

Ecological site F154XA013FL

Histic Alluvial Forests

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

MLRA notes

Major Land Resource Area (MLRA): 154X–South-Central Florida Ridge

This MLRA makes up about 7,209 square miles (18,672 square kilometers) and is entirely in Florida. MLRA 154 contains a series of parallel, prominent sandy ridges of Pleistocene marine origin, including the Brooksville and Mount Dora Ridges. These north to south oriented parallel ridges are interspersed with more low lying physiographic provinces, including: upland hills, plains, valleys and gaps (Puri and Vernon 1964). Many of the soils in this sub-unit are Pleistocene or Holocene sands that are underlain with older, loamy Pliocene marine sediments (Cypresshead formation) or the clayey Miocene marine sediments (Hawthorne formation). A combination of marine depositional events and the dissolution of underlying limestone (karst geology) is responsible for surficial topography throughout Peninsular Florida.

Classification relationships

All portions of the geographical range of this site falls under the following ecological / land classifications including: -Environmental Protection Agency’s Level 3 and 4 Ecoregions of Florida: 75 Southern Coastal Plain; 75c Central Florida Ridges and Uplands (Griffith, G. E., Omerik, J. M., & Pierson, S. M., 2013) -Florida Natural Area Inventory, 2010 Edition: Floodplain Swamp & Basin Swamp (FNAI, 2010)

Ecological site concept

The central concept of the Histic Alluvial and Forestlands includes deep, very poorly drained soils formed in organic material with a mineral substratum. These soils occur on low gradient alluvial floodplains with slopes less than 1%. This site includes map units of the Chobee, Demory, Everglades, Gator Maurepas, Myakka, Nittaw, Okeelanta, Pamlico, Shenks, and Terra Ceia series, and is situated primarily along low gradient rivers and streams in the Tsala Apopka Plain, Lake Harris Cross Valley, Central Valley, and Western Valley physiographic units.

Associated sites

F154XA014FL	<p>Histic Wetland Depressions</p> <p>These are very poorly drained depressional concepts that will occur in organic soils, and will differ in physiographic positions, affect the types of vegetation and management strategies</p>
F154XA015FL	<p>Mineral Depressional Wetlands</p> <p>These are very poorly drained depressional concepts that will occur in mineral soils rather than organic soils, and will differ in physiographic positions, affect the types of vegetation and management strategies</p>

F154XA016FL	Wet Mineral Alluvial Forest And Marshlands These sites are very poorly drained alluvial concepts that will occur on mineral soils rather than organic soils, resulting in different types and amounts of vegetation as well as management strategies
R154XX017FL	Wet Saline Marshes And Swamps These are very poorly drained tidal soils that will exist in intertidal landscape positions

Similar sites

F154XA014FL	Histic Wetland Depressions These are very poorly drained depressional concepts that will occur in organic soils, and will differ in physiographic positions, affect the types of vegetation and management strategies
F154XA015FL	Mineral Depressional Wetlands These are very poorly drained depressional concepts that will occur in mineral soils rather than organic soils, and will differ in physiographic positions, affect the types of vegetation and management strategies
F154XA016FL	Wet Mineral Alluvial Forest And Marshlands These sites are very poorly drained alluvial concepts that will occur on mineral soils rather than organic soils, resulting in different types and amounts of vegetation as well as management strategies

Table 1. Dominant plant species

Tree	(1) <i>Taxodium distichum</i> (2) <i>Nyssa biflora</i>
Shrub	(1) <i>Fraxinus caroliniana</i> (2) <i>Cephalanthus occidentalis</i>
Herbaceous	(1) <i>Saururus cernuus</i> (2) <i>Polygonum punctatum</i>

Physiographic features

The entire concept area is located within the Floridian Section of the Coastal Plain Province of the Atlantic Plain. Elevation of this MLRA sub-unit ranges from sea level to 260 feet (0 to 79 m). Elevations for this site varies between 3 to 100 feet (1 to 30 meters). This site occurs on low gradient alluvial flood plains in central and west-central Florida. Slopes are level and range from 0 to 1%. The site occurs on flood plains or in depressions on floodplains. Typically, the soils formed in organic material more than 16 inches thick and may be underlain with sandy, loamy, or clayey alluvial or marine deposits.

Table 2. Representative physiographic features

Landforms	(1) Marine terrace > Flood plain (2) Marine terrace > Flood plain > Closed depression
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Runoff class	Negligible to very low
Flooding duration	Brief (2 to 7 days) to very long (more than 30 days)
Flooding frequency	Occasional to very frequent
Ponding duration	Very brief (4 to 48 hours) to very long (more than 30 days)
Ponding frequency	None to frequent
Elevation	0 – 30 m
Slope	0 %
Water table depth	0 – 20 cm
Aspect	Aspect is not a significant factor

Climatic features

The climate is characterized by humid subtropical with long hot summers and mild winters. In the winter months, Canadian air masses move across Peninsular Florida and produce cool, cloudy, rainy weather. Freezing temperatures are occasional in the northern areas of the MLRA, with typically <30 days of the year with temperatures dropping below freezing.

Precipitation in the northern section of the MRLA is distributed fairly evenly throughout the year. Average annual precipitation ranges from 45 to 55 inches. Highest monthly precipitation falls from June through October, with June through August being the wettest period. Winter rainfall is associated with cold fronts.

Hurricanes and tropical storms affect much of the MLRA 154 region. Catastrophic hurricanes make landfall along the Atlantic coast of Peninsular Florida on the order of two to four times per century. Strong winds and heavy rainfall affect the interior peninsula; rainfall from hurricanes and tropical systems vary widely but can exceed 20 inches from one storm. Hurricanes are most likely to occur between June and November and are most common in August and September.

Table 3 Representative climatic features

Frost-free period (characteristic range)	240-370 days
Freeze-free period (characteristic range)	370 days
Precipitation total (characteristic range)	1,300-1,350 mm
Frost-free period (actual range)	210-370 days
Freeze-free period (actual range)	320-370 days

Precipitation total (actual range)	1,270-1,350 mm
Frost-free period (average)	310 days
Freeze-free period (average)	360 days
Precipitation total (average)	1,320 mm

- (1) BARTOW [USC00080478], Bartow, FL
- (2) LAKE ALFRED EXP STN [USC00084707], Haines City, FL
- (3) LISBON [USC00085076], Leesburg, FL
- (4) WINTER HAVEN [USC00089707], Winter Haven, FL
- (5) CLERMONT 9 S [USC00081641], Clermont, FL
- (6) GAINESVILLE 11 WNW [USC00083322], Gainesville, FL
- (7) INVERNESS 3 SE [USC00084289], Inverness, FL
- (8) MTN LAKE [USC00085973], Lake Wales, FL
- (9) BROOKSVILLE CHIN HILL [USC00081046], Brooksville, FL
- (10) SAINT LEO [USC00087851], San Antonio, FL
- (11) TARPON SPGS SEWAGE PL [USC00088824], Tarpon Springs, FL
- (12) LAKELAND [USW00012883], Lakeland, FL

Influencing water features

The modal concept for these sites are low lying, linear wetlands along stream and rivers surrounded by drier environments. The site is situated on soils that are flooded for long or very long periods and have a high water table (dominantly at or near the surface).

Given the localized nature of this site and the significant hydrologic differences of surrounding communities, this site can have an abrupt ecotone which dramatically shifts species composition from flood plain swamps and marshes to drier sites within short distances. Species of this plant community are edaphic adapted to withstand long or very long inundation.

Slope gradient, concave or linear landform positions, and variable saturated hydraulic conductivity results in medium to very high surface runoff. The combination of fertile organic material, high or very high available water, and occasional to very frequent flooding are the keys to this site's plant community.

Soil features

Soils generally classify as either Typic Haplosaprists (Maurepas, Terra Ceia), Typic Haplohemists (Everglades) or Terric Haplosaprists (Gator, Okeelanta, Pamlico Shenks). These soils formed in herbaceous or woody plant materials more than 16 inches thick and can be underlain with clayey, loamy, or sandy mineral material. A few mineral soils with an organic surface layer (less than 7 inches thick) are included in the site (Chobee, Myakka, Nittaw).

Figure 7. Soil profiles

Table 4. Representative soil features

Parent material	(1) Herbaceous organic material (2) Marine deposits (3) Limestone
Surface texture	(1) Muck

Drainage class	Very poorly drained
Permeability class	Moderate to very rapid
Soil depth	200 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	22.86 – 38.1 cm
Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	4.5 – 8.4
Subsurface fragment volume <=3" (0-101.6cm)	Not specified
Subsurface fragment volume >3" (0-101.6cm)	Not specified

Ecological dynamics

The Histic Alluvial Forests site occurs either in alluvial floodplains or basin wetlands. Although these two wetland environments differ in hydrologic regime and flooding periodicity, common features of this site include very deep and very poorly drained organic soils that flood frequently. Flooding timing and duration is seasonally influenced, depending on flooding source (river flooding vs. rainfall ponding).

Histic alluvial forests inhabit frequently flooded areas adjacent to stream and river channels, or depressional "basins" of various configurations and sizes. These floodplain or basin swamp forests have well developed canopies of hydrophytic trees, which are often buttressed. Understory vegetation is sparse, usually patchily distributed and limited to slightly higher rises that are less frequently flooded.

Natural ecological processes are most influenced by flooding regimes and associated nutrient flows. The two natural settings of this site (i.e. Floodplains and Basins) differ in flooding regimes. Floodplain forests are regularly inundated by flowing flood waters of adjacent rivers or other water bodies. Flows and aerobic conditions are variable in floodplains, depending on local site morphology and microtopography. Backswamps and sloughs are flooded with stagnant water for extensive periods of time, resulting in highly anaerobic conditions. In contrast, flooding frequency and depths are more variable in point bars and river bends, leading to more aerobic conditions, nutrient flows and mechanical scouring.

Basin swamps also experience seasonal flooding. In general, flooding is less variable, and is tied to local rainfall and runoff and seepage from surrounding uplands. Standing water is present throughout most of the year in these “still swamps” not adjacent to flowing rivers and streams.

State and transition model

Figure 8. Histic Alluvial Forests STM

Figure 9. Histic Alluvial Forests legend

Additional community tables

References

. (Date accessed). **Fire Effects Information System**. <http://www.fs.fed.us/database/feis/>.

. 2021 (Date accessed). **USDA PLANTS Database**. <http://plants.usda.gov>.

Other references

Brook, R. M. (1989). Review of literature on *Imperata cylindrica* (L.) Raeuschel with particular reference to South East Asia. *International Journal of Pest Management*, 35(1), 12-25.

Bryson, C. T., & Carter, R. (1993). Cogongrass, *Imperata cylindrica*, in the United States. *Weed Technology*, 7(4), 1005-1009.

Carr, S. C., Robertson, K. M., & Peet, R. K. (2010). A vegetation classification of fire-dependent pinelands of Florida. *Castanea*, 75(2), 153-189.

FNAI (2010). Guide to the natural communities of Florida: 2010 edition. Florida Natural Areas Inventory, Tallahassee, FL.

Gilliam, F. S., & Platt, W. J. (1999). Effects of long-term fire exclusion on tree species composition and stand structure in an old-growth *Pinus palustris* (longleaf pine) forest. *Plant Ecology*, 140, 15-26.

Glitzenstein, J. S., Streng, D. R., & Wade, D. D. (2003). Fire Frequency Effects on Longleaf Pine (*Pinus palustris* P. Miller) Vegetation in South Carolina and Northeast Florida, USA. *Natural Areas Journal*, 23(1), 22-37.

Glitzenstein, J. S., Platt, W. J., & Streng, D. R. (1995). Effects of fire regime and habitat on tree dynamics in north Florida longleaf pine savannas. *Ecological Monographs*, 65(4), 441-476.

MacDonald, G. E. (2004). Cogongrass (*Imperata cylindrica*)—biology, ecology, and management. *Critical Reviews in Plant Sciences*, 23(5), 367-380.

Schowalter, T. D., Coulson, R. N., & Crossley Jr, D. A. (1981). Role of southern pine beetle and fire in maintenance of structure and function of the southeastern coniferous forest. *Environmental Entomology*, 10(6), 821-825.

Puri, H. S., & Vernon, R. O. (1964). Summary of the geology of Florida and a guidebook to the classic exposures.

Yager, L. Y., Miller, D. L., & Jones, J. (2010). Susceptibility of longleaf pine forest associations in south Mississippi to invasion by cogongrass [*Imperata cylindrica* (L.) Beauv.]. *Natural areas journal*, 30(2), 226-232.

Contributors

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Approval

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	02/23/2024
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

3. Number and height of erosional pedestals or terracettes:

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):

5. Number of gullies and erosion associated with gullies:

6. Extent of wind scoured, blowouts and/or depositional areas:

7. Amount of litter movement (describe size and distance expected to travel):

8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):

12. Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):

Dominant:

Sub-dominant:

Other:

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):

14. Average percent litter cover (%) and depth (in):

15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):

16. Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:

17. Perennial plant reproductive capability:
