

XERIC SANDHILL SCRUB (COASTAL FRINGE SUBTYPE)

Concept: Xeric Sandhill Scrub is the longleaf pine community of dry, coarse, infertile sands, which have a low diversity scrub oak layer strongly dominated by *Quercus laevis*, but which have fairly high cover of *Aristida stricta* and other herbs rather than the sparse vegetation of the Sand Barrens. The Coastal Fringe Subtype covers examples near the coast which contain characteristic coastal fringe plant species.

Distinguishing Features: Xeric Sandhill Scrub is distinguished from most other communities by the presence of a scrub oak layer strongly dominated by *Quercus laevis*. *Quercus marilandica* is absent, but *Quercus margarettae* and *Quercus incana* are often present. The Coastal Fringe Subtype is distinguished from the Typic Subtype by the presence of characteristic coastal fringe flora, such as *Cladina evansii*, *Rhynchospora megalocarpa*, *Ilex vomitoria*, and *Quercus geminata*. The Coastal Fringe Subtype generally occurs within a few miles of the coast.

Xeric Sandhill Scrub is distinguished from Sand Barren by higher plant cover in the herb layer, especially of *Aristida stricta*. Bare sand patches of any size are absent unless the soil or vegetation has been disturbed. Lichens and specialized psammophytes such as *Stipulicida setacea* and *Minuartia caroliniana* (= *Arenaria caroliniana*), may be present but are minor in abundance in comparison with *Aristida stricta*.

Synonyms: *Pinus palustris* / *Quercus laevis* - *Quercus geminata* / *Vaccinium tenellum* / *Aristida stricta* Woodland (CEGL003589).

Ecological Systems: Atlantic Coastal Plain Upland Longleaf Pine Woodland (CES203.281).

Sites: Xeric Sandhill Scrub (Coastal Fringe Subtype) occurs on deep sands of relict coastal dunes, beach ridges, river dunes, and Carolina bay rims, in a zone inland of the barrier islands but within a few miles of the coast.

Soils: Soils characteristically are Typic Quartzipsamments, usually mapped as the Kureb series, less frequently mapped as Centenary (Entic Haplohumod) or Mandarin (Typic Haplohumod). Examples occur on a number of other soil map units but probably represent inclusions. The coarse sand, with almost no fine particles and little organic matter, has extremely low capacity for nutrient storage as well as for water retention, though it is less extreme than in Sand Barren communities.

Hydrology: Sites are excessively drained, but less extremely so than the Sand Barrens. Water passes quickly through the coarse soil, leaving dry conditions soon after rain events. Perhaps more than in the Sand Barrens, roots of larger plants may reach the water table and find a more abundant water supply.

Vegetation: Vegetation structure is characteristic of most longleaf pine communities, with an open, patchy woodland to savanna canopy and a dense grassy herbaceous layer. In the long absence of fire, the midstory becomes dense and shrubs expand, but otherwise they are sparse and very patchy. *Pinus palustris* typically is the only canopy tree. The midstory is dominated by *Quercus laevis* and *Quercus geminata*. Small numbers of other small tree species may be

present, most frequently *Diospyros virginiana*, *Sassafras albidum*, *Quercus incana*, and *Quercus hemispherica*. The prevalent shrubs in Palquist, et al. (in prep) are *Vaccinium tenellum*, *Vaccinium stamineum* (presumably the dwarf form), and *Morella pumila*. *Lyonia mariana* is also frequent; *Ilex vomitoria*, *Cartrema americanum*, and several species of wetter habitats may occasionally be present. The herb layer is moderate in density, with *Aristida stricta* dominant. Other prevalent species, though with low cover, include *Schizachyrium scoparium*, *Carphephorus bellidifolius*, *Euphorbia ipecacuanhae*, *Pityopsis graminifolia*, *Rhynchospora megalocarpa*, *Cnidocolus stimulosus*, and *Galactia* spp. Lichens, *Cladina evansii* as well as *Cladonia* spp., may be abundant.

Range and Abundance: Ranked G2?. This subtype is quite rare, and most likely G2 is appropriate. In North Carolina it is confined to a narrow band near the coast in the southern half of the state. It ranges into northern South Carolina.

Associations and Patterns: Xeric Sandhill Scrub (Coastal Fringe Subtype) occurs in a landscape mosaic with Pine/Scrub Oak Sandhill (Coastal Fringe Subtype), Coastal Fringe Evergreen Forest, and occasionally Sand Barren (Coastal Fringe Subtype). A variety of wetland communities may be associated.

Variation: No variants are recognized. Examples vary with the transition to other communities.

Dynamics: Dynamics generally are typical for longleaf pine/scrub oak communities. However, the evergreen oak litter may affect fire behavior on a fine scale. It has been suggested (Frost...) that the evergreen scrub oaks, especially *Quercus geminata*, once established, prevent fire from spreading into their microsites because their curled leaves can hold rain water and stay wet much longer than other leaf litter. Thus, their patches may expand and persist without burning even where fire occurs.

The reasons for the distinctive flora of the Coastal Fringe subtypes in the area near the coast is not well known, and no published study addresses it. The characteristic coastal fringe species are more widespread inland in states farther south, so the moderation of winter temperatures by the ocean is a likely factor. Input of nutrients by aerosols is also greater near the ocean, and this may affect nutrient dynamics in these communities. Salt spray and wind damage during tropical storms likely causes more disturbance in the coastal fringe than inland. Fire dynamics, too, maybe affected by aspects of the coastal environment, including interspersions with estuaries and influence of sea breezes.

Comments: As with other coastal fringe communities, the interpretation of this subtype's distinctive character as maritime may only apply in North Carolina. Many of the species that mark them occur in inland areas in states farther south. This community does not occur in those areas because of other biogeographic differences.

Rare species:

References:

Palmquist, et al. (in prep).