# Plant Materials Fact Sheet No. 4 Developing Planting Mixtures for Pollinator Habitats



An agricultural landscape that includes permanent areas of cover adjacent to cultivated field, orchards, etc., which are planted to a diverse mixtures of flowering plants, create the type of flower-rich foraging habitat necessary for pollinators and other beneficial insects. Field or orchard margins, road edges, pivot corners, and areas are unsuitable for production, such as steep slopes or habitat adjacent to wetlands are all areas that can be planted to such habitat. Even small strips or patches can provide significant benefits although larger areas of habitat, 1/2acre or more, may be the easier to manage and will provide resources to support greater numbers of beneficial insects.

Current NRCS recommendations for Florida are to use mixtures of a minimum of six flowering plants, at least one of which is flowering in each season of the year (Spring, Summer, Fall, and Winter). A list of NRCS recommended forbs, legumes, grasses, vines, shrubs, and trees that are adapted to Florida, known to be beneficial to pollinators, their flowering periods, and are commercially available is attached.

Mixtures of herbaceous material should be planted at the rate of 40 and 60 live seed per square foot with no more than 25% of the seed mix being made up of a native warm season grass seed. Consult the Plant Materials Fact Sheet – Planting Native Species for Pollinator Rich Habitat

(http://efotg.sc.egov.usda.gov/references/pub lic/FL/FLPMFS3.pdf ), for information regarding site preparation, planting methods, and stand management for herbaceous planting.

If shrubs and trees are used in the pollinator habitat planting for field borders, a minimum of 4 plants of each species should be planted in each planting block with a total of no more than 24 shrubs or trees total per ½ acre planting block. These plants should be clustered together or planted in a hedgerow fashion according to the Florida Conservation Practice Standards <u>Tree/Shrub Establishment</u>, <u>Code 612</u>, and <u>Hedgerow Planting</u>, <u>Code 422</u>, and their accompanying guidance.

To assist producers in determining appropriate species and mixtures to plant, use the



Helping People Help the Land An Equal Opportunity Provider and Employer Pollinator Mixture Work Sheet which can be found at Florida FOTG, Section II, Plant Materials, Plant Materials Fact Sheet No. 4.

When possible, seed and transplants that are derived from southeastern ecotypes (defined as having originated from material collected and grown in AL, FL, GA, or SC) should be used. A commercial seed mix, that meets the requirements described here and can be planted at the rate of between 40 and 60 live seed per square foot, can also be used.

Due to a scarcity of winter flowering native plants in Florida other than shrubs and trees, non-native clover species (e.g., white clover, red clover, or crimson clover) can be used to provide flower and pollen during this critical period. To ensure adequate reseeding and emergence of clovers after the initial planting year, it may be necessary to plant clovers in a separate strip (min. 8-ft wide) along the edge of each ½ acre planting block. When this method is used, the clover should be planted at the rate and in the manner recommended for Florida Conservation Practice Standard <u>Forage and Biomass Planting, Code 512</u>, and its accompanying guidance.

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M.J. Williams Plant Materials Specialist USDA, NRCS 2614 NW 43<sup>rd</sup> Street Gainesville, FL 32606 Phone: 352-338-9544 Email: mj.williams@fl.usda.gov Additional information on using plants to solve conservation problems can be found on the USDA, NRCS Plant Materials Program at <u>http://Plant-</u> <u>Materials.nrcs.usda.gov</u> and the PLANTS database at http://plants.usda.gov

### Seed/Plant Sources<sup>1</sup>:

http://afnn.org

http://www.ernstseed.com

http://www.floridawildflowers.com

https://www.roundstoneseed.com/

http://www.wildflowermix.com/

http://www.wildseedfarms.com/shoponline.ht ml

<sup>1</sup>Suppliers listed here were consulted during the creation of this document. Mention of these sources does not constitute an endorsement by USDA, NRCS Plant Materials Program, nor does it exclude the use of other commercial sources of suitable material.



Figure 1. Florida climatic zone boundaries. From 26 Ecological Communities of Florida, 1989, p. 146, Soil and Water Conservation Society, Gainesville, FL.

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Table 1. Recommended I	Forbs, legumes, and grasses f	or plant	ting by	y seed in	Florida for	pollinator hat	pitat
Common Name	Scientific Name	Flo	owerin	g Period*	Growth Habit	Region of Adaptation**	Wetland Indicator Status <sup>+</sup>
Anise Goldenrod (ecotype)	Solidago odora		Sum	Fall	Р	North	
Annual Phlox	Phlox drummondii	Spr	Sum		А	North, Central	
Beaked Panicgrass (ecotype)	Panicum anceps				Р	North, Central, South/ST	FAC-
Big Bluestem	Andropogon gerardii				Р	North	FAC
Black-eyed Susan	Rudbeckia hirta	Spr	Sum		Р	North, Central, South/ST	FACU
Blanketflower	Gaillardia pulchella	Spr	Sum	Fall	А	North, Central, South/ST	
Blue mistflower	Conoclinium coelestinum (=Eupatorium coelestinum)		Sum	Fall	Р	North, Central, South/ST	FAC
Blueflower eryngo	Eryngium integrifolium		Sum	Fall	Р	North	FACW
Boneset	Eupatorium perfoliatum		Sum		Р	North	FACW+
Broomsedge Bluestem	Andropogon virginicus				Р	North, Central, South/ST	FAC-
Bushy Bluestem	Andropogon glomeratus				Р	North, Central, South/ST	FACW+
Butterfly weed‡	Asclepias tuberosa	Spr	Sum	Fall	Р	North, Central, South/ST	
Button Rattlesnakemaster	Eryngium yuccifolium		Sum	Fall	Р	North, Central, South/ST	FAC
Canada Goldenrod	Solidago canadensis (=S. altissima)			Fall	Р	North	FACU+

Table 1. Recommended	Forbs, legumes, and grasses	for plant	ting by	y see	d in Fl	lorida for	pollinator hat	oitat
Common Name	Scientific Name	Flo	owerin	g Peric	od*	Growth Habit	Region of Adaptation**	Wetland Indicator Status <sup>+</sup>
Carolina Redroot	Lachnanthes caroliana		Sum			Р	North, Central, South/ST	OBL
Coastal Plain Chaffhead	Carphephorus corymbosus		Sum	Fall		Р	North, Central, South/ST	FACU
Common Sneezeweed	Helenium autumnale		Sum	Fall		Р	North, Central	FACW
Crimson Clover (legume)	Trifolium incarnatum	Spr			Win	А	North	
Cutleaf Evening Primrose	Oenothera laciniata	Spr	Sum	Fall		А	North, Central, South/ST	FACU
Dense Gayfeather	Liatris spicata		Sum	Fall		Р	North, Central, South/ST	FACU
Dixie Tick Trefoil (legume)	Desmodium tortuosum		Sum			A/P	North, Central, South/ST	
Dotted Horsemint or Spotted Beebalm	Monarda punctata		Sum	Fall		Р	North, Central, South	FAC
Eastern Gamagrass	Tripsacum dactyloides					Р	North, Central, South/ST	FAC+
Eastern Purple Coneflower	Echinacea purpurea	Spr	Sum	Fall		Р	North	FAC
Eastern Rose-mallow	Hibiscus moscheutos		Sum			Р	North, Central	OBL
Elliott's or Field Lovegrass	Eragrostis elliottii					Р	North, Central, South/ST	FACW
Evening Primrose	Oenothera biennis		Sum	Fall		A/P	North, Central	FACU
Florida Trefoil (legume)	Desmodium floridanum		Sum	Fall		Р	North, Central, South/ST	
Garber's Blazing Star	Liatris garberi		Sum	Fall		Р	Central, South/ST	FACW

Table 1. Recommended	Forbs, legumes, and grasses f	for plant	ting by	y seed in	Florida for	pollinator hat	pitat
Common Name	Scientific Name	Flo	owerin	g Period*	Growth Habit	Region of Adaptation**	Wetland Indicator Status <sup>+</sup>
Giant Ironweed	Vernonia gigantea	Spr	Sum	Fall	Р	North, Central	FAC+
Golden Tickseed	Coreopsis tinctoria	Spr	Sum	Fall	А	North, Central, South/ST	FAC
Goldenmane Tickseed	Coreopsis basalis	Spr	Sum		А	North, Central	
Hairawn Muhly	Muhlenberia capillaris				Р	North, Central, South/ST	FACU
Joe-Pye Weed	Eupatoriadelphus fistulosus (=Eupatorium fistulosum)		Sum		Р	North, Central	FAC+
Lanceleaf Tickseed	Coreopsis lanceolata		Sum	Fall	Р	North, Central	UPL
Leavenworth's Coreopsis	Coreopsis leavenworthii		Sum	Fall	Р	North, Central, South/ST	FACW
Lemon Beebalm	Monarda citriodora	Spr	Sum	Fall	A/P	North	
Little Bluestem	Schizachyrium scoparium				Р	North, Central, South/ST	FACU
Lopsided Indiangrass	Sorghastrum secundum				Р	North, Central, South/ST	FACU-
Manyflowered Penstemon	Penstemon multiflorus	Spr	Sum		Р	North, Central, South/ST	
Maryland Meadow Beauty	Rhexia mariana		Sum		Р	North, Central, South	FACW+
Mohr's Coneflower	Rudbeckia mohrii		Sum	Fall	Р	North	FACW+
Musky Mint	Hyptis alata	Spr	Sum	Fall	Р	North, Central, South/ST	OBL
Narrowleaf Blue-Eyed Grass	Sisyrinchium angustifolium	Spr	Sum		Р	North, Central, South/ST	FAC

Table 1. Recommended F	orbs, legumes, and grasses fo	or plant	ting by	y seed	d in Fl	orida for	pollinator hat	pitat
Common Name	Scientific Name	Flo	owering	g Peric	od*	Growth Habit	Region of Adaptation**	Wetland Indicator Status <sup>+</sup>
Narrowleaf Primrosewillow	Ludwigia linearis		Sum	Fall		Р	North, Cenral, South	OBL
Narrowleaf Sunflower	Helianthus angustifolius			Fall		Р	North, Central, South	FAC+
Ohio Spiderwort	Tradescantia ohiensis	Spr	Sum	Fall		Р	North, Central	FAC-
Partridge pea (legume)	Chamaecrista fasciculata		Sum	Fall		А	North, Central, South/ST	FAC
Pinebarren Goldenrod	Solidago fistulosa		Sum	Fall		Р	North, Central, South/ST	FAC+
Pinkscale Blazing Star	Liatris elegans			Fall		Р	North, Central	
Puple Lovegrass	Eragrostis spectabilis					Р	North, Central, South/ST	FACU
Purple Bluestem	Andropogon glomeratus var. glaucopsis (=A. glaucopsis)					Р	North, Central, South/ST	FACW+
Purple Top	Tridens flavus					Р	North, Central, South/ST	FACU
Rayless Sunflower	Helianthus radula			Fall		Р	North, Central	FACW-
Red Clover (legume)	Trifolium pratense	Spr			Win	A/P	North	FACU-
Redtop or Longleaf Panicgrass	Panicum rigidulum var. pubescens (=P. longifolium)					Р	North, Central, South/ST	FACW/OBL
Shortleaf Blazingstar	Liatris tenuifolia			Fall		Р	North, Central	
Shortspike Bluestem	Andropogon brachystachyus					Р	North, Central, South/ST	FACW
Showy Evening Primrose or Pinkladies	Oenothera speciosa	Spr	Sum		Win	Р	North	

Table 1. Recommende	ed Forbs, legumes, and grasses fo	or plan	ting by	y seed i	n Florida for	pollinator hat	pitat
Common Name	Scientific Name	Flo	owerin	g Period*	Growth Habit	Region of Adaptation**	Wetland Indicator Status <sup>+</sup>
Slender Gayfeather	Liatris gracilis			Fall	Р	North, Central, South/ST	FACU
Smallfruit Beggartick	Bidens mitis			Fall	A	North, Central, South/ST	Obl
Softhair Coneflower	Rudbeckia mollis		Sum		Р	North	
Splitbeard Bluestem	Andropogon ternarius				Р	North, Central, South/ST	FACU
Star Tickseed	Coreopsis pubescens		Sum		Р	North (western panhandle)	FAC-
Starry Rosinweed	Silphium asteriscus var. angustatum		Sum	Fall	Р	North; Central & South (coastal only)	
Summer Farwell	Dalea pinnata		Sum	Fall	Р	North, Central	
Swamp Milkweed	Asclepias incarnata		Sum	Fall		Central, South/ST	OBL
Switchgrass	Panicum virgatum				Р	North, Central, South/ST	FAC+
Tall Elephantsfoot	Elephantopus elatus		Sum	Fall	Р	North, Central, South/ST	
Tall Ironweed	Veronia angustifolia		Sum	Fall	Р	North, Central	FACU-
Tropical Sage	Salvia coccinea	Spr	Sum	Fall	A/P	North, Central, South/ST	
Vanillaleaf	Carphephorus odoratissimus		Sum	Fall	Р	North, Central	FACW
Wand Goldenrod	Solidago stricta			Fall	Р	North, Central, South/ST	OBL

Table 1. Recommended Forbs, legumes, and grasses for planting by seed in Florida for pollinator habitat										
Common Name	Scientific Name	Flo	owerin	g Peric	od*	Growth Habit	Region of Adaptation**	Wetland Indicator Status <sup>+</sup>		
White Clover (legume)	Trifolium repens	Spr			Win	A/P	North, Central, South/ST			
White Wild Indigo (legume)	Baptisia alba	Spr	Sum			Р	North, Central	FAC		
Wiregrass	Aristida berychiana (=A. stricta var. berychiana)					Р	North, Central, South/ST	FAC-		
Yellow Indiangrass	Sorghastrum nutans					Р	North	FACU		

\*Flowering Period: Spring – March, April, May; Summer – June, July, August; Fall – September, October, November; and Winter – December, January, and February.

\*\* See Figure 1 on page 2.

†If no Wetland Indicator Status listed assume upland.

**‡**Plant may be toxic to livestock.

Table 2. Recommende	d Vines, Shrubs, and Trees	for plar	nting in l	Florida f	or polli	nator hab	itat	
Common Name	Scientific Name	Flowering Period*				Height	Region of Adaptation**	Wetland Indicator Status†
American Beautyberry	Callicarpa Americana		Sum			5 ft	North, Central, South/ST	FACU-
American Holly	llex ораса	Spr				15-30 ft	North, Central, South	FAC-
American Redbud	Cercis canadensis	Spr				15-30 ft	North, Central	FACU
American Wisteria (vine)	Wisteria frutescens	Spr				30 ft	North, Central	FACW
Bahama senna (FL Threatened)	Senna mexicana var. chapmanii	Spr	Sum	Fall	Win	4 ft	Subtropical	
Black Gum	Nyssa sylvatica	Spr	Sum			60-80 ft	North, Central	FAC
Blue Porterweed	Stachytarpheta jamaicensis	Spr	Sum	Fall	Win	3 ft	Subtropical	FACU
Cabbage Palm	Sabal palmetto	Spr	Sum			30-60 ft	North, Central, South/ST	FAC
Catclaw	Pithecellobium unguis-cati		Sum			10 ft	South/ST	UPL
		6				45.20 ()		
Chickasaw Plum‡ Coontie, Florida Arrowroot	Prunus angustifolia Zamia pumila	Spr Spr	Sum	Fall	Win Win	<u>15-30 ft</u> 4 ft	North, Central Central, South/ST	
Coral Bean	Erythrina herbacea	Spr	Sun	1 di		20 ft	North, Central, South/ST	

Table 2. Recommende	d Vines, Shrubs, and Tree	s for plar	nting in I	Florida f	or polli	nator hab	itat	
Common Name	Scientific Name		Flowering		•	Height	Region of Adaptation**	Wetland Indicator Status†
Corkystem passionflower	Passiflora suberosa	Spr	Sum	Fall	Win	6 ft	Central, South/ST	
Crabwood	Gymnanthes lucida	Spr	Sum	Fall	Win	25 ft	Subtropical	
Cross-vine (vine)	Bignonia capreolata	Spr				45 ft	North, Central	FAC
Dahoon Holly	llex cassine	Spr				20-30 ft	North, Central, South/ST	FACW
False indigobush	Amorpha fruticosa	Spr	Sum			12 ft	North, Central, South/ST	FACW
Fetterbush	Lyonia lucida	Spr			Win	3-5 ft	North, Central, South/ST	FACW
Fiddlewood	Citharexylum spinosum	Spr	Sum	Fall	Win	20 ft	Subtropical	
Firebush	Hamelia patens	Spr	Sum	Fall	Win	8-12 ft	Central, South/ST	
Florida Keys Blackbead (FL Threatened)	Pithecellobium keyense	Spr	Sum	Fall	Win	15 ft	Subtropical	
Florida Thatch Palm (FL Threatened)	Thrinax morrisii	Spr	Sum	Fall	Win	15 ft	Subtropical	
Geiger Tree	Cordia sebestena		Sum	Fall		20-25 ft	Subtropical	
Green Buttonwood	Conocarpus erectus	Spr	Sum	Fall	Win	20-40 ft	South/ST	

Table 2. Recommended Vines, Shrubs, and Trees for planting in Florida for pollinator habitat									
Common Name	Scientific Name	-	Flowering			Height	Region of Adaptation**	Wetland Indicator Status†	
Gumbo Limbo	Bursera simaruba	Spr			Win	60 ft	South/ST		
Hercules'-club	Zanthoxylum clava-herculis	Spr	Sum			20 ft	North, Central, South/ST	FAC	
Hog Plum	Prunus umbellata	Spr			Win	3-5 ft	North, Central		
Inkberry	llex glabra	Spr				3-10 ft	North, Central, South/ST	FACW	
Jamaican Dogwood	Piscidia piscipula	Spr				30 ft	Subtropical		
Laurel Oak	Quercus laurifolia	Spr				40-60 ft	North, Central, South/ST	FACW	
Lignumvitae (FL Threatened)	Guaiacum sanctum (= Guajacum sanctum)	Spr	Sum	Fall	Win	20 ft	Subtropical		
Live Oak	Quercus virginiana	Spr			Win	40-60 ft	North, Central, South/ST	FACU+	
Loblolly Bay	Gordonia lasianthus		Sum	Fall		75 ft	North, Central, South	FACW	
Locustberry (FL Threatened)	Byrsomina lucida	Spr	Sum	Fall	Win	15 ft	Subtropical		
Marlberry	Ardisia escallonioides	Spr	Sum	Fall	Win	15 ft	South/ST		
Mayhaw	Crataegus aestivalis	Spr				15	North	OBL	

							Region of	Wetland Indicator
Common Name	Scientific Name		Flowering	g Period*		Height	Adaptation**	Status†
Mountain Azalea	Rhododendron canescens	Spr				4-8 ft	North	FACW-
Necklace Pod	Sophora tomentosa var. truncata	Spr	Sum	Fall	Win	8 ft	Central, South/ST	
Orange Azalea	Rhododendron austrinum	Spr				8-10 ft	North	
Pigeon Plum	Coccoloba diversifolia	Spr	Sum	Fall	Win	20-25 ft	Subtropical	
Possumhaw Viburnum	Viburnum nudum	Spr				10 ft	North, Central	FSCW
Privet senna	Senna ligustrina	Spr	Sum	Fall	Win	8 ft	South/ST	
Purple Passionflower, Maypop	Passiflora incarnata	Spr	Sum	Fall		10 ft	North, Central, South/ST	
Purple Anise	Illicium floridanum	Spr				10 ft	North	FACW
Red Bay	Persea borbonia		Sum			60 ft	North, Central, South/ST	FACW
Red Buckeye	Aesculus pavia	Spr				25 ft	North, Central	FAC
Red Maple	Acer rubrum				Win	20-60 ft	North, Central, South/ST	FAC

Table 2. Recommended	Table 2. Recommended Vines, Shrubs, and Trees for planting in Florida for pollinator habitat											
Common Name	Scientific Name		Flowering		•	Height	Region of Adaptation**	Wetland Indicator Status†				
Salt-bush, Groundsel Tree	Baccharis halimifolia		Sum	Fall		12 ft	North, Central, Sourth/ST	FAC				
Saw Palmetto	Serenoa repens	Spr	Sum			10-12 ft	North, Central, South/ST	FACU				
Scorpionstail	Heliotropium angiospermum	Spr	Sum	Fall	Win	3 ft	South/ST	FACU				
Seagrape	Coccoloba uvifera	Spr	Sum	Fall		30 ft	South/ST					
Silky Camelia (FL endangered)	Stewartia malacodendron	Spr	Sum			20 ft	North					
Silver Palm (FL Threatened)	Coccothrinax argentata	Spr	Sum	Fall	Win	8 ft	Subtropical					
Simpson's Stopper (FL Threatened)	Myrcianthes fragrans	Spr	Sum	Fall	Win	20 ft	Central, South/ST					
Small-fruited Pawpaw	Asimina paviflora	Spr				10 ft	North, Central, South	FACU				
Sourwood	Oxydendrum arboreum		Sum			30-70 ft	North					
Southern Magnolia	Magnolia grandiflora	Spr	Sum			30-50 ft	North, Central, South	FAC+				
Strangler Fig	Ficus aurea	Spr	Sum			40-60 ft	South/ST	FACW				

Table 2 Recommende	ad Vines Shrubs and Tra	es for plar	nting in l	Elorida f	or polli	inator hab	itat	
Common Name	Scientific Name	bs, and Trees for planting in Florida for pollin fic Name Flowering Period*				Height	Region of Adaptation**	Wetland Indicator Status†
Sugarberry	Celtis laevigata	Spr			Win	50-70 ft	North, Central, South/ST	FACW
Swamp Rose	Rosa palustris	Spr	Sum			3-8 ft	North, Central	OBL
Swamp Tupelo	Nyssa biflora	Spr	Sum			70-100 ft	North, Central, South	OBL
Sweet Acacia	Acacia farnesiana	Spr			Win	25 ft	South/ST	FACU
Sweet Pepperbush	Clethra alniflora		Sum			10 ft	North	FACW
Sweetbay Magnolia	Magnolia virginiana	Spr	Sum			30-50 ft	North, Central, South/ST	FACW+
Torchwood	Amyris elemifera	Spr	Sum	Fall	Win	15 ft	South/ST	
Trumpet Creeper (vine)	Campsis radicans		Sum			45 ft	North, Central, South	FAC
Tuliptree	Liriodendron tulipifera	Spr	Sum			80-120 ft	North, Central	FAC
Two Wing Silverbell	Halesia diptera	Spr				30 ft	North	FAC
Virginia Sweetspire	Itea virginica	Spr	Sum			5 ft	North	FACW+

Table 2. Recommended Vines, Shrubs, and Trees for planting in Florida for pollinator habitat								
Common Name	Scientific Name	Flowering Period*				Height	Region of Adaptation**	Wetland Indicator Status†
Wax Myrtle	Morella cerifera (=Myrica pusilla)	Spr				15 ft	North, Central, South/ST	FAC+
Wild Coffee	Psychotria nervosa	Spr	Sum	Fall	Win	6 ft	Central, South/ST	
Wild Lime	Zanthoxylum fagara	Spr	Sum	Fall	Win	25-30 ft	Central, South/ST	
Wild Sage	Lantana involucrata	Spr	Sum	Fall	Win	4-8 ft	South/ST	
Wild Tamarind	Lysiloma latisiliquum (= L. bahamensis)	Spr	Sum	Fall		40 ft	Subtropical	
Yaupon	llex vomitoria	Spr				8-10 ft	North, Central	FAC

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