

2015 LANDSCAPE AWARDS

INSTITUTIONAL CATEGORY - PART I

ARCHBOLD BIOLOGICAL STATION



The Florida Native Plant Society Landscape Awards Program

The use of native plants in restorative and traditional landscapes is recognized through the annual FNPS Landscape Awards program. To qualify for consideration, landscapes must contain a minimum of 75% Florida native plant species and be free of any plants listed as Category I and II invasives by the Florida Exotic Pest Plant Council (FLEPPC). Other criteria for receiving an award include the fulfillment of specific goals, creation or maintenance of species diversity, on-site preservation of existing native plants, relationships to local native plant communities, creative solutions to significant obstacles, and the existence of an educational component that benefits those visiting the landscape.

This year, at the FNPS Annual Conference in Tallahassee, Florida, Archbold Biological Station and the Florida International University Nature Preserve were granted Awards of Excellence in the Institutional Category. We honor both of these institutions for their commitment to Florida's native plants.

Archbold Biological Station: Pre-existing conditions and on-site preservation of existing native plants

Archbold Biological Station, a not-for-profit established in 1941, is dedicated to research, conservation, and education (www.archbold-station.org) and is listed as a National Natural Landmark by the U.S. Department of Interior.

The 2.79-acre project site at the Archbold Learning Center and Lodge and the adjacent 0.69-acre Archbold Expeditions Plaza parking area are located within the 12-acre campus of Archbold Biological Station, itself embedded within an 8,840-acre nature preserve.

The project site was deliberately restricted to land that was cleared before 1930, to avoid any impacts on the surrounding globally imperiled Florida scrub habitat, or on its many rare plants and animals (including 19 federally listed species). In 2010, the site was cleared of concrete and asphalt parking, dumpsters, an old tennis court, an abandoned grove, and a stand of non-native bamboo.

Four existing patches of native plants were retained, including a 0.217-acre area of mixed trees and shrubs, which was prescribe-burned. These palmettos and trees screen the buildings, creating continuous native landscaping views along the Main Drive entrance. Twenty oaks, pines, and palms were



Figure 1: Native landscaping at Archbold Biological Station's Learning Center and Lodge fulfills goals for natural beauty, conservation, sustainability, and learning opportunities.

Figure 2: Rain gardens in the Archbold Expeditions Plaza act as seasonal wetlands, holding the first flush of stormwater from surrounding parking and incorporating a winding path and signage for Archbold's historic "Walk Through Time".

Figure 3: A floristically diverse landscape, inspired by native dry prairie, has been planted on higher elevations.

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saved, but 3 laurel oaks and 2 mature pines were harvested, and their wood was used for furniture and displays.

Native landscaping design concepts, goals, and species diversity

To achieve 100% native landscaping, 78 species were planted (15 grass/sedge, 54 forb/shrub, and 9 trees), totalling 14,196 individual plants, all native to south-central Florida. This created a landscape that neither restores nor replicates the original Florida scrub, scrubby flatwoods, or cutthroat wetlands, but derives inspiration and pays homage to these native plant communities found originally on-site. Landscaping includes 1.115-acres of new planting in 2011, surrounding the Learning Center and Lodge, and 0.220-acres planted in the Archbold Plaza in 2012, totalling 1.553-acres.

Using the concept of right plant, right place, five planting communities were designed by Archbold staff and our designer/contractor, The Natives, Inc. (see Plant List). Species were selected, and plans customized, to meet the criteria of firewise, elevation, topography, and soil type (Immokalee sand, Basinger fine sand) heavily modified by 3' of fill (sand), former concrete paving, and construction debris. Species included perennial bunchgrasses and clonal shrubs, designed to hold the ground and resist establishment of invasives, interspersed with annual seeders, to meet the goal of a self-regenerating landscape that will endure over time.

Dry Prairie. A dry prairie surrounds both buildings in well-drained sandy soils planted with bunchgrasses such as wiregrass and lopsided Indiangrass, and wildflowers native to Florida's dry prairies that include blazing stars, pineland purple, and bluecurls. Areas with more fill and well-drained sandy soils were also planted with scrub flowers such as scrub blazing star, October flower, and manyflowered beardtongue. Soils over septic tanks are shallow and planted with species that can survive even drier conditions, including gopher apple, or those that are rhizomatous, such as twinflower and grassleaf goldenaster, surviving by rooting in deeper soils adjacent to the tanks.

Shrub Islands are interspersed throughout to welcome wildlife and provide structural diversity. Species that offer food and nesting sites for birds and insects were added, using scrub oaks such as sand live oak and myrtle oak as dominants, but also adding tough buckthorn and rusty staggerbush.

Mesic Flatwoods. Trees, shrubs, and grasses planted on strips next to the parking area provide a transition to natural vegetation to the west. These plants occur mainly in xeric to dry mesic Florida scrub, including saw palmetto, tough buckthorn, beautyberry, South Florida slash pine and sand live oak.

An Ecotonal Prairie was created to include a gradient from relatively dry soils to a lower area that is seasonally flooded, receiving water draining from higher elevations. It is

planted with hydrologically appropriate species depending on slope position, reflecting the concept that a little elevation goes a long way. Areas with shade under louvres or retained trees were planted with shrubs and groundcover adapted to shade such as beaked panicum and Carolina jessamine, the latter screening a west facing window.

Seasonal Wetland. Retention ponds were deliberately engineered with variable topography, and planted with species selected for varying levels of soil moisture and water depths over time. The deepest areas that hold water nearly year-around were planted with white waterlily, duck potato, and pickerelweed. The slopes received grasses and frogfruit that grow naturally on seepage slopes. A novel engineering feature, a large, shallow littoral zone, was planted with Baldwin's spikerush, (a fine spreading sedge), whitehead bogbutton, and numerous other species that can survive moist soils and occasional flooding.

Plant establishment and maintenance

More than 14,000 plants were grown during 2010-2012 by The Natives, Inc. in their nurseries in Davenport, Florida. Native Green Cay Nursery donated slash pines.

Plant establishment required creative solutions to significant barriers. Before and during construction (2009-2011) the site was disked and repeatedly herbicided to be invasive-free. After construction, soils from fill or excavated from the retention pond with pH 6.05 to 7.99, had to be top-dressed with pelletized sulfur to decrease pH closer to the native pH 4.5-6.0. Planting holes received a small amount of organic fertilizer with minor nutrients, and plants were installed at or slightly above the soil line to avoid rot. PAM12 Plus was scattered on erosion-prone slopes. The area was mulched with pine straw shipped from a Georgia plantation and guaranteed to be free from invasive plants. After one year of temporary irrigation with above-ground pipes for establishment, the site receives no irrigation, fertilizer, or mulch, meeting our design criterion of a prairie that needs only sun and rain. A maintenance crew from The Natives comes 2-3 times a year to spot-spray weeds and to pull weeds by hand. Additional wiregrass plants were added in 2013 and Archbold planted 144 shrubs in 2014 to replace acid-loving rusty staggerbush and Darrow's blueberry that died. In the future, prescribed patch burns may be used for maintenance to mimic nature.

Native landscaping was essential for the project to achieve LEED Platinum® designation, the highest award for green buildings, and only the 12th such award for a commercial building in Florida. It contributed to meeting LEED criteria for a sustainable site and for water efficiency, such as using ¾ million gallons less water annually than typical irrigation. Seasonal ponds reduce the area needed for retention, lower nutrient runoff, and increase groundwater recharge. The site was also

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**Plant List: Archbold Learning Center and Lodge
Species by Community Type**

Common Name	Scientific Name	Numbers	Subtotal
Ecotonal Prairie			
Wiregrass	<i>Aristida stricta</i> var. <i>beyrichiana</i>	60	
Broomsedge and chalky bluestem	<i>Andropogon glomeratus</i> var. <i>glaucoptis</i> <i>Andropogon virginicus</i> var. <i>glaucus</i>	60	
Longleaf panicum	<i>Panicum longifolium</i>	60	
Florida tickseed	<i>Coreopsis floridana</i>	60	
Slender blazing star	<i>Liatris gracilis</i>	60	
Dense blazing star	<i>Liatris spicata</i>	60	
Wedgeleaf button snakeroot	<i>Eryngium cuneifolium</i>	59	
Pineland chaffhead	<i>Carphephorus carnosus</i>	16	
Water cowbane	<i>Tiedemannia filiformis</i>	59	
Starrush whitetop & giant whitetop	<i>Rhynchospora colorata</i> & <i>R. latifolia</i>	12	
			506
Seasonal Pond			
Chalky bluestem	<i>Andropogon virginicus</i> var. <i>glaucus</i>	347	
Shortspike bluestem	<i>Andropogon brachystachyus</i>	377	
Muhly grass	<i>Muhlenbergia capillaris</i>	299	
Frogfruit	<i>Phyla nodiflora</i>	291	
Sand cordgrass	<i>Spartina bakeri</i>	280	
American white waterlily	<i>Nymphaea odorata</i>	3	
Pickerelweed	<i>Pontederia cordata</i>	22	
Duck potato	<i>Sagittaria latifolia</i>	16	
Scarlet rosemallow	<i>Hibiscus coccineus</i>	2	
Prairie iris	<i>Iris hexagona</i>	2	
Edison's St. John's-wort	<i>Hypericum edisonianum</i>	25	
Baldwin's spikerush and whitehead bogbutton	<i>Eleocharis baldwinii</i> <i>Lachnocaulon anceps</i>	995	
			2,704
Dry Prairie			
Wiregrass	<i>Aristida stricta</i> var. <i>beyrichiana</i>	3143	
Elliott's lovegrass	<i>Eragrostis elliotii</i>	785	
Purple lovegrass	<i>Eragrostis spectabilis</i>	787	
Beaked panicum	<i>Panicum anceps</i>	1282	
Lopsided Indiangrass	<i>Sorghastrum secundum</i>	1433	
Splitbeard bluestem	<i>Andropogon temarius</i>	10	
Butterfly milkweed	<i>Asclepias tuberosa</i>	110	
Yellow buttons	<i>Balduina angustifolia</i>	9	
Florida paintbrush	<i>Carphephorus corymbosus</i>	150	
Pineland purple	<i>Carphephorus odoratissimus</i> var. <i>subtropicanus</i>	128	
Partridge pea	<i>Chamaecrista fasciculata</i>	132	
Twinflower	<i>Dyschoriste oblongifolia</i>	136	
Tall elephantsfoot	<i>Elephantopus elatus</i>	146	
Rayless sunflower	<i>Helianthus radula</i>	73	
Slender blazing star	<i>Liatris gracilis</i>	127	
Shortleaf blazing star	<i>Liatris tenuifolia</i>	93	
Chapman's blazing star	<i>Liatris chapmanii</i>	28	
Gopher apple	<i>Licania michauxii</i>	218	
Grassleaf goldenaster	<i>Pityopsis graminifolia</i>	179	
Sandhill wireweed	<i>Polygonella robusta</i>	8	
Bluecurls	<i>Trichostema dichotomum</i>	56	
Manyflower beardtongue	<i>Penstemon multiflorus</i>	16	
Garberia	<i>Garberia heterophylla</i>	13	
Scrub blazing star	<i>Liatris ohlingerae</i>	40	
October flower	<i>Polygonella polygama</i>	8	
Carolina jessamine	<i>Gelsemium sempervirens</i>	20	
Scrubland goldenaster	<i>Chrysopsis subulata</i>	44	
			9,174
Dry Prairie/Scrub			
American beautyberry	<i>Callicarpa americana</i>	4	
Garberia	<i>Garberia heterophylla</i>	6	
Atlantic St. John's-wort	<i>Hypericum tenuifolium</i>	45	
Gallberry	<i>Ilex glabra</i>	2	
Rusty staggerbush	<i>Lyonia ferruginea</i>	43	
Coastalplain staggerbush	<i>Lyonia fruticosa</i>	0	
Fetterbush	<i>Lyonia lucida</i>	0	

Darrow's blueberry	<i>Vaccinium darrowii</i>	10
Adam's needle	<i>Yucca filamentosa</i>	22
Saw palmetto	<i>Serenoa repens</i>	52
Chapman's oak	<i>Quercus chapmanii</i>	3
Pygmy fringetree	<i>Chionanthus pygmaeus</i>	1
Tough buckthorn	<i>Sideroxylon tenax</i>	20
		210

Landscape Trees in Prairie		
Myrtle oak and Scrub oak	<i>Quercus myrtifolia</i> <i>Quercus inopina</i>	16
Turkey oak	<i>Quercus laevis</i>	5
Bluejack oak	<i>Quercus incana</i>	2
		23

West Mesic Flatwoods/ West Parking		
American beautyberry	<i>Callicarpa americana</i>	91
Coral bean	<i>Erythrina herbacea</i>	3
Muhly grass	<i>Muhlenbergia capillaris</i>	91
Sand live oak	<i>Quercus geminata</i>	91
Myrtle oak	<i>Quercus myrtifolia</i>	91
Tough buckthorn	<i>Sideroxylon tenax</i>	91
Sand cordgrass	<i>Spartina bakeri</i>	91
Saw palmetto	<i>Serenoa repens</i>	90
		639

Large Landscape Trees in Prairie and Flatwoods		
Cabbage palm	<i>Sabal palmetto</i>	15
Sand live oak	<i>Quercus geminata</i>	13
South Florida slash pine	<i>Pinus elliotii</i> var. <i>densa</i>	16
		44

Screen of Vines to Shade West-facing Windows, Reducing Building Energy Use		
Coral honeysuckle	<i>Lonicera sempervirens</i>	50
		50

Expeditions Plaza 8-12-12 (includes seasonal wetland/mesic flatwood communities)		
Trees		
South Florida slash pine	<i>Pinus elliotii</i> var. <i>densa</i>	1
Sand live oak	<i>Quercus geminata</i>	5
Myrtle oak	<i>Quercus myrtifolia</i>	3
Cabbage palm	<i>Sabal palmetto</i>	8
Plants		
Yellowleaf hawthorn	<i>Crataegus flava</i>	2
Saw palmetto	<i>Serenoa repens</i>	9
Sand cordgrass	<i>Spartina bakeri</i>	4
Coontie	<i>Zamia integrifolia</i>	16
Adam's needle	<i>Yucca filamentosa</i>	7
Blackeyed Susan	<i>Rudbeckia hirta</i>	5
Muhly grass	<i>Muhlenbergia capillaris</i>	475
Purple lovegrass	<i>Eragrostis spectabilis</i>	84
Elliott's lovegrass	<i>Eragrostis elliotii</i>	40
American beautyberry	<i>Callicarpa americana</i>	6
Coral bean	<i>Erythrina herbacea</i>	3
Garberia	<i>Garberia heterophylla</i>	3
Firebush	<i>Hamelia patens</i>	4
Yaupon	<i>Ilex vomitoria</i>	3
Myrtle oak	<i>Quercus myrtifolia</i>	4
Rusty staggerbush	<i>Lyonia ferruginea</i>	4
Tough buckthorn	<i>Sideroxylon tenax</i>	6
Darrow's blueberry	<i>Vaccinium darrowii</i>	10
		702

Archbold Plant Replacements, September 2014		
Florida rosemary	<i>Ceratiola ericoides</i>	47
Coastalplain staggerbush	<i>Lyonia fruticosa</i>	8
Scrub palmetto and saw palmetto	<i>Sabal etonia</i> <i>Serenoa repens</i>	48
Sand live oak	<i>Quercus geminata</i>	4
Gopher apple	<i>Licania michauxii</i>	2
Lake Wales balm; Christman's mint	<i>Dicerandra christmanii</i>	35
		144
GRAND TOTAL		14,196

awarded Water Star® designation from the Southwest Florida Water Management District and Florida Friendly™ Gold from the University of Florida's Institute for Food and Agricultural Sciences (IFAS).

Archbold's native landscaping provides varied learning opportunities, serving to inspire society about its many benefits. Archbold hosts more than 10,000 visitors annually who view the native landscaping, ranging from the public and conservation groups (including FNPS) to scientists, students, professionals, and nearly 2,000 schoolchildren. Many walk the self-guiding "Ridgescaping Trail", with 6 signs explaining the landscape goals (SWFWMD-funded) and 116 plants labeled with name tags. Archbold offers 4 public landscaping tours annually, works with the Pygmy Fringetree Festival, and partners with artists such as Mollie Doctrow, who installed 3 beautiful wildflower shrines inspired by endangered scrub plants, to promote arts-nature engagement. In conclusion, Archbold's native landscaping connects the outside to the inside, offering attractive and tranquil scenes with focal points of learning, visible from all buildings, paths and driveways, and enhancing the long views to the beauty of the surrounding Florida scrub.



Figure 4: A blaze of fall flowering grasses greets visitors wandering down the sandy slopes of the ecotonal prairie, on their way to Archbold's Nature Trail.

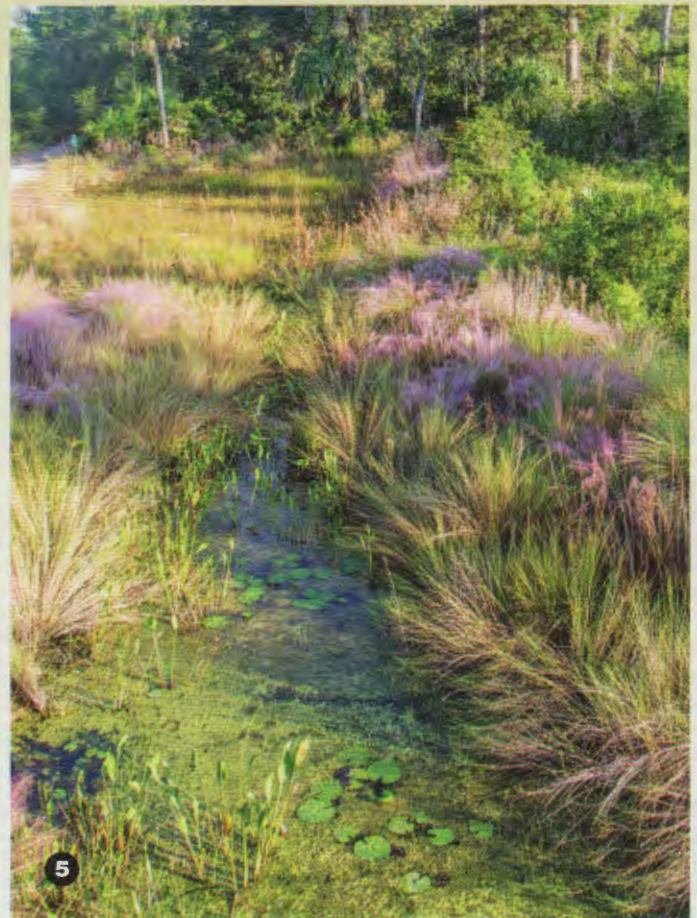


Figure 5: This seasonal wetland provides an instructive example for how to create a diverse wetland ecosystem that also serves to hold back and treat stormwater runoff.

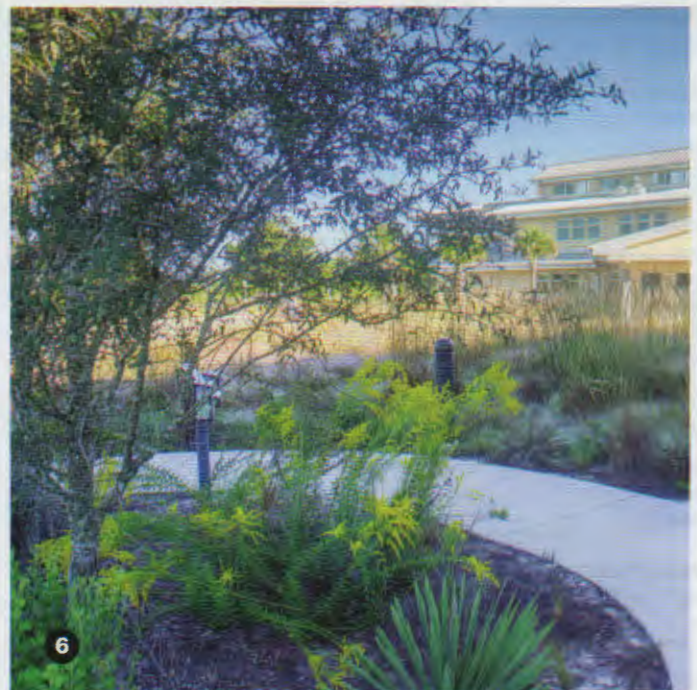


Figure 6: Islands of trees and shrubs attract wildlife and serve as focal points of interest when seen from buildings and paths.

2016 FNPS Landscape Awards

We encourage you to participate in the 2016 program. Award winners will be honored at the FNPS Annual Conference in Daytona Beach.

An application is available online at

http://www.fnps.org/assets/pdf/awards/fnps_landscape_awards_application_2016.pdf.

To see additional photographs of the award-winning designs, visit www.fnps.org and click on 'What We Do > Landscaping'.