collections today total 190 distinct variants among the five species, and are maintained by individual volunteers, at their own expense and effort. (Some stewards have funding from their local organizations.) These collections are in Baton Rouge, LA (Charles Perilloux), in New Orleans (Patrick O'Connor and the Greater New Orleans Iris Society), in Cleveland, TN (Dr. Brian Shamblin), at the Coastal Georgia Botanical Garden in Savannah (Stan Gray), and at the Houston, TX Mercer Arboretum (Jeff Heilers and Christy Jones). These locations are spread out over 900+ miles to minimize the potential that one common catastrophe, such as a hurricane, flood, plant disease, or severe cold spell could destroy the entire collection if concentrated in a single location. (After the severe flooding of Mercer Arboretum from tropical storm Ike in 2008 which devastated their Louisiana iris hybrid collections, that was not just a hypothetical risk.)

Mission Statement for the Preservation of Louisiana Irises

- To collect and preserve the genetic diversity in geographic origin, habitat, color, and form of each of the five native species in private collections, in perpetuity
- To establish colonies in the wild in protected reserves, arboreta or botanic gardens, available for public view, in every state in which they were once native

Role of Preservation Stewards

The Preservation Stewards are individually responsible to

- maintain one or more pots or clumps of each variant, indefinitely, as long as they are able
- to donate the intact collection to a replacement Steward, when no longer able
- to share excess rhizomes with other Stewards who do not yet have that variant
- to obtain additional specimens in their region to increase the size and geographic diversity of the collection

- to annually photograph each specimen during bloom season to verify that each Steward has the correct identification
- to annually conduct an inventory of their collection to identify gaps, and provide surplus to other Stewards, as well as identify variants which are not sufficiently vigorous for re-colonization endeavors
- to provide starting rhizomes for further propagation to establish colonies in protected reserves available to naturalists and the public

Summary of the Collection, by States

The beginnings of the collection included only irises from the state of Louisiana, so there are more variants, and diversity, from Louisiana than from any of the other states. Today's collection includes 75 variants from other states as shown below. We expect further additions from the "hybrid swarm" of the Brazos River Valley in Texas, and the Florida *hexagona* to add to these totals.

The website iNaturlist.org is an extraordinary resource showing sightings of all plant species on maps for each state, pinpointing the locations of photos of specimens in bloom. (The total sightings of all plant species in the United States exceeds 100 million, with photos tagged to GPS locations(!)) In particular, there are numerous observations of *Iris hexagona* in central and southern Florida, as well as coastal Texas (which we call giganticaerulea). There are also numerous sightings of *Iris brevicaulis* and *Iris fulva* in Mississippi and Alabama, both states which are so-far under-represented in our collections. Continued searches in Georgia and Arkansas will result in growth in the total collection from those states. *Iris hexagona v. savannarum* in central and south Florida will be a fertile field for further exploration and collection, and the Okefenokee basin of Georgia likewise.

I encourage any of our readers or visitors to our website to use iNaturalist.org and alert us to sightings in the wild of any of the Louisiana iris species. We especially welcome both photos and seeds to add to our collection. Be respectful of private property. Federal lands and employees are cooperative if they see you share their commitment to preservation, but they are protective in preventing digging up plants without permission. Shown are the numbers of variants of the five species from each state:

Number of distinct variants by species and state

	Hexagona	Brevicaulis	Fulva	Giganticaerulea	Nelsonii	Sub-Total
Louisiana		42	34	12	25	113
Texas		14		3		17
Florida *	35					35
Arkansas			6			6
Missouri			3			3
Alabama	1	2				3
Mississippi				1		1
Illinois		2	2			4
Ohio		2				2
South Carolina	2					2
Georgia		2				2
					Grand Total	188

* Only a portion of the *hexagona* recently obtained from Florida have bloomed so far. Since these were in pots close to other Louisiana irises, and had not been carefully maintained for a few years, it is likely that there will be some accidental seedlings pollinated by bees from non-hexagona pollen-parents. If so, these will be removed from the collection.

Propagation for Establishing Colonies in Protected Reserves

When opportunities arise for establishing colonies in the wild, the demand is often for 50 to 300 rhizomes. But individual stewards typically maintain only 3 to 5 rhizomes of each variant. So, we are seeking assistance from other members, or small commercial nurseries, to propagate larger quantities for establishing colonies in protected reserves. That takes planning, and time, since rhizomes might typically triplicate every year under ideal conditions. Going from 5 to 50 would take 2 to 3 years on average, less time for the more vigorous *Iris giganticaerulea,* and more for the less vigorous *Iris fulva*. And since the objective is to establish colonies whose origins were in the same ecosystem, targeted propagation takes a coordinated effort.

Christy Jones and Jeff Heilers at the Mercer Arboretum in far northern Harris County have recently received a grant from the Garden Club of Houston for propagation of species irises. That is a very good start, particularly for Houston-area protected reserves, and for other public gardens in the greater Houston area. The relatively new Houston Botanic Garden in the far south of Harris County (Dr. Francisco de la Mota, and Brent Moon) is also developing a focus on native plants, and a relationship with the San Bernard NWR. The key to planting colonies in protected reserves is first establishing a level of trust with the owners of the land. Both public agencies and private landowners can be very cooperative if they believe they are working with fellow naturalists and preservationists who share some of their own passion.

Native Plants

There is a growing movement to promote the use of native plants in home and commercial landscapes and parks. Native plants require less maintenance in our own ecosystems because they adapted to our conditions over millennia. But what do we mean by "native plants"? Aren't all plants "native" to somewhere? For some, "native" means from North America, not Asia or Europe. But for us, we mean plants that are native to your own ecosystem and watershed, and to your immediate area of adjoining counties. The Mississippi River Valley between the southern tip of Illinois and Baton Rouge, is one watershed. But west of the Atchafalaya basin is another watershed, and 50 miles east of Baton Rouge is a different watershed. And the Brazos River valley of Texas, and is hybrid swarm of giganticaerulea is distinct from the coastal marshes further east in Louisiana. Part of this effort is showcasing examples of Louisiana irises that are also native "Texas" irises, and "Florida" and "Arkansas" and "Illinois" irises too.

Recent Additions from Florida and Texas

The Atlantic coastal states from Florida to South Carolina have climates very compatible with Louisiana irises, but are under-represented in the membership of the Society for Louisiana Irises. Until recently, our collection has included only six variants of *Iris hexagona* from Florida, Georgia, and South Carolina. A few years ago, we added 30 distinct variants from the large collection of Florida natives that had been assembled over decades by a retired naturalist, Vic Lambou. All of these have been added to the collections in Savannah, GA, and Cleveland, TN, and partial collections in Baton Rouge, New Orleans, and Houston. Since these had received minimal care in recent years, some of these might be un-intended seedlings that will be removed from the permanent collections.

The Brazos River valley was the first center of English-speaking settlers in Texas. Stephen F. Austin, fluent in Spanish and a naturalized citizen of Mexico, was attracted in 1821 by the Mexican government with land grants at very low cost. When a later government introduced a new constitution with less protection of property rights, the new republic of Texas was formed in 1836 at Washington on the Brazos. This 1000 mile-long river passes through the campuses of Baylor University, and Texas A&M, and empties into the Gulf of Mexico about 50 miles southwest of Houston. The lower river valley is known to have a natural "hybrid swarm" between native *giganticaerulea* and *brevicaulis*. The peak bloom periods of these two species differ by a month, with less than a week of overlap, so the opportunity for pollination to form hybrids is short, making such hybrids a very unusual phenomenon. Some of those were already part of our collections in 2020. The Houston Botanic Garden has now obtained seeds and rhizomes from the San Bernard National Wildlife Refuge for propagation and eventual use in the landscapes of public gardens in Texas, as well as adding those to the preservation collection.

Adding these natives to public gardens in those states will increase awareness that these are "Florida irises" and "Texas irises" too.

Establishing Colonies in Protected Reserves

One of the great success stories of conservation in recent years in Louisiana was the return of the whooping crane (*Grus americana*) and the Louisiana black bear (a subspecies of *Ursus americanus)*. The

whooping crane very nearly became extinct through-out North America but was rescued by captive-breeding of a remnant population, and gradual assimilation into the coastal plains of Louisiana. The black bear had once been native to the swamps and woodlands of Louisiana. Photos of President Theodore Roosevelt show him hunting bear in Louisiana in 1907, but by 1980 there were almost none remaining, partly due to hunting but mainly due to habitat loss. Captive breeding, followed by gradual adaptation to the new habitat, has resulted in stable and growing populations of both species on private, but now protected, as well as state and federal lands.

The comparison with plants is not exact since animals move around and plants generally stay put. But that effort has been inspirational to our efforts. For decades Louisiana drivers could purchase license plates with the slogan "Save the Louisiana Black Bear", with proceeds going to its conservation. One does not "Save" a mammal or bird by placing them in zoos, although that might be a step in the path. We saved the black bear by protecting habitats, including travelling routes between habitats, then gradually re-introducing black bear. Likewise, we have not saved Louisiana irises by placing them in private collections, or even in formal botanical gardens, but ultimately only by returning them to self-sustaining habitats which do not require human intervention after a few years.

The first criterion for colonies is they must be in suitable habitats, similar to that in which they were found. That usually means shady in the summer and sunny in the winter for all except sun-loving *giganticaerulea*, and in a shallow depression that retains not necessarily standing water, but more moisture than the general area. The species have done well on their own for thousands of years since the last Ice Age, so match the habitat and these colonies will multiply. They can withstand a drought in late summer, and will spring back to life with autumn and winter rains.

We have begun to establish plantings of the species native to individual states. In Houston, TX, in 2020 we planted *brevicaulis* originally collected in Jasper and Harden counties of Texas, plus *fulva* from Louisiana, in the woodland section of Rienzi House museum, on Buffalo Bayou immediately outside the formal gardens. We plan to establish additional plantings of *brevicaulis* from the Brazos River Valley, about 50 miles southwest of Houston. We have also planted *brevicaulis* and *fulva* at two arboreta administered by Louisiana State University in Baton Rouge, LSU - Hilltop with 17 acres of woods, ravines, and prairie, and LSU - Burden with 450 acres of forests and swamp that is flooded in the winter, and often goes dry in the summer. These were planted at five locations with rhizomes from our collection that were all collected in the six parishes immediately adjacent to Baton Rouge. At Savannah, GA, Steward Stan Gray at the Coastal Georgia Botanic Gardens has large plantings of the Louisiana iris species. Strictly speaking, that garden is not a wilderness area since it is maintained to the high level expected by visitors to a large public garden. But it will have a role in establishing awareness from South Carolina to Florida of their own *Iris hexagona* and *Iris savannarum*.

The Mercer Arboretum has had a long history with the Society for Louisiana Irises. The gardens had an exceptional collection of hybrids starting in the mid 1980s, originally donated by SLI founder Marie Caillet, and Houstonians William Dean Lee and Josephine Shanks. Tropical storm Ike in 2008 caused widespread severe and long-lasting flooding in Houston. Most of their 800 acres of varied habitats and formal gardens was submerged and almost all the iris plantings were lost. But in an astonishingly short time, the habitat has been renewed, and the gardens restored and expanded. The species preservation collection is in its own area, in pots and protected, but intentionally unavailable for public view. There are diverse habitats now being selected for plantings of the species for public display. These will have signage identifying these plantings as Texas natives, with *brevicaulis* and *giganticaerulea*

coming from East Texas and the coastal plains southwest and southeast of Houston. Mercer as a park free of admission fees has a high daily visitation by children in strollers, dogs on leash, joggers, birders, and naturalists enjoying a respite from the hectic large city. This makes Mercer an ideal place to expose a broad public to conservation of plants that are truly native to counties immediately adjacent to their own. The depressions in the land are water-filled in the winter, and semi-dry in the late summer. The iris rhizomes will naturally migrate about 6 inches each year, and move to their "happy-place" of the right amount of water.

There are other preservation efforts underway by the SLI or allied organizations. The Greater New Orleans Iris Society has established plantings of *Iris giganticaerulea* along elevated walkways in the Bayou Sauvage National Wildlife Refuge, and both the SLI and the Louisiana Iris Conservation Initiative, LLC, have established plantings of the very rare *Iris nelsonii* at Louisiana's Palmetto Island State Park. This park is only a few miles away from the original habitat, and in a natural cypress swamp, the same watershed, and the same ecology zone. The native habitat is today surrounded by fields growing sugar cane, and most of the original habitat has changed, but the state park is on land that has never been farmed. Our SLI president, Mark Schexnayder, is discussing with state and federal agencies, and with the dozens of family heirs, tax incentives for environmental easements which would protect this habitat.

The horticulture faculty at what would later be called the University of Louisiana - Lafayette were very involved in nurturing the fledgling Society for Louisiana Irises. The species *Iris nelsonii* was named in honor of Dr. Ira Nelson. There is still a natural cypress swamp on campus of about 3 acres that is very well maintained, yet natural in appearance. It is in a high visibility spot, readily available for public view. With the enthusiastic cooperation of the university president, Dr. Savoy, invasive species such as *Iris pseudacorus* are being removed, and it will once again become the most readily accessible showplace display of the rarest and most endangered of the species.

Strategy for the Future: Alliances with Like-Minded Organizations

Practically every traditional garden club in America is declining in membership. The American "Garden Club Movement" and many historic preservation efforts, were founded by well-educated and public-minded women. (The very first garden club in America was the Ladies' Garden Club of Athens, GA, founded in 1891. In 1913, the Garden Club of America was formed by federated state garden clubs.) They found uses for their leadership skills in a time when professional careers were almost exclusively open only to men. So we owe the preservation of George Washington's Mount Vernon to its "Ladies", and the Garden Club of Virginia and many other states to that same impulse. Today, two-career families are typical, and gardening can be seen as a time-demanding luxury. But environmental preservation today has broad and increasingly strong support.

The long-term strategy of the Species Preservation Project is to establish alliances with like-minded organizations. Local chapters of Master Gardeners, along with local Master Naturalists, and members of The Audubon Society, and bird watchers, are ideal allies. As too is the Nature Conservancy and other non-profit and for-profit organizations involved in coastal restoration. Seriously committed, amiable lovers of gardens and nature are a good fit for our own preservation efforts.

We see ourselves as still a garden club that recognizes and honors its roots, but just as much today a conservation and preservation organization. Most of "Generation Z" might think of gardens as work, whereas earlier generations viewed gardening as relaxation. But joggers and hikers most often see

good stewardship of our environment as important to our future. One of our allied organizations and SLI member Gary Salathe welcomes college students to come down to New Orleans to plant irises for wetlands preservation. They get "service hours", and I guess some partying in New Orleans. But they seem genuinely interested in "saving the world", or at least a part of our natural heritage. We are tapping into that energy – and without abandoning our own hobby gardens and public botanical gardens.

There are people who came before us who made lasting contributions to our communities, to our states, to our country, to our environment. We honor those who saved the once almost dead and eutrophic Lake Erie, the American buffalo, the whooping crane, the wild ducks that almost vanished, the white-tailed deer. The Mercer family of Houston gave their property for what became an arboretum, as did the Burden family and Emory Smith in Baton Rouge, and philanthropists in New Orleans endowed Longue Vue Gardens. Each state and each section of our country has plenty of similar examples. Each of us can make smaller, yet lasting contributions, to our own communities and environment. Preservation of native plants and wetlands is part of our mission today.