

Appendix 2.2 Edited descriptions of existing NVC vegetation types in South Carolina and Georgia and associated constancy tables. Vegetation types are arranged from xeric to subxeric.

OVERVIEW

Database Code: CEGLO0xxx3

Scientific Name: *Pinus palustris* / *Quercus laevis* / *Chrysoma pauciflosculosa* / *Aristida purpurascens*
Woodland

Common Name: Longleaf Pine / Turkey Oak / Woody Goldenrod / Arrowfeather Woodland

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong **Stakeholders:** Southeast

Status: Standard **Origin:** 4-June-2013 **ID:** **Maint. Resp.:** Southeast

Concept Auth.: K.A. Palmquist, R.K. Peet & S. Carr (2014)

Description Author: K.A. Palmquist, R.K. Peet & S. Carr (2014)

Status: **Version:** 15-Feb-2014

Concept Ref.: Palmquist, Peet & Carr 2014 (this document)

Ecological Systems:

- Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254)
- Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281)

ELEMENT CONCEPT

Concept Summary: This extremely dry Association occurs on inland, xeric, coarse sand ridges in the Fall-line Sandhill region and inner Coastal Plain of Georgia and perhaps South Carolina. Species richness is extremely low in this type with on average 18 species in 100m². The open canopy consists of *Pinus palustris* with a mix of shrub oaks in the subcanopy layer including *Quercus margarettae*, *Quercus laevis*, and *Quercus hemisphaerica*. *Chrysoma pauciflosculosa* is the dominant dwarf-shrub and is indicative of this type, although *Opuntia humifusa* and *Vaccinium stamineum* are also constant. Other characteristic species include *Aristida purpurascens*, *Bulbostylis coarctata*, *Dichanthelium acuminatum*, *Selaginella* sp., and *Galactia* sp (Table 2.2.1).

Classification Comments: Name and description based on 3 plots from the Carolina Vegetation Survey (vegbank.org/cite/VB.ds.199642.CEGL00xxx3). This type is most similar to CEGLO03946, but is distinct enough from it to warrant designation as a new type. 3946 occurs further south and is a shrubland dominated by *Chrysoma pauciflosculosa* with no trees in the overstory, hence it is in a different NVC Group.

Diagnostic Characteristics: This type is distinguished from other xeric longleaf pine types by the prevalence of *Chrysoma pauciflosculosa* in the shrub layer and a canopy and sub-canopy dominated by *Pinus palustris* and *Quercus margarettae*, respectively.

Concept History: New type.

Related Concepts:

- > *Pinus palustris* / *Quercus laevis* / *Chrysoma pauciflosculosa* Woodland (Peet 2006) [1.2.4]
- < Sandhill woodland (Edwards, Ambrose & Kirkman 2013)
-

ELEMENT DESCRIPTION

Environment: This Association is found on very xeric coarse, infertile sands of Spodic Quartzipsamments, which are associated with old dune systems along rivers. Silt content and organic matter are low.

Vegetation: This xeric Association contains an open canopy of scattered *Pinus palustris* and a subcanopy layer dominated by *Quercus laevis*, *Quercus margarettae*, and *Quercus hemisphaerica*. Other common tree species include *Diospyros virginiana*, *Osmanthus americanus*, and *Pinus taeda*. *Chrysoma pauciflosculosa* is the dominant dwarf-shrub, but *Opuntia humifusa*, *Vaccinium stamineum*, *Vaccinium arboretum*, and *Hypericum gentianoides* are also indicative of this type. The herbaceous layer is species poor and fairly undeveloped. Characteristic herbaceous species of this type are *Aristida purpurascens*, *Bulbostylis coarctata*, *Dichanthelium acuminatum*, *Galactia* sp., *Selaginella* [*acanthonota* + *arenicola*], and *Stylisma patens*. Species richness is very low compared to other xeric and subxeric vegetation types in Georgia.

Dynamics: Fire frequency is less frequent than in subxeric and mesic longleaf pine vegetation types owing to infertile soils and a sparse herbaceous layer.

Similar Associations: See classification comments above. No types are very closely related to this new proposed type.

ELEMENT DISTRIBUTION

Range: This Association is found in the Fall-line Sandhills region and the inner Coastal Plain of Georgia. Specifically, this type has been documented on Fort Benning, in Chattahoochee county, GA and in Tattnall county in Big Hammock Natural Area. It may also occur in South Carolina, as *Chrysoma* occurs near the Fall-line in Lexington county. More plots are needed to circumscribe its full distribution.

Nations: US

Table 2.2.1: Prevalent species in vegetation type xxx3 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. *Schizachyrium scoparium* * is more than likely *Schizachyrium scoparium*, but at the time of sampling was only identified to [*Andropogon* + *Schizachyrium*]. Homogeneity = 0.736.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	5
<i>Quercus laevis</i>	100%	7
<i>Quercus margarettae</i>	100%	5
<i>Quercus hemiphaerica</i>	100%	2
<i>Diospyros virginiana</i>	67%	2
<i>Osmanthus americanus</i>	67%	2
<i>Pinus taeda</i>	67%	2
<i>Crataegus</i> sp.	33%	5
<i>Quercus myrtifolia</i>	33%	5
<i>Quercus incana</i>	33%	3
<i>Carya pallida</i>	33%	2
<i>Nyssa sylvatica</i>	33%	2
<i>Pinus echinata</i>	33%	2
<i>Quercus virginiana</i>	33%	2
Vine species	Const.	Cover
<i>Gelsemium sempervirens</i>	33%	2
<i>Smilax auriculata</i>	33%	2
<i>Smilax glauca</i>	33%	2
<i>Smilax pumila</i>	33%	2
<i>Smilax rotundifolia</i>	33%	2
Shrub species	Const.	Cover
<i>Chrysoma pauciflosculosa</i>	100%	4
<i>Vaccinium stamineum</i>	100%	2
<i>Opuntia humifusa</i>	100%	2
<i>Vaccinium arboreum</i>	67%	4
<i>Hypericum gentianoides</i>	67%	2
<i>Serenoa repens</i>	33%	5
<i>Hamamelis virginiana</i>	33%	2
<i>Ilex ambigua</i>	33%	2
<i>Licania michauxii</i>	33%	2
<i>Rhus copallinum</i>	33%	2
<i>Toxicodendron pubescens</i>	33%	2
Herb species	Const.	Cover
<i>Aristida purpurascens</i>	100%	2
<i>Galactia</i> [regularis+ volubilis var. volubilis]	100%	2
<i>Selaginella</i> [acanthonota+ arenicola]	100%	2
<i>Schizachyrium scoparium</i> *	67%	2

<i>Bulbostylis [ciliatifolia + coarctata]</i>	67%	2
<i>Dichanthelium acuminatum</i>	67%	2
<i>Stylisma patens</i>	67%	2
<i>Tillandsia usneoides</i>	33%	5
<i>Andropogon virginicus</i>	33%	2
<i>Aristida virgata</i>	33%	2
<i>Aureolaria pectinata</i>	33%	2
<i>Cyperus lupulinus</i>	33%	2
<i>Eriogonum tomentosum</i>	33%	2
<i>Paronychia herniaroides</i>	33%	2
<i>Polygonella robusta</i>	33%	2
<i>Pteridium aquilinum</i>	33%	2
<i>Rhynchospora grayi</i>	33%	2
<i>Rhynchospora megalocarpa</i>	33%	2
<i>Solidago odora var. odora</i>	33%	2
<i>Sporobolus junceus</i>	33%	2
<i>Tephrosia virginiana</i>	33%	2

OVERVIEW

Database Code: CEGL007844

Scientific Name: *Pinus palustris* / *Quercus laevis* / *Schizachyrium scoparium* – *Stipulicida setacea*
Woodland

Common Name: Longleaf Longleaf Pine / Turkey Oak / Little Bluestem – Wire-plantWoodland

Colloquial Name: South Atlantic Dry Longleaf Pine Sandhill

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong **Stakeholders:** Southeast

Status: Standard **Origin:** 17-Dec-1998 ID: 684185 **Maint. Resp.:** Southeast

Concept Auth.: A.S. Weakley and M. Pyne (?)

Description Author: (1) R.E. Evans (1998?), (2) modified by K.A. Palmquist, R.K. Peet & S. Carr (2014)

Status: 2 **Version:** 15-Feb-2014

Concept Ref.: Southeastern Ecology Working Group n.d. [Name in concept ref, if different:]

Ecological Systems:

- Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281)
- Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254)

ELEMENT CONCEPT

Concept Summary: This xeric Association occurs primarily in the Fall-line sandhills region of the South Atlantic Coastal Plain of Georgia and adjacent South Carolina, but can occur on isolated pockets of coarse sand further east along major rivers. This type occurs on xeric, coarse sands and is relatively species poor. *Pinus palustris* forms an open canopy and *Quercus laevis* is the dominant species in the sub-canopy layer, although *Quercus incana* and *Quercus margarettae* are also typical. The shrub layer is relatively sparse and is characterized most notably by *Gaylussacia dumosa* and *Vaccinium stamineum*. The two most abundant species in the herbaceous stratum are *Aristida beyrichiana* and *Schizachyrium scoparium*, although *A. beyrichiana* is absent in this type in the wiregrass gap of SC. Other characteristic herbaceous species include classic xerophytes such as *Cnidocolus stimulosus*, *Aureolaria pectinata*, *Euphorbia ipecacuanhae*, *Minuartia caroliniana*, *Stipulicida setacea*, and *Stylisma patens*.

Classification Comments: Description changed based on 13 plots from the Carolina Vegetation Survey (<http://vegbank.org/cite/VB.ds.199650.CEGL007844>). Two Subassociations were recognized within this type: Subassociation A based on 5 plots (http://vegbank.org/cite/VB.ds.199672.7844_1) and Subassociation B based on 8 plots (http://vegbank.org/cite/VB.ds.199673.7844_2). This type is equivalent to the existing concept of 7844 in the NVC hierarchy. However, the original concept and description was quite broad encompassing sandhills from FL to SC. We propose a more focused description of the type to indicate primarily Fall-line Sandhills of SC and GA from the wiregrass gap southwest, but with additional occurrences along major rivers down stream, such as at the Tilman sand ridge in southeastern SC. The former description reports a single plot from the Osceola National Forest (<http://vegbank.org/get/comprehensive/observation/81094>), but in our numerical analysis this plot clusters with the scrubby flatwoods of 7750, which is in a different USNVC group (G596). Association 3590 has been attributed to the GA Coastal Plain, but we see these occurrences as belonging to 7844, with 3590 confined to areas north of the wiregrass gap. 3583 has been attributed to xeric sands of the GA Coastal Plain, but these sites as well appear to belong to 7844. We modify the name to more accurately reflect

typical composition with an emphasis on *Stipulicida* over *Baptisia*, and constancy of *Schizachyrium scoparium* over *Aristida beyrichiana*.

Diagnostic Characteristics: This xeric Association is distinguished by its location in the Fall-line Sandhills region and the adjacent inner Coastal Plain of South Carolina and Georgia within the range of *Aristida beyrichiana*. The herbaceous layer is relatively species poor, but *Schizachyrium scoparium*, *Aureolaria pectinata*, and *Stipulicida setacea* are diagnostic.

Concept History: CEG007844.

Internal Comments: REE/CWN 5-02: added Osceola and FL to this type based on plot OSCE.47 (NatureServe unpubl. data).

Related Concepts:

- = *Pinus palustris* / *Quercus laevis* – *Quercus incana* / *Aristida beyrichiana* – *Baptisia perfoliata*
Woodland(Peet 2006)[2.2.1]

ELEMENT DESCRIPTION

Environment: This xeric Association of the Fall-line Sandhills of South Carolina and Georgia occurs mainly on coarse, sandy soils of Typic Quartzipsamments (Lakeland series) particularly in South Carolina, but also on Typic Kanhapludults, Typic Udipsamments, Grossarenic Kandiudults, and Arenic Kanhapludults.

Vegetation: Subassociation A of this type has an open canopy of *Pinus palustris* and a scrub oak layer strongly dominated by *Quercus laevis*, although *Quercus incana* is also common, but substantially less abundant. The shrub layer is usually sparse and frequently contains *Diospyros virginiana*, *Vaccinium arboreum*, *Gaylussacia dumosa*, *Vaccinium stamineum*, *Sassafras albidum*, and *Hypericum hypericoides*. The relatively species poor herbaceous layer is dominated by *Schizachyrium scoparium*, *Sporobolus junceus*, and *Tephrosia virginiana*. Other characteristic xerophytic herbs that occur in greater than 60% of plots include, *Euphorbia ipecacuanhae*, *Aureolaria pectinata*, *Carphephorus bellidifolius*, *Cnidoscolus stimulosus*, *Dichantherium ovale*, *Galactia* sp., *Ionactis linariifolia*, *Pityopsis graminifolia*, *Liatris* sp., *Minuartia caroliniana*, *Rhynchospora grayi*, *Stipulicida setacea*, *Stylisma patens*, *Aristida purpurascens*, *Eriogonum tomentosum*, *Solidago odora* var. *odora*, and *Stylisma patens*. *Aristida beyrichiana* is uncommon due to the Subassociation A's primary location in the "wiregrass gap" of central South Carolina.

Subassociation B differs from Subassociation A as it has a greater abundance of *Quercus incana* and *Quercus margarettae* in the subcanopy/shrub layer, and considerably less *Pinus palustris* in the overstory layer. Although *Schizachyrium scoparium* is constant and abundant, *Aristida beyrichiana* dominates as this Subassociation is located in southern South Carolina and adjacent Georgia within the range of *Aristida beyrichiana*. The common shrub species in subassociation 2 are similar to those described above except *Rhus copallinum* and *Opuntia humifusa* are also frequent in this type. Other characteristic herbs in order of importance include, *Liatris* sp., *Pityopsis graminifolia*, *Solidago odora* var. *odora*, *Aristida purpurascens*, *Bulbostylis coarctata*, *Rhynchospora grayi*, *Stylisma patens*, *Cnidoscolus stimulosus*, *Gelsemium sempervirens*, *Ruellia caroliniensis*, *Stipulicida setacea* var. *setacea*, *Tragia urens*, *Tephrosia florida*, *Tephrosia virginiana*, *Aureolaria pectinata*, *Baptisia perfoliata*, *Dichantherium ovale*, *Eriogonum tomentosum*, and *Galactia* sp.

Dynamics: In northeastern Florida, this type occurs in possibly only a single small patch on the Osceola National Forest. At this locality it is surrounded by more mesic flatwood vegetation which encroaches in the absence of fire. Given the small patch size of this sandhill, its fire-return interval may be naturally infrequent.

Similar Associations:

- *Pinus palustris* / *Quercus laevis* – *Quercus geminata* / *Rhynchospora megalocarpa* Woodland (CEGL003590)

Similar Association Comments: This type is similar to CEGL003590, which occurs further north in NC and SC.

Adjacent Associations:

Adjacent Association Comments:

Other Comments:

Acknowledgements:

ELEMENT GLOBAL RANK & REASONS

GRank: G2G3 **GRank Review Date:** 17-Dec-1998

GReasons: This longleaf pine woodland association is found in a restricted range and is susceptible to forest conversion. It is limited to the sandhills of the South Atlantic Coastal Plain of South Carolina, Georgia, and possibly northeastern Florida where it is part of the endangered Longleaf Pine Ecosystem, which once dominated the Coastal Plain landscape of the southeastern United States. It depends on frequent, low-intensity, growing-season fires to control understory vegetation and for the reproduction of *Pinus palustris*. Few sizable occurrence of the Longleaf Pine Ecosystem remain in Georgia, and remaining occurrences of this type are generally small and degraded. *Pinus palustris*-dominated woodlands are susceptible to the effects of fire suppression, over-grazing, or conversion to commercial forest plantations or agriculture. Remaining examples are highly threatened by development, conversion, and alteration of fire regimes. Most of those occurrences which have not been destroyed are severely degraded, except for examples on military lands, where incidental burning has maintained more-or-less natural fire regimes.

Ranking Author: M. Pyne **Version:** 17-Dec-1998

ELEMENT DISTRIBUTION

Range: This xeric Association occurs in primarily in the Fall-line Sandhills of South Carolina and Georgia, but also can occur in the adjacent inner Coastal Plain on coarse, sandy soils. It may also occur in northeastern Florida, but additional information is needed to confirm this type's full extent in FL. Subassociation 1 occurs primarily in central South Carolina in the "wiregrass gap" region including, Aiken and Richland counties. Subassociation 2 occurs in Georgia (Jefferson, McDuffie, and Richmond counties), and in southern South Carolina (Barnwell and Jasper counties).

Nations: US

Table 2.2.2: Prevalent species in vegetation type 7844 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. *Schizachyrium scoparium* * is more than likely *Schizachyrium scoparium*, but at the time of sampling was only identified to [*Andropogon* + *Schizachyrium*]. SA and SB refer to Subassociations A and B, respectively. Homogeneity = 0.643.

Tree species	Const.	Cover	SA Const.	SA Cover	SB Const.	SB Cover
<i>Quercus laevis</i>	100%	6	100%	7	100%	6
<i>Diospyros virginiana</i>	92%	2	100%	2	88%	2
<i>Pinus palustris</i>	85%	5	100%	6	75%	5
<i>Quercus incana</i>	85%	4	60%	2	100%	4
<i>Sassafras albidum</i>	69%	2	60%	2	75%	2
<i>Quercus margarettae</i>	54%	4	--	--	88%	4
<i>Crataegus</i> sp.	46%	2	20%	2	63%	2
<i>Pinus elliotii</i>	23%	4	20%	2	25%	5
<i>Pinus taeda</i>	--	--	--	--	25%	6
Vine species	Const.	Cover	SA Const.	SA Cover	SB Const.	SB Cover
<i>Gelsemium sempervirens</i>	46%	2	--	--	75%	2
<i>Smilax glauca</i>	31%	2	40%	2	25%	2
<i>Vitis rotundifolia</i>	23%	2	--	--	38%	2
Shrub species	Const.	Cover	SA Const.	SA Cover	SB Const.	SB Cover
<i>Vaccinium stamineum</i>	92%	4	80%	2	100%	4
<i>Hypericum hypericoides</i>	85%	2	60%	2	100%	2
<i>Gaylussacia dumosa</i>	77%	4	80%	5	75%	2
<i>Vaccinium arboreum</i>	77%	3	100%	3	63%	2
<i>Rhus copallinum</i>	62%	2	20%	2	88%	2
<i>Opuntia humifusa</i>	46%	2	20%	1	63%	2
<i>Hypericum gentianoides</i>	31%	2	20%	2	38%	2
<i>Toxicodendron pubescens</i>	31%	2	20%	1	38%	2
<i>Nolina georgiana</i>	23%	3	--	--	38%	3
<i>Polygonella polygama</i>	--	--	40%	2	--	--
<i>Chrysoma pauciflosculosa</i>	--	--	20%	4	--	--
<i>Hypericum lloydii</i>	--	--	20%	3	--	--
<i>Vaccinium tenellum</i>	--	--	20%	2	--	--
Herb species	Const.	Cover	SA Const.	SA Cover	SB Const.	SB Cover
<i>Schizachyrium scoparium</i> *	100%	5	100%	5	100%	4
<i>Liatris</i> sp.	92%	2	80%	2	100%	2
<i>Pityopsis graminifolia</i>	92%	2	80%	2	100%	2
<i>Dichanthelium ovale</i>	85%	2	100%	2	63%	2
<i>Rhynchospora grayi</i>	85%	2	80%	2	88%	2
<i>Solidago odora</i>	85%	2	60%	2	100%	2
<i>Stipulicida setacea</i>	85%	2	100%	2	75%	2
<i>Stylisma patens</i>	85%	2	80%	2	88%	2
<i>Aristida purpurascens</i>	77%	2	60%	2	88%	2

<i>Cnidocolus stimulosus</i>	77%	2	80%	2	75%	2
<i>Aristida beyrichiana</i>	69%	7	20%	6	100%	7
<i>Tephrosia virginiana</i>	69%	4	80%	3	63%	4
<i>Aureolaria pectinata</i>	69%	2	80%	2	63%	2
<i>Bulbostylis [ciliatifolia + coarctata]</i>	69%	2	40%	2	88%	2
<i>Galactia [regularis+ volubilis var. volubilis]</i>	69%	2	80%	2	63%	2
<i>Sporobolus junceus</i>	62%	3	80%	3	50%	2
<i>Eriogonum tomentosum</i>	62%	2	60%	2	63%	2
<i>Euphorbia ipecacuanhae</i>	62%	2	100%	2	38%	2
<i>Carphephorus bellidifolius</i>	54%	2	80%	2	38%	2
<i>Minuartia caroliniana</i>	54%	2	80%	2	38%	2
<i>Scleria [ciliata + elliotii]</i>	54%	2	40%	2	63%	2
<i>Tragia urens</i>	54%	2	20%	1	75%	2
<i>Tephrosia florida</i>	46%	3	20%	2	63%	4
<i>Ruellia caroliniensis</i>	46%	2	--	--	75%	2
<i>Baptisia perfoliata</i>	38%	2	--	--	63%	2
<i>Ionactis linariifolia</i>	38%	2	60%	2	25%	2
<i>Lechea sessiliflora</i>	38%	2	20%	2	50%	2
<i>Anthenantia villosa</i>	31%	2	20%	2	38%	2
<i>Commelina erecta</i>	31%	2	--	--	50%	2
<i>Eupatorium compositifolium</i>	31%	2	20%	2	38%	2
<i>Eupatorium glaucescens</i>	31%	2	20%	1	38%	2
<i>Paspalum setaceum</i>	31%	2	20%	2	38%	2
<i>Stylosanthes biflora</i>	31%	2	--	--	50%	2
<i>Agalinis sp.</i>	23%	2	40%	2	--	--
<i>Asclepias humistrata</i>	23%	2	--	--	38%	2
<i>Centrosema virginianum</i>	23%	2	20%	1	25%	2
<i>Cirsium repandum</i>	23%	2	20%	2	25%	2
<i>Cuthbertia rosea</i>	23%	2	20%	2	25%	2
<i>Dichantherium [aciculare + angustifolium]</i>	23%	2	--	--	38%	2
<i>Eupatorium [hyssopifolium + torreyanum]</i>	23%	2	--	--	38%	2
<i>Euphorbia pubentissima</i>	23%	2	--	--	38%	2
<i>Galium pilosum</i>	23%	2	--	--	38%	2
<i>Indigofera caroliniana</i>	23%	2	--	--	38%	2
<i>Lechea minor</i>	23%	2	--	--	38%	2
<i>Lespedeza hirta</i>	23%	2	20%	1	25%	2
<i>Stillingia sylvatica</i>	23%	2	--	--	38%	2
<i>Baptisia tinctoria</i>	--	--	40%	2	--	--
<i>Coreopsis major</i>	--	--	40%	2	--	--
<i>Euphorbia curtisii</i>	--	--	40%	2	--	--
<i>Lupinus diffusus</i>	--	--	20%	2	--	--
<i>Pteridium aquilinum</i>	--	--	20%	2	--	--
<i>Seymeria pectinata</i>	--	--	20%	2	--	--
<i>Symphyotrichum concolor</i>	--	--	20%	2	--	--
<i>Asclepias tuberosa</i>	--	--	--	--	25%	2

<i>Carex tenax</i>	--	--	--	--	25%	2
<i>Cyperus [croceus + ovatus + retrosus]</i>	--	--	--	--	25%	2
<i>Cyperus lupulinus</i>	--	--	--	--	25%	2
<i>Dichathelium oligosanthos</i>	--	--	--	--	25%	2
<i>Erigeron strigosus</i>	--	--	--	--	25%	2
<i>Euphorbia exserta</i>	--	--	--	--	25%	2
<i>Gaura filipes</i>	--	--	--	--	25%	2
<i>Gymnopogon ambiguus</i>	--	--	--	--	25%	2
<i>Polygala grandiflora</i>	--	--	--	--	25%	2
<i>Rhynchosia reniformis</i>	--	--	--	--	25%	2
<i>Silphium compositum</i>	--	--	--	--	25%	2

OVERVIEW

Database Code: CEGL004492

Scientific Name: *Pinus palustris* / *Quercus laevis* – *Quercus margarettae* / *Licania michauxii* / *Aristida beyrichiana* Woodland

Common Name: Longleaf Pine / Turkey Oak - Sand Post Oak / Michaux's Gopher-apple / Southern Wiregrass Woodland

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong **Stakeholders:** Southeast

Status: Standard **Origin:** 11-Jul-1996 ID: 687753 **Maint. Resp.:** Southeast

Concept Auth.: R.K. Peet, E. Kjellmark and A.S. Weakley

Description Author: K.A. Palmquist, R.K. Peet & S. Carr (2014), in part adapted from description of 4492.

Status: 3 **Version:** 15-Feb-2014

Concept Ref.: Southeastern Ecology Working Group n.d. [Name in concept ref, if different:]

Ecological Systems:

- Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281)
- East Gulf Coastal Plain Upland Longleaf Pine Forest and Woodland (CES203.293)

ELEMENT CONCEPT

Concept Summary: This Association occurs on deep, infertile, coarse sands in the South Atlantic and East Gulf Coastal Plain of Georgia. *Pinus palustris* forms the open to sparse canopy and a dense scrub oak subcanopy is co-dominated by *Quercus laevis* and *Quercus margarettae*. Constant and indicative shrubs include *Licania michauxii*, *Opuntia humifusa* and *Serenoa repens*. The herbaceous layer is dominated by *Aristida beyrichiana*, but other characteristic and abundant herbs include, *Andropogon virginicus*, *Aristida virgata*, *Aureolaria pectinata*, *Bulbostylis* spp., *Croton argyranthemus*, *Dichanthelium acuminatum*, *Eriogonum tomentosum*, *Eupatorium compositifolium*, *Liatris tenuifolia*, *Sorghastrum secundum*, *Sporobolus junceus*, *Tephrosia virginiana*, and *Tillandsia usneoides*. Species richness is relatively low, especially compared to moister longleaf pine vegetation types.

Classification Comments: Description changed based on 7 plots from the Carolina Vegetation Survey (<http://vegbank.org/cite/VB.ds.199646.CEGL004492>). Both 4492 and 4490 have been used to represent the xeric sands of the GA Coastal Plain. However 4490 has been only vaguely described and been applied to a diverse range of situations, whereas 4492 was confined to a specific composition only documented from Ft. Stewart. We broaden the definition of 4492 with plots ranging from Ft. Stewart to the Ichauway area in southwest GA. We also shorten the name by removing the less abundant though frequent *Quercus incana*. We recommend that 4490 be re-designated to occur in FL only. **Diagnostic Characteristics:** This type is characterized by its occurrence on coarse, infertile sands, the dominance of *Licania michauxii* in the shrub layer, and a relatively sparse herbaceous layer comprised mainly of *Aristida beyrichiana*. The subcanopy/scrub oak layer is made up almost exclusively *Quercus laevis* and *Quercus margarettae*.

Concept History: CEGL004492.

Internal Comments:

Related Concepts:

- = Southeastern Coastal Plain Subxeric Pine - Scrub Oak Sandhill (Gawin et al. 2001)

- = *Pinus palustris* / *Quercus laevis* – *Quercus incana* – *Quercus margarettiae* / *Licania michauxii* / *Aristida beyrichiana* Woodland (Peet 2006)[1.1.6]

ELEMENT DESCRIPTION

Environment: This Association occurs on deep, coarse, infertile sands on soils with very low silt and organic matter content (Arenickandiudults).

Vegetation: This xeric type has an open to sparse canopy of *Pinus palustris* and a dense scrub oak subcanopy comprised of *Quercus laevis*, *Quercus margarettae*, and *Quercus incana*. Characteristic shrubs that occur with 70% constancy or greater include *Licania michauxii*, *Opuntia humifusa*, *Serenoa repens*, and *Vaccinium stamineum*. The most abundant herbaceous species in this type is *Aristida beyrichiana*, although *Sporobolus junceus* and *Schizachyrium scoparium* may also be abundant. Other characteristic herbs with high constancy include, *Andropogon virginicus*, *Aureolaria pectinata*, *Bulbostylis coarctata*, *Commelina erecta*, *Dichanthelium acuminatum*, *Eriogonum tomentosum*, *Eupatorium compositifolium*, *Stylisma patens*, and *Tillandsia usneoides*.

Dynamics:

Similar Associations:

- *Pinus palustris* / *Quercus laevis* / *Schizachyrium scoparium* – *Stipulicida setacea* Woodland (CEGL007844)
- *Pinus palustris* / *Quercus laevis* / *Chrysoma pauciflorescens* / *Aristida purpurascens* Woodland (CEGL00xxx3)

Similar Association Comments: This type is similar to xxx3 and 7844, in that it occurs on sandy, xeric soils. However, it can be differentiated from those types by its geographic location and the prevalence of *Q. margarattae* and *Licania michauxii*.

Adjacent Associations:

Adjacent Association Comments:

Other Comments: Acknowledgements:

ELEMENT GLOBAL RANK & REASONS

GRank: G3 **GRank Review Date:** 4-Oct-2004

GReasons: This association has been documented on Fort Stewart (DoD) in Georgia. Examples on private land, which are not protected, must be considered very rare and highly threatened. Clearcutting and conversion to pine plantations have reduced the amount of this type of vegetation dramatically.

Ranking Author: C.W. Nordman

Version: 4-Oct-2004

ELEMENT DISTRIBUTION

Range: This type is found in the South Atlantic Coastal Plain of Georgia (possibly South Carolina) and also in the East Gulf Coastal Plain of Georgia. It may also occur in panhandle Florida, but additional information is needed. Plot occurrences of this type are from Baker, Evans, Long, and Tatnall County, GA. This type may also be found at Tilman Sand Rigde, SC and Aiken Gopher Tortoise HP, SC (Joel Gramling, personal communication).

Nations: US

Table 2.2.3: Prevalent species in vegetation type 4492 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. Homogeneity = 0.720.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	6
<i>Quercus laevis</i>	100%	6
<i>Quercus incana</i>	86%	4
<i>Quercus margarettae</i>	71%	6
<i>Diospyros virginiana</i>	71%	2
<i>Quercus stellata</i>	29%	6
<i>Pinus taeda</i>	29%	5
<i>Pinus elliotii</i> var. <i>elliotii</i>	29%	4
<i>Castanea pumila</i>	29%	2
<i>Crataegus</i> sp.	29%	2
<i>Quercus hemiphaerica</i>	29%	2
<i>Sassafras albidum</i>	29%	2
Vine species	Const.	Cover
<i>Smilax auriculata</i>	29%	2
Shrub species	Const.	Cover
<i>Licania michauxii</i>	100%	3
<i>Opuntia humifusa</i>	100%	2
<i>Serenoa repens</i>	71%	4
<i>Vaccinium stamineum</i>	71%	2
<i>Toxicodendron pubescens</i>	57%	3
<i>Hypericum hypericoides</i>	57%	2
<i>Rhus copallinum</i>	57%	2
<i>Vaccinium arboreum</i>	57%	2
<i>Asimina angustifolia</i>	43%	2
<i>Gaylussacia dumosa</i>	43%	2
<i>Morella [cerifera + pumila]</i>	43%	2
<i>Hypericum gentianoides</i>	29%	2
Herb species	Const.	Cover
<i>Aristida beyrichiana</i>	100%	6
<i>Eupatorium compositifolium</i>	100%	3
<i>Andropogon virginicus</i>	100%	2
<i>Commelina erecta</i>	100%	2
<i>Dichanthelium acuminatum</i>	100%	2
<i>Sporobolus junceus</i>	86%	4
<i>Schizachyrium scoparium</i>	86%	3
<i>Aureolaria pectinata</i>	86%	2
<i>Bulbostylis [ciliatifolia + coarctata]</i>	86%	2
<i>Eriogonum tomentosum</i>	86%	2
<i>Stylisma patens</i>	86%	2

<i>Tillandsia usneoides</i>	86%	2
<i>Tephrosia virginiana</i>	71%	3
<i>Aristida virgata</i>	71%	2
<i>Cnidocolus stimulosus</i>	71%	2
<i>Croton argyranthemus</i>	71%	2
<i>Liatris tenuifolia</i>	71%	2
<i>Pityopsis graminifolia</i>	71%	2
<i>Scleria [ciliata + elliotii]</i>	71%	2
<i>Sorghastrum secundum</i>	71%	2
<i>Andropogon elliotii</i>	57%	2
<i>Aristida purpurascens</i>	57%	2
<i>Chrysopsis gossypina</i>	57%	2
<i>Dalea pinnata</i>	57%	2
<i>Dichantherium [aciculare + angustifolium]</i>	57%	2
<i>Euphorbia exserta</i>	57%	2
<i>Galactia [regularis + volubilis]</i>	57%	2
<i>Hieracium gronovii</i>	57%	2
<i>Polygonella robusta</i>	57%	2
<i>Stylosanthes biflora</i>	57%	2
<i>Dyschoriste oblongifolia</i>	43%	3
<i>Galactia minor</i>	43%	3
<i>Andropogon ternarius</i>	43%	2
<i>Asclepias humistrata</i>	43%	2
<i>Baptisia perfoliata</i>	43%	2
<i>Clitoria mariana</i>	43%	2
<i>Cyperus lupulinus</i>	43%	2
<i>Eupatorium glaucescens</i>	43%	2
<i>Euphorbia pubentissima</i>	43%	2
<i>Lechea sessiliflora</i>	43%	2
<i>Liatris [pilosa + virgata]</i>	43%	2
<i>Orbexilum lupinellum</i>	43%	2
<i>Rhynchospora grayi</i>	43%	2
<i>Sericocarpus tortifolius</i>	43%	2
<i>Tragia urens</i>	43%	2
<i>Pteridium aquilinum</i>	29%	6
<i>Balduina angustifolia</i>	29%	2
<i>Cyperus haspan</i>	29%	2
<i>Cyperus plukenetii</i>	36%	2
<i>Eupatorium album</i>	29%	2
<i>Krameria lanceolata</i>	29%	2
<i>Lechea torreyi</i>	29%	2
<i>Liatris [pauciflora + secunda]</i>	29%	2
<i>Paronychia baldwinii</i>	29%	2
<i>Rhynchospora recognita</i>	29%	2
<i>Tephrosia florida</i>	29%	2

<i>Zornia bracteata</i>	29%	2
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OVERVIEW

Database Code: C EGL003593

Scientific Name: *Pinus palustris* / *Quercus laevis* / *Toxicodendron pubescens* / *Schizachyrium scoparium* – *Lespedeza hirta* Woodland

Common Name: Longleaf Pine / Turkey Oak / Poison Oak / Little Bluestem - Hairy Lespedeza Woodland

Colloquial Name: South Carolina Central Longleaf Woodland

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong

Stakeholders: Southeast

Status: Standard

Origin: 1-May-1994 ID: 689621

Maint. Resp.: Southeast

Concept Auth.: D.J. Allard, mod. A.S. Weakley

Concept Ref.: Southeastern Ecology Working Group n.d. [Name in concept ref, if different:]

Description Author: K.A. Palmquist, R.K. Peet & S. Carr (2014), in part adapted from description of 3593

Status: 3 **Version:** 15-Feb-2014

Ecological Systems:

- Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254)

ELEMENT CONCEPT

Concept Summary: This subxeric Association is found in the Fall-line Sandhills region and spans both the wiregrass gap of central South Carolina and northern Georgia just below the gap. Soils of this type contain a considerable amount of silt and hence species richness is higher than xeric types. The canopy is dominated by *Pinus palustris* and *Quercus laevis* and less commonly *Quercus incana* and *Quercus margarettae*. Constant and indicator species include, *Vaccinium stamineum* and *Toxicodendron pubescens* in the shrub layer and *Schizachyrium scoparium*, *Eupatorium glaucescens*, *Lespedeza hirta*, *Silphium compositum*, and *Cirsium repandum* in the herbaceous layer.

Classification Comments: Description changed based on 12 plots from the Carolina Vegetation Survey (<http://vegbank.org/cite/VB.ds.199641.CEGL003593>). This Association is approximately equivalent to 3593 in the existing NVC hierarchy. 3593 formerly was defined as occurring only in the wiregrass gap region of central SC, but we expand the geographic scope of this to include the wiregrass gap and in adjacent areas to the southwest. We change the name to include indicative species in the shrub (*Toxicodendron pubescens*) and herb layer (*Lespedeza hirta*).

Diagnostic Characteristics: This Association can be differentiated from other subxeric community types by dominance of *Schizachyrium scoparium* in the herbaceous layer and *Toxicodendron pubescens* in the shrub layer and its location exclusively in the Fall-line Sandhills region of South Carolina and northern Georgia.

Concept History: C EGL03593.

Internal Comments:

Related Concepts:

- = *Pinus palustris* / *Quercus laevis* - (*Quercus incana*) / *Toxicodendron pubescens* / *Schizachyrium scoparium* Woodland [2.2.3] (Peet 2006)

ELEMENT DESCRIPTION

Environment: This Association occurs on sandy loams with relatively high silt content in the Fall-line Sandhills region of South Carolina and Northern Georgia. Soil types include: Arenic Kanhapludults, Grossarenic Kanhapludults, Plinthickandiudults, Typic Kanhapludults, and Typic Quartzipsamments.

Vegetation: This Association has an canopy dominated by *Pinus palustris* and a subcanopy layer comprised primarily of *Quercus laevis*, *Carya pallida*, *Quercus margarettae* and to a lesser degree *Quercus incana*. Other conspicuous trees species include *Diospyros virginiana*, *Sassafras albidum*, and *Prunus serotina*. Indicator and constant shrubs are *Vaccinium stamineum*, *Rhus copallinum*, and *Toxicodendron pubescens*. Other common shrub species include: *Hypericum hypericoides* and *Vaccinium arboreum*. This Association is characterized by a fairly species rich herbaceous layer dominated by *Schizachyrium scoparium*, which often obtains high cover. Other diagnostic herb species include: *Ageratina aromatica*, *Eupatorium glaucescens*, *Physalis virginiana*, *Cirsium repandum*, *Lespedeza hirta*, *Ageratina aromatica*, *Erigeron strigosus*, *Eupatorium glaucescens*, *Gymnopogon ambiguous*, *Galium pilosum*, *Carphephorus bellidifolius*, *Mimosa microphylla*, *Silphium compositum*, *Solidago odora* var. *odora*, *Stipulicida setacea*, *Tragia urens*, and *Vernonia angustifolia*.

Dynamics: Scrub oak density and height depend on fire history; under frequent fire regimes they may exist primarily as short shrubby sprouts, under less frequent intervals they may reach the subcanopy.

Similar Associations:

- *Pinus palustris* / *Quercus margarettae* – *Quercus incana* / *Ilex glabra* / *Schizachyrium scoparium*
Atlantic Woodland (CEGL004083)

Similar Association Comments:

CEGL004083: This type occurs exclusively in the outer Coastal Plain of South Carolina, has a more diverse scrub oak layer, and the herbaceous layer is co-dominated by *Schizachyrium scoparium* and *Pteridium aquilinum*.

Adjacent Associations:

Adjacent Association Comments:

Other Comments:

Acknowledgements:

ELEMENT GLOBAL RANK & REASONS

GRank: G2 **GRank Review Date:** 31-Dec-1997

GReasons: This woodland community is restricted to the Fall-line Sandhills of South Carolina and Northern Georgia, a very narrow natural geographic range lying south of the distribution of *Aristida stricta* and within the far northern distribution of *Aristida beyrichiana*. It is part of the endangered Longleaf Pine Ecosystem, which once dominated the Coastal Plain landscape of the southeastern United States, and depends on frequent, low-intensity, growing-season fires to control understory vegetation and for the reproduction of *Pinus palustris*. *Pinus palustris*-dominated woodlands are susceptible to the effects of fire suppression, over-grazing, or conversion to commercial forest plantations or agriculture. Remaining examples are highly threatened by development, conversion, and alteration of fire regimes. Most of those occurrences which have not been destroyed are severely degraded.

Ranking Author: R.E. Evans **Version:** 30-Jul-2002

ELEMENT DISTRIBUTION

Range: This Association is restricted to the Fall-line Sandhills region of South Carolina and northern Georgia. Known occurrences of this type are located in Aiken, Barnwell, and Richland counties, South Carolina and Richmond county, Georgia. More specifically, plots of this type have been documented on Fort Jackson and Fort Gordon Military Reservations, the Savannah River Site, and near the south fork of the Edisto River in Aiken county, SC.

Nations: US

Table 2.2.4: Prevalent species in vegetation type 3593 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. *Schizachyrium scoparium* * is more than likely *Schizachyrium scoparium*, but at the time of sampling was only identified to [*Andropogon* + *Schizachyrium*]. Homogeneity = 0.618.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	7
<i>Quercus laevis</i>	100%	5
<i>Diospyros virginiana</i>	100%	3
<i>Sassafras albidum</i>	100%	2
<i>Carya pallida</i>	92%	3
<i>Quercus margarettae</i>	83%	4
<i>Prunus serotina</i>	75%	2
<i>Quercus incana</i>	50%	4
<i>Crataegus</i> sp.	50%	2
<i>Quercus marilandica</i>	50%	2
<i>Quercus hemiphaerica</i>	33%	2
Vine species	Const.	Cover
<i>Smilax glauca</i>	83%	2
<i>Vitis rotundifolia</i>	58%	2
<i>Gelsemium sempervirens</i>	33%	2
Shrub species	Const.	Cover
<i>Vaccinium stamineum</i>	100%	4
<i>Rhus copallinum</i>	100%	2
<i>Toxicodendron pubescens</i>	100%	2
<i>Hypericum hypericoides</i>	92%	2
<i>Vaccinium arboreum</i>	75%	2
<i>Opuntia humifusa</i>	33%	2
<i>Rubus cuneifolius</i>	33%	2
<i>Gaylussacia dumosa</i>	58%	4
<i>Nolina georgiana</i>	25%	2
Herb species	Const.	Cover
<i>Schizachyrium scoparium</i> *	100%	6
<i>Eupatorium glaucescens</i>	100%	2
<i>Gymnopogon ambiguus</i>	100%	2
<i>Lespedeza hirta</i>	100%	2
<i>Silphium compositum</i>	100%	2
<i>Solidago odora</i> var. <i>odora</i>	100%	2
<i>Tragia urens</i>	100%	2
<i>Pityopsis graminifolia</i>	92%	3
<i>Cirsium repandum</i>	92%	2
<i>Lespedeza repens</i>	92%	2
<i>Rhynchosia reniformis</i>	92%	2

<i>Vernonia angustifolia</i>	92%	2
<i>Ageratina aromatica</i>	83%	2
<i>Dichantherium [aciculare + angustifolium]</i>	83%	2
<i>Ionactis linariifolia</i>	83%	2
<i>Mimosa microphylla</i>	83%	2
<i>Physalis virginiana</i>	83%	2
<i>Stipulicida setacea</i>	83%	2
<i>Stylisma patens</i>	83%	2
<i>Commelina erecta</i>	75%	2
<i>Eupatorium compositifolium</i>	75%	2
<i>Galium pilosum</i>	75%	2
<i>Hieracium gronovii</i>	75%	2
<i>Sericocarpus tortifolius</i>	75%	2
<i>Symphotrichum concolor</i>	75%	2
<i>Carphephorus bellidifolius</i>	67%	2
<i>Coreopsis major</i>	67%	2
<i>Desmodium paniculatum</i>	67%	2
<i>Dichantherium ovale</i>	67%	2
<i>Galactia sp.</i>	67%	2
<i>Lechea minor</i>	67%	2
<i>Liatris sp.</i>	67%	2
<i>Rhynchospora grayi</i>	67%	2
<i>Scleria [ciliata + elliottii]</i>	67%	2
<i>Aristida purpurascens</i>	58%	3
<i>Centrosema virginianum</i>	58%	2
<i>Clitoria mariana</i>	58%	2
<i>Desmodium nuttallii</i>	58%	2
<i>Erigeron strigosus</i>	58%	2
<i>Eupatorium album</i>	58%	2
<i>Solidago nemoralis</i>	58%	2
<i>Stylosanthes biflora</i>	58%	2
<i>Bulbostylis coarctata</i>	50%	2
<i>Crotalaria purshii</i>	50%	2
<i>Eriogonum tomentosum</i>	50%	2
<i>Paspalum setaceum</i>	50%	2
<i>Scleria [nitida + triglomerata]</i>	50%	2
<i>Stillingia sylvatica</i>	50%	2
<i>Tephrosia virginiana</i>	42%	3
<i>Berlandiera pumila</i>	42%	2
<i>Chrysopsis mariana</i>	42%	2
<i>Cnidoscolus stimulosus</i>	42%	2
<i>Cyperus lupulinus</i>	42%	2
<i>Cyperus plukenetii</i>	42%	2
<i>Dichantherium oligosanthes</i>	42%	2
<i>Hypoxis sp.</i>	42%	2

<i>Ruellia caroliniensis</i>	42%	2
<i>Aristida beyrichiana</i>	33%	8
<i>Asclepias amplexicaulis</i>	33%	2
<i>Baptisia perfoliata</i>	33%	2
<i>Chrysopsis gossypina</i>	33%	2
<i>Cuthbertia rosea</i>	33%	2
<i>Desmodium ciliare</i>	33%	2
<i>Dichantherium ravenelii</i>	33%	2
<i>Euphorbia curtisii</i>	33%	2
<i>Indigofera caroliniana</i>	33%	2
<i>Lespedeza stuevei</i>	33%	2
<i>Lespedeza virginica</i>	33%	2
<i>Tragia urticifolia</i>	33%	2
<i>Viola pedata</i>	33%	2
<i>Anthenantia villosa</i>	25%	2
<i>Aristida lanosa</i>	25%	2
<i>Asclepias tuberosa</i>	25%	2
<i>Aureolaria pectinata</i>	25%	2
<i>Chamaecrista nictitans</i>	25%	2
<i>Desmodium strictum</i>	25%	2
<i>Desmodium tenuifolium</i>	25%	2
<i>Dichantherium commutatum</i>	25%	2
<i>Dichantherium villosissimum</i>	25%	2
<i>Euphorbia ipecacuanhae</i>	25%	2
<i>Gaura filipes</i>	25%	2
<i>Lechea sessiliflora</i>	25%	2
<i>Pedimelum canescens</i>	25%	2
<i>Polygala grandiflora</i>	25%	2
<i>Pseudognaphalium obtusifolium</i>	25%	2
<i>Sabatia quadrangula</i>	25%	2
<i>Saccharum</i> sp.	25%	2
<i>Sericocarpus asteroides</i>	25%	2
<i>Sisyrinchium</i> sp.	25%	2
<i>Sporobolus junceus</i>	25%	2
<i>Symphotrichum dumosum</i>	25%	2
<i>Tephrosia spicata</i>	25%	2

OVERVIEW

Database Code: CEGL007842

Scientific Name: *Pinus palustris* / *Quercus marilandica* / *Aristida beyrichiana* – *Tephrosia virginiana*
Woodland

Common Name: Longleaf Longleaf Pine / Blackjack Oak / Southern Wiregrass - Virginia Goat's-rue
Woodland

Colloquial Name: South Atlantic Sandhills Subxeric Silty Longleaf Pine Woodland

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong **Stakeholders:** Southeast

Status: Standard **Origin:** 17-Dec-1998 ID: 687194 **Maint. Resp.:** Southeast

Concept Auth.: A.S. Weakley and M. Pyne

Description Author: K.A. Palmquist, R.K. Peet & S.Carr (2014), in part adapted from description of 7842

Status: 2 **Version:** 15-Feb-2014

Concept Ref.: Southeastern Ecology Working Group n.d. [Name in concept ref, if different:]

Ecological Systems:

- Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281)
- Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254)

ELEMENT CONCEPT

Concept Summary: This Association occurs in subxeric habitats of the Fall-line Sandhills and inner South Atlantic Coastal Plain of South Carolina and Georgia south of the wiregrass gap region. Silt content in this type is the one of the highest of any xeric-subxeric Association with the geographic scope of SC-GA. *Pinus palustris* and *Pinus taeda* often co-dominate in the overstory and form a relatively closed canopy. The subcanopy and scrub layers are fairly diverse with a mix of scrub oaks and hardwood components including, *Quercus marilandica*, *Quercus laevis*, *Quercus nigra*, *Prunus serotina*, *Diospyros virginiana*, *Gaylussacia dumosa*, *Nyssa sylvatica*, *Vaccinium arboreum*, *Vaccinium stamineum*, *Sassafras albidum*, *Toxicodendron pubescens*, and *Hypericum hypericoides*. Despite silty soils, the herbaceous is relatively species poor and is dominated by *Aristida beyrichiana*, *Schizachyrium scoparium*, *Gelsemium sempervirens*, and *Tephrosia virginiana*.

Classification Comments: Description changed based on 4 plots from the Carolina Vegetation Survey (<http://vegbank.org/cite/VB.ds.199649.CEGL007842>). This type is approximately equivalent to 7842 in the existing NVC hierarchy, but is slightly smaller in concept in that it includes only the region where *Aristida beyrichiana* is an understory dominant, the *Aristida*-free region being assigned to 8491. We change the name and put less emphasis on *Quercus incana* and replace *Nolina georgiana* with *Tephrosia virginiana*.

Diagnostic Characteristics: This type is distinguished from other subxeric types by its high silt content and hence species that are often found on high silt soils such as, *Quercus marilandica*, *Toxicodendron pubescens*, *Rhus copallinum*, and *Tephrosia virginiana*. The diverse subcanopy/shrub layer containing a mix of scrub oaks and hardwood species also sets this type apart.

Concept History: CEGL007842.

Internal Comments:**Related Concepts:**

- < *Pinus palustris* / *Quercus incana* – *Quercus marilandica* / *Aristida beyrichiana* – *Nolina georgiana* Woodland (Peet 2006) [2.2.2]

ELEMENT DESCRIPTION

Environment: This Association occurs in subxeric habitats on soils with relatively high silt content (average silt % = 36). Plots of this type have been documented on Grossarenic Paleudults.

Vegetation: In stands of this type, *Pinus palustris* forms a relatively closed canopy. *Pinus taeda* often occurs as a co-dominant, likely due to fire suppression and land-use history. The sub-canopy/shrub layer is a diverse mix of scrub oaks and hardwood species including, *Quercus marilandica*, *Quercus laevis*, *Quercus nigra*, *Nyssa sylvatica*, *Prunus serotina*, *Diospyros virginiana*, *Sassafras albidum*, *Cornus florida*, *Gaylussacia dumosa*, *Vaccinium arboreum*, *Vaccinium stamineum*, *Toxicodendron pubescens*, *Rhus copallinum*, and *Hypericum hypericoides*. The subcanopy may also contain small amounts of *Quercus incana*. The herbaceous layer is fairly species-poor, despite the high silt content. Dominants of the herbaceous stratum include *Aristida beyrichiana*, *Schizachyrium scoparium*, *Gelsemium sempervirens*, and *Tephrosia virginiana*. Other common species in the herbaceous layer include, *Anthenantia villosa*, *Carphephorus bellidifolius*, *Dichanthelium aciculare*, *Dichanthelium ovale*, *Dichanthelium tenue*, *Euphorbia ipecacuanhae*, *Hieracium gronovii*, *Ionactis linariifolia*, *Liatris* spp., *Pityopsis graminifolia*, *Sericocarpus asteroides*, *Sericocarpus tortifolius*, *Smilax glauca*, *Solidago odora* var. *odora*, *Stylisma patens*, *Stylosanthes biflora*, and *Vitis rotundifolia*.

Dynamics:**Similar Associations:**

- *Pinus palustris* / *Schizachyrium scoparium* – *Pteridium aquilinum* Woodland (CEGL008491)

Similar Association Comments: This Association is similar to CEGL008491, which has slightly siltier soils, is located in the Fall-Line Sandhills, and lack of *Aristida stricta*, in contrast to 7842.

Adjacent Associations:**Adjacent Association Comments:****Other Comments:****Acknowledgements:****ELEMENT GLOBAL RANK & REASONS**

GRank: G2G3 **GRank Review Date:** 17-Dec-1998

GReasons: This longleaf pine woodland association is found in a restricted range and is susceptible to forest conversion. It is limited to the sandhills and inner South Atlantic Coastal Plain of Georgia where it is part of the endangered Longleaf Pine Ecosystem that once dominated the Coastal Plain landscape of the southeastern United States. It depends on frequent, low-intensity, growing-season fires to control understory vegetation and for the reproduction of *Pinus palustris*. Few sizable occurrences of the Longleaf Pine Ecosystem remain in Georgia, and remaining occurrences of this type are generally small and

degraded. *Pinus palustris*-dominated woodlands are susceptible to the effects of fire suppression, over-grazing, or conversion to commercial forest plantations or agriculture. Remaining examples are highly threatened by development, conversion, and alteration of fire regimes. Most of those occurrences which have not been destroyed are severely degraded, except for examples on military lands, where incidental burning has maintained more-or-less natural fire regimes.

Ranking Author: M. Pyne **Version:** 17-Dec-1998

ELEMENT DISTRIBUTION

Range: This Association occurs in subxeric habitats of the sandhills and inner South Atlantic Coastal Plain of South Carolina and possibly Georgia. Plots of this type are located in Barnwell County, SC on the Savanna River Site.

Nations: US

Table 2.2.5: Prevalent species in vegetation type 7842 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. *Schizachyrium scoparium* * is more than likely *Schizachyrium scoparium*, but at the time of sampling was only identified to [*Andropogon* + *Schizachyrium*]. Homogeneity = 0.642.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	7
<i>Pinus taeda</i>	100%	6
<i>Nyssa sylvatica</i>	100%	4
<i>Prunus serotina</i>	100%	3
<i>Quercus laevis</i>	100%	3
<i>Quercus marilandica</i>	100%	3
<i>Quercus nigra</i>	100%	3
<i>Cornus florida</i>	100%	2
<i>Diospyros virginiana</i>	100%	2
<i>Sassafras albidum</i>	100%	2
<i>Quercus margaretta</i>	75%	3
<i>Carya pallida</i>	75%	2
<i>Ilex opaca</i>	75%	2
<i>Symplocos tinctoria</i>	50%	5
<i>Quercus falcata</i>	50%	2
<i>Quercus incana</i>	50%	2
<i>Carya alba</i>	25%	2
<i>Crataegus</i> sp.	25%	2
<i>Liquidambar styraciflua</i>	25%	2
<i>Quercus hemiphaerica</i>	25%	2
Vine species	Const.	Cover
<i>Gelsemium sempervirens</i>	100%	4
<i>Smilax glauca</i>	100%	2
<i>Vitis rotundifolia</i>	75%	2
<i>Smilax bona-nox</i>	50%	2
Shrub species	Const.	Cover
<i>Vaccinium arboreum</i>	100%	4
<i>Vaccinium stamineum</i>	100%	3
<i>Gaylussacia dumosa</i>	100%	2
<i>Rhus copallinum</i>	100%	2
<i>Hypericum hypericoides</i>	75%	2
<i>Vaccinium tenellum</i>	50%	4
<i>Vaccinium elliotii</i>	25%	2
Herb species	Const.	Cover
<i>Aristida beyrichiana</i>	100%	6
<i>Tephrosia virginiana</i>	100%	5
<i>Schizachyrium scoparium</i> *	100%	4

<i>Carphephorus bellidifolius</i>	100%	2
<i>Pityopsis graminifolia</i>	100%	2
<i>Sericocarpus tortifolius</i>	100%	2
<i>Solidago odora</i>	100%	2
<i>Stylisma patens</i>	100%	2
<i>Agalinis</i> sp.	75%	3
<i>Anthenantia villosa</i>	75%	2
<i>Dichantherium</i> [<i>aciculare</i> + <i>angustifolium</i>]	75%	2
<i>Dichantherium ovale</i>	75%	2
<i>Dichantherium tenue</i>	75%	2
<i>Euphorbia ipecacuanhae</i>	75%	2
<i>Hieracium gronovii</i>	75%	2
<i>Ionactis linariifolia</i>	75%	2
<i>Liatris</i> sp.	75%	2
<i>Scleria</i> [<i>nitida</i> + <i>triglomerata</i>]	75%	2
<i>Sericocarpus asteroides</i>	75%	2
<i>Stylosanthes biflora</i>	75%	2
<i>Pteridium aquilinum</i>	50%	5
<i>Aristida purpurascens</i>	50%	2
<i>Chrysopsis mariana</i>	50%	2
<i>Conyza canadensis</i>	50%	2
<i>Coreopsis major</i>	50%	2
<i>Dichantherium commutatum</i>	50%	2
<i>Lespedeza repens</i>	50%	2
<i>Ruellia caroliniensis</i>	50%	2
<i>Silphium compositum</i>	50%	2
<i>Solidago nemoralis</i>	50%	2
<i>Vernonia angustifolia</i>	50%	2
<i>Viola</i> [<i>esculenta</i> + <i>septemloba</i>]	50%	2
<i>Aureolaria pectinata</i>	25%	2
<i>Baptisia</i> [<i>alba</i> + <i>albescens</i>]	25%	2
<i>Baptisia perfoliata</i>	25%	2
<i>Eriogonum tomentosum</i>	25%	2
<i>Eupatorium capillifolium</i>	25%	2
<i>Eupatorium compositifolium</i>	25%	2
<i>Liatris secunda</i>	25%	2
<i>Piriqueta caroliniana</i>	25%	2
<i>Rhynchospora grayi</i>	25%	2
<i>Scleria</i> [<i>ciliata</i> + <i>elliottii</i>]	25%	2
<i>Senecio vulgaris</i>	25%	2
<i>Sorghastrum nutans</i>	25%	2

OVERVIEW

Database Code: CEGLO08491

Scientific Name: *Pinus palustris* / *Schizachyrium scoparium* – *Pteridium aquilinum* Woodland

Common Name: Longleaf Pine / Little Bluestem – Bracken Fern Woodland

Colloquial Name: Xeric Upper East Gulf Coastal Plain Longleaf Pine Woodland

Classif. Resp.: Southeast

Classif. Level: Association

Conf.: 1-Strong

Stakeholders: Southeast

Status: Standard

Origin: 25-Jun-2001 ID: 685027

Maint. Resp.: Southeast

Concept Auth.:

Description Author: K.A. Palmquist, R.K. Peet & S.Carr (2014), in part adapted from description of 8491

Status: 2 **Version:** 15-Feb-2014

Concept Ref.: Southeastern Ecology Working Group n.d. [Name in concept ref, if different:]

Ecological Systems:

- East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496)
- Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland (CES203.254)

ELEMENT CONCEPT

Concept Summary: This longleaf pine woodland occurs in a variety of xeric to subxeric situations on upland ridges, knolls, and slopes of the Upper East Gulf Coastal Plain of Georgia and less commonly in the Fall-line Sandhills region of South Carolina. Surface soils are typically sandy loams with very high silt content, often in association with ironstone hardpans or other clayey B horizons. The relatively closed canopy is dominated by *Pinus palustris* while the subcanopy layer is typically open and is characterized by a mix of scrub oaks and mesic hardwood species. Despite high percentages of silt, the herb layer is not particularly species rich, but legume and Asteraceae diversity is high compared to other xeric-subxeric types. The two most abundant and constant species in the herbaceous layer are *Pteridium aquilinum* and *Schizachyrium scoparium*.

Classification Comments: Description changed based on 10 plots from the Carolina Vegetation Survey (<http://vegbank.org/cite/VB.ds.199651.CEGL008491>). This type is equivalent to 8491 in the existing NVC hierarchy. However, 8491 was originally constrained to the Gulf Coastal Plain (including in our analysis only plots from Ft. Benning, GA) and here we broaden the geographic scope of this concept by expanding the range from Ft. Benning, GA to Ft. Jackson, SC. We simplify the name and add *Pteridium aquilinum* as a good indicator of this type.

Diagnostic Characteristics: This type has a very high silt content and hence a mix of scrub oaks and “mesic” hardwood species in the subcanopy/shrub layer. The herbaceous layer is relatively species poor, but legumes and Asteraceae species are fairly diverse compared to other xeric-subxeric types. *Pteridium aquilinum* is the most constant and abundant species in the herbaceous layer. This type has a unique distribution with most occurrences in the Upper East Gulf Coastal Plain of Georgia, but this type has also been documented in the Fall-line Sandhills region of central South Carolina.

Concept History: CEGLO08491.

Internal Comments:

Related Concepts:

- > *Pinus palustris* – *Pinus (echinata, taeda)* / *Quercus (marilandica, laevis)* / *Schizachyrium scoparium* Woodland (Peet 2006) [2.4.5]

ELEMENT DESCRIPTION

Environment: This longleaf pine woodland occurs in a variety of xeric to subxeric situations on coarse- to medium-textured soils including sands and loamy sands, sometimes in Association with ironstone hardpans, on upland ridges, knolls, and slopes of the Upper East Gulf Coastal Plain and rarely in the Atlantic Coastal Plain. Soils on which this Association may be found include Typic Kanhapludults, Troup Loamy Sand and the Ailey Coarse Loamy Sand, an Ultisol which is coarse-textured in the surface layer, but this is underlain by clay loams with slower drainage.

Vegetation: Vegetation structure is variable and depends on fire-return time and time since most recent fire. The relatively closed canopy is dominated by *Pinus palustris*, but may also rarely include *Pinus echinata* and *Pinus taeda*. The subcanopy layer is typically open (< 25% cover) and is characterized by a mix of scrub oaks, including *Quercus marilandica*, *Quercus laevis* and less commonly *Quercus stellata* and *Quercus falcata*. Several mesic hardwood species are also present including, *Carya pallida*, *Nyssa sylvatica*, and *Quercus nigra*. The shrub stratum is of variable density and is characterized by *Vaccinium arboreum*, *Hypericum hypericoides*, *Vaccinium myrsinites*, *Vaccinium tenellum*, *Diospyros virginiana*, *Vaccinium stamineum*, *Toxicodendron pubescens*, *Rhus copallinum*, and *Gaylussacia dumosa*. One characteristic woody vine is *Smilax glauca*. Despite high percentages of silt, the herb layer is not particularly species rich, but legume and Asteraceae diversity is high compared to other xeric-subxeric types. The two most abundant and constant species in the herbaceous layer are *Pteridium aquilinum* and *Schizachyrium scoparium*. Other characteristic herbaceous species represent a mix of xeric and more mesic species including, *Anthenantia villosa*, *Aristida purpurascens*, *Chrysopsis mariana*, *Coreopsis major*, *Desmodium lineatum*, *Dichantheium aciculare*, *Dichantheium ovale*, *Eupatorium album*, *Eupatorium compositifolium*, *Hieracium gronvoii*, *Ionactis llinariifolia*, *Liatris* sp., *Pityopsis graminifolia*, *Scleria* sp., *Sericocarpus asteroides*, *Sericocarpus tortifolius*, *Silphium compositum*, *Solidago nemoralis*, *Solidago odora*, *Symphyotrichum concolor*, *Symphyotrichum dumosum* var. *dumosum*, *Tephrosia virginiana*, *Vernonia angustifolia*, and *Viola pedata*.

High-ranked species: *Agrimonia incisa* (G3), *Phaseolus polystachios* var. *sinuatus* (G5T3?), *Quercus arkansana* (G3), *Stylisma pickeringii* var. *pickeringii* (G4T3)

Dynamics: These communities had a natural fire regime which allowed for the reproduction of *Pinus palustris*. Depending on fire-return time and time since most recent fire, stands may contain more or less *Pinus echinata* and/or *Pinus taeda*.

Similar Associations:

Pinus palustris / *Quercus marilandica* / *Aristida beyrichiana* – *Tephrosia virginiana* Woodland (CEGL007842)

Similar Association Comments: This Association is similar to CEGL007842, but CEGL008491 can be distinguished by its slightly siltier soils, location in the Fall-Line Sandhills, and lack of *Aristida stricta*.

Adjacent Associations:

Adjacent Association Comments:

Other Comments: According to Al Schotz (ALNHP, pers. comm.), this association "most appropriately describes the Red Hills longleaf, (but) unfortunately, so much has been severely degraded, the small vestiges that still remain strongly suggest this association." The "Red Hills" occupy parts of USFS Subsection 232Bm.

Acknowledgements:**ELEMENT GLOBAL RANK & REASONS**

GRank: G3 **GRank Review Date:** 15-Oct-2002

GReasons: This longleaf pine woodland is currently known only from xeric and subxeric situations on upland ridges, knolls, and slopes of the Upper East Gulf Coastal Plain of Georgia and the Atlantic Coastal Plain of central South Carolina. Like most longleaf pine communities, this type is seriously imperiled because of past and present conversion to other land uses, and exclusion of fire, a critical natural process for maintenance of this community. In addition, it is threatened by mechanical disturbance caused by off-road vehicles. Most of those natural occurrences on private lands which have not been destroyed are severely degraded. Some examples are conserved on public lands (e.g., national forests, military bases).

Ranking Author: J. Teague, mod. M. Pyne **Version:** 15-Oct-2002

ELEMENT DISTRIBUTION

Range: This community occurs in the Upper East Gulf Coastal Plain of Georgia and the Atlantic Coastal Plain of central South Carolina. It is possible in Mississippi. Plot occurrences of this type occur on Fort Benning (Chattahoochee county, GA), and Fort Jackson (Richland county, SC). This type may occur in the Francis Marion National Forest (Jeff Glitzenstein, personal communication).

Nations: US

Table 2.2.6: Prevalent species in vegetation type 8491 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. *Schizachyrium scoparium* * is more than likely *Schizachyrium scoparium*, but at the time of sampling was only identified to [*Andropogon* + *Schizachyrium*]. Homogeneity = 0.623.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	7
<i>Diospyros virginiana</i>	90%	2
<i>Quercus marilandica</i>	80%	3
<i>Carya pallida</i>	80%	2
<i>Crataegus</i> sp.	80%	2
<i>Nyssa sylvatica</i>	80%	2
<i>Quercus laevis</i>	70%	4
<i>Quercus nigra</i>	50%	2
<i>Quercus stellata</i>	50%	2
<i>Quercus falcata</i>	40%	2
<i>Liquidambar styraciflua</i>	30%	2
<i>Quercus incana</i>	30%	2
<i>Sassafras albidum</i>	30%	2
<i>Pinus echinata</i>	20%	2
<i>Prunus serotina</i>	20%	2
<i>Quercus hemisphaerica</i>	20%	2
<i>Quercus margaretta</i>	20%	2
Vine species	Const.	Cover
<i>Smilax glauca</i>	90%	2
<i>Gelsemium sempervirens</i>	50%	2
<i>Smilax rotundifolia</i>	20%	2
Shrub species	Const.	Cover
<i>Vaccinium arboreum</i>	100%	4
<i>Gaylussacia dumosa</i>	100%	3
<i>Rhus copallinum</i>	100%	2
<i>Hypericum hypericoides</i>	80%	2
<i>Vaccinium myrsinites</i>	60%	4
<i>Vaccinium tenellum</i>	60%	3
<i>Toxicodendron pubescens</i>	60%	2
<i>Vaccinium stamineum</i>	60%	2
<i>Rubus</i> [enslenii + flagellaris]	50%	2
<i>Rubus cuneifolius</i>	50%	2
<i>Epigaea repens</i>	30%	2
<i>Ilex glabra</i>	30%	2
<i>Lyonia mariana</i>	20%	4
<i>Hypericum gentianoides</i>	20%	2
<i>Yucca filamentosa</i>	20%	2

Herb species	Const.	Cover
<i>Pteridium aquilinum</i>	100%	6
<i>Schizachyrium scoparium*</i>	100%	5
<i>Pityopsis graminifolia</i>	100%	4
<i>Tephrosia virginiana</i>	100%	4
<i>Aristida purpurascens</i>	100%	2
<i>Hieracium gronovii</i>	100%	2
<i>Liatris</i> sp.	100%	2
<i>Sericocarpus tortifolius</i>	100%	2
<i>Solidago nemoralis</i>	100%	2
<i>Solidago odora</i>	100%	2
<i>Dichanthelium [aciculare + angustifolium]</i>	90%	2
<i>Dichanthelium ovale</i>	90%	2
<i>Ionactis linariifolia</i>	90%	2
<i>Scleria [ciliata + elliotii]</i>	90%	2
<i>Symphyotrichum concolor</i>	90%	2
<i>Vernonia angustifolia</i>	90%	2
<i>Chrysopsis mariana</i>	80%	2
<i>Eupatorium album</i>	80%	2
<i>Eupatorium compositifolium</i>	80%	2
<i>Symphyotrichum dumosum</i>	80%	2
<i>Coreopsis major</i>	70%	2
<i>Sericocarpus asteroides</i>	70%	2
<i>Silphium compositum</i>	70%	2
<i>Viola pedata</i>	70%	2
<i>Anthenantia villosa</i>	60%	2
<i>Desmodium lineatum</i>	60%	2
<i>Desmodium obtusum</i>	60%	2
<i>Seymeria cassioides</i>	50%	3
<i>Chamaecrista</i> sp.	50%	2
<i>Desmodium nuttallii</i>	50%	2
<i>Desmodium paniculatum</i>	50%	2
<i>Dichanthelium ravenellii</i>	50%	2
<i>Dichanthelium tenue</i>	50%	2
<i>Elephantopus tomentosus</i>	50%	2
<i>Helianthus longifolius</i>	50%	2
<i>Lespedeza virginica</i>	50%	2
<i>Stylisma patens</i>	50%	2
<i>Stylosanthes biflora</i>	50%	2
<i>Tragia urens</i>	50%	2
<i>Agalinis</i> sp.	40%	2
<i>Ageratina aromatica</i>	40%	2
<i>Aureolaria pectinata</i>	40%	2
<i>Desmodium marilandicum</i>	40%	2

<i>Dichantherium commutatum</i>	40%	2
<i>Eragrostis spectabilis</i>	40%	2
<i>Galactia erecta</i>	40%	2
<i>Galactia</i> sp.	40%	2
<i>Gymnopogon ambiguus</i>	40%	2
<i>Hypoxis</i> sp.	40%	2
<i>Lespedeza hirta</i>	40%	2
<i>Lespedeza repens</i>	40%	2
<i>Panicum virgatum</i>	40%	2
<i>Sorghastrum secundum</i>	40%	2
<i>Baptisia</i> [alba + albescens]	30%	2
<i>Eupatorium glaucescens</i>	30%	2
<i>Euphorbia pubentissima</i>	30%	2
<i>Lespedeza procumbens</i>	30%	2
<i>Rhynchospora grayi</i>	30%	2
<i>Sporobolus junceus</i>	30%	2
<i>Carphephorus bellidifolius</i>	20%	2
<i>Desmodium strictum</i>	20%	2
<i>Dichantherium villosissimum</i>	20%	2
<i>Eupatorium capillifolium</i>	20%	2
<i>Galium pilosum</i>	20%	2
<i>Helianthus divaricatus</i>	20%	2
<i>Lespedeza capitata</i>	20%	2
<i>Piptochaetium avenaceum</i>	20%	2
<i>Scleria</i> [nitida + triglomerata]	20%	2
<i>Sericocarpus linifolius</i>	20%	2
<i>Sorghastrum nutans</i>	20%	2

OVERVIEW

Database Code: CEGL004487

Scientific Name: *Pinus palustris* / *Quercus stellata* / *Quercus elliotii* / *Sporobolus junceus* Woodland

Common Name: Longleaf Pine / Post Oak / Running Oak / Sandhill Dropseed Woodland

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong **Stakeholders:** Southeast

Status: Standard **Origin:** 1-Jul-1996 ID: 685026 **Maint. Resp.:** Southeast

Concept Auth.: R.K. Peet, E. Kjellmark and A.S. Weakley

Description Author: (1)R.K. Peet, E. Kjellmark and A.S. Weakley (2) modified by K.A. Palmquist, R.K. Peet & S.Carr (2014)

Status: 2 **Version:** 15-Feb-2014

Concept Ref.: Gawin et al. 2001 [Name in concept ref, if different:]

Ecological Systems:

- Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281)

ELEMENT CONCEPT

Concept Summary: This species-rich, subxeric Association occurs in the outer Coastal Plain of Georgia and immediate adjacent area of the inner Coastal Plain on sandy loam soils. *Pinus palustris* dominated the canopy with a scrub oak stratum of *Quercus incana*, *Quercus stellata*, and *Quercus margarettae*. The shrub layer can be sparse to dense and is characterized by *Quercus elliotii* and *Vaccinium myrsinites*, but *Diospyros virginiana*, *Gaylussacia dumosa* and others are also common. The species rich herbaceous stratum is characterized by *Aristida beyrichiana* and *Sporobolus junceus*, which both often obtain high abundance.

Classification Comments: Description changed based on 4 plots from the Carolina Vegetation Survey (<http://vegbank.org/cite/VB.ds.199644.CEGL004487>). This type is equivalent to the established 4487. However we do propose a simplification of the community name such that we shift from 6 nominal species to 4 and put emphasis on *Quercus elliotii* as an indicator.

Diagnostic Characteristics: This species-rich, subxeric type is characterized by the dominance of *Quercus incana* and *Quercus stellata* in the scrub oak layer and the species rich herbaceous layer (average richness at 1000m² = 102) codominated by *Aristida beyrichiana* and *Sporobolus junceus*.

Concept History: CEGL004487.

Internal Comments:

Related Concepts:

- = Southeastern Coastal Plain Subxeric Pine - Scrub Oak Sandhill (Gawin et al. 2001) =
- = *Pinus palustris* / *Quercus incana* / *Quercus stellata* / *Aristida beyrichiana* – *Sporobolus junceus* – *Nolina georgiana* Woodland (Peet 2006) [2.1.3]
- < Dry upland longleaf pine Woodlands (Edwards, Ambrose, & Kirkman 2013)

ELEMENT DESCRIPTION

Environment: This subseric Association occurs mostly in the outer Coastal Plain of Georgia on sandy loam soils of Plinthic Paleudults and Plinthaquic Paleudults.

Vegetation: In stands of this type, *Pinus palustris* forms an open to relatively closed canopy. A scrub oak stratum of *Quercus incana*, *Quercus stellata*, and *Quercus margarettae* can manifest itself as a subcanopy or as a shrub layer, depending on fire regime, and occasional individuals may reach the canopy. The shrub layer can be sparse to dense, and is characterized by *Quercus elliotii* and *Vaccinium myrsinites*, but *Diospyros virginiana*, *Gaylussacia dumosa*, *Hypericum hypericoides*, *Rhus copallinum*, *Rubus trivialis*, and scrub oak sprouts. The herbaceous stratum is species rich and is co-dominated by *Aristida beyrichiana* and *Sporobolus junceus*. This type contains many species of legumes, including *Baptisia perfoliata*, *Chamaecrista fasciculata*, *Desmodium lineatum*, *Desmodium marilandicum*, *Desmodium strictum*, *Galactia* spp., *Lespedeza repens*, *Rhynchosia reniformis*, *Stylosanthes biflora*, and *Tephrosia florida*. Other characteristic herbs include *Andropogon elliotii*, *Andropogon virginicus*, *Chrysopsis mariana*, *Cnidoscolus stimulosus*, *Commelina erecta*, *Dichantherium acuminatum*, *Dichantherium tenue*, *Dyschoriste oblongifolia*, *Eriogonum tomentosum*, *Eryngium yuccifolium*, *Eupatorium album*, *Eupatorium compositifolium*, *Eupatorium glaucescens*, *Euphorbia pubentissima*, *Gymnopogon ambiguus*, *Gymnopogon brevifolius*, *Hieracium gronovii*, *Ipomoea pandurata*, *Nolina georgiana*, *Pityopsis graminifolia*, *Physalis longifolia* var. *subglabrata*, *Rhynchospora grayi*, *Salvia azurea*, *Sericocarpus tortifolius*, *Solidago odora* var. *odora*, *Stillingia sylvatica*, *Symphotrichum concolor*, and *Tragia urens*. *Vitis rotundifolia* is an indicative vine of this type and often reaches high abundance.

Dynamics:

Similar Associations:

- *Pinus palustris* / *Quercus hemisphaerica* / *Gaylussacia dumosa* / *Aristida beyrichiana* – *Schizachyrium scoparium* Woodland (CEGL004488)

Similar Association Comments:

CEGL004488: This type lacks *Sporobolus junceus* as a dominant in the herbaceous layer, and lacks *Quercus elliotii* and *Quercus stellata* in the subcanopy/shrub layer. 4487 is slightly drier (as indicated by the presence of *Sporobolus junceus*) than 4488 and somewhat less silty.

Adjacent Associations:

Adjacent Association Comments:

Other Comments:

Acknowledgements:

ELEMENT GLOBAL RANK & REASONS

GRank: G2G3

GRank Review Date: 11-Aug-1997

GReasons: This longleaf pine woodland association is found in a restricted range and is susceptible to forest conversion. It is limited to the Atlantic Coastal Plain of Georgia where it is part of the endangered Longleaf Pine Ecosystem which once dominated the Coastal Plain landscape of the southeastern United States. It depends on frequent, low-intensity, growing-season fires to control understory vegetation and for the reproduction of *Pinus palustris*. Few sizable occurrence of the Longleaf Pine Ecosystem remain in Georgia, and remaining occurrences of this type are generally small and degraded. *Pinus palustris*-dominated woodlands are susceptible to the effects of fire suppression, over-grazing, or

conversion to commercial forest plantations or agriculture. Remaining examples are highly threatened by development, conversion, and alteration of fire regimes. Most of those occurrences which have not been destroyed are severely degraded, except for examples on military lands, where incidental burning has maintained more or less natural fire regimes.

ELEMENT DISTRIBUTION

Range: This Association occurs in the outer Coastal Plain and immediately adjacent portion of the inner Coastal Plain of Georgia. Plot occurrences are from Fort Stewart Military Reservation in Evans, Liberty, and Tattnall counties.

Nations: US

Table 2.2.7: Prevalent species in vegetation type 4487 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. Homogeneity = 0.662.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	7
<i>Quercus incana</i>	100%	4
<i>Diospyros virginiana</i>	100%	2
<i>Quercus stellata</i>	75%	6
<i>Quercus margarettae</i>	75%	2
<i>Quercus laevis</i>	50%	4
<i>Crataegus sp.</i>	50%	2
<i>Persea palustris</i>	50%	2
<i>Quercus falcata</i>	50%	2
<i>Sassafras albidum</i>	25%	4
<i>Quercus marilandica</i>	25%	3
<i>Albizia julibrissin</i>	25%	2
<i>Prunus serotina</i>	25%	2
<i>Quercus hemiphaerica</i>	25%	2
Vine species	Const.	Cover
<i>Vitis rotundifolia</i>	75%	5
<i>Smilax auriculata</i>	25%	2
<i>Smilax laurifolia</i>	25%	2
Shrub species	Const.	Cover
<i>Hypericum hypericoides</i>	100%	2
<i>Rhus copallinum</i>	100%	2
<i>Rubus trivialis</i>	100%	2
<i>Quercus elliotii</i>	75%	6
<i>Gaylussacia dumosa</i>	75%	4
<i>Vaccinium myrsinites</i>	75%	3
<i>Hypericum suffruticosum</i>	75%	2
<i>Quercus minima</i>	75%	2
<i>Serenoa repens</i>	50%	4
<i>Toxicodendron pubescens</i>	50%	4
<i>Morella [cerifera + pumila]</i>	50%	2
<i>Rubus cuneifolius</i>	50%	2
<i>Vaccinium stamineum</i>	50%	2
<i>Elliottia racemosa</i>	25%	6
<i>Lyonia mariana</i>	25%	3
<i>Ceanothus microphyllus</i>	25%	2
<i>Chionanthus virginicus</i>	25%	2
<i>Gaylussacia frondosa</i>	25%	2
<i>Hamamelis virginiana</i>	25%	2
<i>Hypericum brachyphyllum</i>	25%	2

<i>Hypericum crux-andreae</i>	25%	2
<i>Vaccinium tenellum</i>	25%	2
<i>Yucca filamentosa</i>	25%	2
Herb species	Const.	Cover
<i>Aristida beyrichiana</i>	100%	6
<i>Sporobolus junceus</i>	100%	4
<i>Andropogon elliottii</i>	100%	3
<i>Andropogon virginicus</i>	100%	3
<i>Baptisia perfoliata</i>	100%	2
<i>Commelina erecta</i>	100%	2
<i>Desmodium strictum</i>	100%	2
<i>Dyschoriste oblongifolia</i>	100%	2
<i>Eriogonum tomentosum</i>	100%	2
<i>Galactia [regularis+ volubilis var. volubilis]</i>	100%	2
<i>Hieracium gronovii</i>	100%	2
<i>Lespedeza repens</i>	100%	2
<i>Nolina georgiana</i>	100%	2
<i>Physalis longifolia</i>	100%	2
<i>Pityopsis graminifolia</i>	100%	2
<i>Rhynchosia reniformis</i>	100%	2
<i>Rhynchospora grayi</i>	100%	2
<i>Salvia azurea</i>	100%	2
<i>Scleria [ciliata + elliottii]</i>	100%	2
<i>Solidago odora</i> var. <i>odora</i>	100%	2
<i>Stillingia sylvatica</i>	100%	2
<i>Stylosanthes biflora</i>	100%	2
<i>Symphyotrichum concolor</i>	100%	2
<i>Tephrosia florida</i>	100%	2
<i>Tragia urens</i>	100%	2
<i>Asclepias verticillata</i>	75%	2
<i>Chamaecrista fasciculata</i>	75%	2
<i>Chrysopsis mariana</i>	75%	2
<i>Cnidoscolus stimulosus</i>	75%	2
<i>Desmodium lineatum</i>	75%	2
<i>Desmodium marilandicum</i>	75%	2
<i>Dichanthelium [aciculare + angustifolium]</i>	75%	2
<i>Dichanthelium acuminatum</i>	75%	2
<i>Dichanthelium tenue</i>	75%	2
<i>Eryngium yuccifolium</i>	75%	2
<i>Eupatorium album</i>	75%	2
<i>Eupatorium glaucescens</i>	75%	2
<i>Eupatorium compositifolium</i>	75%	2
<i>Euphorbia pubentissima</i>	75%	2
<i>Galium hispidulum</i>	75%	2

<i>Gymnopogon ambiguus</i>	75%	2
<i>Gymnopogon brevifolius</i>	75%	2
<i>Ipomoea pandurata</i>	75%	2
<i>Onosmodium virginianum</i>	75%	2
<i>Sericocarpus tortifolius</i>	75%	2
<i>Stylisma patens</i>	75%	2
<i>Pteridium aquilinum</i>	50%	4
<i>Schizachyrium scoparium</i>	50%	3
<i>Ageratina aromatica</i>	50%	2
<i>Amianthium muscitoxicum</i>	50%	2
<i>Andropogon ternarius</i>	50%	2
<i>Aristida virgata</i>	50%	2
<i>Berlandiera pumila</i>	50%	2
<i>Chrysopsis gossypina</i>	50%	2
<i>Clitoria mariana</i>	50%	2
<i>Crocanthemum canadense</i>	50%	2
<i>Crotalaria purshii</i>	50%	2
<i>Crotalaria rotundifolia</i>	50%	2
<i>Cuthbertia rosea</i>	50%	2
<i>Dalea pinnata</i>	50%	2
<i>Desmodium nuttallii</i>	50%	2
<i>Dichanthelium [chamaelonche + ensifolium]</i>	50%	2
<i>Elephantopus tomentosus</i>	50%	2
<i>Galactia erecta</i>	50%	2
<i>Gaura filipes</i>	50%	2
<i>Helianthus radula</i>	50%	2
<i>Houstonia procumbens</i>	50%	2
<i>Ionactis linariifolia</i>	50%	2
<i>Lechea minor</i>	50%	2
<i>Lechea torreyi</i>	50%	2
<i>Lespedeza hirta</i>	50%	2
<i>Liatris [pilosa + virgata]</i>	50%	2
<i>Liatris tenuifolia</i>	50%	2
<i>Linum floridanum</i>	50%	2
<i>Mimosa microphylla</i>	50%	2
<i>Pediomelum canescens</i>	50%	2
<i>Pterocaulon pycnostachyum</i>	50%	2
<i>Rhexia mariana</i>	50%	2
<i>Rhynchospora fascicularis</i>	50%	2
<i>Scutellaria integrifolia</i>	50%	2
<i>Seymeria pectinata</i>	50%	2
<i>Silphium compositum</i>	50%	2
<i>Sorghastrum nutans</i>	50%	2
<i>Sorghastrum secundum</i>	50%	2
<i>Stylisma humistrata</i>	50%	2

<i>Stylodon carneus</i>	50%	2
<i>Symphyotrichum walteri</i>	50%	2
<i>Tetragonotheca helianthoides</i>	50%	2
<i>Vernonia angustifolia</i>	50%	2
<i>Vernonia pulchella</i>	50%	2
<i>Viola [esculenta + septemloba]</i>	50%	2
<i>Andropogon tenuispatheus</i>	25%	7
<i>Aristida lanosa</i>	25%	2
<i>Asclepias amplexicaulis</i>	25%	2
<i>Chrysogonum virginianum</i>	25%	2
<i>Clematis reticulata</i>	25%	2
<i>Coreopsis linifolia</i>	25%	2
<i>Cyperus haspan</i>	25%	2
<i>Cyperus plukenetii</i>	25%	2
<i>Desmodium ciliare</i>	25%	2
<i>Dichanthelium strigosum</i>	25%	2
<i>Diodia teres</i>	25%	2
<i>Diodia virginiana</i>	25%	2
<i>Endodeca serpentaria</i>	25%	2
<i>Eupatorium [mohrii + recurvans]</i>	25%	2
<i>Eupatorium leptophyllum</i>	25%	2
<i>Euphorbia exserta</i>	25%	2
<i>Galactia mollis</i>	25%	2
<i>Houstonia longifolia</i>	25%	2
<i>Lechea pulchella</i>	25%	2
<i>Liatris elegans</i>	25%	2
<i>Paspalum setaceum</i>	25%	2
<i>Penstemon australis</i>	25%	2
<i>Polygala grandiflora</i>	25%	2
<i>Polygala incarnata</i>	25%	2
<i>Polygala nana</i>	25%	2
<i>Pseudognaphalium obtusifolium</i>	25%	2
<i>Rudbeckia hirta</i>	25%	2
<i>Scutellaria elliptica</i>	25%	2
<i>Sericocarpus linifolius</i>	25%	2
<i>Sophronanthe hispida</i>	25%	2
<i>Sophronanthe pilosa</i>	25%	2
<i>Sorghastrum elliottii</i>	25%	2
<i>Tephrosia hispidula</i>	25%	2
<i>Tephrosia spicata</i>	25%	2
<i>Tradescantia hirsuticaulis</i>	25%	2
<i>Tridens ambiguus</i>	25%	2

OVERVIEW

Database Code: CEGLO0xxx4

Scientific Name: *Pinus palustris* / *Quercus margarettae* / *Toxicodendron pubescens* / *Schizachyrium scoparium* Woodland

Common Name: Longleaf Pine / Sand Laurel Oak / Poison Oak / Little Bluestem Woodland

Colloquial Name: Atlantic Inner Coastal Plain Yellow Sand Longleaf Pine Woodland

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong **Stakeholders:** Southeast

Status: Standard **Origin:** **Maint. Resp.:** Southeast

Concept Auth.: K.A. Palmquist, R.K. Peet & S. Carr (2014)

Description Author: K.A. Palmquist, R.K. Peet & S. Carr (2014)

Status: 2 **Version:** 15-Feb-2014

Concept Ref.: Palmquist, Peet & Carr 2014 (this document)

Ecological Systems:

- Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281)

ELEMENT CONCEPT

Concept Summary: Association xxx4 spans a broad geographic range of subxeric longleaf pine woodlands of the inner Coastal Plain from central SC to the AL border. It occurs on silty sites. Because of its broad spatial distribution, there is some turnover of species in this type depending on geographic position. However, the subcanopy is consistently dominated by *Quercus margarettae* with slightly lesser amounts of *Q. laevis* and *Q. incana*, reflecting the subxeric, silty nature of the sites. The high frequency of *Toxicodendron pubescens* also suggests the silty, subxeric nature of soils this type occurs on, as does the abundance of legumes. *Aristida beyrichiana* can be a ground layer dominant, but the type extends beyond the range of the species, both in central SC and in western GA. The herbaceous layer is species-rich, reflecting the silty nature of the soils of this type. Other characteristic species include *Carya tomentosa*, *Rhus copallinum*, *Ceanothus americanus*, *Lespedeza hirta*, *Mimosa microphylla*, *Clitoria mariana*, *Ionactis linariifolia*, *Pityopsis graminifolia*, and *Solidago odora*.

Classification Comments: Concept and description based on 14 plots from the Carolina Vegetation Survey. This encompasses is somewhat similar to 4488, but not equivalent to 4488, particularly in that it extends beyond the range of *Aristida beyrichiana* in both the northeast and the west, and in so doing covers variation not previously represented in the USNVC.

Diagnostic Characteristics: This subxeric, silty type is distinguished by the dominance of *Quercus margarettae* in the sub-canopy layer, *Toxicodendron pubescens* in the shrub layer, and species-rich herbaceous layer, dominated primarily by *Schizachyrium scoparium*.

Concept History: New type.

Related Concepts:

- > *Pinus palustris* / *Quercus laevis* / *Gaylussacia dumosa* / *Aristida beyrichiana* – *Helianthus atrorubens* Woodland (Peet 2006)[2.1.8]
- < Dry upland longleaf pine woodlands (Edwards, Ambrose & Kirkman 2013)

ELEMENT DESCRIPTION

Environment: Stands are found on yellow sand soils of the inner Coastal Plain, with a relatively high silt fraction, as opposed to more pure white sands. Soil moisture in this type is bordering on mesic.

Vegetation: Stands are dominated by a open canopy of *Pinus palustris* with an understory layer dominated by *Quercus margarettae*, although *Quercus laevis*, *Quercus incan*, *Quercus marilandica*, and *Quercus falcata* are also common. Common and indicative shrub species include *Gaylussacia dumosa*, *Vaccinium stamineum*, *Toxicodendron pubescens*, *Rhus copallinum*, and *Hypericum hypericoides*. The herbaceous layer is very diverse with many species of legumes and is either dominated by *Aristida beyrichiana* or *Schizachyrium scoparium*, depending on whether the site occurs within the range of *Aristida beyrichiana*. *Smilax bona-nox* and *Smilax glauca* are common vines. Other constant plants (in 75% or more of plots attributed to this type) include *Dichanthelium aciculare*, *Dichanthelium ovale*, *Eupatorium compositifolium*, *Eupatorium glaucescens*, *Gymnopogon ambiguus*, *Hieracium gronovii*, *Ionactis linariifolius*, *Pityopsis graminifolia*, *Rhynchosia reniformis*, *Sericocarpus tortifolius*, *Solidago odora* var. *odora*, *Stylisma patens*, *Stylosanthes biflora*, *Symphotrichum concolor*, *Tragia urens*, and *Vernonia angustifolia*.

Similar Associations:

- *Pinus palustris* / *Quercus incana* – *Quercus stellata* / *Quercus elliotii* / *Aristida beyrichiana* – *Sporobolus junceus*- *Nolina georgiana* Woodland (CEGL004487)

Similar Association Comments:

CEGL004487: This type is characterized by the presence of *Quercus stellata* as a dominant in the scrub oak layer, *Quercus elliotii* in the shrub layer, and *Sporobolus junceus* in the herbaceous layer.

ELEMENT DISTRIBUTION

Range: This Association is broadly distributed from central South Carolina to sw Georgia in the inner Coastal Plain. Occurrences have been documented in Chattahoochee, Jenkins, and Screven counties, GA and in Charleston, Dorchester, Allendale, Sumter, and Colleton counties, SC.

Nations: US

Table 2.2.8: Prevalent species in vegetation type xxx4 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. *Schizachyrium scoparium* * is more than likely *Schizachyrium scoparium*, but at the time of sampling was only identified to [*Andropogon* + *Schizachyrium*]. Homogeneity = 0.712.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	7
<i>Quercus margarettae</i>	100%	6
<i>Quercus incana</i>	100%	4
<i>Diospyros virginiana</i>	100%	3
<i>Quercus laevis</i>	90%	5
<i>Carya tomentosa</i>	80%	4
<i>Quercus marilandica</i>	70%	3
<i>Sassafras albidum</i>	70%	3
<i>Quercus falcata</i>	60%	4
<i>Quercus nigra</i>	40%	4
<i>Crataegus</i> sp.	40%	2
<i>Liquidambar styraciflua</i>	40%	2
<i>Nyssa sylvatica</i>	40%	2
<i>Pinus taeda</i>	30%	3
<i>Carya pallida</i>	30%	2
<i>Prunus serotina</i>	30%	2
<i>Carya glabra</i>	20%	4
<i>Quercus geminata</i>	20%	4
<i>Castanea pumila</i>	20%	3
<i>Quercus elliotii</i>	20%	2
<i>Quercus laurifolia</i>	20%	2
<i>Quercus minima</i>	20%	2
Vine species	Const.	Cover
<i>Smilax glauca</i>	60%	2
<i>Smilax bona-nox</i>	60%	2
<i>Vitis rotundifolia</i>	60%	2
<i>Gelsemium sempervirens</i>	50%	2
Shrub species	Const.	Cover
<i>Rhus copallinum</i>	100%	2
<i>Toxicodendron pubescens</i>	90%	3
<i>Vaccinium stamineum</i>	80%	3
<i>Hypericum hypericoides</i>	80%	2
<i>Gaylussacia dumosa</i>	70%	2
<i>Ceanothus americanus</i>	60%	2
<i>Rubus argutus</i>	50%	2
<i>Morella</i> [<i>cerifera</i> + <i>pumila</i>]	40%	4
<i>Vaccinium arboreum</i>	40%	4

<i>Ilex glabra</i>	30%	2
<i>Rubus cuneifolius</i>	30%	2
<i>Vaccinium myrsinites</i>	30%	2
<i>Vaccinium tenellum</i>	30%	2
<i>Yucca filamentosa</i>	20%	3
<i>Opuntia humifusa</i>	20%	2
<i>Rubus [enslenii + flagellaris]</i>	20%	2
<i>Rubus trivialis</i>	20%	2
Herb species	Const.	Cover
<i>Schizachyrium scoparium*</i>	100%	5
<i>Pityopsis graminifolia</i>	100%	3
<i>Dichanthelium [ovale + villosissimum]</i>	100%	2
<i>Dichanthelium oligosanthes</i>	100%	2
<i>Ionactis linariifolia</i>	100%	2
<i>Solidago odora</i> var. <i>odora</i>	100%	2
<i>Vernonia angustifolia</i>	100%	2
<i>Hieracium gronovii</i>	90%	2
<i>Rhynchosia reniformis</i>	90%	2
<i>Sericocarpus tortifolius</i>	90%	2
<i>Symphyotrichum concolor</i>	90%	2
<i>Tragia urens</i>	90%	2
<i>Gymnopogon ambiguus</i>	80%	2
<i>Scleria [ciliata + elliotii]</i>	80%	2
<i>Tephrosia virginiana</i>	70%	4
<i>Mimosa microphylla</i>	70%	3
<i>Cnidoscolus stimulosus</i>	70%	2
<i>Desmodium strictum</i>	70%	2
<i>Dichanthelium [aciculare + angustifolium]</i>	70%	2
<i>Dichanthelium ravenelii</i>	70%	2
<i>Endodeca serpentaria</i>	70%	2
<i>Eupatorium compositifolium</i>	70%	2
<i>Eupatorium glaucescens</i>	70%	2
<i>Galactia [regularis+ volubilis var. volubilis]</i>	70%	2
<i>Lespedeza hirta</i>	70%	2
<i>Liatris [pilosa + virgata]</i>	70%	2
<i>Scleria [nitida + triglomerata]</i>	70%	2
<i>Silphium compositum</i>	70%	2
<i>Stylisma patens</i>	70%	2
<i>Stylosanthes biflora</i>	70%	2
<i>Clitoria mariana</i>	60%	3
<i>Ageratina aromatica</i>	60%	2
<i>Aristida purpurascens</i>	60%	2
<i>Chrysopsis mariana</i>	60%	2
<i>Desmodium laevigatum</i>	60%	2

<i>Desmodium lineatum</i>	60%	2
<i>Lespedeza repens</i>	60%	2
<i>Rhynchospora grayi</i>	60%	2
<i>Symphytotrichum dumosum</i>	60%	2
<i>Pteridium aquilinum</i>	50%	6
<i>Centrosema virginianum</i>	50%	3
<i>Andropogon elliottii</i>	50%	2
<i>Chamaecrista nictitans</i>	50%	2
<i>Commelina erecta</i>	50%	2
<i>Coreopsis major</i>	50%	2
<i>Desmodium marilandicum</i>	50%	2
<i>Eupatorium album</i>	50%	2
<i>Euphorbia pubentissima</i>	50%	2
<i>Galium pilosum</i>	50%	2
<i>Lespedeza virginica</i>	50%	2
<i>Symphytotrichum walteri</i>	50%	2
<i>Aristida beyrichiana</i>	40%	7
<i>Dichanthelium commutatum</i>	40%	3
<i>Andropogon ternarius</i>	40%	2
<i>Cirsium repandum</i>	40%	2
<i>Crocianthemum carolinianum</i>	40%	2
<i>Cyperus plukenetii</i>	40%	2
<i>Desmodium nuttallii</i>	40%	2
<i>Desmodium obtusum</i>	40%	2
<i>Eupatorium rotundifolium</i>	40%	2
<i>Euphorbia exserta</i>	40%	2
<i>Gaura filipes</i>	40%	2
<i>Helianthus atrorubens</i>	40%	2
<i>Lespedeza procumbens</i>	40%	2
<i>Paspalum setaceum</i>	40%	2
<i>Sorghastrum nutans</i>	40%	2
<i>Tephrosia florida</i>	40%	2
<i>Tridens carolinianus</i>	40%	2
<i>Dyschoriste oblongifolia</i>	30%	3
<i>Elephantopus elatus</i>	30%	3
<i>Acalypha gracilens</i>	30%	2
<i>Asclepias tuberosa</i>	30%	2
<i>Brickellia eupatorioides</i>	30%	2
<i>Chrysopsis gossypina</i>	30%	2
<i>Conyza canadensis</i>	30%	2
<i>Desmodium ciliare</i>	30%	2
<i>Dichanthelium strigosum</i>	30%	2
<i>Galactia mollis</i>	30%	2
<i>Lechea sessiliflora</i>	30%	2
<i>Lespedeza stuevei</i>	30%	2

<i>Liatris elegans</i>	30%	2
<i>Paspalum bifidum</i>	30%	2
<i>Pterocaulon pycnostachyum</i>	30%	2
<i>Solidago tortifolius</i>	30%	2
<i>Sorghastrum elliotii</i>	30%	2
<i>Sporobolus clandestinus</i>	30%	2
<i>Strophostyles umbellata</i>	30%	2
<i>Symphotrichum patens</i>	30%	2
<i>Tragia urticifolia</i>	30%	2
<i>Viola pedata</i>	30%	2
<i>Sorghastrum secundum</i>	20%	3
<i>Agrimonia incisa</i>	20%	2
<i>Ambrosia artemisiifolia</i>	20%	2
<i>Andropogon capillipes</i>	20%	2
<i>Andropogon virginicus</i>	20%	2
<i>Aristida lanosa</i>	20%	2
<i>Aristida virgata</i>	20%	2
<i>Asclepias amplexicaulis</i>	20%	2
<i>Baptisia lanceolata</i>	20%	2
<i>Carphephorus odoratissimus</i>	20%	2
<i>Crotalaria purshii</i>	20%	2
<i>Cyperus lupulinus</i>	20%	2
<i>Dalea albida</i>	20%	2
<i>Desmodium perplexum</i>	20%	2
<i>Desmodium viridiflorum</i>	20%	2
<i>Dichanthelium tenue</i>	20%	2
<i>Eragrostis spectabilis</i>	20%	2
<i>Erythrina herbacea</i>	20%	2
<i>Hypoxis sessilis</i>	20%	2
<i>Lechea minor</i>	20%	2
<i>Lespedeza capitata</i>	20%	2
<i>Liatris spicata</i>	20%	2
<i>Muhlenbergia [capillaris + expansa]</i>	20%	2
<i>Panicum virgatum</i>	20%	2
<i>Physalis virginiana</i>	20%	2
<i>Polygala grandiflora</i>	20%	2
<i>Rhynchosia difformis</i>	20%	2
<i>Rhynchosia tomentosa</i>	20%	2
<i>Ruellia ciliosa</i>	20%	2
<i>Scleria pauciflora</i>	20%	2
<i>Seymeria pectinata</i>	20%	2
<i>Silphium asteriscus</i>	20%	2
<i>Sisyrinchium atlanticum</i>	20%	2
<i>Solidago nemoralis</i>	20%	2
<i>Tephrosia spicata</i>	20%	2

<i>Viola [esculenta + septemloba]</i>	20%	2
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OVERVIEW

Database Code: C EGL004488

Scientific Name: *Pinus palustris* / *Quercus hemisphaerica* / *Gaylussacia dumosa* / *Aristida beyrichiana* – *Dyschoriste oblongifolia* Woodland

Common Name: Longleaf Pine / Sand Laurel Oak / Dwarf Huckleberry / Beyrich Threeawn – Twinflower Woodland

Colloquial Name: Atlantic Inner Coastal Plain Yellow Sand Longleaf Pine Woodland

Classif. Resp.: Southeast

Classif. Level: Association **Conf.:** 1 - Strong **Stakeholders:** Southeast

Status: Standard **Origin:** 1-Jul-1996 ID: 685967 **Maint. Resp.:** Southeast

Concept Auth.: Peet, R.K., Kjellmark, E., Weakley, A.S (1996).

Internal Auth.: RKP/EK/ASW 7-96, mod. MP 10-09

Description Author: K.A. Palmquist, R.K. Peet & S. Carr (2014), in part adapted from 4488

Status: 2 **Version:** 15-Feb-2014

Concept Ref.: Southeastern Ecology Working Group n.d. [Name in concept ref, if different:

Ecological Systems:

- Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281)

ELEMENT CONCEPT

Concept Summary: This subxeric, somewhat silty *Pinus palustris* woodland occurs in the middle Coastal Plain of Georgia and South Carolina. It occurs on yellow sand soils with a relatively high silt fraction. Stands are dominated by very sparse canopy of *Pinus palustris* with a sub-canopy consistently dominated by *Quercus hemisphaerica*. The herbaceous layer is very diverse and well-developed, especially compared to other xeric and subxeric types within the region. *Aristida beyrichiana* is the most abundant species in the herbaceous layer, but *Andropogon ternaries*, *Dyschoriste oblongifolia*, *Lespedeza virginica*, and *Symphotrichum walteri* are also very constant and diagnostic. One characteristic low shrub is *Gaylussacia dumosa*.

Classification Comments: Description changed based on 4 Carolina Vegetation Survey plots (<http://vegbank.org/cite/VB.ds.199884.CEGL004488>). This type is equivalent to 4488 within the existing NVC hierarchy. Here, we fine-tune the name and include *Dyschoriste oblongifolia* as an indicator species in the herbaceous layer. We also replace *Q. laevis* with *Q. hemisphaerica*, as it is diagnostic of the type.

Diagnostic Characteristics: This type is characterized by its location in the middle Coastal Plain, dominance of *Aristida beyrichiana* in the herbaceous layer, and high constancy and dominance of *Quercus hemisphaerica* in the sub-canopy/shrub layer. *Dyschoriste oblongifolia* is an excellent indicator of this type.

Concept History: C EGL004488.

Internal Comments: MP 9-09: as of September 28, 2009, there were eight NCVS plots attributed to this type. REE 10-02: There are apparently North Carolina Vegetation Survey plots attributable to this type (Peet et al. 2002). KP: There are four CVS plots attributed to this type (2014).

Related Concepts:

- < *Pinus palustris* / *Quercus laevis* / *Gaylussacia dumosa* / *Aristida beyrichiana* – *Helianthus atrorubens* Woodland (Peet 2006)[2.1.8]
- < Dry upland longleaf pine woodlands (Edwards, Ambrose & Kirkman 2013)

ELEMENT DESCRIPTION

Environment: Stands are found on yellow sand soils of the inner Coastal Plain, with a relatively high silt fraction, as opposed to more pure white sands. Soil moisture in this type is bordering on mesic.

Vegetation: Stands are dominated by a very sparse canopy of *Pinus palustris* with an understory dominated by *Quercus hemisphaerica*, which is indicative of this type. Other constant and abundant trees in the sub-canopy layer include *Quercus falcata*, *Quercus incana*, *Quercus laevis*, *Quercus margarettae*, and *Quercus marilandica* var. *marilandica*. One characteristic low shrub is *Gaylussacia dumosa*. *Rhus copallinum* and *Vaccinium stamineum* are also common shrubs in this Association. The herbaceous layer is very species-rich compared to other xeric and sub-xeric within the region. Characteristic herbaceous plants include *Aristida beyrichiana*, *Andropogon ternaries*, *Desmodium obtusum*, *Dyschoriste oblongifolia*, *Lespedeza virginica*, *Symphotrichum walteri*, *Baptisia cinerea*, *Dichantheium sphaerocarpon*, *Galactia erecta*, and *Gaura filipes*.

Dynamics:

Similar Associations:

- *Pinus palustris* / *Quercus incana* – *Quercus stellata* / *Quercus elliotii* / *Aristida beyrichiana* – *Sporobolus junceus*- *Nolina georgiana* Woodland (CEGL004487)

Similar Association Comments:

CEGL004487: This type is characterized by the presence of *Quercus stellata* as a dominant in the scrub oak layer, *Quercus elliotii* in the shrub layer, and *Sporobolus junceus* in the herbaceous layer.

Adjacent Associations:

Adjacent Association Comments:

Other Comments:

ELEMENT GLOBAL RANK & REASONS

GRank: G2G3 **GRank Review Date:** 31-Dec-1997

GReasons: This longleaf pine sandhill woodland association is found in a restricted range and specific set of habitat conditions. It is part of the endangered Longleaf Pine Ecosystem, which once dominated the Coastal Plain landscape of the southeastern United States, and depends on frequent, low-intensity, growing-season fires to control understory vegetation and for the reproduction of *Pinus palustris*. *Pinus palustris*-dominated woodlands are susceptible to the effects of fire suppression, over-grazing, or conversion to commercial forest plantations or agriculture. Remaining examples are highly threatened by development, conversion, and alteration of fire regimes. Most of those occurrences which have not been destroyed are severely degraded.

Ranking Author: Southeastern Ecology Group

Version: 31-Dec-1997

ELEMENT DISTRIBUTION

Range: This Association is distributed from central South Carolina to Georgia in the inner Coastal Plain. Occurrences have been documented in Jenkins and Screven counties, GA and in Allendale county, SC.

Nations: US

Table 2.2.9: Prevalent species in vegetation type 4488 by growth form. Species shown are prevalent in at least one group, have > 20% constancy, and average cover class of > 2 in at least one group. Indicator species for each type are highlighted in grey. *Schizachyrium scoparium* * is more than likely *Schizachyrium scoparium*, but at the time of sampling was only identified to [*Andropogon* + *Schizachyrium*]. Homogeneity = 0.719.

Tree species	Const.	Cover
<i>Pinus palustris</i>	100%	4
<i>Quercus hemiphaerica</i>	100%	4
<i>Crataegus</i> sp.	100%	2
<i>Diospyros virginiana</i>	100%	2
<i>Prunus serotina</i>	100%	2
<i>Quercus incana</i>	75%	4
<i>Quercus margarettae</i>	75%	4
<i>Quercus nigra</i>	75%	4
<i>Quercus falcata</i>	75%	3
<i>Quercus laevis</i>	75%	3
<i>Quercus marilandica</i>	75%	3
<i>Carya glabra</i>	50%	4
<i>Liquidambar styraciflua</i>	50%	4
<i>Quercus stellata</i>	50%	4
<i>Nyssa sylvatica</i>	50%	2
<i>Pinus taeda</i>	50%	2
<i>Prunus</i> spp.	50%	2
<i>Sassafras albidum</i>	50%	2
<i>Pinus elliotii</i>	25%	2
Vine species	Const.	Cover
<i>Smilax glauca</i>	75%	2
<i>Smilax bona-nox</i>	50%	2
<i>Vitis rotundifolia</i>	25%	3
<i>Campsis radicans</i>	25%	2
<i>Gelsemium sempervirens</i>	25%	2
<i>Toxicodendron radicans</i>	25%	2
Shrub species	Const.	Cover
<i>Gaylussacia dumosa</i>	100%	4
<i>Rhus copallinum</i>	100%	2
<i>Vaccinium stamineum</i>	100%	2
<i>Rubus cuneifolius</i>	75%	4
<i>Hypericum hypericoides</i>	75%	2
<i>Toxicodendron pubescens</i>	75%	2
<i>Rubus argutus</i>	50%	4
<i>Rubus trivialis</i>	50%	2
<i>Vaccinium tenellum</i>	50%	2
<i>Nolina georgiana</i>	25%	5

<i>Ilex glabra</i>	25%	2
<i>Morella [cerifera + pumila]</i>	25%	2
<i>Opuntia humifusa</i>	25%	2
<i>Vaccinium arboreum</i>	25%	2
<i>Vaccinium formosum</i>	25%	2
Herb species	Const.	Cover
<i>Aristida beyrichiana</i>	100%	7
<i>Schizachyrium scoparium*</i>	100%	6
<i>Dichanthelium [ovale + villosissimum]</i>	100%	4
<i>Pityopsis graminifolia</i>	100%	4
<i>Andropogon ternarius</i>	100%	3
<i>Andropogon virginicus</i>	100%	3
<i>Dichanthelium [aciculare + angustifolium]</i>	100%	3
<i>Eupatorium glaucescens</i>	100%	3
<i>Stylisma patens</i>	100%	3
<i>Chrysopsis mariana</i>	100%	2
<i>Desmodium obtusum</i>	100%	2
<i>Dyschoriste oblongifolia</i>	100%	2
<i>Eupatorium compositifolium</i>	100%	2
<i>Galium pilosum</i>	100%	2
<i>Ionactis linariifolia</i>	100%	2
<i>Lespedeza virginica</i>	100%	2
<i>Rhynchospora grayi</i>	100%	2
<i>Solidago odora</i> var. <i>odora</i>	100%	2
<i>Stylosanthes biflora</i>	100%	2
<i>Symphotrichum walteri</i>	100%	2
<i>Andropogon elliotii</i>	75%	3
<i>Baptisia cinerea</i>	75%	3
<i>Gymnopogon ambiguus</i>	75%	3
<i>Agalinis divaricata</i>	75%	2
<i>Aristida purpurascens</i>	75%	2
<i>Chamaecrista nictitans</i>	75%	2
<i>Clitoria mariana</i>	75%	2
<i>Desmodium lineatum</i>	75%	2
<i>Dichanthelium sphaerocarpon</i>	75%	2
<i>Eragrostis spectabilis</i>	75%	2
<i>Eupatorium capillifolium</i>	75%	2
<i>Euphorbia exserta</i>	75%	2
<i>Galactia [regularis+ volubilis</i> var. <i>volubilis]</i>	75%	2
<i>Galactia erecta</i>	75%	2
<i>Gaura filipes</i>	75%	2
<i>Helianthus atrorubens</i>	75%	2
<i>Lechea minor</i>	75%	2
<i>Lespedeza repens</i>	75%	2

<i>Mimosa microphylla</i>	75%	2
<i>Muhlenbergia expansa</i>	75%	2
<i>Paspalum setaceum</i>	75%	2
<i>Pseudognaphalium obtusifolium</i>	75%	2
<i>Pteridium aquilinum</i>	75%	2
<i>Rhynchosia reniformis</i>	75%	2
<i>Scleria [ciliata + elliottii]</i>	75%	2
<i>Sericocarpus tortifolius</i>	75%	2
<i>Stillingia sylvatica</i>	75%	2
<i>Stylodon carneus</i>	75%	2
<i>Symphyotrichum concolor</i>	75%	2
<i>Tephrosia hispidula</i>	75%	2
<i>Tephrosia virginiana</i>	75%	2
<i>Tragia urens</i>	75%	2
<i>Vernonia angustifolia</i>	75%	2
<i>Digitaria cognata</i>	50%	3
<i>Eupatorium [hyssopifolium + torreyanum]</i>	50%	3
<i>Anthenantia villosa</i>	50%	2
<i>Baptisia perfoliata</i>	50%	2
<i>Bulbostylis [ciliatifolia + coarctata]</i>	50%	2
<i>Callicarpa americana</i>	50%	2
<i>Centrosema virginianum</i>	50%	2
<i>Chrysopsis gossypina</i>	50%	2
<i>Conyza canadensis</i>	50%	2
<i>Crocianthemum carolinianum</i>	50%	2
<i>Cyperus lupulinus</i>	50%	2
<i>Dalea albida</i>	50%	2
<i>Desmodium perplexum</i>	50%	2
<i>Desmodium strictum</i>	50%	2
<i>Dichanthelium tenue</i>	50%	2
<i>Digitaria [filiformis + villosa]</i>	50%	2
<i>Endodeca serpentaria</i>	50%	2
<i>Erigeron strigosus</i>	50%	2
<i>Eupatorium album</i>	50%	2
<i>Hieracium gronovii</i>	50%	2
<i>Hypericum gentianoides</i>	50%	2
<i>Lechea sessiliflora</i>	50%	2
<i>Lespedeza hirta</i>	50%	2
<i>Liatris tenuifolia</i>	50%	2
<i>Polygala grandiflora</i>	50%	2
<i>Polypremum procumbens</i>	50%	2
<i>Salvia azurea</i>	50%	2
<i>Solidago tortifolius</i>	50%	2
<i>Sorghastrum nutans</i>	50%	2
<i>Sorghastrum secundum</i>	50%	2

<i>Strophostyles umbellata</i>	50%	2
<i>Symphyotrichum dumosum</i>	50%	2
<i>Viola [esculenta + septemloba]</i>	50%	2
<i>Solidago nemoralis</i>	25%	3
<i>Acalypha gracilens</i>	25%	2
<i>Andropogon capillipes</i>	25%	2
<i>Antennaria parlinii</i>	25%	2
<i>Asclepias tuberosa</i>	25%	2
<i>Cirsium horridulum</i>	25%	2
<i>Coreopsis major</i>	25%	2
<i>Crotalaria purshii</i>	25%	2
<i>Crotalaria rotundifolia</i>	25%	2
<i>Dichanthelium acuminatum</i>	25%	2
<i>Dichanthelium scoparium</i>	25%	2
<i>Elephantopus elatus</i>	25%	2
<i>Heterotheca subaxillaris</i>	25%	2
<i>Ipomoea pandurata</i>	25%	2
<i>Lespedeza bicolor</i>	25%	2
<i>Lespedeza capitata</i>	25%	2
<i>Lespedeza procumbens</i>	25%	2
<i>Liatris [pilosa + virgata]</i>	25%	2
<i>Passiflora incarnata</i>	25%	2
<i>Pediomelum canescens</i>	25%	2
<i>Physalis heterophylla</i>	25%	2
<i>Piriqueta caroliniana</i>	25%	2
<i>Salvia lyrata</i>	25%	2
<i>Symphyotrichum patens</i>	25%	2
<i>Triplasis americana</i>	25%	2