

Southwest Florida Water Management District

Photo Interpretation Key for Land Use Classification

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URBAN AND BUILT-UP

Classification Code: 1100 – Residential Low Density

Level I: Urban and Built Up

Level II: Residential, Low Density - Less than two dwelling units per acre.

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Residential land uses range from high-density urban housing developments to low-density rural areas characterized by a relatively small number of homes per acre. Low density areas sometimes have lot sizes of more than one acre.

This classification includes fixed single family units, mobile home units, and mixed units (fixed and mobile home units).

Context:

The low density residential category is often located in newly established sections of large urban areas, or within partially developed subdivisions or subdivisions with plots that are ½ acre or more. They are also commonly found within rural developments or along the urban-rural fringe.

Recognition Features:

- Relatively small buildings
- Distinct street patterns
- Large yards and open areas between houses
- Outdoor structures, pools
- Garages and driveways
- Moderate amount of trees and shrubs
- Well watered or maintained lawns
- Absence of large parking areas
- Absence of large structures

Exclusions:

Areas of low density residential land use (generally less than one dwelling unit per five acres), such as farmsteads, will be incorporated in other categories to which they relate.

Areas with parcels averaging more than 2 acres are assigned 1180 Rural residential.

Similar Classes:

- 1180 Rural Residential
- 1200 Residential, Medium Density

Mapping Conventions:

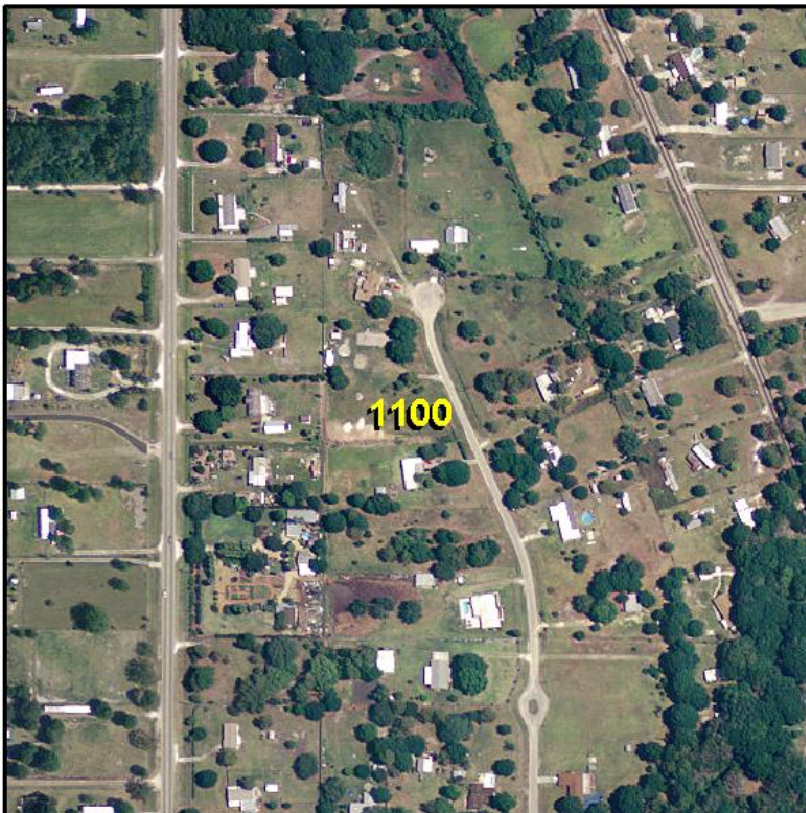
The polygon boundary should encompass the active residential area, corresponding to the "operational boundary" of commercial or industrial land uses. Non-residential features should be excluded, to the extent practicable, from this polygon. All features that are inside the residential area are coded 1100, including gardens, lawns, fields, pools, stables, garages, out-buildings, etc.

Rural residential and recreational type subdivisions will be included in the Residential category since this land is almost entirely committed to residential use even though it may include forest or range types.

Pictures of Classification Code: 1100



Low Density Residential (1100) - Color infrared aerial photograph



Low Density Residential (1100) - Natural color aerial photograph



Low Density Residential (1100) - Ground photo

Classification Code: 1180 – Rural Residential

Level 1: Urban and Built-up

Level 2: Residential, Low Density - less than two dwelling units per acre

Level 3: Rural Residential - between 2 and 5 acres for each dwelling

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This new subclass of 1100 is a SWFWMD addition to the FLUCCS system. The density is 2 to 5 acres per dwelling. It is used for areas with low dwelling unit densities, but not low enough to be put into a non-residential category, as with farmsteads. The 1100 Low density residential class did not differentiate between fairly dense residential areas and very low density rural area - homes on 1/2 acre manicured lots were in the same category as homes surrounded by several acres of open or forested area. 1180 applies to the lower density category.

Areas of very low intensity residential land use (over five acres per dwelling), such as farmsteads, will be given the appropriate non-residential category code(s), ignoring the residence. 1180 is used where the mapping unit is primarily residential, with rural or recreational uses sometimes present also. It may contain a mosaic of small open areas, natural vegetation, or miscellaneous covers/uses that cannot easily be broken out by the interpreter otherwise. Housing may be mixed in with other land covers and uses with no clear spatial pattern. Boundaries may not be distinct.

This subclass is intended for developments dominated by large parcel sizes. The class was not intended to be applied to small patchy features in the landscape.

Context:

Dwellings of this density can be found throughout the District, often in a rural context, or on urban-rural fringes. But larger developments may be found in urban areas.

Recognition Features:

- There are roughly two to five acres per dwelling unit
- Density is low, but the aggregate area is primarily residential.
- Open or natural areas are patchy and too small (<5 acres) to be broken out separately from dwellings.
- Open areas reflect activities (cutting, digging, grazing, fencing) of many small landowners in close proximity. There may be a lack of general pattern or order.
- Large parking areas or pavement are typically absent.

Similar Classes:

- 1100 Residential, Low Density - will have more of a 'neighborhood' appearance, not rural.
- 2000, 4000 - Natural or Agricultural areas usually show broad spatial pattern related to the landform, vegetation or cropping.

Mapping Conventions:

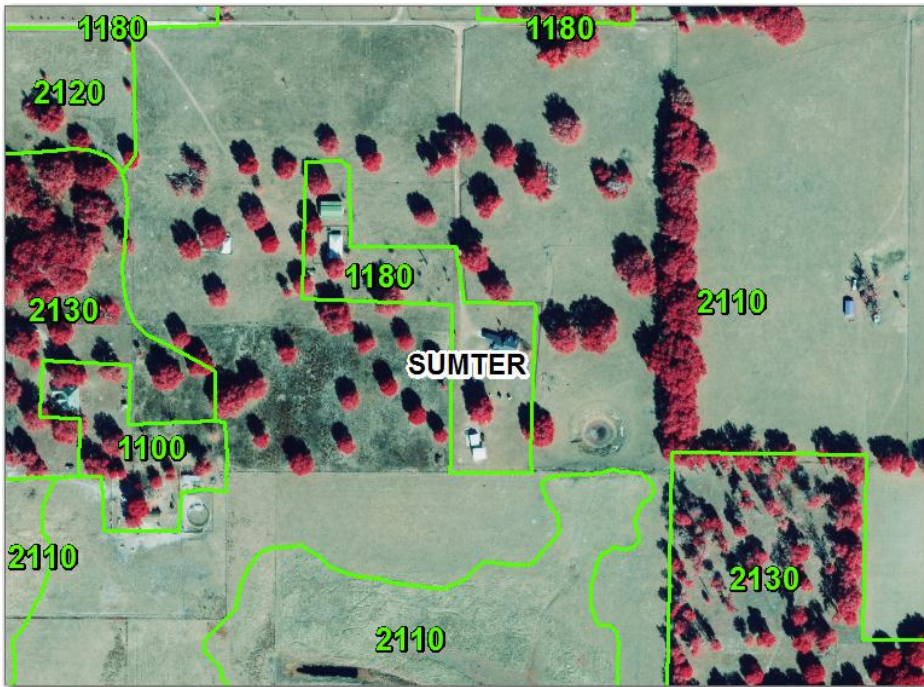
1180 is a SWFWMD modification to the FLUCCS system. The lowest density FLUCCS class is 1100, low density, with over 1/2 acre per dwelling.

The polygon boundary should encompass the active residential area. All features that are inside the residential area are coded 1180, including gardens, lawns, fields, pools, stables, garages, out-buildings, etc. Polygon boundaries do not coincide with ownership boundaries. The photo interpreter is not

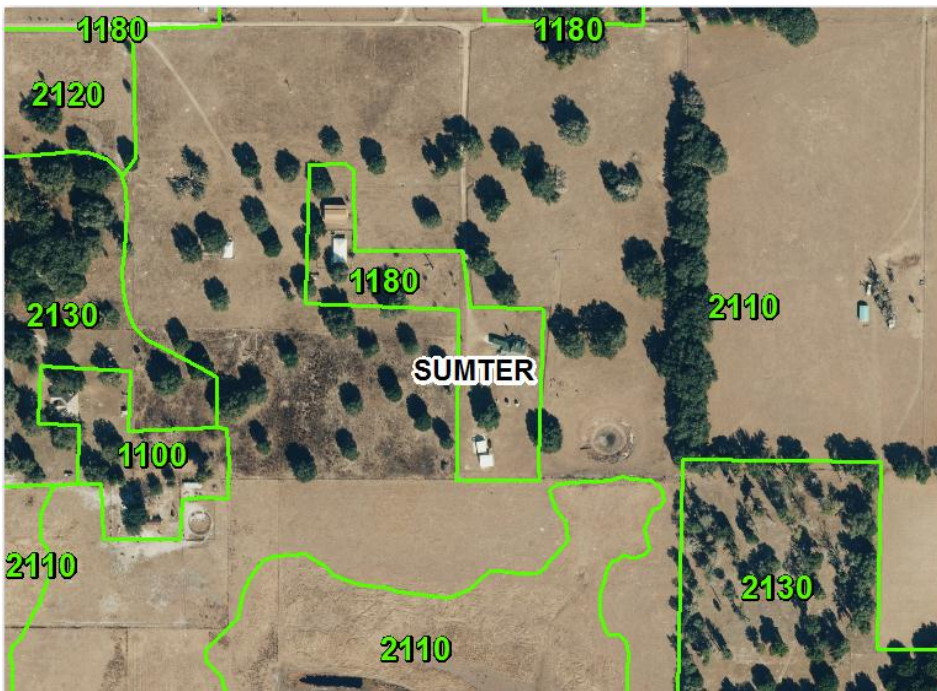
required to use collateral property data, and should err on the side of capturing land cover and environmental function.

Priority classes such as water bodies, wetlands, golf courses and cemeteries are always broken out if they meet minimum size criteria.

Pictures of Classification Code: 1180



Rural Residential (1180) - Color Infrared aerial photograph



Rural Residential (1180) – Natural color aerial photograph

Classification Code: 1190 – Low Density under Construction

Level 1: Urban and Built-up

Level 2: Residential, Low Density - less than two dwelling units per acre

Level 3: Low Density under Construction

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture), of which less than 50% of construction has been completed.

Description:

This class refers to low density residential areas that are in the process of construction and no more than 50% completed, though some of the dwellings are usually present. The 50% construction cutoff is a general guideline. In some cases, building construction may not even be started, but infrastructure has been developed. The property appears to be actively maintained. Parcel data also shows that the area has been subdivided. When completed they will fall into the 1100 class, with less than 2 dwellings per acre.

Context:

This category is often located in large urban areas or on the urban-rural fringes.

The existing infrastructure and construction at time of photography indicate the intended pattern and density, and show that the development is likely to be completed. Some of the dwellings are usually present.

Future construction may be fast or slow - there is no time limit set on completion. Progress is indicated by cleared, un-vegetated areas, construction equipment, infrastructure such as roads, driveways and utilities, and by surrounding patterns of land use.

Recognition Features:

- Infrastructure such as roads, driveways, utilities are present.
- The infrastructure shows the intended street patterns and housing density for most of the delineated area.
- Space for houses, roads, utilities, has been cleared, leaving a bright (unvegetated) signature.
- Surrounding land uses show growth is occurring. This may include new schools and malls, new or expanded roads, and other changes.

Exclusions:

If more than fifty percent of the area is constructed, and work is in progress, the area should be coded 1100, as though complete.

If the construction has completely stalled and there is no work being done on the project, then the code of 1920 is given. In this case, the area will usually have street patterns but no structures.

Similar Classes:

- 1290 Medium Density under Construction
- 1100 Low Density Residential
- 1920 Inactive land with street patterns but without structures

Mapping Conventions:

Housing may be in a pre-construction state. If it appears that development is imminent, as in the case of prepared lands adjacent to newly built subdivisions, then the 1190 code is used.

"Under construction" codes can be used for very low percentages of completion, at the discretion of the photo interpreter. These cases are relatively few, and used where property data shows parcel lots already laid out, and residential use appears very likely, even with no visible construction activity.

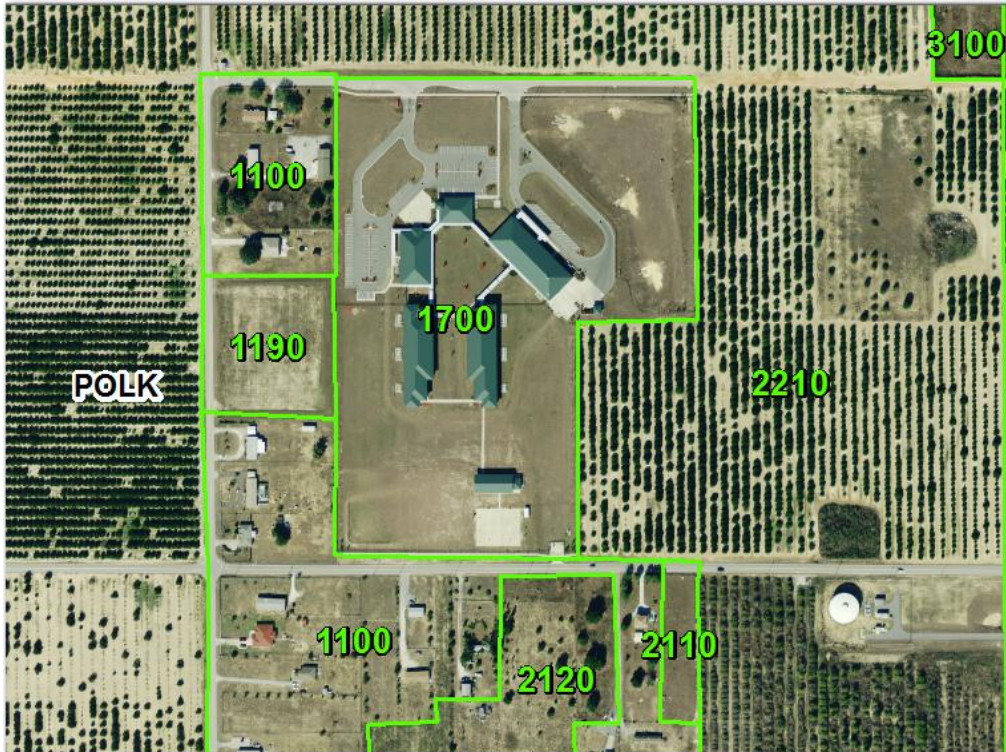
There is no time limit set on completion of the areas under construction - progress may be fast or slow. However, if the in-fill process is indefinitely stalled, the code 1920 is used instead.

Surrounding development densities may be used as a guide to assign appropriate density (1190, 1290, or 1390). However, code 1190 may be used as the default in areas in which it is impossible to determine the ultimate density.

Pictures of Classification Code: 1190



Low Density under Construction (1190) - Color Infrared aerial photograph



Low Density under Construction (1190) – Natural color aerial photographs

Classification Code: 1200 – Residential Medium Density

Level I: Urban and Built Up

Level II: Residential, Medium Density - two to five dwelling units per acre

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This category represents Medium Density Residential housing not associated with agricultural activities. These will generally include between two and five dwellings per acre.

This classification includes fixed single family units, mobile home units, and mixed units (fixed and mobile home units), urban subdivisions, new developments, and trailer parks with scattered occupancy.

Context:

Dwellings of this density can be found throughout the District. They are often located in large urban areas or on urban-rural fringe.

Boundaries between new housing developments and agricultural areas tend to be distinct. Conversely, the boundaries may be vague and difficult to discern in areas with mixed or rural land uses when housing develops in smaller isolated units over an extended period of time. Polygon boundaries are determined by average housing density and the relationship to the total urban complex.

Recognition Features:

- Relatively small buildings
- Distinct street patterns
- Little open area or yard between dwellings
- Limited outdoor structures
- Fences or sidewalks
- Garages and driveways
- Well watered lawns
- Little or no vegetation - trees and shrubs close to structures and may overhang house
- Typical urban single family subdivisions
- Absence of large parking areas and large structures

Similar Classes:

- 1100 Residential, Low Density
- 1300 Residential, High Density

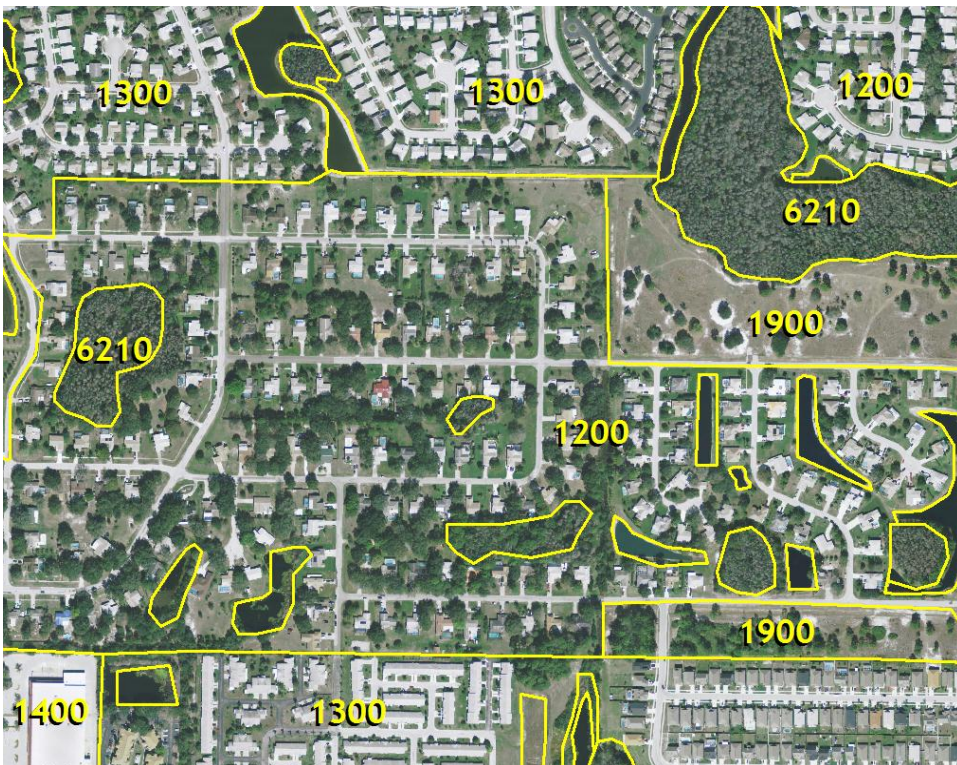
Mapping Conventions:

The polygon boundary should encompass the active residential area, corresponding to the "operational boundary" of commercial or industrial land uses. Open areas, such as pastures and forests, that are adjacent to the residential area are excluded. All features that are inside the residential area are coded 1200, including gardens, lawns, fields, pools, stables, garages, out-buildings, etc. Polygon boundaries generally coincide with ownership boundaries.

Pictures of Classification Code: 1200



Medium Density Residential (1200) - Color infrared aerial photograph



Medium Density Residential (1200) - Natural color aerial photograph



Medium Density Residential (1200) - Ground photo

Classification Code: 1290 – Medium Density under Construction

Level 1: Urban and Built-up

Level 2: Residential, Medium Density - between two and five dwelling units per acre

Level 3: Medium Density under Construction

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture), of which less than 50% of construction has been completed.

Description:

This class refers to medium density residential areas that are in the process of construction and no more than 50% completed. The 50% construction cutoff is a general guideline. In some cases, building construction may not even be started, but infrastructure has been developed. The property appears to be actively maintained. Parcel data also shows that the area has been subdivided. Once completed, there will be between two and five dwellings per acre.

Context:

Often located in large urban areas or on urban-rural fringes

The existing infrastructure and construction at time of photography are sufficient to show the intended pattern and density, and to conclude that the development is likely to be completed. In most cases, some of the dwellings are already present.

Future construction may be fast or slow - there is no time limit set on completion. Progress is indicated by cleared, un-vegetated areas, construction equipment, infrastructure such as roads, driveways and utilities, and by surrounding patterns of land use.

Recognition Features:

- Infrastructure such as roads, driveways, utilities are present.
- The infrastructure shows the intended street patterns and housing density for most of the delineated area.
- Space for houses, roads, utilities, has been cleared, leaving a bright (non-vegetated) signature.
- Surrounding land uses show growth is occurring. This may include new schools and malls, new or expanded roads, and other changes.

Exclusions:

If more than half (50%) of the area is constructed, and work is in progress, these areas should be coded as though complete, using 1200.

If the construction has completely stalled and there is no work being done on the project, then the code of 1920 is given. In this case, the area will usually have street patterns but no structures.

Similar Classes:

- 1200 Medium Density under Construction
- 1190 Low Density under Construction
- 1390 High Density under Construction
- 1920 Inactive Land with street patterns but without structures

Mapping Conventions:

Housing may be in a pre-construction state. If it appears that development is imminent, as in the case of prepared lands adjacent to newly built subdivisions, then the 1290 code is used.

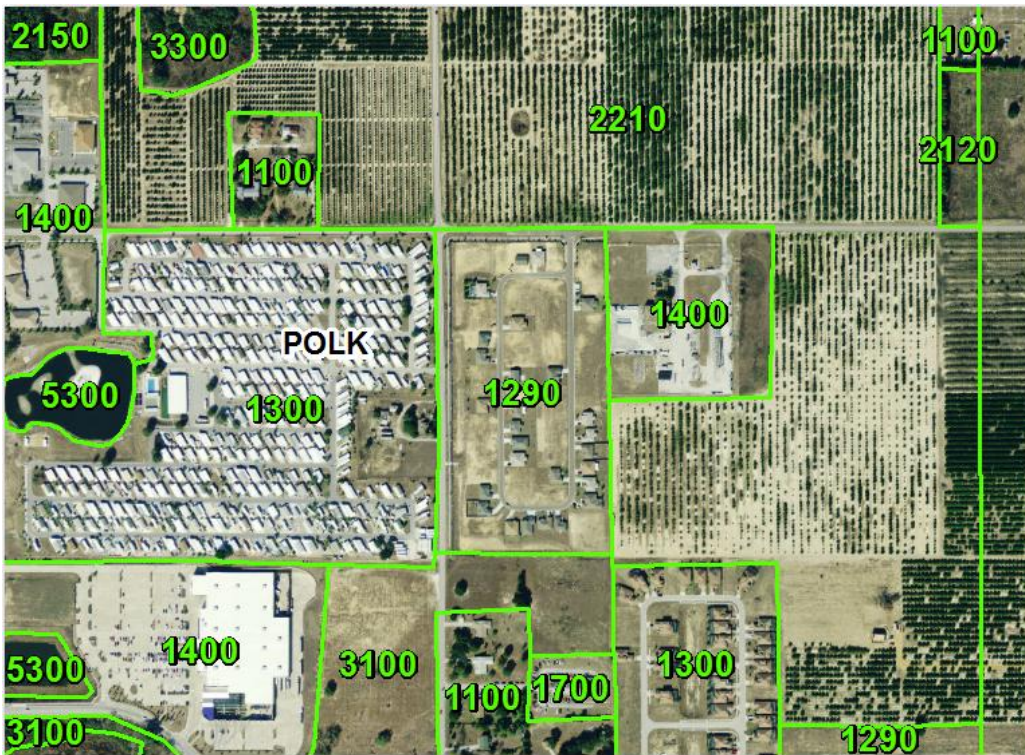
"Under construction" codes can be used for very low percentages of completion, at the discretion of the photo interpreter. These cases are relatively few, and used where property data shows parcel lots already laid out, and residential use appears very likely, even with no visible construction activity.

Surrounding development densities may be used as a guide to assign appropriate density (1190, 1290, or 1390). However, code 1190 may be used as the default in areas in which it is impossible to determine the ultimate density.

Pictures of Classification Code: 1290



Medium Density under Construction (1290) – Color infrared aerial photograph



Medium Density under Construction (1290) – Natural color aerial photograph

Classification Code: 1300 – Residential High Density

Level I: Urban and Built Up

Level II: Residential, High Density

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

The 1300 class is reserved for High Density Residential areas that have more than 5 dwelling units per acre. This includes apartment complexes, townhouses, duplexes, and trailer parks.

Context:

This category is most common in large urban centers, on urban-rural fringe, around university or medical facilities, or close to commercial areas.

Recognition Features:

- Small to large buildings with little open area or yard between dwellings
- Distinct street patterns
- Limited outdoor structures
- Fences or sidewalks
- Little or no vegetation - trees and shrubs close to structures and may overhang house
- Parking areas are adjacent to buildings, and some may be covered.
- Large parking areas and large structures are absent, except for community centers.

Exclusions:

Residential facilities may occur within other land uses, such as institutions, farms, parks, airports and businesses. For example, residential units may be found on military bases in the form of barracks, apartments, dormitories or homes; college and university campuses often have apartments and dormitories. Agricultural and resort facilities commonly provide temporary lodging for employees. In all these cases the dwellings are not classified as residential, but rather as the surrounding use.

Similar Classes:

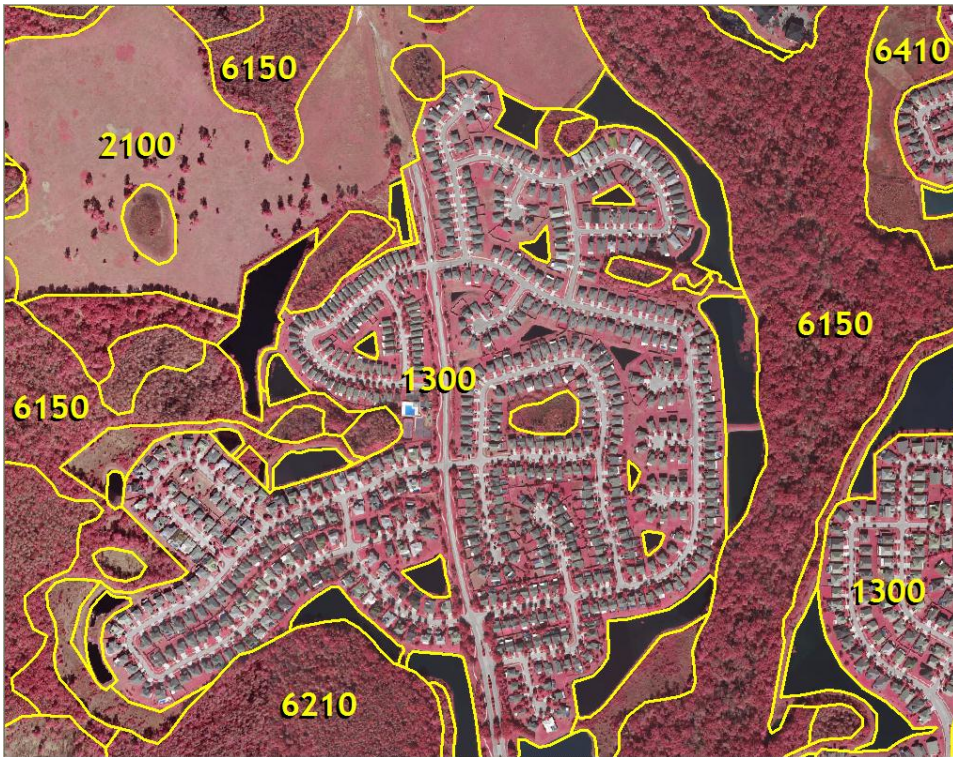
- Some apartment complexes will have similar signatures to resorts (1400). Ancillary data such as parcel information may be necessary to determine the correct code.
- 1200 Residential, Medium Density.
- 1700 Institutional - Residential units may be found on military bases or on college and university campuses in the form of barracks, apartments, dormitories or homes.

Mapping Conventions:

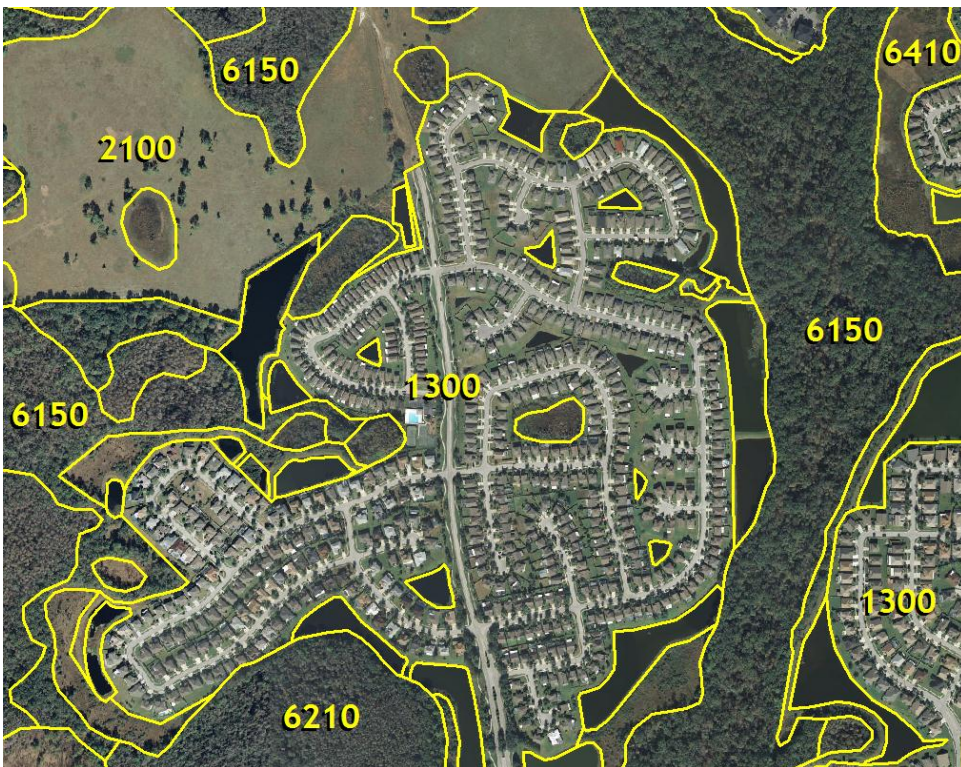
All features that are inside the residential area are coded 1300, including gardens, lawns, pools, garages, out-buildings, and communally managed facilities. Polygon boundaries generally coincide with parcel ownership boundaries, and are usually distinct at this high density.

Residential classes are differentiated based on the average density of dwellings in each mapping unit. Mapping units may include some dwellings with larger or smaller acreage, but the density is based on an average.

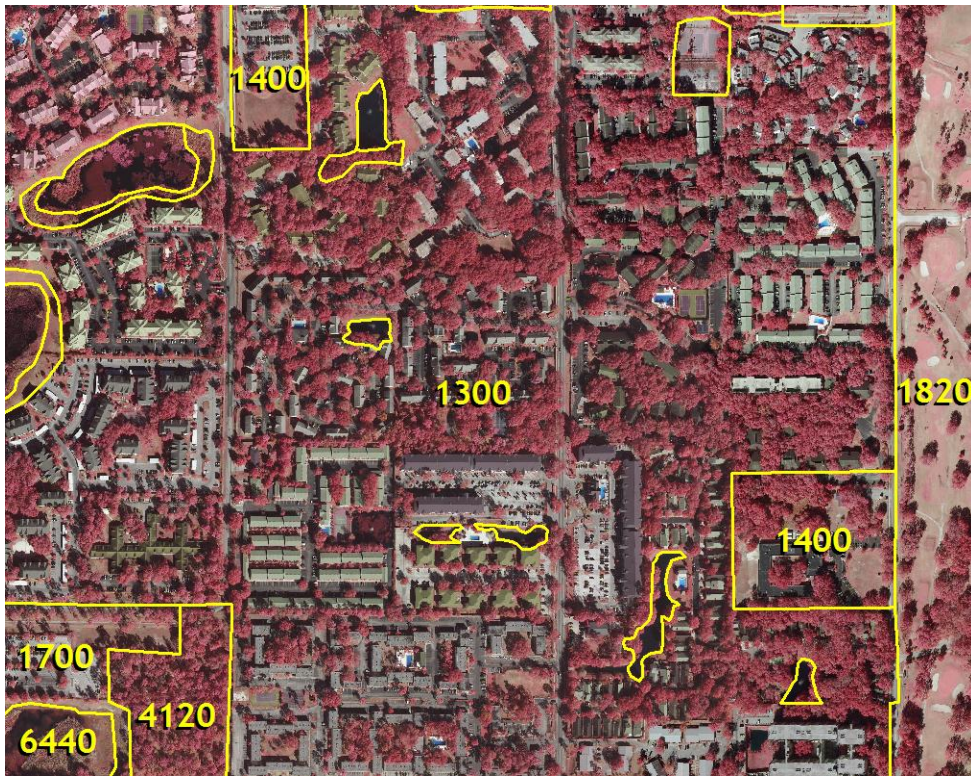
Pictures of Classification Code: 1300



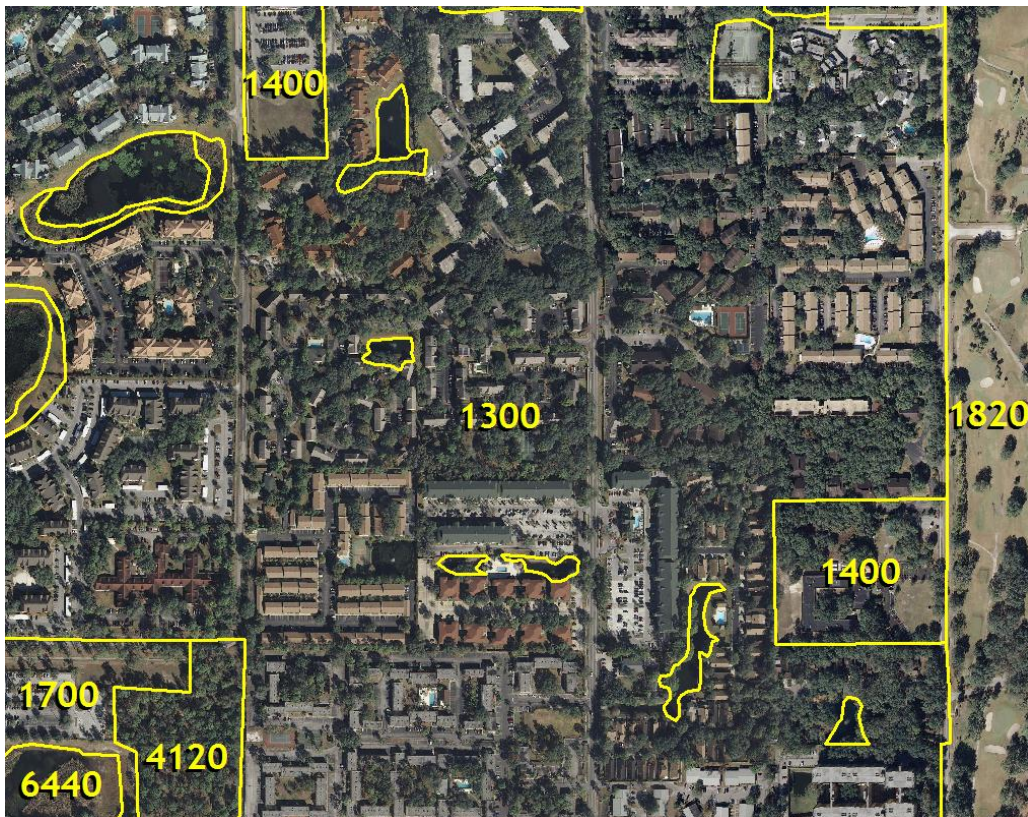
High Density Residential (1300) - Color infrared aerial photograph



High Density Residential (1300) - Natural color aerial photograph



High Density Residential (1300) - Color infrared aerial photograph



High Density Residential (1300) - Natural color aerial photograph



High Density Residential (1300) – Ground Photo



High Density Residential (1300) – Ground Photo

Classification Code: 1390 – High Density under Construction

Level 1: Urban and Built-up

Level 2: Residential, High Density - more than 5 dwelling units per acre

Level 3: High Density under Construction

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture), of which less than 50% of construction has been completed.

Description:

This class refers to high density residential areas that are in the process of construction and no more than 50% completed. The 50% construction cutoff is a general guideline. In some cases, building construction may not even be started, but infrastructure has been developed. The property appears to be actively maintained. Parcel data also shows that the area has been subdivided. Once completed, there will be 5 or more dwellings per acre.

Context:

Surrounding land uses may confirm that growth is occurring. This may include new schools and malls, new or expanded roads, and other changes.

The existing infrastructure and construction at time of photography are sufficient to show the intended pattern and density, and to conclude that the development is likely to be completed. In most cases, some of the dwellings are already present.

Future construction may be fast or slow - there is no time limit set on completion. Progress is indicated by cleared, un-vegetated areas, construction equipment, infrastructure such as roads, driveways and utilities, and by surrounding patterns of land use.

Recognition Features:

- Houses are dense, usually in very regular pattern and orientation.
- Houses tend to be of similar design and appearance.
- Infrastructure such as roads, driveways, utilities are present.
- The infrastructure shows the intended street patterns and housing density for most of the delineated area.
- Space for houses, roads, utilities, has been cleared, leaving a bright (non-vegetated) signature.

Exclusions:

If more than half (50%) of the area is constructed, and work is in progress, these areas should be coded as though complete, using 1300.

If the construction has completely stalled and there is no work being done on the project, then the code of 1920 is given. In this case, the area will usually have street patterns but no structures.

Similar Classes:

- 1290 Medium Density Under Construction
- 1300 Low Density Residential
- 1920 Inactive Land with street patterns but without structures

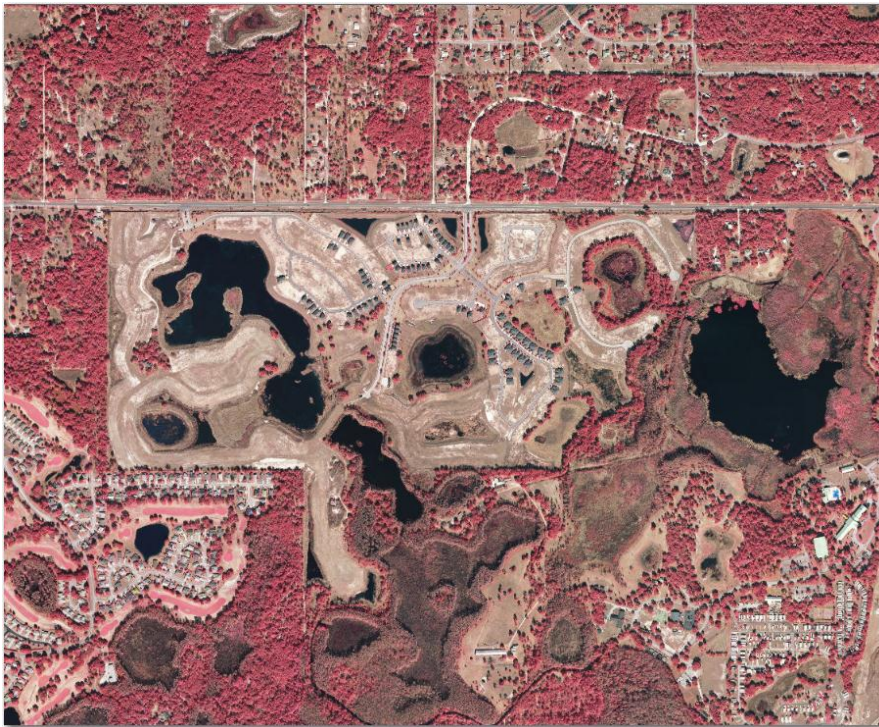
Mapping Conventions:

Housing may be in a pre-construction state. If it appears that development is imminent, as in the case of prepared lands adjacent to newly built subdivisions, then the 1390 code is used.

"Under construction" codes can be used for very low percentages of completion, at the discretion of the photo interpreter. These cases are relatively few, and used where property data shows parcel lots already laid out, and residential use appears very likely, even with no visible construction activity.

Surrounding development densities may be used as a guide to assign appropriate density (1190, 1290, or 1390). However, code 1190 may be used as the default in areas in which it is impossible to determine the ultimate density.

Pictures of Classification Code: 1390



High Density under Construction (1390) - Color infrared aerial photograph



High Density under Construction (1390) - Natural color aerial photograph

Classification Code: 1400 – Commercial and Services

Level I: Urban and Built Up

Level II: Commercial and Services

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Commercial areas are predominantly associated with the distribution of products and services. This category is composed of a large number of individual types of commercial land uses which often occur in complex mixtures. Included are shopping centers and commercial strip developments. These areas have distinctive patterns which are readily identifiable on aerial photographs. It also includes commercial resorts catering to tourists and vacationers. Resorts are difficult to identify on aerial photography and often contain recreational facilities such as swimming pools and ball courts. Also included in the 1400 class are warehouses, junk yards, campgrounds and amusement parks.

Context:

Commercial areas are located throughout the District, in association with developed areas and transportation volume. They may be within or independent from developed areas. They are usually located along main transportation routes or at the intersections of secondary transportation corridors.

Recognition Features:

- Represents a large variety of facilities that provide a number of services to the public
- Commercial advertising signs or their shadows may be evident.
- Facility size will be dependent on function, and can vary widely.
- Usually has multiple car parking lot adjacent to building
- Usually lacking natural vegetation or open space but may be nicely landscaped
- Generally well kept lots
- Absence of heavy machinery, raw materials, or fences
- Larger facilities may show trucking or other transportation services for accepting shipments of goods or supplies
- Distinctive patterns which are readily identifiable on aerial photographs

Exclusions:

- Recreational fields and arenas are not included in the commercial and services category.
- If an urban area is under construction and the ultimate land use is discernible as Commercial and Services, it should be classified as 1490 - under construction.

Similar Classes:

- 1100 to 1300 Residential - residential strips may look similar; parking is more disperse and uniform in residential strips
- 1500 Industrial - light industrial may appear similar
- 1700 Institutional
- 1800 Recreational (indoor activities)

Mapping Conventions:

All secondary structures associated with an enterprise in addition to the main building and integral areas assigned to support the base unit are included, such as sheds, warehouses, office buildings, driveways, parking lots and landscaped areas.

The commercial resort caters to vacationing patrons and often contains associated recreational facilities such as swimming pools and ball courts. These can be difficult to identify on aerial photography.

Frequently, individual houses and other classes of urban land use may be found within commercial areas. Pull these features out if they meet the minimum requirements.

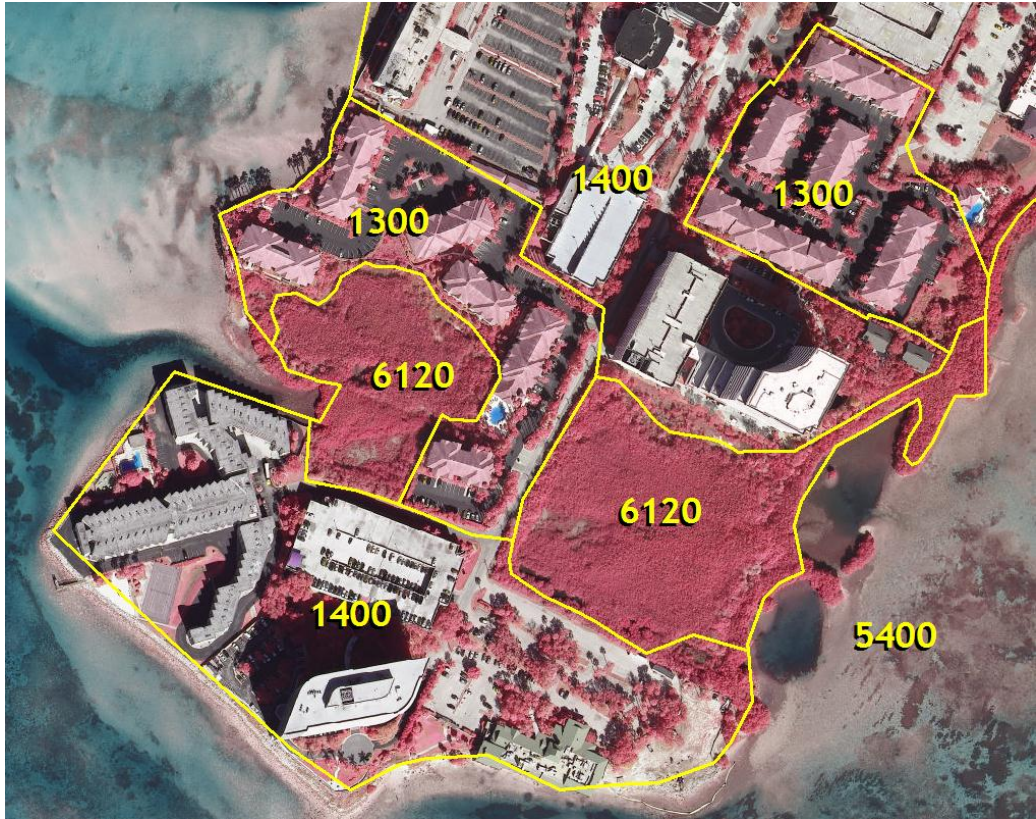
Pictures of Classification Code: 1400



Commercial and Services (1400) – Color infrared aerial photograph



Commercial and Services (1400) - Natural color aerial photograph



Commercial and Services (1400) – Color infrared aerial photograph



Commercial and Services (1400) - Natural color aerial photograph



Commercial and Services (1400) - Ground photo



Commercial and Services (1400) - Ground photo

Classification Code: 1480 – Cemeteries

Level 1: Urban and Built-up

Level 2: Commercial and Services

Level 3: Cemeteries

Minimum delineation area: .5 acres

Description:

This class includes all burial grounds of any age and type. These are a diverse group, which include both human and pet cemeteries; old, inactive cemeteries covered by dense canopy; brand new facilities with open expanses of lawn that are not yet "populated;" and all combinations in between.

Context:

Cemeteries may be found throughout the District, but are usually closer to populated areas. The size range correlates with the size of the communities or cities, with larger cemeteries near major urban areas. Small cemeteries are often located next to churches, and should be coded as cemeteries if greater than the .5 acre MMU.

Recognition Features:

- Cemeteries are usually identified on topographic maps by point symbols.
- Newer facilities may have relatively smooth and even-textured land with well-maintained, irrigated lawns, and paved roads.
- Newer facilities may have few or scattered trees. Older ones may be under dense canopy.
- There may be small to medium-sized structures (e.g. mausoleums) dispersed about the facility.
- Road pattern and landscaping may have a formal, aesthetic appearance reflecting the religious functions. Roads may curve and wind through the site. There is usually a formal landscaped entrance.
- The headstones and their shadows may form a checker board pattern, or one of closely-spaced rows of white dots.
- Boundaries with adjacent land uses are usually distinct.

Similar Classes:

- 1400 Commercial and Services - Funeral homes outside of cemetery
- 1700 Institutional
- 1900 Open land
- 3000 Upland Non-forested

Mapping Conventions:

The appearance on an aerial photo may be challenging for older cemeteries. Ancillary data should be used, if available, to locate and confirm the presence of cemeteries.

Pictures of Classification Code: 1480



Cemetery (1480) - Color infrared aerial photograph



Cemetery (1480) - Natural color aerial photograph



Cemetery (1480) – Aerial Photo

Classification Code: 1490 – Commercial and Services under Construction

Level I: Urban and Built Up

Level II: Industrial

Level III: Commercial and Services under Construction

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class includes all 1400 classes that are in the process of construction, including cemeteries -1480.

For a detailed description of those classes see the PI key pages for each one.

1400 is an active **land use** class that includes a broad range of uses which can be difficult to differentiate individually. This broad class includes many operations providing diverse products and services which often occur in complex mixtures. Within the mapping units there are likely to be inclusions of other uses, such as light industrial and residential, that are below minimum mapping criteria.

The 1400 class includes shopping centers and commercial strip developments. These areas have distinctive patterns which are readily identifiable on aerial photographs. It also includes commercial resorts catering to tourists and vacationers. Resorts are difficult to identify on aerial photography and often contain recreational facilities such as swimming pools and ball courts.

This class can be difficult to differentiate from similar classes, especially when under construction. Ancillary land use data (i.e. parcel maps) should be used if available.

Context:

Commercial areas are located throughout the District, in association with developed areas and transportation volume. They may be within or independent from developed areas. They are usually located along main transportation routes or at the intersections of secondary transportation corridors.

Recognition Features:

- See description for 1400 and 1480. Commercial advertising signs or their shadows may be evident.
- Much of the land surface is likely to be un-vegetated and disturbed.
- Construction equipment and building may be visible.
- There are likely to be mounds of fill material, temporary dirt roads, ponding, construction material, construction trailers, and other signs of on-going construction.

Similar Classes:

- 1190, 1290, and 1390 - all 'under construction' classes
- 7400 - Disturbed areas

Mapping Conventions:

Many of the indicators for the 1400's group of classes are not visible during the construction period. Ancillary data such as parcel or zoning maps may be needed to differentiate this code from other 'under construction' classes.

Pictures of Classification Code: 1490



Commercial and Services under Construction (1490) – Color Infrared Aerial



Commercial and Services under Construction (1490) – Natural Color Aerial



Commercial and Services under Construction (1490) – Ground Photo

Classification Code: 1500 - Industrial

Level I: Urban and Built Up

Level II: Industrial

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

The Industrial category embraces those land uses where manufacturing, assembly or processing of materials and products are accomplished. Industrial areas include a wide array of industry types ranging from light manufacturing and industrial parks to heavy manufacturing plants.

Typical examples of industrial types found in Florida are pulp and lumber mills, oil refineries with tank farms, chemical plants, raw material operations (be careful not to mistake as 1600) and brick making plants.

With the exception of sections in the larger urban centers such as Tampa, most industrial uses were light industrial, manufacturing, or associated with citrus or food processing.

Context:

- Industrial facilities are often clustered together in larger areas with appropriate zoning, utilities, transportation and other factors.
- They tend to be located adjacent to urban areas, and with access to major transportation routes, including roads, railroads, water and airports.
- Heavy industrial concentration often located by port facilities or rail facilities
- Fabricating and assembly industries usually located adjacent to central business districts
- Finished products and warehouses tend to be located in urban fringe areas

Recognition Features:

- Large to small facilities depending on industry
- Little or no vegetation or planned landscaping
- Has presence of large loading docks on the property and the roof structure of the buildings are often unique.
- Unkept look to property
- Usually fenced
- May have open areas for storage or outdoor equipment or parking
- Large power sources and solid waste product disposal areas are visible industrial features and are easily identified on conventional aerial photography.
- Stockpiles of raw materials or finished goods, large power sources and solid waste product disposal areas are visible industrial features and are easily identified on conventional aerial photography.

Exclusions:

The identification of an area as an "industrial park" did not necessarily require it to be classified as industrial as service oriented businesses were also common in these parks.

Similar Classes:

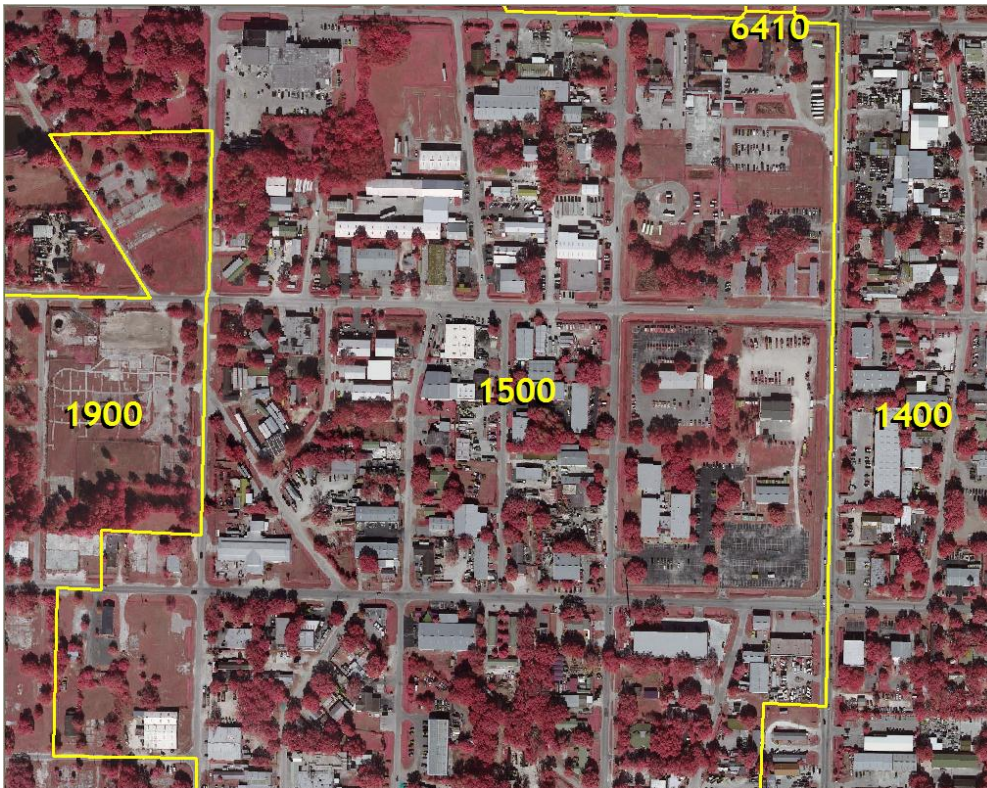
Some industrial classes can be confused with classes in other categories such as 1400 Commercial and Services, 1600 Extractive, and 8300 Utilities. These include uses related to mining, fuel storage, and power generating facilities. The individual PI key pages provide details about how to differentiate these similar classes.

Mapping Conventions:

Also included are those facilities for administration and research, assembly, storage and warehousing, shipping and associated parking lots and grounds.

Often these uses were difficult to separate from commercial sites particularly when located under a single roof. The identification of an area as an "industrial park" did not necessarily require it to be classified as industrial as service oriented businesses were also common in these parks.

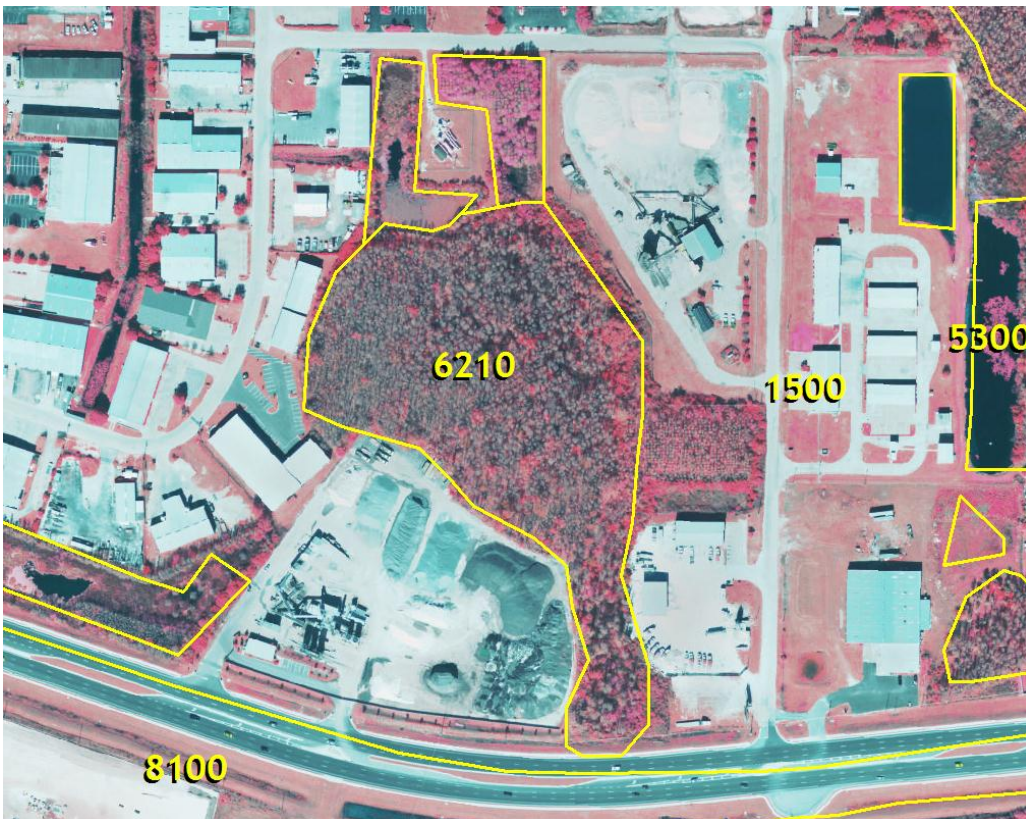
Pictures of Classification Code: 1500



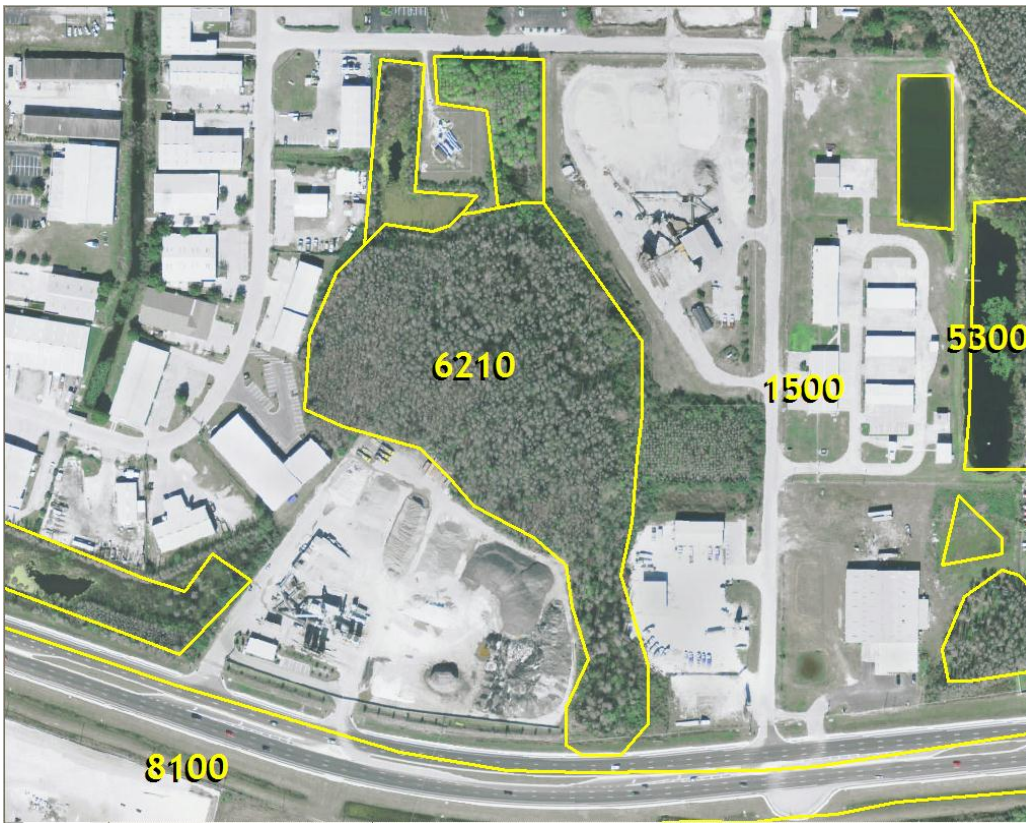
Industrial (1500) - Color infrared aerial photograph



Industrial (1500) - Natural color aerial photograph



Industrial (1500) - Color infrared aerial photograph



Industrial (1500) - Natural color aerial photograph



Industrial (1500) - Ground photo



Industrial (1500) - Ground photo

Classification Code: 1600 - Extractive

Level I: Urban and Built Up

Level II: Extractive

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Extractive areas encompass both surface and subsurface mining operations. Included are peat and clay mines, sand and gravel pits, phosphate mines, and limestone quarries. Phosphate mining is the largest extractive land use in the District. Included as extractive are the holding ponds, sludge ponds, piles of overburden (including re-vegetated piles).

Recognition Features:

- Large areas of surface disturbance; scouring and piling of land and overburden. Often, the disturbance is deep excavations, sometimes restricted to a few tens of feet below the surface. Often ponded.
- Presence of waste piles, piles of mined materials, and a variety of excavating equipment such as bulldozers, shovels, dredges, and drag lines.
- Requires transportation equipment such as trucks, railway equipment, conveyor, and mine cars.
- Some mining operations require considerable processing before shipping and will have large structures and associated refining equipment.
- Most operations are quite large and impressive on the landscape.
- Transportation equipment such as trucks, mini cars, railway equipment and conveyors
- The recognizable impacts of these activities on the landscape will vary from the unmistakable giant pit mines covering vast acreages to oil wells which cover only a few square feet.

Exclusions:

Abandoned or inactive mines that are re-vegetated are included in the Disturbed Lands (7400) category or the appropriate vegetation category.

Refineries and phosphate processing plants not directly on site of a mining area are included in the industrial category (1500).

If the pit or pond is reclaimed and put to another use, or is surrounded by the typical smooth gray reclaimed land signature, then it is coded with 5300 (reservoirs) code.

Similar Classes:

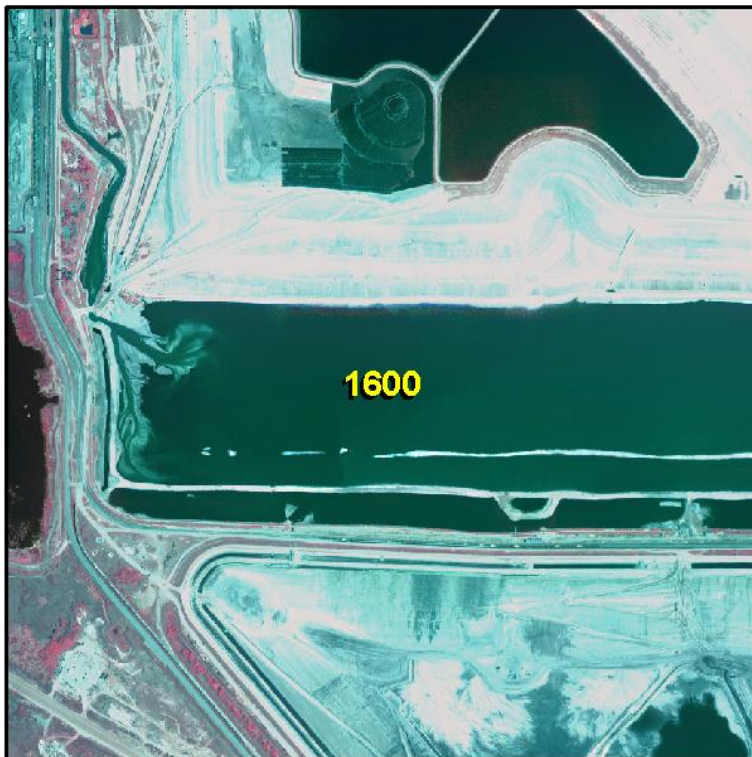
While raw material operations look similar to extractive mining operations, there is no actual extraction at these raw material sights and are therefore coded as 1500.

7400 Disturbed land - 7400 may be dual-coded with 1650 or 1670, or it may be used by itself if the land use cannot be determined

Mapping Conventions:

- Include buildings associated with the mining operation and some processing operations that are directly adjacent to the mine.
- Industrial complexes where the extracted material is refined, packaged or further processed are also included in this category.
- Reclaimed land will be included in 1600 code if the use cannot be determined.
- Abandoned or inactive mines are classified as extractive if not re-vegetated.
- If other code types, such as agriculture, residential or recreational land use are under the mmu, they can be included in the 1600 code if within the extractive area.

Pictures of Classification Code: 1600



Extractive (1600) - Color infrared aerial photograph



Extractive (1600) - Natural color aerial photograph



Extractive (1600) - Ground photo

Classification Code: 1650 – Reclaimed Land

Level I: Urban and Built Up

Level II: Extractive

Level III: Reclaimed Land

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Reclaimed lands are areas that have been excavated for mining, but are no longer being mined. They are in the process of being restored to an approximate natural state or converted into another use type. The 1650 code will only be used in those areas that are not being turned into other codes (1800, 1100, etc.). It does not include portions of active mining areas that are temporarily inactive, or abandoned mining lands.

Context:

Reclaimed lands are generally located in rural areas with a history of mining activities, which may be currently active. Vegetation is likely to be sparse or subdued compared to natural areas, and tends to have a planned, landscaped appearance. Vegetation communities are usually not the same as adjacent natural areas. On close inspection, the geometry of the site will reflect the geometry of previous mining operations, examples of which may be active in the surrounding landscape.

Recognition Features:

- Areas of waste piles with natural vegetation growing on top.
- Man-made ponds and lakes are also usually found in the vicinity.
- Distinct patterns will be observed in the landscape, bodies of water and vegetation.
- Vegetation should look natural.
- Smooth gray appearance

Exclusions:

- There should be a temporal period (approx. 2 years) where the land will still be barren with no vegetation present. These areas will be considered part of the 1600 until the future use is determined according to the new vegetation growth (whether it should be 1650, 1800, 4400, etc.).
- If there are areas of planted trees, these should be pulled out as 4400.
- All wetlands and reservoirs should also be pulled out according to their respective codes.

Similar Classes:

- 1600 Extractive - Most classes in the extractive group can present similar signatures
- 3100 Herbaceous
- 3200 Shrub and Brushland, or 3300, mixed
- 7400 Disturbed land
- 7410 Rural land in transition without positive indicators of intended activity

Mapping Conventions:

This code is only used from 2006 and future land use classifications.

The 1650 mapping unit includes the former operational area of mining operations that have been reclaimed; this includes former storage areas, material stockpiles, parking, offices and other buildings, roads, and open areas that were at one time inside the operational boundary.

Pictures of Classification Code: 1650



Reclaimed Land (1650) – Color Infrared aerial photograph



Reclaimed Land (1650) – Color Infrared aerial photograph



Reclaimed Land (1650) – Ground photo



Reclaimed Land (1650) – Ground photo

Classification Code: 1700 - Institutional

Level I: Urban and Built Up

Level II: Institutional

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Educational, government, religious, health, commercial child care, and correctional and military facilities are typical components of this category.

Context:

The location depends on the type of institution. Most educational and medical facilities are located in populated areas. Military or correctional facilities are often in more isolated areas. Water management district headquarters tend to be located next to airports.

Some have characteristic photo signatures and building placement for consistent photo recognition, while others occurred in rehabilitated housing or in commercial areas, making their identification unreliable

Recognition Features:

- Usually have facilities with many smaller structures, including on-site residences.
- Many times the facilities are self-sufficient and are able to operate in time of crisis or disruption; may have its own power generator and sanitary disposal system.
- Often fenced and passage may be restricted or controlled. Correctional facilities tend to be confined facilities enclosed within multiple fence structures.
- Good transportation access.
- Absence of natural vegetation but usually have large lawns and planned landscaping and grounds.
- Most operations are quite large and impressive on the landscape.

Exclusions:

Those areas not specifically related to the purposes of the institution should be excluded. For example, agriculture areas not specifically associated with correctional, educational or religious institutions are placed in the appropriate Agricultural categories.

Cemeteries within the 1700 category will be coded as 1480 (cemeteries) starting in 2014.

Similar Classes:

1400 Commercial and Services - Features such as office buildings may look the same whether public or private. Ancillary land use data may be used to differentiate.

1800 Recreational classes - These are mapped in the 1800 series when they are not visibly connected to an institution.

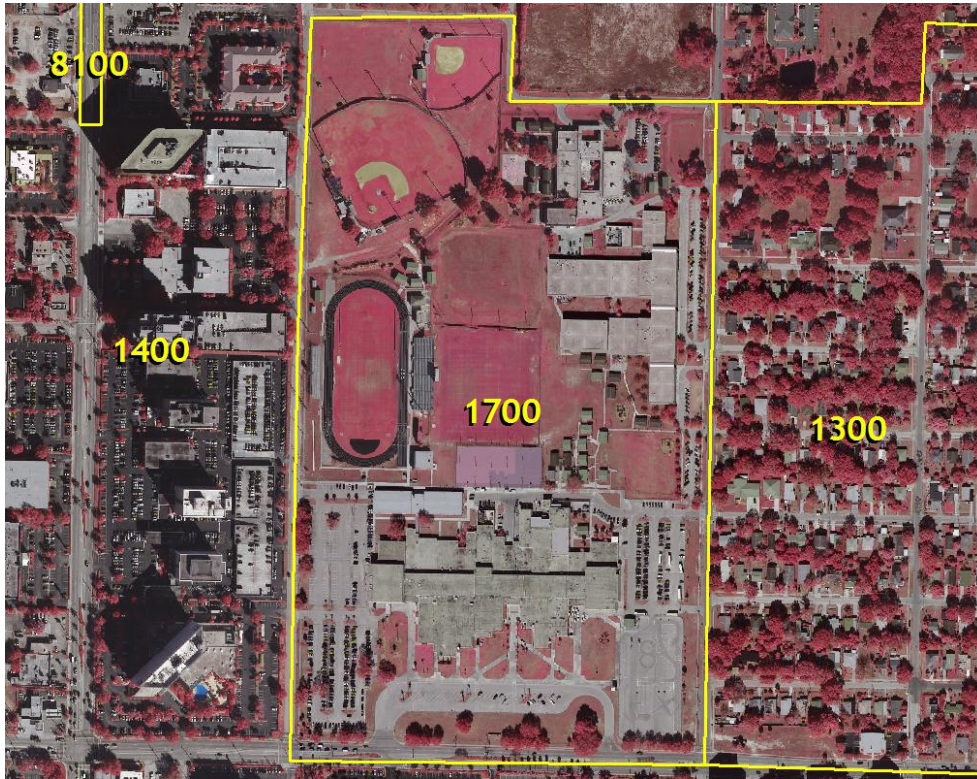
Mapping Conventions:

Included within a particular institutional unit are all buildings, grounds, parking lots, recreational areas, green houses, gardens, and other features that are attached to the facility and involved in its operation. Spatial integration and function determine whether features are to be included in the 1700 category.

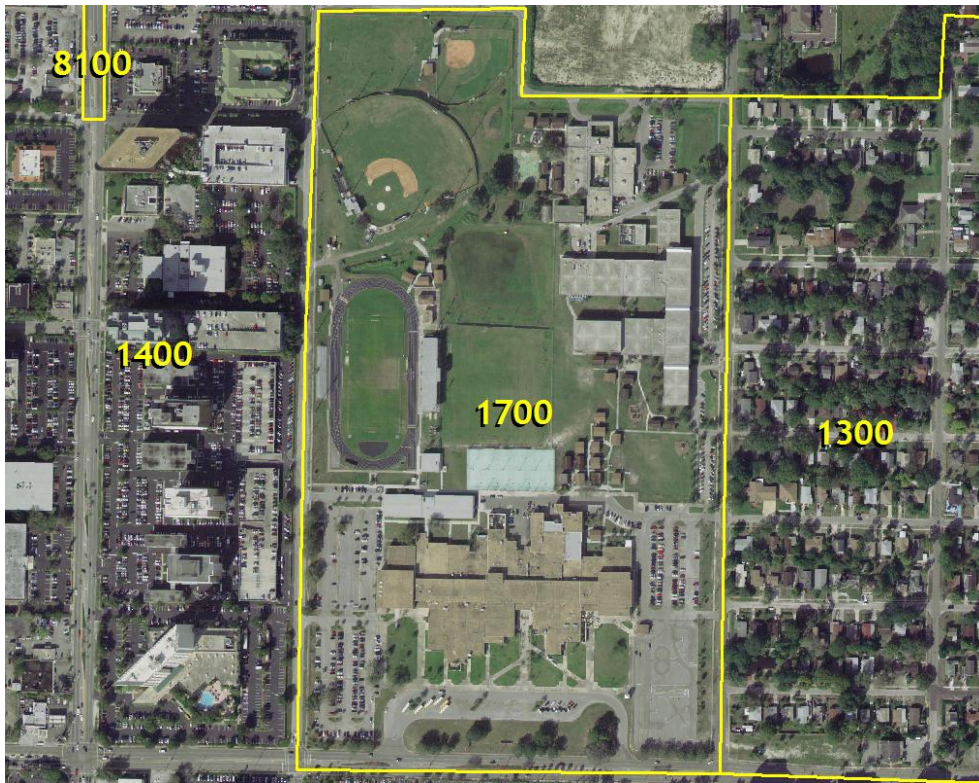
Educational institutions encompass all levels of public and private schools, colleges, universities, training centers, etc. The entire areas enclosing buildings, campus open space, dormitories, recreational facilities and parking lots are included into this category when they are identifiable.

Military facilities are characterized by a wide variety of features including training camps, missile sites, etc. Administration, storage, repair, security and other functional military buildings plus the practice ranges, storage areas, equipment storage lots and buffer zones compose the institutional military facilities. Auxiliary land uses, particularly residential, commercial and other supporting uses located on a military base, are included in the Institutional category.

Pictures of Classification Code: 1700



Institutional (1700) - Color infrared aerial photograph



Institutional (1700) - Natural color aerial photograph



Institutional (1700) - Ground photo

Classification Code: 1800 - Recreational

Level I: Urban and Built Up

Level II: Recreational

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Recreational areas are those areas whose physical structure indicates that active user-oriented recreation is or could be occurring within the given physical area. This category would include parks, swimming beaches and shores, marinas, fairgrounds, zoos, sports stadiums, etc. In order to make this recreational determination, supplemental information may often be required.

Context:

Higher concentrations occur in the urban areas and along the coastlines, and are usually located in well serviced areas along major transportation routes

Recognition Features:

- Well organized grounds with large parking facilities; usually have a specialized layout
- May have large multistoried parking adjacent to the larger recreational facilities
- Easily recognizable fields and markings associated with sports complexes
- Large areas of open space associated with structures; little or no vegetation except selected landscaping (with the exception of nature areas and forested parks)

Exclusions:

Exclude art galleries, museums, movie theaters, and amusement parks because they are considered commercial activities.

Go-cart tracks and miniature golf courses that do not meet the 5 acres delineation size are included with commercial use.

Similar Classes:

Indoor recreational uses -these will be hard to distinguish from commercial and institutional uses. The error is not significant.

Resorts - these will often have recreational facilities, but are classed under commercial and services.

Institutions such as schools will have recreational facilities that are to be included in the 1700 mapping units. To be classed as 1800, the recreational areas should be independent from commercial or institutional operations.

Mapping Conventions:

Include any beach adjacent to developed areas or accessible by land transportation, including undeveloped beaches within parks. Offshore beaches designated as parks are also included.

For parks, include only the portion of land that has been cleared for an open area or improved. These may include gardens, lawns, fields, and recreational areas. The rest will be classified by the vegetation present.

Golf course club houses, administration buildings, and parking areas were included in this category. No minimum mapping unit has been established for this type of land use/land cover. However, they are typically less than 5 acres. This was done to separate that portion of the golf course that was irrigated from the non-irrigated portion.

Swimming beaches are identifiable by such features as bath houses, picnic areas, service stands and large parking lots adjacent to the beach areas.

Pictures of Classification Code: 1800



Recreational (Urban) (1800) - Color infrared aerial photograph



Recreational (Urban) (1800) - Natural color aerial photograph



Recreational (Urban) (1800) - Ground photo

Classification Code: 1820 – Golf Courses

Level I: Urban and Built Up

Level II: Recreational

Level III: Golf Courses

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Golf courses are easily recognizable by their landscaping features and have no similar classes. Usually found in urban areas, golf courses are recreational areas whose primary purpose is for the activity of golf.

Context:

Usually located in well serviced areas along major transportation routes. They are often constructed on low-lying ground such as pine flatwoods, and may be adjacent to or displace wetlands.

Nothing else looks like a golf course. However, they may be woven into other land uses - residential in particular. Many residential communities in the District are built around or adjacent to golf courses. They may also be mixed into institutional or commercial uses.

Recognition Features:

- Well organized grounds with large parking facilities
- Easily recognizable well-manicured fairways, greens, tees, sand traps, and small ponds
- Parking lot adjacent to facility.

Exclusions:

All reservoirs should be mapped.

Miniature golf areas are not included and are usually included in the commercial category.

Club houses, administration buildings, and parking areas were included in the 1800 category to separate that portion of the golf course that was irrigated from the non-irrigated portion for water use estimates.

Mapping Conventions:

Easily identifiable long well-manicured fairways, greens, tees, sand traps, and small ponds distinguish golf courses from other recreational areas. Surrounding un-manicured areas are not included. Only the irrigated and sandy areas should be included.

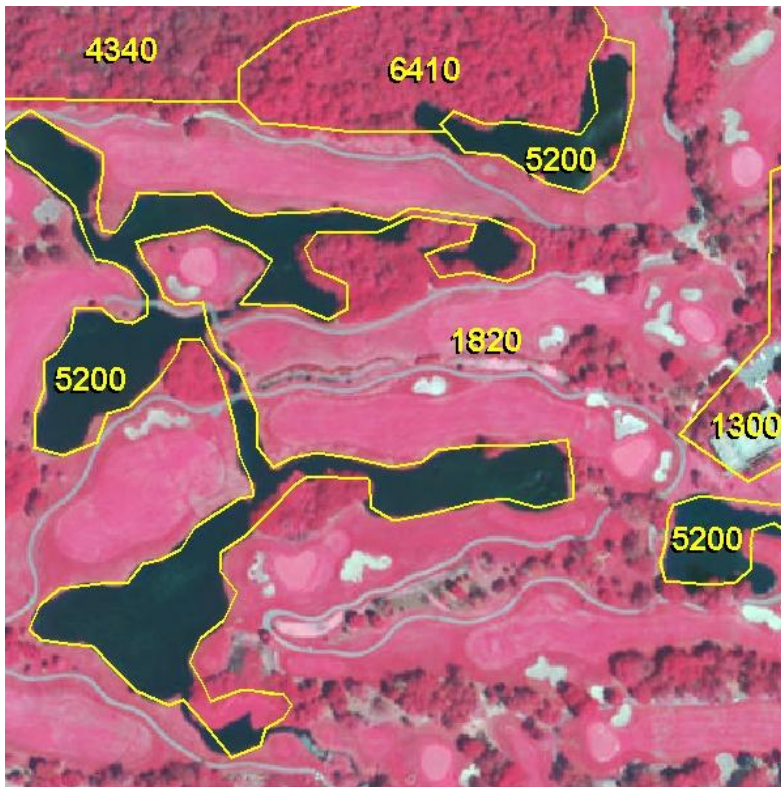
Golf driving ranges that are part of the larger golf course are included in the Golf Courses category, but are included in the recreational category if they are separate.

Parking lots, structures associated primarily with the sport (Pro Shops), and surrounding un-manicured areas are coded separately as 1800.

Housing areas around golf courses should be delineated and classified separately from the golf course, as long as the minimum mapping unit requirement of five acres is met, or one acre within the golf course.

Wooded or open areas that are inside the 1820 polygon are coded accordingly, even if they do not meet their perspective code.

Pictures of Classification Code: 1820



Golf Courses (Urban) (1820) - Color infrared aerial photograph



Golf Courses (Urban) (1820) - Natural color aerial photograph



Golf Courses (Urban) (1820) - Ground photo

Classification Code: 1900 – Open Land

Level I: Urban and Built Up

Level II: Open Land

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This category includes undeveloped land within urban areas. Open Land normally does not exhibit any structures or any indication of intended use. Often, urban inactive land may be in a transitional state and ultimately will be developed into one of the typical urban land uses. Although at the time of the inventory, the intended use may be impossible to determine from aerial photo interpretation alone.

Context:

Land is considered to be in an urban context if it is situated within a larger matrix of development. This matrix is spatially defined by the concentration of land uses, transportation barriers, and other constraints to movement and access.

Recognition Features:

- Open land area within an urban area with no structures or recognizable land use. Does not include parks or green belts.
- Signatures may range from heavily vegetated to a disturbed, scoured, white appearance.
- Wildlife in an urban matrix cannot travel far in any direction without running in to serious constraints.
- There is not enough indication of the land use to justify any other LULC code.

EXCLUSIONG:

- If the area is located on the fringe of agricultural areas, the code will be 2600.
- The subclass 1920 - 'Inactive land with street patterns but without structures' - is broken out separately.
- The subclass 1930 – 'Urban Land in Transition – No Indication of Activity' – is broken out separately.

Similar Classes:

- 1190, 1290, and 1390 Residential, under construction - These will have enough infrastructure, and usually buildings, to show that construction is in progress
- 1920 Inactive land with street patterns. Have infrastructure such as roads or street patterns but lack structures and are not under construction
- 2120 Unimproved pastures
- 2600 Other Open Lands - Rural
- 3000 Upland Non-forested
- 7400 Barren Land

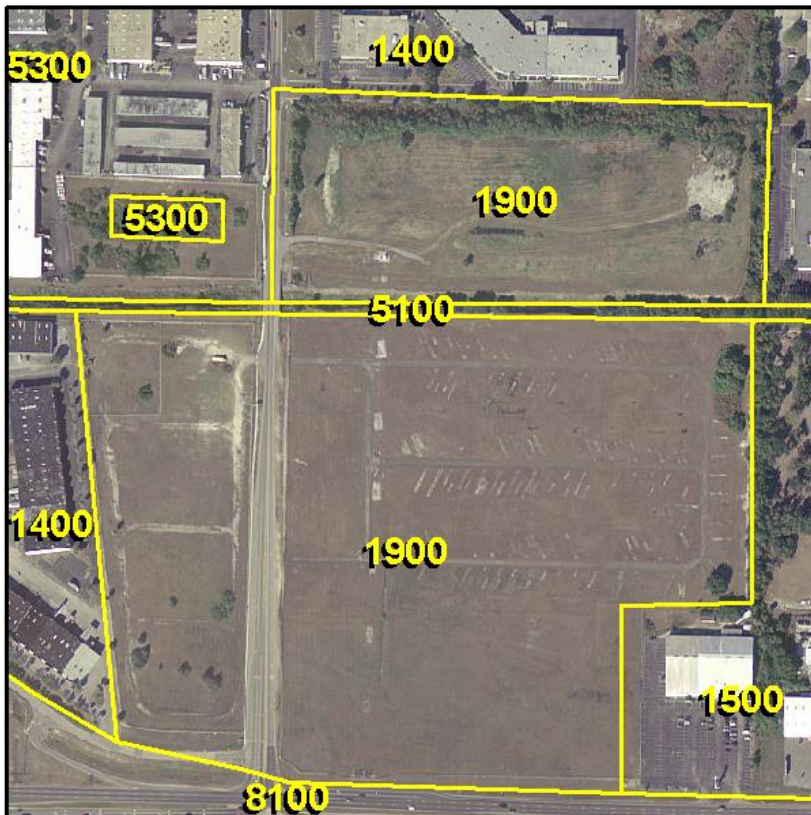
Mapping Conventions:

- Often, urban inactive land may be in a transitional state and ultimately will be developed into one of the typical urban land uses. Although at the time of the inventory, the intended use may be impossible to determine from aerial photo interpretation alone.
- Open Land normally does not exhibit any structures or any indication of intended use.
- May have evidence of intended urban use, or cleared land without evidence of use; but surrounded by other urban land uses.
- This class is used because it is considered important to know that an open area is situated in an urban context. These areas are more likely to undergo rapid changes.

Pictures of Classification Code: 1900



Open Land (1900) - Color infrared aerial photograph



Open Land (1900) - Natural color aerial photograph



Open Land (1900) - Color infrared aerial photograph



Open Land (1900) - Natural color aerial photograph



Open Land (1900) - Ground photo



Open Land (1900) - Ground photo

Classification Code: 1920 – Inactive Land with Street Patterns but without Structures

Level 1: Urban and Built-up

Level 2: Open Land

Level 3: Inactive land with street pattern but without structures

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

These are open areas where development had started but was for some reason halted, and in an abandoned state, at the time of the inventory. It does not include developments that are under construction, or incomplete, or that are slowly being completed. Lands in this class have street patterns but few if any buildings.

Context:

This phenomenon may be found in urban or rural settings. It may be in lowland areas where the hydrology is an obstacle. It is likely to occur in areas where the land values were low, but other factors, such as remoteness or hydrology, rendered the project infeasible.

Recognition Features:

- A street pattern is visible, although the streets may not be maintained.
- There are few if any structures. If present, they tend to be spaced randomly in the polygon rather than in an organized or clustered manner.
- Absence of landscaping. The appearance is overgrown and indicates neglect.
- They are usually sizable and have a distinct, vacant appearance in contrast to developing areas.

Similar Classes:

1190, 1290, and 1390 Residential, under construction. These will have enough infrastructure, and usually buildings, to show that construction is in progress. The appearance indicates activity.

1490 Commercial and services under construction, as per zoning

Mapping Conventions:

There may be a number of different land cover types occurring together, and these communities may be patchy, intergrading, and otherwise difficult to map. Photo interpreters need to determine which covers are predominant, and avoid dissecting the mapping unit with excessively detailed linework. Convoluted polygons should be avoided, in favor of ones with compact shapes.

Pictures of Classification Code: 1920



Inactive Land with Street Patterns (1920) - Natural color aerial photograph

Classification Code: 1930 – Urban Land in Transition - No Indicators of Activity

Level 1: Urban and Built-up

Level 2: Open Land

Level 3: Urban Land in Transition without Positive Indicators of Intended Activity

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

These are open areas where there are no indicators of development. Land appears to be in an abandoned state, at the time of the photography. It does not include developments that are under construction, or incomplete, or that are slowly being completed. Lands in this class do not have street patterns and few if any buildings.

Context:

This phenomenon is found mostly in urban settings, but may occur in rural settings as well. It is likely to occur in areas where the land values are low, but other factors, such as remoteness, location, or hydrology, may contribute as well.

Recognition Features:

- Street patterns are not visible, although dirt roads and paths may be evident.
- There are few if any structures. If present, they tend to be spaced randomly in the polygon rather than in an organized or clustered manner.
- Absence of landscaping. Vegetation may be overgrown and indicates neglect.
- They are usually small and have a distinct, vacant appearance in contrast to developing areas.
- They are usually surrounded by a variety of land uses such as commercial, residential, industrial, and institutional, waiting for property values to rise.

Similar Classes:

- 1190, 1290, and 1390 Residential, under construction. These will have enough infrastructure, and usually buildings, to show that construction is in progress. The appearance indicates activity.
- 1900 Open Land (Urban) This category will still be used as the default category in areas that do not fit any other category. These may include non-vegetated lands around subdivisions, roads, and reservoirs.
- 2600 Other Open Lands - Rural
- 7400 Barren Land

Mapping Conventions:

- Often, urban inactive land may be in a transitional state and ultimately will be developed into one of the typical urban land uses. Although at the time of the inventory, the intended use may be impossible to determine from aerial photo interpretation alone.
- Open Land normally does not exhibit any structures or any indication of intended use.
- May have been cleared without evidence of use; but usually surrounded by other urban land uses such as residential, commercial and services, institutional, and recreational.
- This class is used because it is considered important to know that an open area is situated in an urban context. These areas are more likely to undergo rapid changes.

Pictures of Classification Code: 1930



Urban Land in Transition – No Indicators of Activity (1930) - Natural color aerial photograph

AGRICULTURE

Classification Code: 2100 – Cropland and Pastureland

Level I: Agriculture

Level II: Cropland and Pastureland

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This is a general description of the FLUCCS 2100 class. Starting in 2014, the Level II class 2100 may not be used in the map itself - a more specific class must be selected. There are 6 active subclasses under the 2100 group.

Background:

The vast majority of farmland in the District falls under this general class. These classes vary significantly in their nutrient requirements, run-off and leaching potential, supplemental water needs, and benefits to natural systems. For example, unimproved pastures are usually low intensity operations with significant habitat value and a low level of impacts. In comparison, row crops are intensively managed, have little habitat value, high nutrient requirements and significant potential for off-site impacts.

Cropland and pastureland uses can have a strong influence on water supply, water quality, flooding and natural resources. These in turn are important inputs to models and analysis conducted by the SWFWMD and others to predict how watersheds will function.

Similar Classes:

Pastureland in particular can be confused with a number of different other classes. These include:

- 1180 rural residential
- 1900 Open lands
- 3000 Upland non-forested
- 4400 Tree plantations

Farmland that is temporarily flooded can be confused with water bodies or wetlands. Such areas should be classified as farmland, if it is clear that it is an active farming area.

Mapping Conventions:

The agricultural classes are generally open, cultivated lands that can look similar on aerial photography. The land uses can change very frequently from one class to another. Also, the agricultural areas may be mixed with other uses, such as forestry, mining, rural residential, and rangelands, making context alone an unreliable indicator. As a result of all these factors, there is a strong possibility for confusion. In order to differentiate these classes it is necessary to look closely at the details in the PI key pages for each class.

Classification Code: 2110 – Improved Pastures

Level 1: Agriculture

Level 2: Cropland and Pastureland

Level 3: Improved Pastures

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Improved pastures are the most intensively managed of the pastureland classes. They are usually cleared, tilled, reseeded with specific grass types and periodically improved with brush control and fertilizer application. These fields may be cut for hay at some times of the year. In most cases they show some direct evidence of cattle, such as watering ponds, troughs, feed bunkers, fencing, corrals, barns or cow trails.

Irrigation during dry seasons and water removal during wet periods may be accomplished by shallow, open ditch systems or underground drainage, and pumping systems. Management includes mechanical and chemical brush control, and application of fertilizers and other chemicals.

Context:

Improved pastures are often found on broad flat areas that were formerly flatwoods. They tend to grade into unimproved pastures and woodlands pastures, and may be adjacent to wetlands.

Improved pastures are usually in areas associated with other agricultural and livestock activities.

The context of the surrounding landscape is helpful in distinguishing this class from hay fields (2150, field crops) or from 3100, herbaceous upland non-forested. For more details see Similar Classes, below, or the other PI key pages.

Recognition Features:

- Water ponds, troughs, feed bunkers may be present.
- Cow trails in some cases.
- Visible fence lines may be observed.
- Trees may be present for shading.
- Hay bales may be present at some times of the year.
- Corrals or barns may be present.
- A distinct smooth pink signature (CIR) is usually present indicating maintenance. Shade trees are often present.

Similar Classes:

Pastureland in particular can be confused with a number of different other classes. These include 1900 Open lands; 3000 Upland non-forested; and 4400 Tree plantations. Pasturelands that have hydric soils should be classed as wetlands - in most cases these would be wet prairies (6430) being used for pasture.

2120 Unimproved Pasture and 2130 Woodland Pasture. Unimproved Pasture will have a rougher texture than improved pasture, due to more natural vegetation and less intense management. Woodland pastures will have at least 25% of the area in tree canopy.

2150 Field crops: Field crops (wheat, oats, and hay) may have a similar smooth signature and are easy to confuse with improved pasture. Spatial context is helpful in distinguishing field crop from improved pasture. Field crops are generally found in areas managed for agronomic crops,

characterized by rectangular fields, farm roads, utility buildings, visible rotations, etc. Improved pastures are generally in less intensive areas managed for livestock and forage. If the area shows signatures of both field crops and pasture, use improved pasture (2110).

3100 Herbaceous Upland non-forested: The 3100 class should be reserved for areas where cattle are not present or are not likely to be present. These may be in more urban settings, or in more remote areas formerly considered as rangelands.

Mapping Conventions:

The mapping unit includes barns, ranch houses, trailers, and other features common to the industry. Small inclusions of other land cover or land uses may also be included, if under the minimum size criteria.

Include former wetland areas that have been drained and show no signs of hydrophytic vegetation

Tree canopy may be present up to 25% of the total area, but if it is in patches larger than five acres these patches must be broken out as forest.

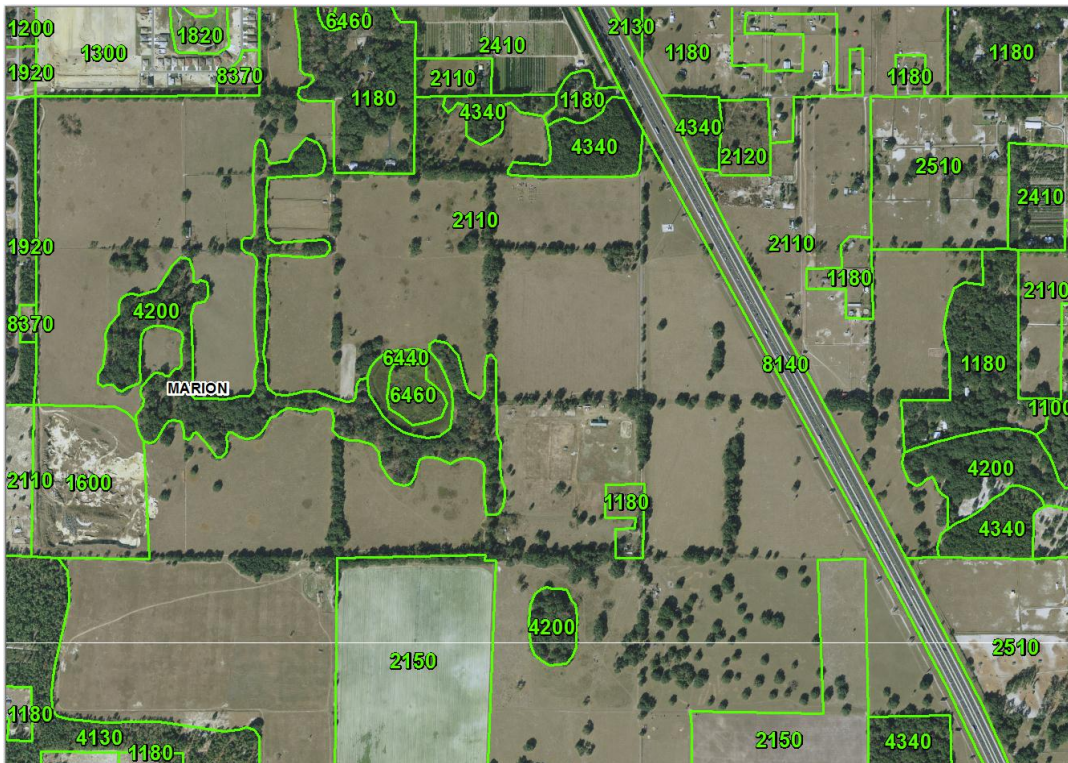
Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria of ½ acre.

Pastures may be drained and/or irrigated lands. Management objective may be to establish or maintain stands of grasses, such as Bahia, Pongola, or Bermuda grass, either alone or in mixtures with white clover or other legumes; the land is categorized as pastureland regardless of treatments.

Pictures of Classification Code: 2110



Improved Pasture (2110) - Color Infrared Aerial Photograph



Improved Pasture (2110) – Natural Color Aerial Photograph

Classification Code: 2120 – Unimproved Pastures

Level 1: Agriculture

Level 2: Cropland and Pastureland

Level 3: Unimproved Pastures

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is similar to 2110 Improved pastures, but with lower intensity of management. The grasses are primarily a mixture of native grasses rather than a uniform, seeded pasture crop. Normally, this land will not be managed with brush control and/or fertilizer application, but these may be applied on an irregular basis. Water removal may be accomplished by shallow, open ditch systems, and irrigation may be practiced.

Context:

Unimproved pastures are often found on broad flat areas that were formerly pine flatwoods. They are usually associated with other agricultural and livestock activities. They tend to grade into improved pastures and woodlands pastures, but may grade in to almost any other land cover type, including wetlands.

The surrounding landscape is helpful in distinguishing this class from hay fields (2150, field crops) or from 3100, herbaceous upland non-forested. For more details see Similar Classes below.

Recognition Features:

- Cleared land with major stands of trees and brush where native grasses have been allowed to develop.
- Evidence of cattle may be observed on the photography, such as water ponds, troughs, feed bunkers and cattle trails.
- Hay bales may be present at some times of the year.
- The area is fenced, and the fence lines may be visible. Boundaries at fence lines are generally distinct.
- The texture of unimproved pastures is less smooth and uniform than improved pastures. Colors may vary depending on the types and patterns of growth, producing a mottled appearance.

Similar Classes:

Pastureland in particular can be confused with a number of different other classes. These include 1180 rural residential; 1900 Open lands; 3000 Upland non-forested; and 4400 Tree plantations. Pasturelands that have hydric soils should be classed as wetlands - in most cases these would be wet prairies being used for pasture.

1900 Open Land

2110 Improved Pasture and 2130 Woodland Pasture. Improved Pasture will have a smoother texture. Woodland pastures will have at least 25% of the area in tree canopy

2150 Field crops. Field crops (wheat, oats, and hay) may have a smoother signature similar to improved pasture. Field crops are generally found in areas managed for agronomic crops, characterized by rectangular fields, farm roads, utility buildings, visible rotations, etc. Unimproved pastures are generally in less intensive areas managed for livestock and forage. If the area shows signatures of both field crops and pasture, use improved pasture (2110).

2610 Fallow Cropland

3100 Herbaceous Upland non-forested. The 3100 class should be reserved for areas where cattle are not present or are not likely to be present. These may be in more urban settings, or in more remote areas formerly considered as rangelands.

Mapping Conventions:

The mapping unit includes barns, ranch houses, trailers, and other features common to the industry. Small inclusions of other land cover or land uses may also be included, if under the minimum size criteria.

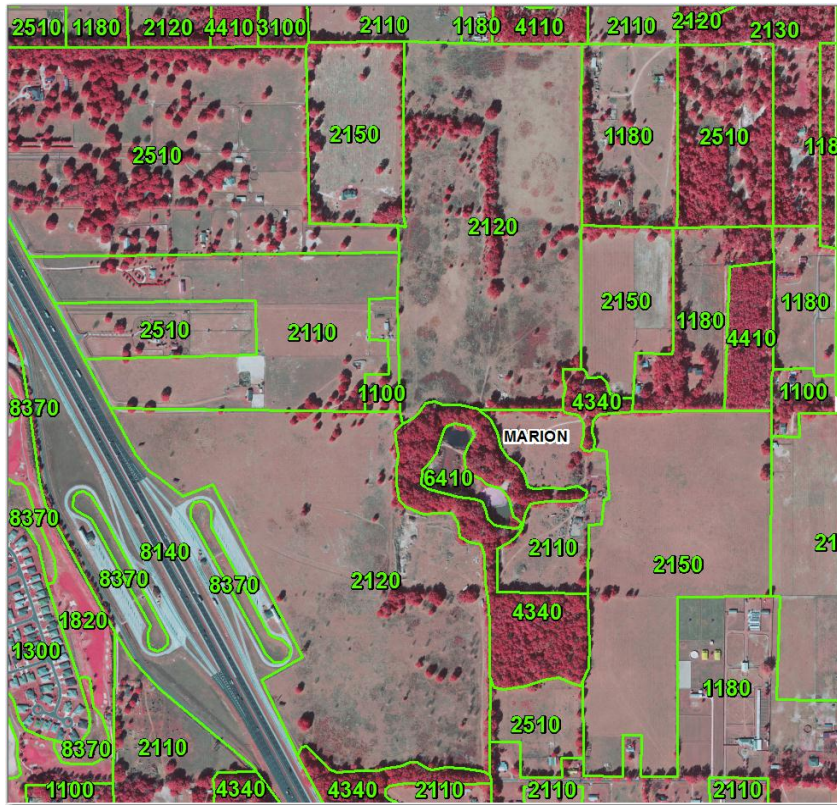
Include former wetland areas that have been drained and show no signs of hydrophytic vegetation

Tree canopy may cover up to 25% of the total area, but if canopy patches are larger than 5 acres they must be broken out as Woodland Forest (2130).

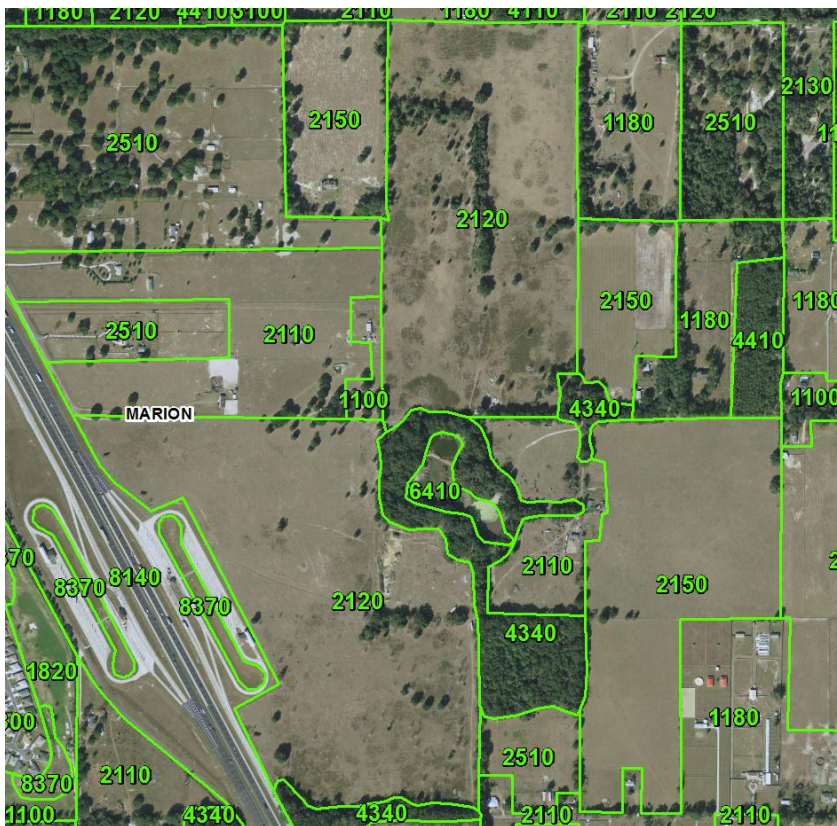
Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria of ½ acre.

Much of the "permanent" pastures occur on land which usually is not tilled or used as cropland. Topographically rough land, stream flood plains, wooded areas and wetlands often may be used for pasture more or less frequently.

Pictures of Classification Code: 2110



Unimproved Pastures (2120) - Color Infrared Aerial Photograph



Unimproved Pastures (2120) - Natural Color Aerial Photograph

Classification Code: 2130 – Woodland Pastures

Level 1: Agriculture

Level 2: Cropland and Pastureland

Level 3: Woodland Pastures

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Pasturelands that have from 25% to 100% forest canopy are included in this class. It does not include open pasturelands with patches of tree canopy large enough to qualify as upland forest.

Pastures are generally unimproved. The evidence of grazing may be difficult to see on photography, due to tree cover. Such evidence, if visible, may include cattle trails leading to feed bunkers, salt licks and watering areas, or cattle themselves. Supplemental data and field verification may be needed to accurately map this class.

Context:

Woodlands pastures are dominated by a variety of native tree and shrub species, both conifer and deciduous. They are usually associated with other agricultural and livestock activities, but may be adjacent to any other land covers and uses. They tend to grade into other types of pasture.

Recognition Features:

- Twenty-five percent or more tree cover is present.
- Evidence of cattle activity may include cattle trails, feed bunkers, salt licks, hay bales, or watering areas. Cattle crossings may be visible on the roads, defining a grazing boundary.
- Cattle may be detected in areas.
- Fence lines are obscured by canopy, but may be visible in open areas.

Similar Classes:

2120 Unimproved Pasture. Less than 25% of the total area is in tree canopy.

2200 Tree crops. Pecan groves are often used as pastures, but must be coded as 2200. They have a more uniform texture and color and trees are in rows. Old or abandoned groves become woodland pasture at some point

3200 Shrub and brushland. These may look similar because shrub vegetation is present and tree canopy may comprise up to 25% of the cover. However, cattle are not present or likely to be present

4110 Pine Flatwoods. No indication of grazing is present.

Pastureland in particular can be confused with a number of different other classes. These include 1900 Open lands; 3000 Upland non-forested; and 4400 Tree plantations. Pasturelands that have hydric soils should be classed as wetlands - in most cases these would be wet prairies being used for pasture.

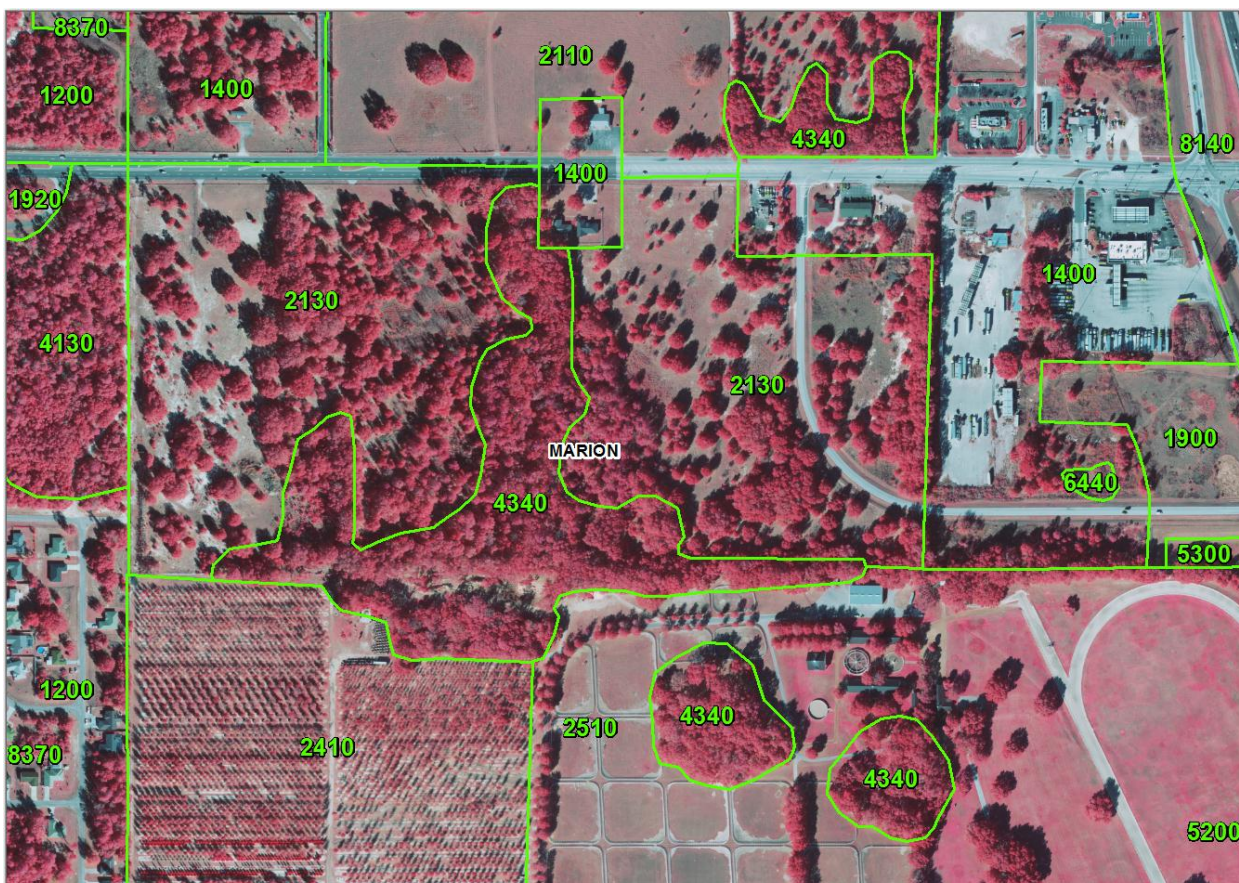
Mapping Conventions:

The mapping unit includes barns, ranch houses, trailers, and other operational features. Open areas may cover up to 75% of the total area, but if those areas are larger than 2 acres they should be broken out. In situations where the canopy density or the patch sizes are at cutoff points (25%, 2 acres) a precise delineation is not always cost effective - some aggregation or generalization may be justified. Photo interpreters must use discretion to avoid excessive line work while adding useful information.

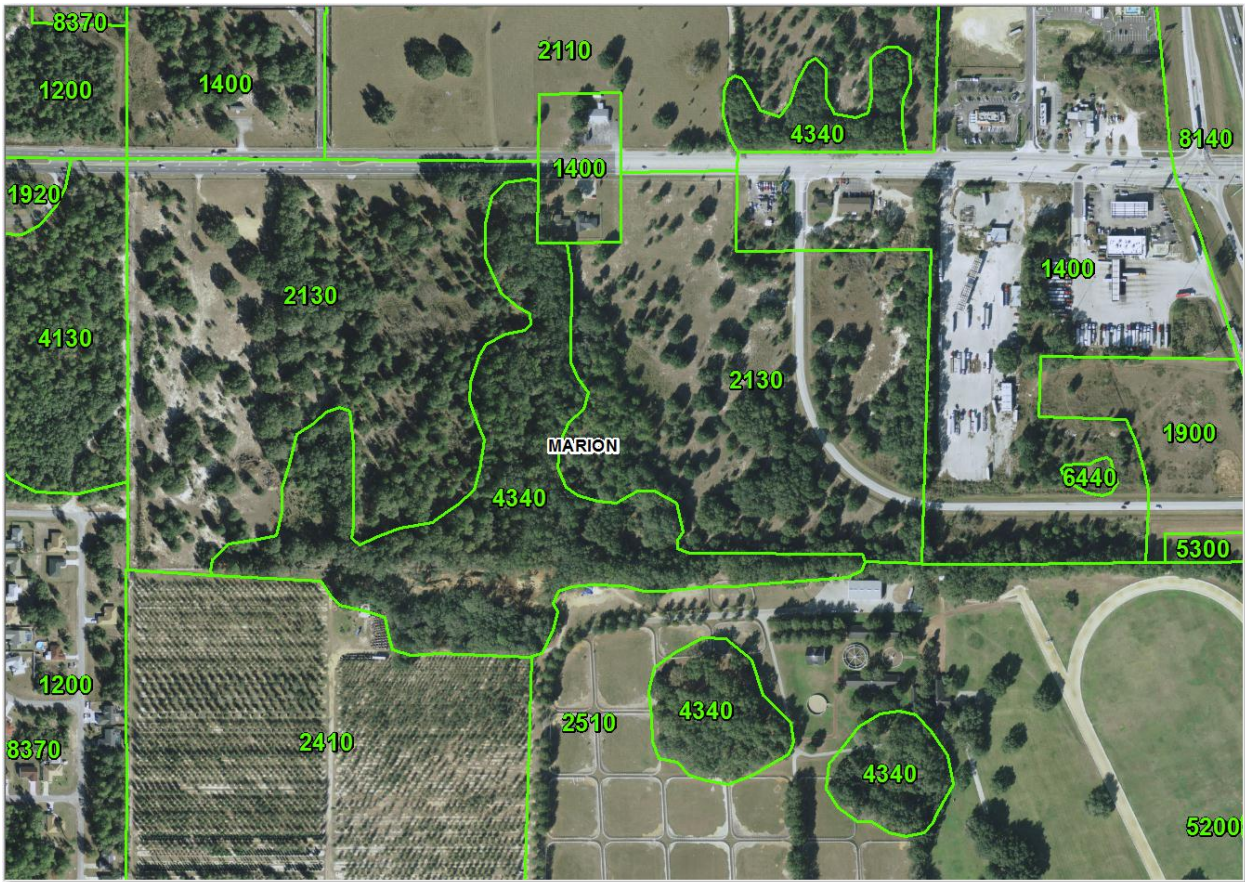
Include former wetland areas that have been drained and show no signs of hydrophytic vegetation.

Priority classes such as water bodies, wetlands, dumps, and feedlots must always be broken out separately, if they meet size criteria.

Pictures of Classification Code: 2130



Woodland Pastures (2130) – Color Infrared Aerial Photograph



Woodland Pastures (2130) - Natural Color Aerial Photograph

Classification Code: 2140 – Row Crops

Level I: Agriculture

Level II: Cropland and Pastureland

Level III: Row Crops

Minimum delineation area: 2.5 acres

Description:

This class is for cultivated annual crops that exhibit a narrow row spacing. It does not include field crops, which do not exhibit rows on photography, or trees and shrubs, which tend to have wider spacing. Also not included are farms specializing in ornamentals and flowers. Typical row crops include corn, tomatoes, potatoes, cabbage, beans, tobacco, and a host of other plants used mainly for animal and human consumption.

Context:

Row crops usually occur in an agricultural context. Truck farms may operate on urban fringes, especially if on-site marketing is used. A variety of other agricultural uses may be practiced in the surrounding area, including field cropping, pastures, nurseries, and tree crops.

Areas with naturally hydric soils are sometimes used for row cropping and other agricultural operations. If they are active farm operations they are coded as agricultural rather than wetlands or water bodies. Photo interpreters should check public lands maps to determine whether the operation is still active or in a process of restoration.

The duration of crop growth in the field may be rather limited. A false impression of non-agricultural use in a field may result if the conditions of temporary inactivity are not recognized. However, this can be substantiated by field checking areas which are in question.

Row crops range from vast monocultures of animal feeds to tiny commercial truck farms, and everything in between. The appearance of the fields varies according to the specific crop and season, from bare smooth soil to ridges to fully covered fields. Some fields may also be in cover crops or in a fallow state. The reliable indicators are the agricultural context and the appearance of fine textured rows on most plots.

Recognition Features:

- The active fields have straight rows of crops and furrows or plow lines, which will not be as widely spaced as rows intended for citrus or tree crops.
- In wetter areas drainage ditches and levies or subsurface drains are present.
- Rows are visible even after harvesting of crops.
- Farm buildings and equipment are seen in surrounding areas.
- Irrigation systems are usually present.

Exclusions:

Farmsteads, barns, and non-specific out buildings were not included in this category. They were pulled separately as long as they meet a one-acre minimum.

It does not include field crops, which do not exhibit rows on photography, or trees and shrubs, which tend to have wider spacing. Also not included are farms specializing in ornamentals and flowers.

Similar Classes:

2100 or 2600, 2610 - depending on the state of field preparation when the photo was taken, row crops may take the appearance of cropland or fallow land.

Mapping Conventions:

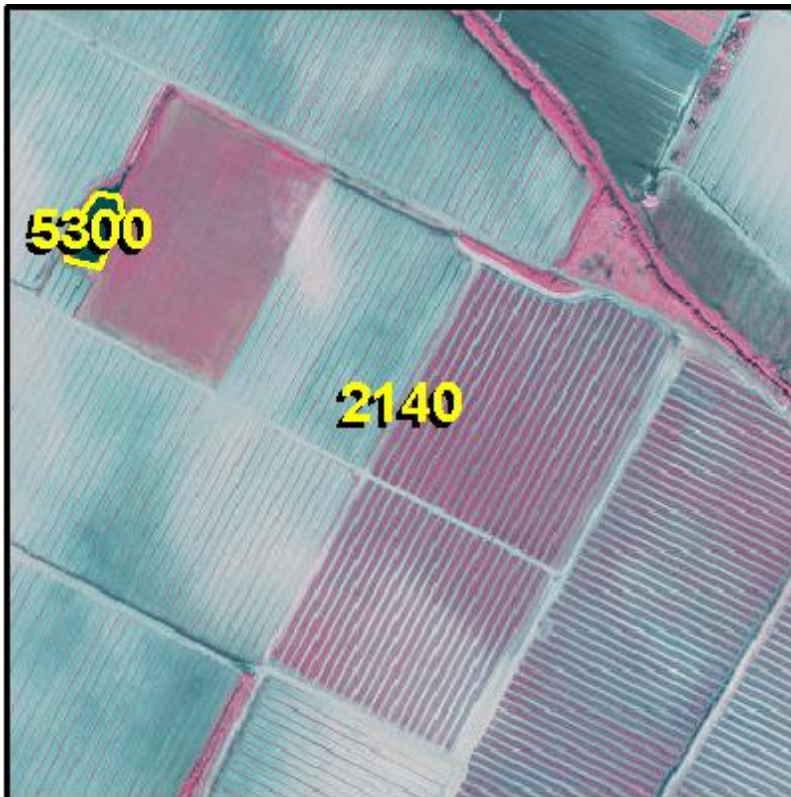
The land may or may not show the actual vegetated signature of the crop. Often lands that are used for row crops have not been prepared at the time of photo capture. When this is the case, the area may exhibit smooth, newly turned earth or a fallow appearance.

The mapping unit includes barns, offices, farm houses, warehouses, private air strips, farm roads and any other operational features.

Include former wetland areas that have been drained and show no signs of hydrophytic vegetation.

Include areas that may be rotated into row crops, but which do not show any evidence of rows.

Pictures of Classification Code: 2140



Row Crops (2140) - Color infrared aerial photograph



Row Crops (2140) - Natural color aerial photograph



Row Crops (2140) - Ground photo

Classification Code: 2150 – Field Crops

Level I: Agriculture

Level II: Cropland and pastureland

Level II: Field Crops

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Field crops are agronomic crops that, due to spacing or growth habit, do not exhibit a pattern of parallel rows on the photography. Examples in Florida are wheat, oats, hay, other grasses, sugar cane and watermelons. The fact that an area is mowed at some times is not sufficient for inclusion in this class - it must be actively managed as a cultivated field crop.

Context:

In Florida, hay and grasses are the primary types identified as field crops. The farmer may rotate fields between pasture and hay over successive seasons or years.

The duration of crop growth in the field may be rather limited. A false impression of non-agricultural use in a field may result if the conditions of temporary inactivity are not recognized. However, this can be substantiated by field checking areas which are in question.

The photo interpreter has to consider the context if other indicators are not conclusive. Cropping and pasture lands may occur together, but areas that are predominantly crop land will have more of the indicators shown above (fence lines, mow lines, rectangular fields) as well as other features such as storage buildings, cultivating equipment, vehicles, irrigation equipment, solid waste sites, and processing facilities.

Recognition Features:

- Typical field crops are included as well as hay production areas
- Fence lines may be visible.
- Mow lines and hay bales are often visible.
- Subsurface or surface drainage, canals, and/or irrigation may be visible.
- There is no evidence of grazing livestock on the mapping unit.
- Field shapes are regular or rectangular, and have mostly straight edges.
- Flat, smooth signature from hay, grasses.
- Bright pink signature from fertilization and maintenance.

Similar Classes:

- 2110 Improved pastures. Will have evidence of grazing, or a grazing context
- 2610 Fallow cropland - Will show signs of dis-use, overgrowth
- 3100 Herbaceous Upland Non-forested. Not actively managed for crops, although cutting may occur

Mapping Conventions:

They may be very difficult to differentiate from improved pasture in many cases - context may be a decisive factor in telling one from the other. Field checks would be required to achieve accuracy in many cases, especially when crop growth is in the early stages. However, since hay crops are similar in function to other classes such as pasture, the error cost is low and does not warrant extensive checking.

Include former wetland areas that have been drained and show no signs of hydrophytic vegetation

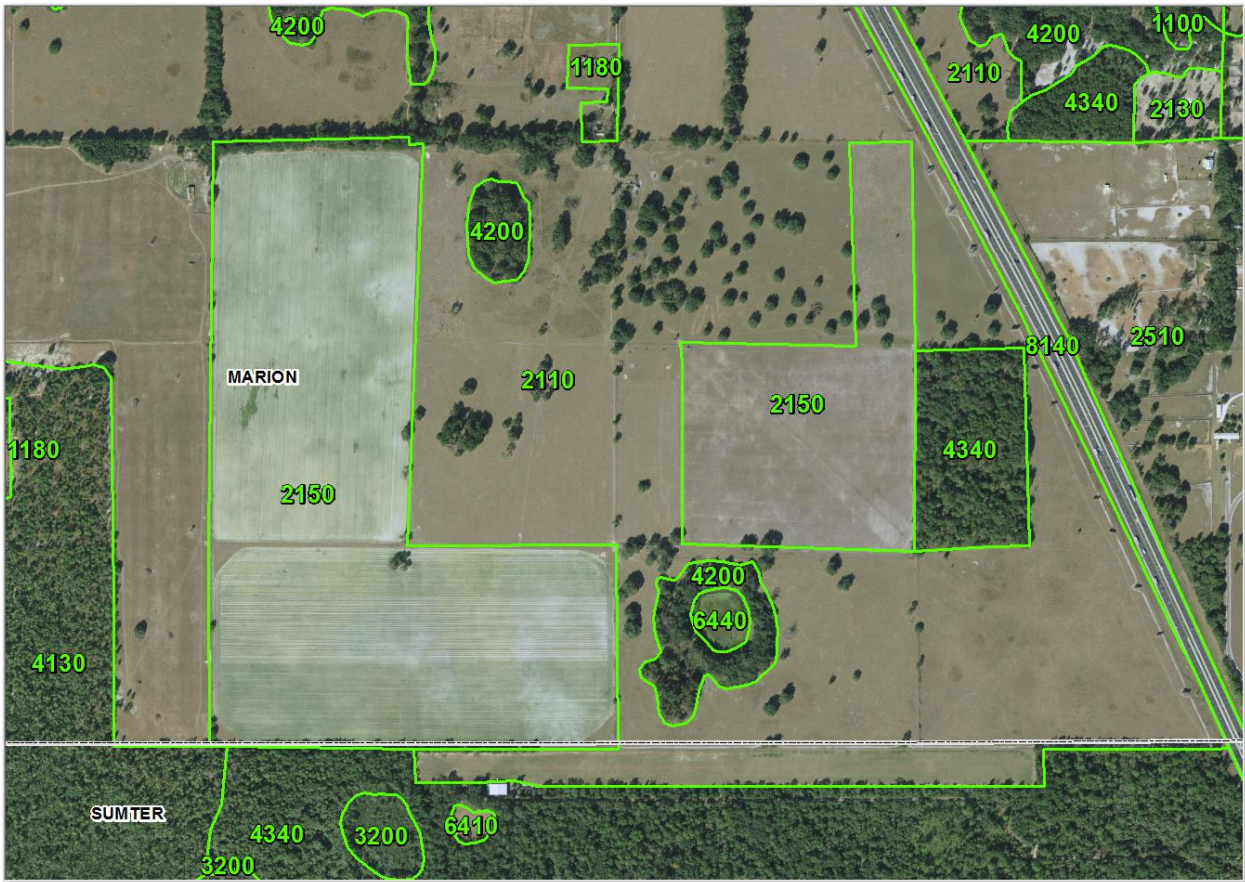
This land cover type on the aerial photography often appears as pasture that is not supporting livestock at the time of photography but is rotated to field crop production, specifically hay. If the area shows any evidence of cattle, or has signatures of both 2110 (improved pasture) and 2150, use 2110.

Spatial context is helpful in distinguishing this class from 2110, improved pasture. Field crops will generally be found in a more intensively managed setting, surrounded by similar areas with rectangular fields, farm roads, etc. Improved pasture will generally be found in a less intensively managed environment.

Pictures of Classification Code: 2150



Field Crops (2150) - Color infrared aerial photograph



Field Crops (2150) - Natural color aerial photograph

Classification Code: 2200 – Tree Crops

Level I: Agriculture

Level II: Tree Crops

Minimum delineation area: 2.5 acres

Description:

This class is for active tree cropping operations that produce fruit, nuts, or other resources not including wood products. Examples include pecans and other nut trees, peaches, mangos, and avocados. Three subclasses are broken out, 2210 - Citrus, 2220 - Fruit Orchards, and 2240 - Abandoned Tree Crops. This category is used as the default tree crop category, when the tree crop cannot be determined.

Context:

Pecan groves are found on well-drained soils in the northern part of the District. Peaches, Mangos, and Avocados are usually found on smaller groves, and are not identified as level III tree crops, but default to level II (2200).

Orchards and groves generally occur in areas possessing a specific combination of soil qualities and climatological factors. Water bodies, which moderate the effects of short duration temperature fluctuations, often are in close proximity to this type of agriculture. Site selection for air drainage on sloping land may also be important.

Recognition Features:

- Characteristic linear rows of even spacing.
- Trees typically have large, round crowns
- Rows are typically larger than row crops and allow for the access of vehicles and farm equipment to each tree.
- May have intermittent spaces within grove and differing fullness of trees due to differing maturity of trees.
- Pecan trees are typically well maintained, lacking underbrush or competing vegetation. They typically have large square-shaped crowns and are deciduous in nature, with bare trees that may appear as dead trees.
- Trees may be double planted and pruned into a box-like shape, which could make interpretation difficult. This usually occurred in the northern part of the District.

Exclusions:

Farmsteads, barns, and non-specific out buildings were not necessarily included in this category. They are pulled separately as long as they meet a one-acre minimum.

If the grove has been cleared, or partially cleared, that portion of the grove should be changed to Abandoned Groves (2240) or merged with surrounding land cover.

This class does not include tree nurseries (2410), vineyards, floriculture or ornamentals. It also does not include tree plantations (4400) or any uses that primarily produce wood products.

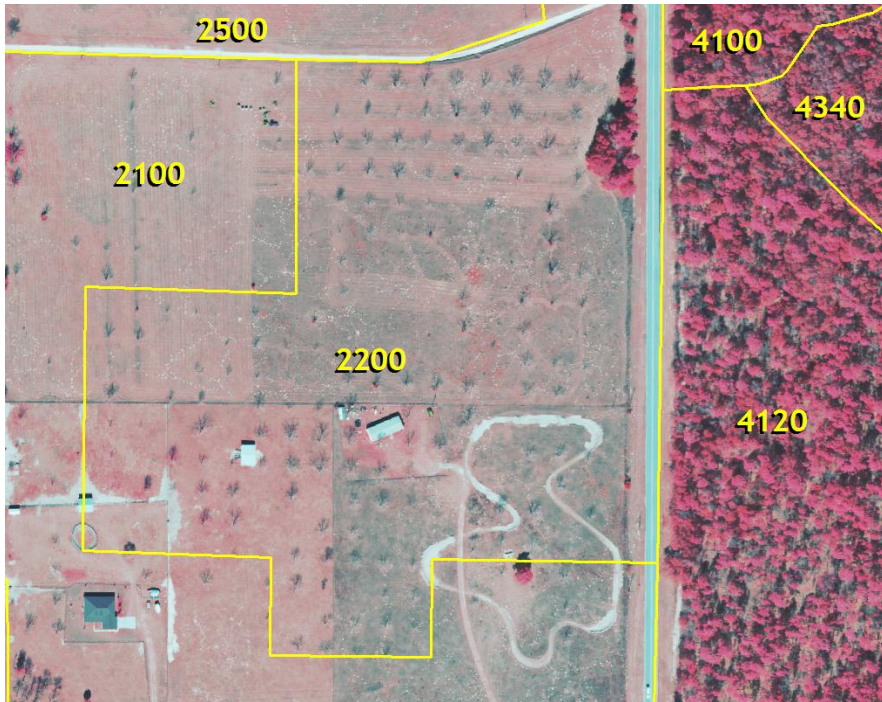
Similar Classes:

- 2100 Cropland and Pastureland - Tree crop rows will be wider spaced, and trees are generally visible
- 2130 Woodland pastures
- 2210 Citrus groves - Most groves are citrus. Other tree crops may be difficult to differentiate without supplemental information. Look for a non-citrus context
- 2240 Abandoned tree crops - Abandoned groves will look unmanaged with underbrush, vines, and dead or dying trees - See 2240 PI key page
- 2400 Nurseries and Vineyards - Nurseries have multiple varieties, giving a less uniform appearance. Vineyards have a closer spacing and individual plants are not visible

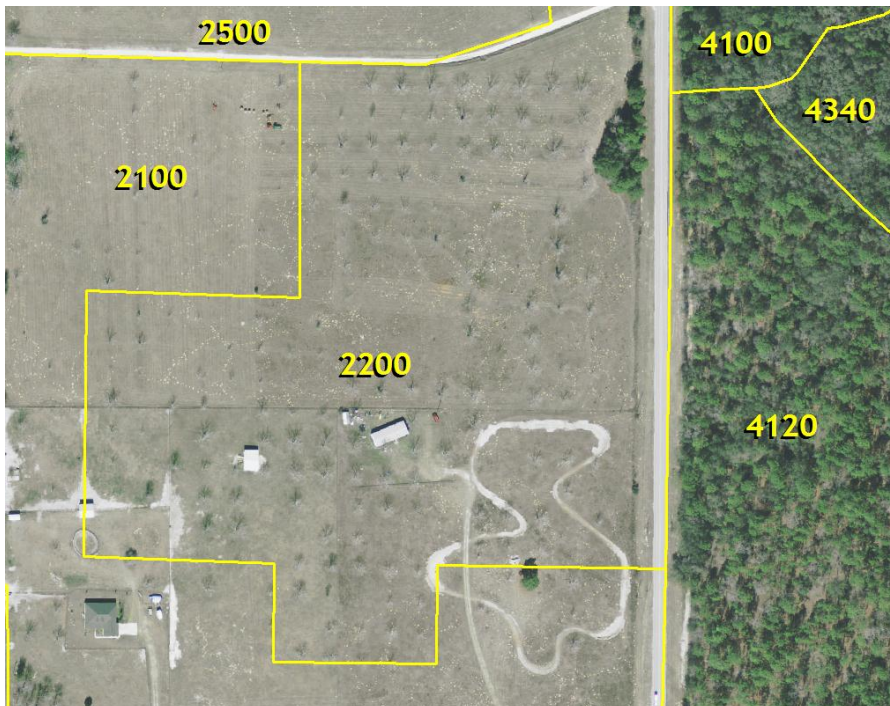
Mapping Conventions:

2210 Citrus groves and 2240 Abandoned tree crops must be broken out separately. 2200 is a catch-all class for other tree crops, which include pecan groves.

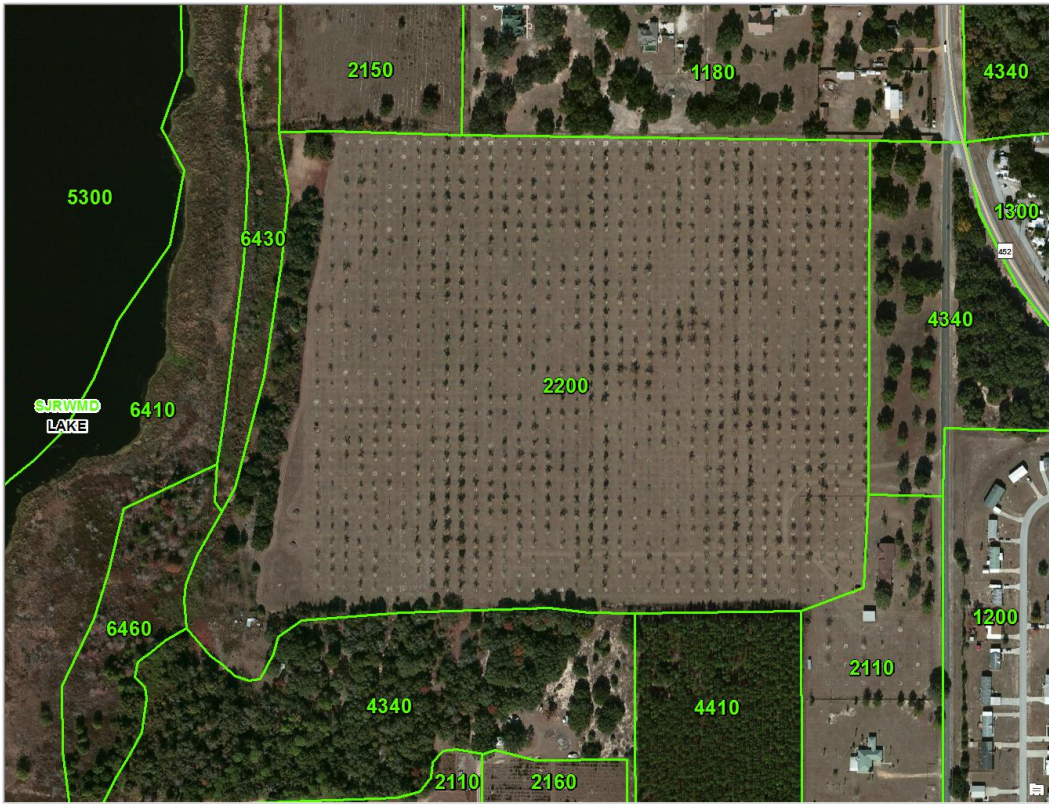
Pictures of Classification Code: 2200



Tree Crops (2200) - Color infrared aerial photograph



Tree Crops (2200) - Natural color aerial photograph



Tree Crops (2200, Pecans) – Natural color aerial photograph



Tree Crops (2200, Pecan) - Ground photo

Classification Code: 2210 – Citrus

Level 1: Agriculture

Level 2: Tree Crops

Level 3: Citrus Groves

Minimum delineation area: 2.5 acres (1 acre if found within irrigated agriculture)

Description:

This class is for active citrus groves, such as oranges, grapefruits, and tangerines. If the groves are abandoned they belong in the 2240 Abandoned tree crops class.

Context:

Citrus groves, once common throughout the District, are now common only in the southern counties. Citrus is typically planted on well-drained, sandier textured soils, but hydric soils have also been converted to citrus groves in some places. Artificial drainage and irrigation are used in most cases to keep soils in acceptable moisture ranges.

Recognition Features:

- Uniformly spaced rows of trees give the appearance of a grid pattern. There may be intermittent spaces within grove.
- The groves and its sub-units tend to be large, rectangular areas with straight rows. One operation may cover thousands of acres.
- Irrigation and drainage canals are usually present.
- Groves appear to be well-managed and currently in production.
- Healthy trees produce circular crowns with a dark brown/red color. Larger trees may grow together into what appear to be long, wide hedges.

Exclusions:

If the groves are abandoned for 6 years they belong in the 2240 Abandoned Tree crops class.

Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria.

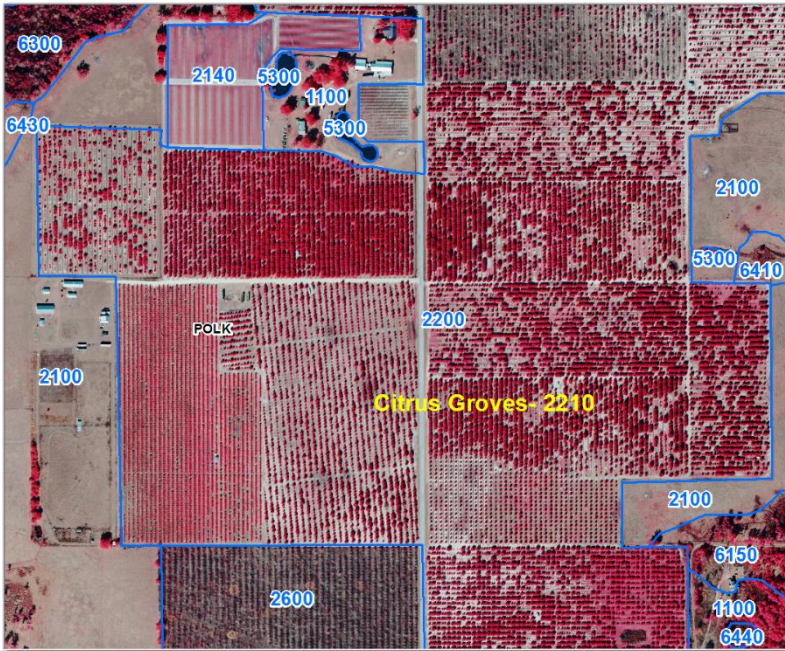
Similar Classes:

- 2240 Abandoned tree crops. Abandoned groves will look unmanaged with underbrush, vines, and dead or dying trees. See 2240 PI key page 93.
- 2400 Nurseries and Vineyards. Nurseries have multiple varieties, giving a less uniform appearance. Vineyards have a closer spacing and individual plants are not visible

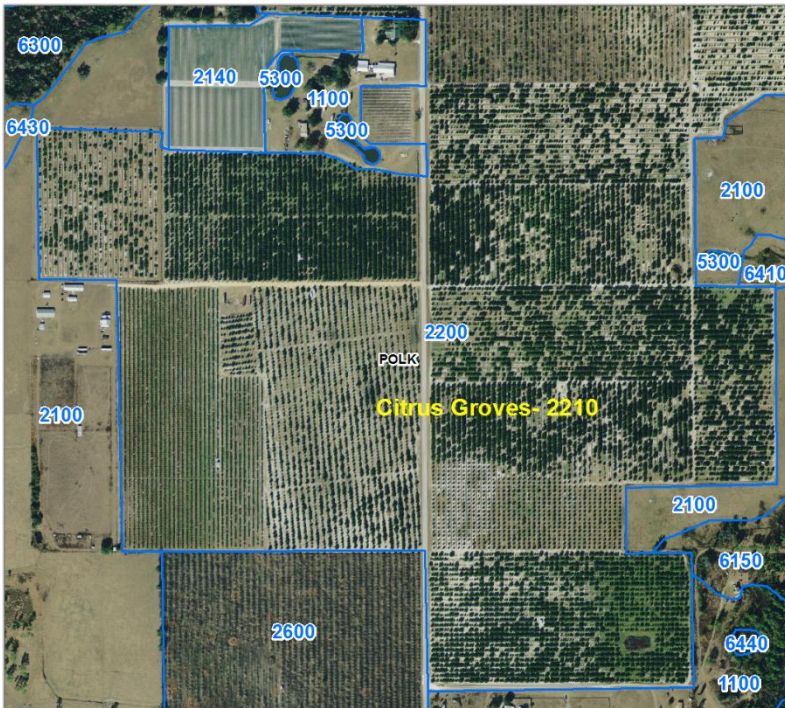
Mapping Conventions:

The mapping unit includes all facilities that are related to the citrus operation or located within the operational boundary of the enterprise.

Pictures of Classification Code: 2210



Citrus Crops (2210) - Color infrared aerial photograph



Citrus Crops (2210) – Natural color aerial photograph



Ground Photo of 2210 – Citrus Grove

Classification Code: 2220 – Fruit Orchards

Level 1: Agriculture

Level 2: Tree Crops

Level 3: Fruit Orchards

Minimum delineation area: 0.5 acres

Description:

This class is for active blueberry farms. The Minimum mapping unit was set by the District due to the small size of most blueberry farms.

Context:

Blueberry farms are found throughout the District.

Recognition Features:

- Uniformly spaced rows of mature shrubs give the appearance of a grid pattern.
- The groves tend to be very small, often less than an acre.
- Groves appear to be well-managed and currently in production.
- Mature shrubs produce small fluffy crowns with a bright red/green color.
- Immature plants may be spaced very closely and appear as row crops
- Ancillary data such as parcel data may be necessary to verify blueberries
- Signatures vary from bright red on mature shrubs, to light brown and green on smaller shrubs.

Exclusions:

Farmsteads, barns, and non-specific out buildings were not included in this category. They were pulled separately as long as they meet a one-acre minimum

Similar Classes:

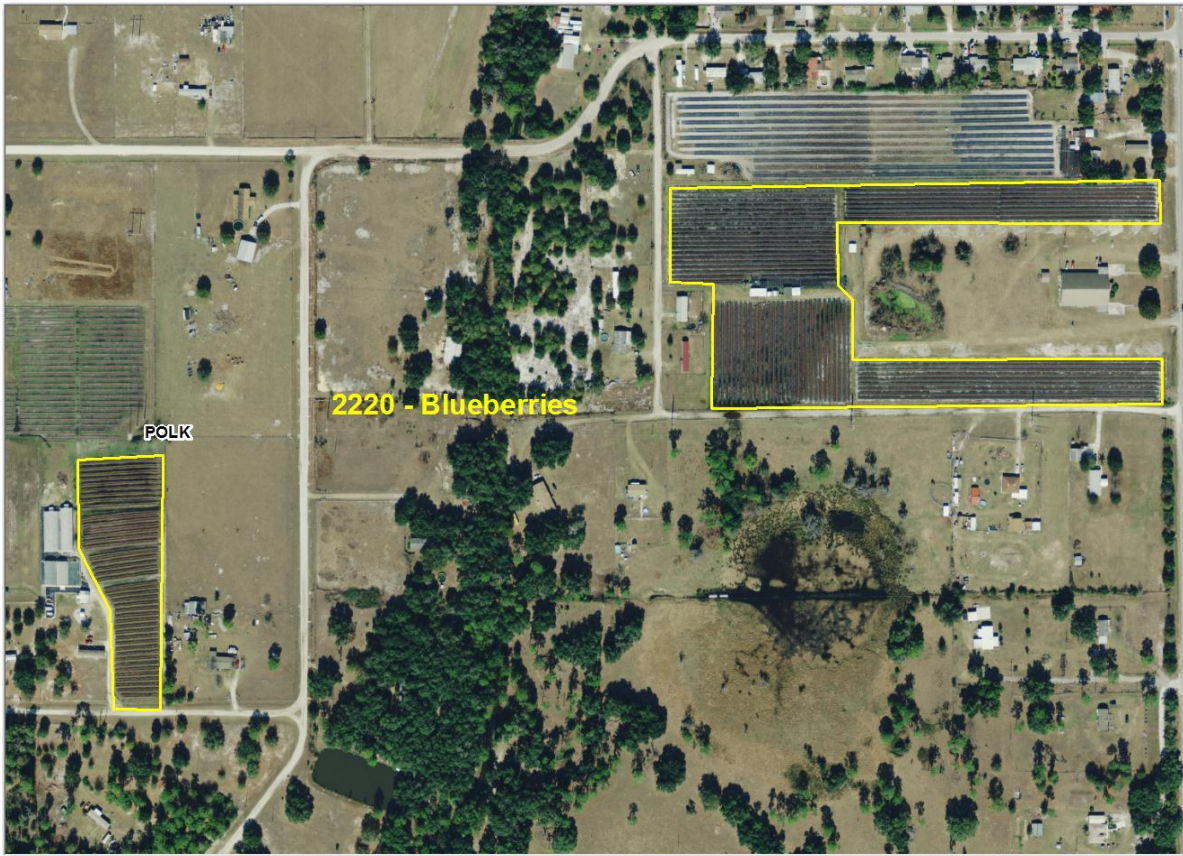
2140 Row Crops. Row crops will appear almost indistinguishable from immature blueberry plants.

2400 Nurseries and Vineyards. Nurseries have multiple varieties, giving a less uniform appearance. Vineyards have a closer spacing and individual plants are not visible

Mapping Conventions:

The mapping unit does not include the facilities that are related to the blueberry operation. Only the irrigated area and crop-specific buildings and features were delineated. The MMU for this category is 0.5 acres.

Pictures of Classification Code: 2220



Fruit Orchard (2220, Blueberries) – Natural color aerial photograph



Fruit Orchard (2220, Blueberries) – Natural color aerial photograph



Ground Photo of 2220 – Fruit Orchard



Ground Photo of 2220 – Fruit Orchard

Classification Code: 2240 - Abandoned Tree Crops

Level 1: Agriculture

Level 2: Tree Crops

Level 3: Abandoned Tree Crops

Minimum delineation area: 2.5 acres (1 acre if found within irrigated agriculture)

Description:

This classification is used to identify groves or orchards that are no longer being actively managed as tree crops and have been essentially out of production for up to six years, but with 50% of the trees still present. After the six year mark, or with less than 50% tree coverage, other classes would be more appropriate, such as upland non-forested, unimproved pasture, or woodland pastures.

Context:

Abandoned groves are most likely to be found in agricultural areas transitioning to development. They may also be in more remote areas that were impacted by adverse climate or disease.

The tree sizes may vary throughout the site, rather than show uniform appearance. Abandoned groves appear unmanaged - dead standing trees, vine infestation, variable spacing, different sized crowns, irregular edges, variable undergrowth. Tree canopy may have become overgrown due to lack of pruning.

Recognition Features:

- There is 50% or greater tree crop remaining.
- The groves have not been actively managed for 6 years or less.
- Signatures indicate that the tree vitality is not uniform or strong, and dead trees have not been replaced.
- Significant and diverse understory growth will be visible, indicating lack of maintenance.
- The tree sizes may vary throughout the site, rather than show uniform appearance.
- Abandoned groves appear unmanaged - dead standing trees, vine infestation, variable spacing, different sized crowns, irregular edges, variable undergrowth.
- Tree canopy may have become overgrown due to lack of pruning.
- These groves will appear with a grey signature in CIR, and a dark greyish signature in natural color imagery. Signatures indicate that the tree vitality is not uniform or strong, and dead trees have not been replaced.

Exclusions:

If less than 50% of the citrus trees are standing within the original grove area, or if the grove has been abandoned for over 6 years, this class is not used. Upland Non-forested classes are typically used to indicate groves that have been abandoned for over 6 years as indicated by their return to a naturally vegetated state. Other former grove areas are cleared of their trees and converted to 2150 Field Crops or 2110 Improved Pasture. Such areas are often distinguishable by scars that appear as rows of dots where the trees had been.

Similar Classes:

- 2210 Citrus groves
- 3100 Herbaceous Upland Nonforested
- 3200 Shrub and Brushland
- 3300 Mixed Upland Nonforested

Pictures of Classification Code: 2240



Abandoned Groves (2240) – Natural color aerial photograph

Classification Code: 2300 – Feeding Operations

Level I: Agriculture

Level II: Feeding Operations

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Feeding operations are specialized, livestock production enterprises. They have large animal populations restricted to relatively small areas, which results in a concentration of waste material that is an environmental concern. This level II class is for any animal feeding operations that do not fall in to one of the two active subclasses of cattle or poultry feeding.

Context:

Some operations are located near urban areas to take advantage of proximity to transportation facilities and processing plants. However, environmental concerns usually dictate a distance from residential areas.

Recognition Features:

- Modern swine production facilities, if introduced, are large, industrial, indoor facilities rather than outdoor feedlots. Animals are not typically visible.
- Usually large, specialized livestock production areas with confined feeding.
- Usually have large animal populations restricted to small areas causing the destruction of ground cover
- Presence of numerous structures, some uniform to shelter the animals and equipment.
- Fences, access paths, and waste disposal ponds present

Exclusions:

This class does not include facilities used to process livestock into consumer food products, which are categorized as 1500 - Industrial.

Similar Classes:

- Poultry feeding is similar to green houses, and often occur at the same locations. They are distinguished by roof structure and absence of outside crops.
- 2500 Specialty Farms
- 2520 Dairies

Mapping Conventions:

When pulling out 2300 (specifically dairy operations), only include land that is physically altered by the operation. Use these markings as well as fences to determine borders.

Included within the 2300 polygon are all buildings, grounds, parking lots, storage areas and other related features.

Pictures of Classification Code: 2300



Feeding Operations (2300) - Color infrared aerial photograph



Feeding Operations (2300) - Natural color aerial photograph



Feeding Operations (2300) - Color infrared aerial photograph



Feeding Operations (2300) - Natural color aerial photograph



Feeding Operations (2300) - Ground photo



Feeding Operations (2300) - Ground photo

Classification Code 2310 – Cattle Feeding Operations

Level I: Agriculture

Level II: Feeding Operations

Level III: Cattle Feeding Operations

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is for concentrated feedlot operations that produce accelerated growth of cattle prior to processing into food products. It is not for breeding, grazing or dairy operations, and it does not include facilities (meat packing plants) used to process the livestock into consumer food products.

Feeding operations are specialized, livestock production enterprises that are rare but highly significant wherever they do occur. They have large animal populations restricted to relatively small areas, which results in a concentration of waste material that is an environmental concern. The attendant waste disposal and migration problems justify a separate category for these relatively small areas.

The signature of this class is distinct - highly impacted ground cover around a core facility, with pronounced trails and ditches. In impacted areas the ground is wet, causing a characteristic dark color on CIR photos.

Context:

Feedlots are rare, but highly significant in terms of water resources. Some operations are located near urban areas to take advantage of transportation facilities and processing plants. However, environmental concerns usually dictate a distance from residential areas.

Recognition Features:

- These are usually large, specialized livestock production areas with confined feeding.
- The concentration of livestock on small areas usually causes a severe impact to ground cover.
- Fences, heavily used trails, feeding troughs, shelters, and waste disposal features (treatment ponds, waste piles) may be visible.

Similar Classes:

- 2110 Improved pastures. Ground cover is not heavily impacted
- 2520 Dairies. Dairies may have concentrated feeding operations. Such areas are coded 2520, part of the dairy facilities

Pictures of Classification Code: 2310:



Cattle Feeding Operations (2310) - Color infrared aerial photograph



Cattle Feeding Operations (2310) – Natural color aerial photograph



Cattle Feeding Operations (2310) – Photo

Classification Code 2320 – Poultry Feeding Operations

Level I: Agriculture

Level II: Feeding Operations

Level III: Poultry Feeding Operations

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is for commercial facilities that raise chickens for human consumption. It does not include meat packing plants, which fall into 1500 Industrial.

Poultry operations have a very distinctive appearance on aerial photos - very long, narrow, white buildings set in parallel, with relatively clean surrounding grounds. These are the opposite of cattle feedlots, which appear to be very impacted.

Poultry waste materials may be treated or spread on site or removed for outside uses such as fertilizer.

Context:

Poultry operations are common in parts of the District, typically located in agricultural areas. They do not have waste migration issues to the degree that swine and cattle feeding operations do. However, odor and other environmental concerns usually dictate a distance from residential areas.

Recognition Features:

- Long rectangular chicken coops are present.
- The surrounding area is relatively un-impacted.
- Small reservoirs may be seen adjacent to buildings, used for water supply and storm water and/or wastewater treatment.
- Fields around the facility may show varying degrees of enrichment (pinkish colors) due to waste spreading or wastewater irrigation activities.

Similar Classes:

2400 Nurseries and vineyards. Greenhouses may look like chicken coops. Context should be checked carefully. Other types of crop production uses may also have greenhouses

Mapping Conventions:

Included within the 2320 polygon are all buildings, grounds, storage areas and other features that are involved in the operation or within the operational boundary. Open lands adjacent to the facility are not coded 2320 unless there are indications of impacts from the poultry operation - property boundaries are not expected to coincide with the 2320 mapping unit.

Pictures of Classification Code: 2320:



Poultry Feeding Operations (2320) – Color infrared aerial photograph



Poultry Feeding Operations (2320) – Natural color aerial photograph



Poultry Feeding Operations (2320) – Photo

Classification Code: 2400 – Nurseries and Vineyards

Level I: Agriculture

Level II: Nurseries and Vineyards

Minimum delineation area: 2.5 acres

Description:

This category is composed of nurseries, floricultural areas, vineyards, and ornamentals used perennially and generally not rotated with other uses.

Context:

The southern part of the District contains a large number of commercial floriculture.

Usually occurs in areas of rich humus soil along rivers or in basin depression

Nurseries and vineyards may be associated with farm operations, forestry, landscaping or urban marketing operations. There are, in general, few environmental concerns or nuisance factors, and they can be located almost anywhere. Sizes range from tiny plots to very large commercial operations.

Recognition Features:

- Usually small plots focused around long narrow rows of greenhouses or long narrow rows of planted vines
- May have a number of different types of plants forming different width and spacing of rows
- Typically has numerous short rows running perpendicular to longer rows
- May also be associated with fish ponding
- Usually occurs in areas of rich humus soil along rivers or in basin depression
- Examples include Ornamental nurseries and floriculture.
- Ornamentals may consist of many small rows of plants, often with shade covering. They may occupy a limited amount of land.

Exclusions:

This category did not include retail nurseries unless associated with the growth of plants.

Farmsteads, barns, and non-specific out buildings were not included in this category. They were pulled separately as long as they meet a one-acre minimum.

This group of classes does not include greenhouses or nurseries that are attached and subsidiary to a larger farm operation of another type, such as row crops or citrus groves.

Similar Classes:

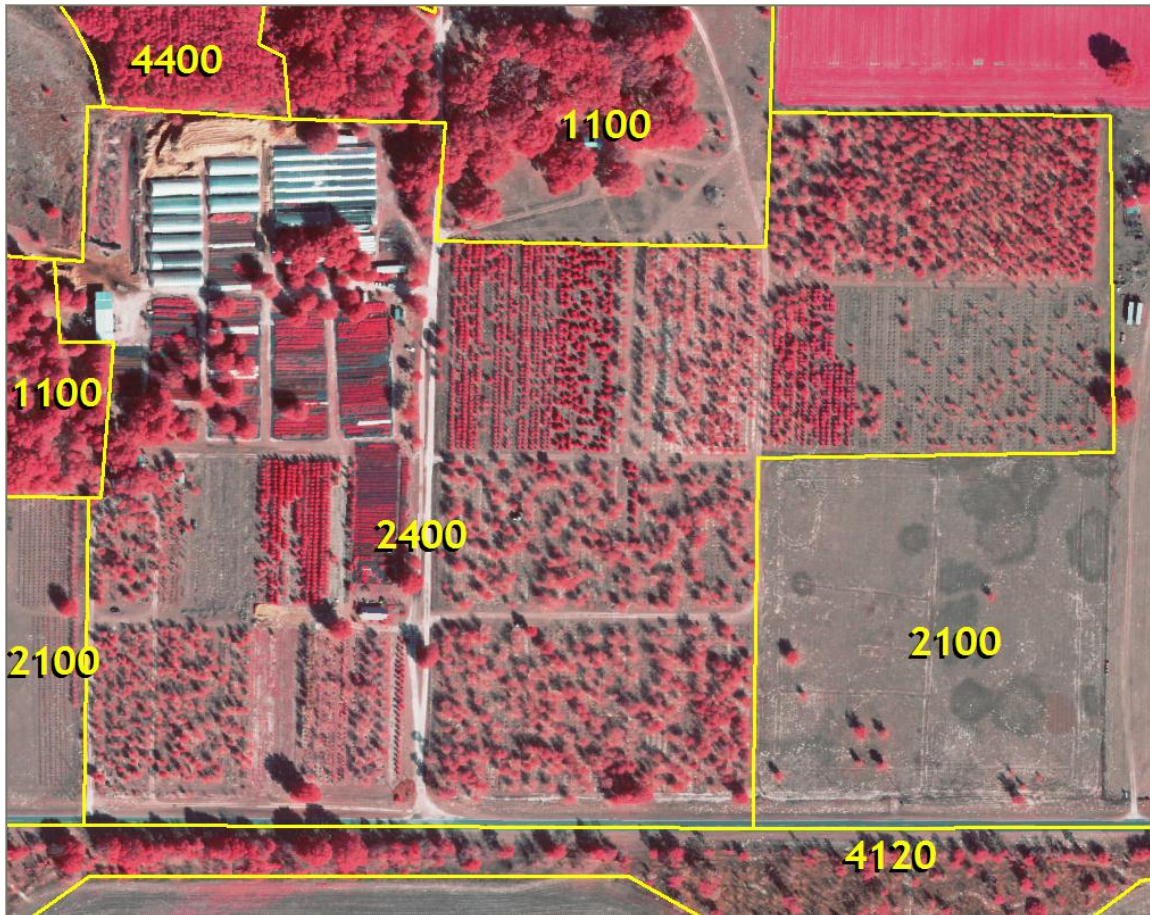
2200 Tree Crops. Nurseries have multiple varieties, giving a less uniform appearance. Vineyards have a closer spacing and individual plants are not visible.

2220 Fruit Orchards. Blueberries usually have no spacing between plants and bare soil can be seen between rows. Prior to 2014, blueberries were coded as 2140 (row crops) or 2400 (nurseries).

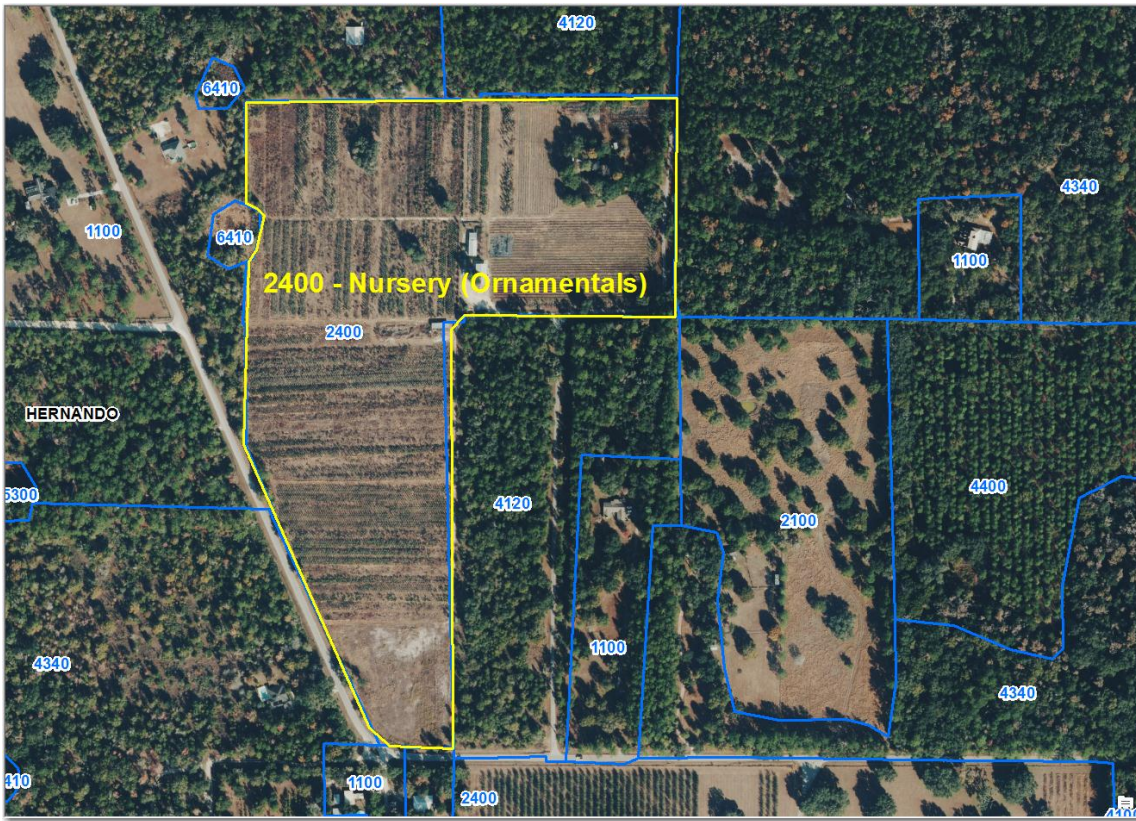
Mapping Conventions:

The mapping unit includes greenhouses, offices, residential buildings, parking areas, farm roads and any other operational features. Only features that are involved in the enterprise or within the operational boundary are included. Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria.

Pictures of Classification Code: 2400



Nurseries and Vineyards (2400) - Color infrared aerial photograph



Nurseries and Vineyards (2400) - Natural color aerial photograph



Nurseries and Vineyards (2400) – Ground Photo

Classification Code: 2410 – Tree Nurseries

Level 1: Agriculture

Level 2: Nurseries and Vineyards

Level 3: Tree Nurseries

Minimum delineation area: 2.5 acres (1 acre if found within irrigated agriculture)

Description:

This class is for nurseries which grow trees for transfer to other destinations. There may be other products grown at the facility, such as flowers and ornamentals, but they are not the predominant use. Trees may be grown in-ground or in containers.

Context:

Nurseries may be associated with tree crops, forestry, landscaping or retail operations. They do not present environmental or nuisance concerns, and can be located almost anywhere.

Most tree nurseries are for ornamentals trees used for landscaping. These trees can range from small potted plants to large specimens, and many varieties are typically present. Also included are timber nurseries, which have plants that appear small and uniform on the photography.

Recognition Features:

- Trees are in rows similar to citrus groves, but there are many different types of trees with varying shaped crowns, texture and color. Some areas may be under artificial shading.
- Sizes range from tiny plots to large commercial operations.
- Greenhouses and equipment storage areas are often present.

Similar Classes:

- 2200 Tree Crops. Trees tend to be mature and uniform, over large areas
- 4400 Tree Plantations and 4410 Coniferous pine. These may contain nurseries, but the acreage is mostly in permanent plantation

Mapping Conventions:

The mapping unit includes greenhouses, offices, residential buildings, parking areas, and any other features involved in the enterprise or within the operational boundary.

Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria.

Classification Code: 2420 – Sod Farms

Level 1: Agriculture

Level 2: Nurseries and Vineyards

Level 3: Sod Farms

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is used for sod (turf) farms. They are usually large, intensively managed areas of short, uniform turf. The crop requires extensive fertilization and machinery, reflected in buildings, tanks, and storage areas.

Context:

Sod farms require well-drained soils with uniform, controlled moisture conditions and fertilization for healthy growth. When located in areas with high water tables the drainage ditches are closely spaced and distinct on the photography.

Sod farms are an important class because, like golf courses, they use high rates of fertilizers and other chemicals that can migrate to ground or surface waters. Prolonged use as turf farms can also deplete surface soils.

Recognition Features:

- Areas may be patchy, rectangular, and in different stages of growth.
- Ponds may be used for irrigation, and irrigation patterns may be evident as circles or blocks of uniform signature.
- Irrigation and drainage canals and ditches are usually present, with smaller ditches in between fields or blocks of sod, to insure proper moisture conditions.
- Features such as cattle, hay bales, silos, etc. will not be present. Trees and shrubs are not present in the sod fields.
- Harvested areas appear as long strips or rectangular patches of bare soil in random locations.
- Sod farms will be large areas of agriculture with a bright pink signature. There will usually be sections of bare land cut out of the sod where the grass has been removed. Ancillary data such as parcel information may be required to correctly identify sod farms.
- Growing turf has a bright red, even signature

Similar Classes:

- Sod farms have signatures similar to well-manicured pastures, hay crops or urban lawns. Some pastures may be leased for sod production; these should be classed accordingly as 2420 if sod production appears to be the predominant use.
- 2110 Improved pastures. Evidence of grazing will be present
- 2150 Field crops, especially hay crops

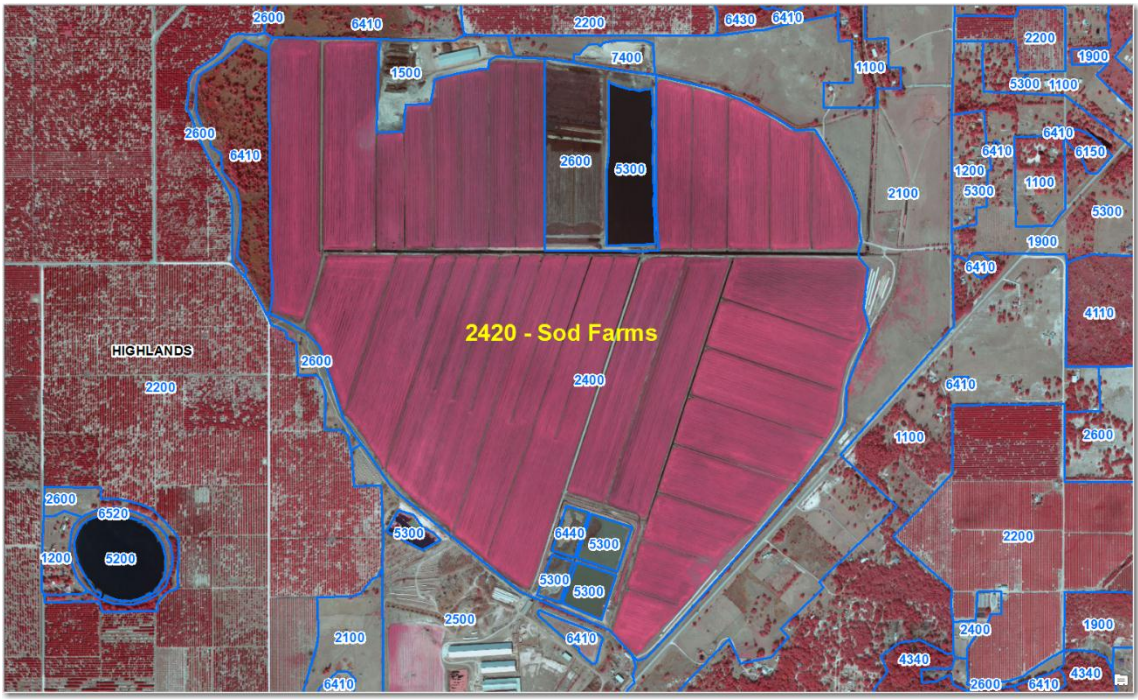
Mapping Conventions:

The mapping unit includes offices, storage areas for equipment and materials, and any other features involved in the enterprise or within the operational boundary.

Pictures of Classification Code: 2420



Sod Farms (2420) – Color Infrared photography



Sod Farms (2420) – Color Infrared photography



Sod Farms (2420, formerly 2400 prior to 2014) - Natural color aerial photograph



Sod Farms (2420) - Ground photo

Classification Code: 2500 – Specialty Farms

Level I: Agriculture

Level II: Specialty Farms

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Specialty farms refers to operations that maintain animals, other than pasturing and feedlot operations. Specialty farms include a variety of special or unique farming activities such as dog kennels, ostrich, llamas, and captive breeding programs. Horse Farms are placed in the 2510 category (Horse Farms), and Dairy Farms are placed in the 2520 category (Dairies). Aquaculture Farms are placed in the 2540 category (Aquaculture).

Context:

Specialty farms can occur anywhere, but are more common in rural areas where open space, farm labor and privacy are available.

Recognition Features:

- Highly specialized for the production or breeding operation of show animals or specialty foods
- Structures and acreage requirements will vary depending on operation
- Will look confusing or unique
- Usually involves a smaller parcel of land than large crop or pasture farms
- Usually fenced and contains groupings of small agricultural structures
- Caretaker or owner usually on premises as these tend to require a great deal of specialized attention
- This class covers a large range of diverse activities - no indicators will apply well to all classes. Supplemental data is usually needed to recognize these uses.

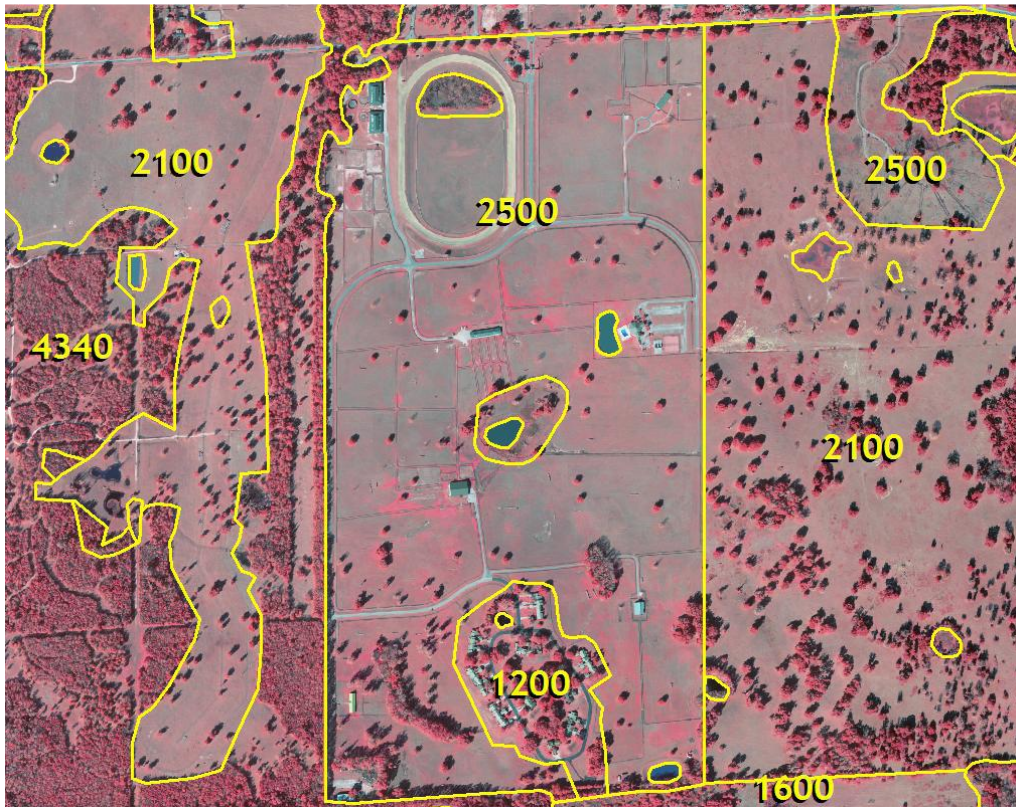
Similar Classes:

- 1100 Low density residential and 1180 Rural Residential. If rural residences operate a specialty farm on site they should be coded 2500.
- 1800 Recreational. These can be identified by structures and features associated with recreation such as trails. Parcel data can also help verify recreation and public lands.
- 2300 Feeding operations. These will usually have more visible impacts
- 2400 Ornamentals. Evidence of horticulture should be visible.

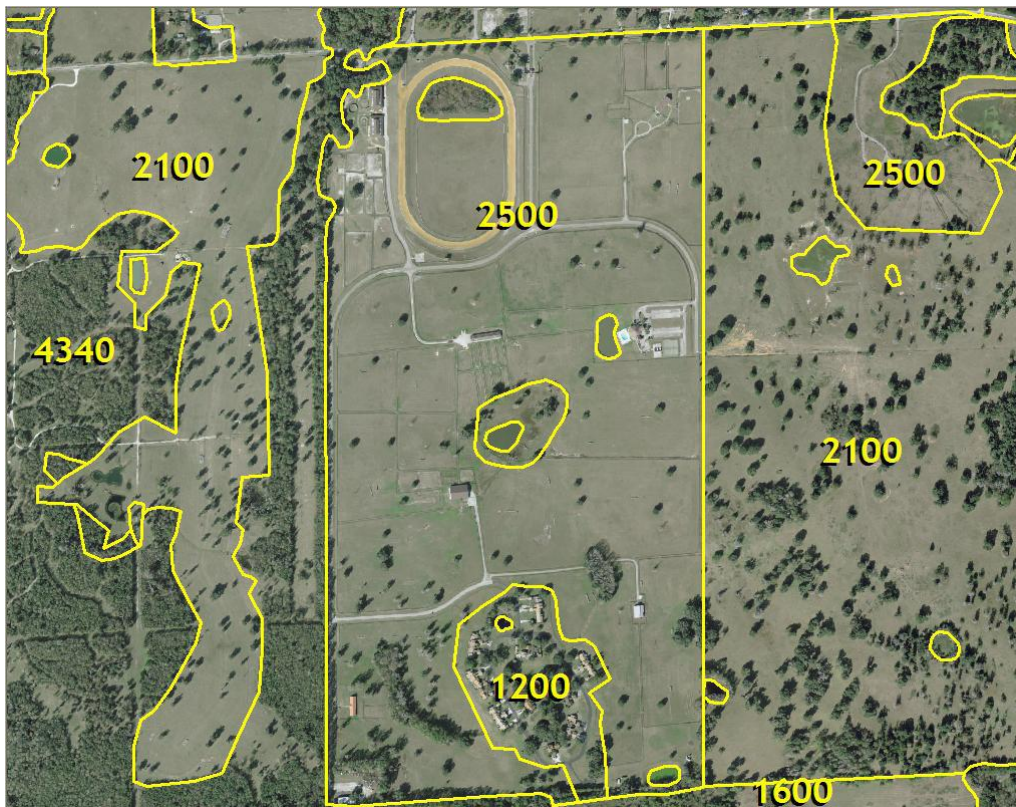
Mapping Conventions:

The residences on the farm and surrounding areas are included with the horse farm, including all buildings, grounds, cages, and other related features. The operational boundaries may not be the same as property boundaries.

Pictures of Classification Code: 2500



Specialty Farm (2500) – Color aerial Infrared aerial photograph



Specialty Farm (2500) – Natural color aerial photograph

Classification Code: 2510 – Horse Farms

Level 1: Agriculture

Level 2: Specialty Farms

Level 3: Horse Farms

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This category defines farms which stable, breed and train horses for a variety of purposes. The purposes may include private use, commercial stables, or for sporting uses such as hunting, exhibition, racing, riding and harness racing.

Context:

Horse farms occur in an agricultural context, or at the fringes of urban areas. They are located throughout the District, and are one of the dominant land uses in Levy and Marion counties.

Recognition Features:

- Extensive pasture areas are present, which may be mowed or cultivated for hay and other support crops. Pastures are usually well-maintained.
- Barns or stalls for horses are present. Other buildings may include offices and residences.
- Stock ponds, tanks, or feeding troughs may be visible.
- Track, training/exercise areas, pools, double fences,. Training areas may be large oval tracks or small circular facilities

Exclusions:

This class does not include commercial stables set up just for riding, which are in the recreational class 1800. Riding stables are in urban areas and lack the extensive pastures, barns, fencing, and other features of a farm. Where horses are clearly present, and there is doubt about which code to use, the photo interpreter should err on the side of choosing 2510.

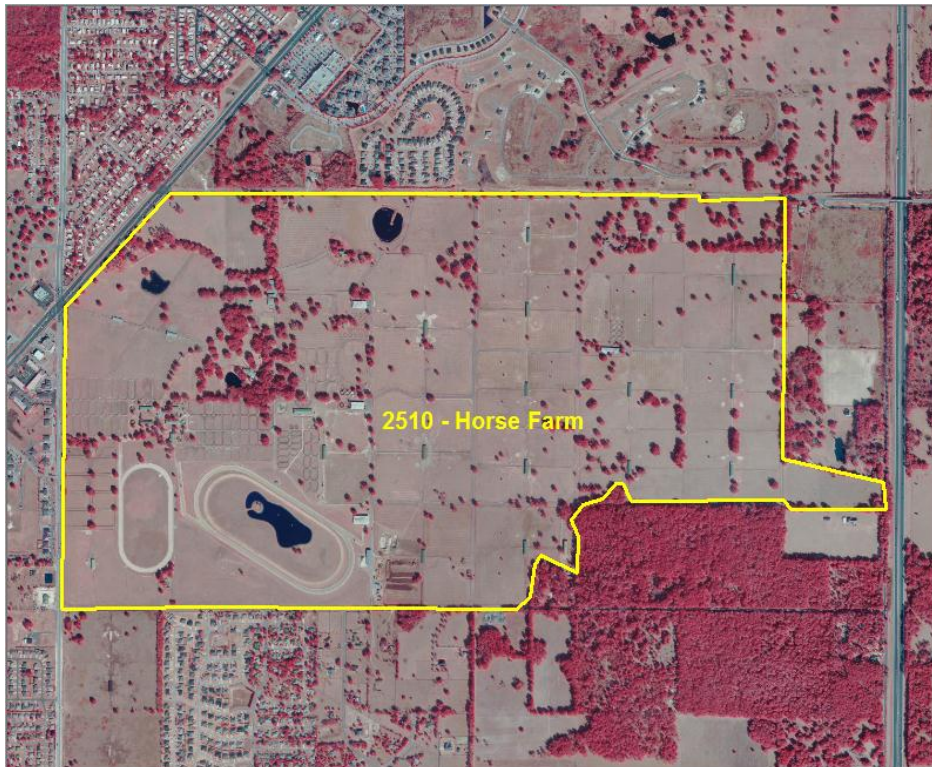
Similar Classes:

- 2110, 2120, 2130 - Pastures. Horse farms may be confused with other pastures, especially where a cattle operation may also have some horses and riding track present. In such cases one of the pasture categories (2110 to 2130) is preferable
- 1800 Race tracks and riding stables. Horse race tracks have extensive parking and stadium seating. Riding stables are more intensive facilities in an urban context
- 2520 Dairies. Dairies have a variety of other indicators

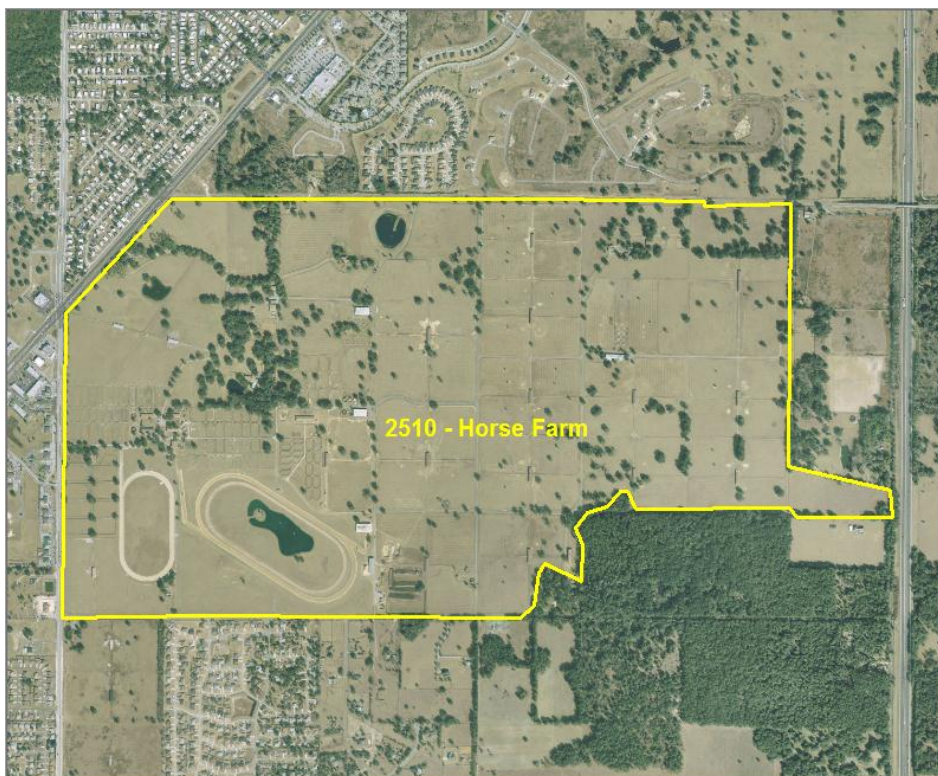
Mapping Conventions:

Included within the 2510 polygon are all buildings, grounds, cages, residences and other related features. Adjacent areas that are not involved in the horse farm operation are not included. The operational boundaries may not be the same as property boundaries.

Pictures of Classification Code: 2510



Horse Farm (2510) - Color infrared aerial photograph



Horse Farm (2510) - Natural color aerial photograph

Classification Code: 2520 – Dairies

Level 1: Agriculture
Level 2: Specialty Farms
Level 3: Dairies

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Dairies are commercial operations that convert pasture and raw materials into milk with the assistance of cows. They produce, process, and distribute milk and other dairy products.

Recognition Features:

- Found throughout the District
- Facilities appear to be intensively managed. To maximize production, dairies maintain a high concentration of animals and equipment in a small area.
- Feed silos are typically present.
- Will be considerably larger than feeding operations
- Large buildings for shelter and/or milking are present.
- Dairies are always surrounded by areas of pasture.
- Cattle tracks may be visible, especially leading to barns.
- Manure piles and storage areas for feed, straw, and other materials are present.

Exclusions:

Outlying pasture should be broken out as 2100.

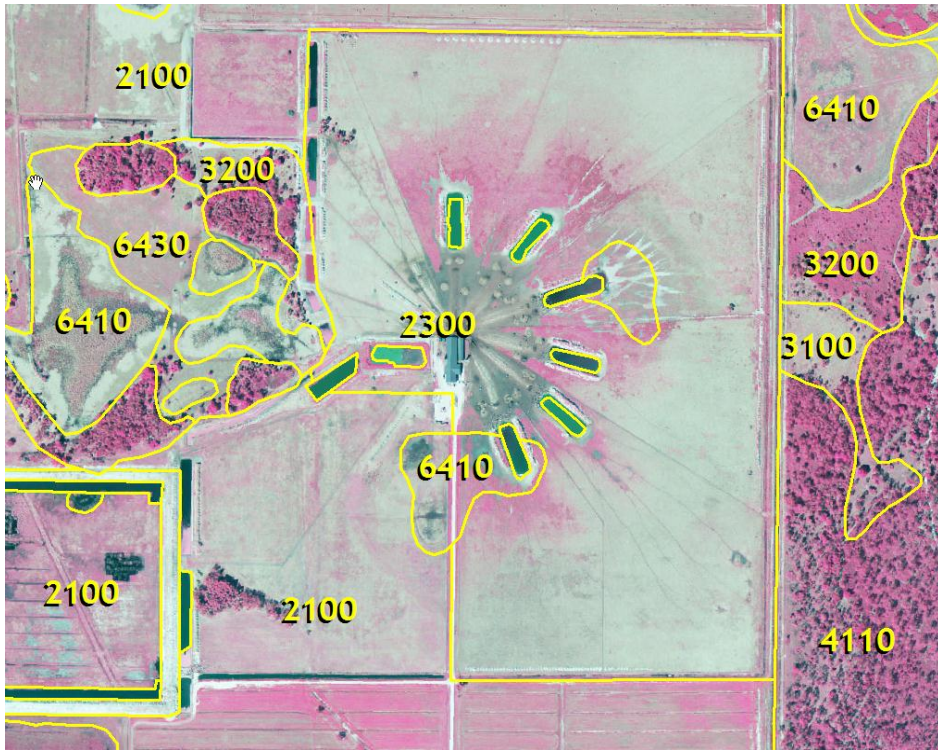
Similar Classes:

- 2100s Pasture
- 2310 Cattle feeding operations. Feed lots are even more intensive and show significant surface impact
- 2510 Horse farms. Cleaner, more uniform, less intense, less industrial appearance. Presence of riding/training facilities, such as oval tracks

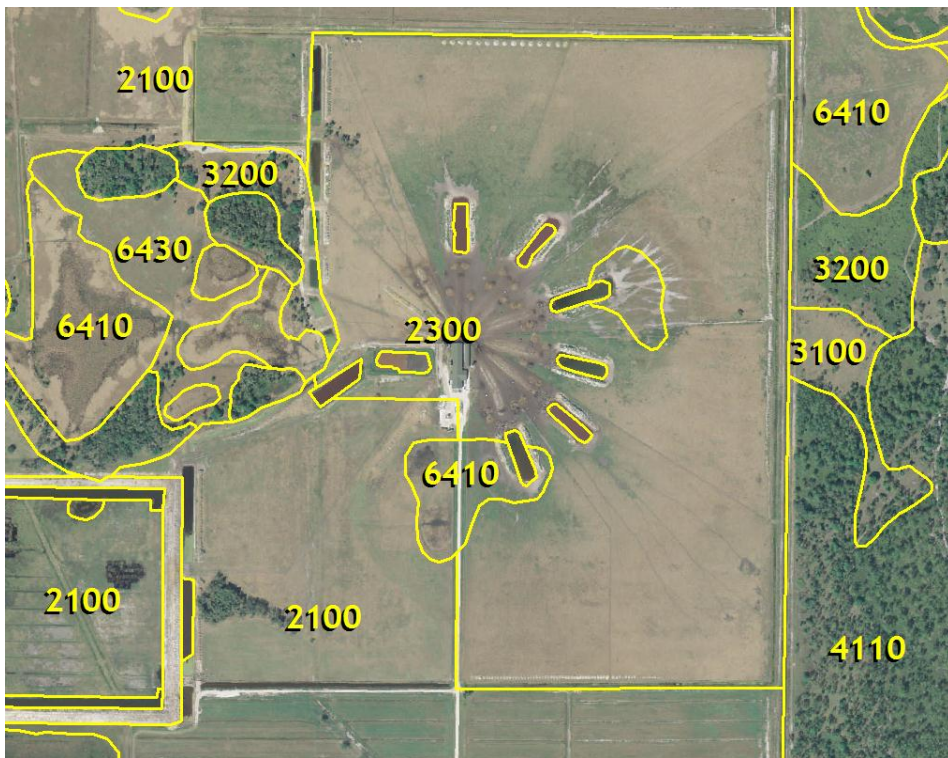
Mapping Conventions:

Included within the 2520 polygon are all buildings, barns, processing facilities, grounds, parking lots, storage areas and other related features. Solid waste facilities, including manure piles may be found within the operational boundaries. Also included are the fields immediately adjacent to the dairy barn if trails and feeding areas are identifiable. Otherwise, the nearby fields will be listed as pasture. The boundaries of the dairy operation will probably not be the same as its property boundaries.

Pictures of Classification Code: 2520



Dairies (2520) - Color infrared aerial photograph



Dairies (2520) - Natural color aerial photograph



Specialty Farm (2520, Dairy Farm) – Natural color aerial photograph



Specialty Farm (2500, Dairy Farm) – Natural color aerial photograph



Dairy Farm (2520, Dairy Farm) - Ground photo

Classification Code: 2540 – Aquaculture (formerly 2550)

Level I: Agriculture
Level II: Specialty Farms
Level III: Aquaculture

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class includes facilities that raise marine or aquatic plant and animal species under natural or artificial conditions for human and animal consumption or ornamental fish production. The operations may be very large and organized, or small and informal. They tend to be easy to recognize, as a series of small ponds near each other, with peripheral structures and equipment on-site.

Context:

Aquaculture sites are located where water supply is available as a shallow water table, surface water, or ground water source, and effluent options are available. They are typically found in rural areas where site conditions, labor and other factors are favorable.

Typically placed in organic floodplain soils and associated with greenhouses.

In the Tampa area, where the majority of Florida breeding farms are located, a farm can be from 5 to 100 acres, utilizing ground ponds due to their rich mineral content and artesian wells. In the winter the ponds are covered with plastic to retain heat.

Recognition Features:

- Aquaculture sites have a series of small, usually rectangular, excavated ponds, typically arranged in a parallel or rectangular pattern.
- Color tones are black unless shallow aquatic vegetation is present, which produces pink and reddish overtones to the water signature.
- Associated structures, reservoirs, and drainage features are likely to be present.

Similar Classes:

5300 Reservoirs. These must be 1/2 acre to be mapped. Aquaculture ponds are typically smaller, and exist in series.

Mapping Conventions:

When found together with green houses, and one does not meet the minimum mapping criteria, merge together with the predominate code.

The mapping unit includes buildings, storage areas, drainage ditches and any other features involved in the enterprise or within the operational boundary.

Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria.

Pictures of Classification Code: 2520



Aquaculture (2540) - Color infrared aerial photograph



Aquaculture (2540) - Natural color aerial photograph



Aquaculture (2540) - Oblique aerial photo



Aquaculture (2540) – Ground Photo



Aquaculture (2540) - Ground photos



Aquaculture (2540) - Ground photos





Aquaculture (2540) - Ground photo

Classification Code: 2600 – Other Open Lands - Rural

Level I: Agriculture

Level II: Other Open Lands - Rural

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This category includes those agricultural lands whose intended usage cannot be determined. Examples include agricultural burn areas or abandoned crops with no clear intended use. May also include rural lands that are idle or in transition without positive identification of intended activity, as well as logging and forestry operations where the land was newly clear cut leaving bare soil, tree stubble, or upland herbaceous undergrowth (uneven gray tone), but the land use was uncertain. May also include rural lands that are idle or in transition without positive identification of intended activity.

Context:

It is common throughout the agricultural areas, particularly on the urban-rural fringe.

Recognition Features:

- These areas include rural lands with agricultural characteristics where the intended use cannot be ascertained
- Includes fallow crop land or land left for more than one season of crop rotation
- Includes land on the urban fringe that may be in the process of transition, but shows no positive identifying features.
- Includes dead or deserted crops or tree crops
- Usually portrays a rough, uneven, shrubby texture but still portrays the appearance of agricultural processes (straight borders, old field markings, old grove lines, etc.)
- Underbrush or shrub vegetation will overrun the field.
- A gray, textured signature of uneven cover will appear when the underbrush or shrub vegetation overruns the field.

Exclusions:

If the area is reverting back to herbaceous to be used as pasture it is marked as pasture. In this case, the signature is much smoother and more even toned and represents larger acreage than the smaller abandoned tracts. This commonly is found with old citrus groves, untilled croplands, and idle lands in rural areas.

Similar Classes:

- 1900 Open Land
- 2120 Unimproved pastures
- 2610 Fallow cropland
- 3000 Rangeland
- 7400 Disturbed Lands

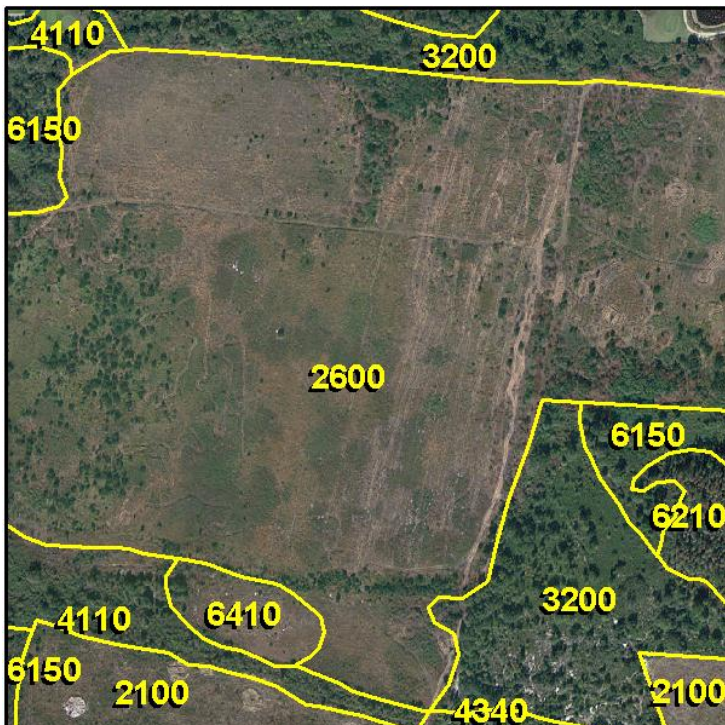
Mapping Conventions:

Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria of ½ acre.

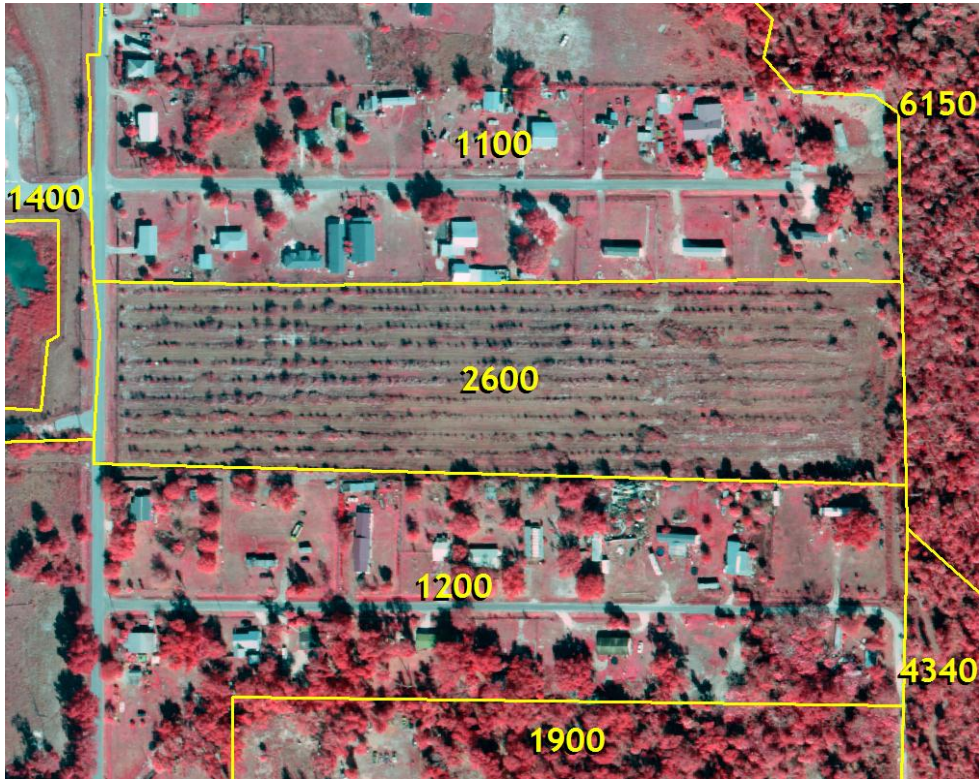
Pictures of Classification Code: 2600



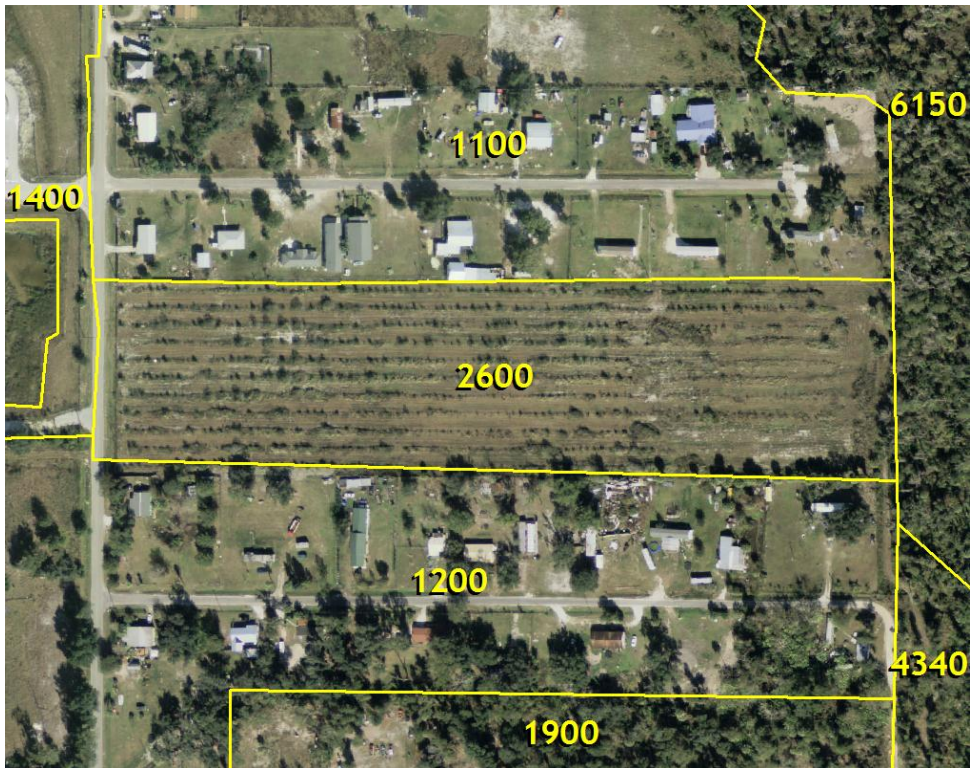
Other Open Lands - Rural (2600) - Color infrared aerial photograph



Other Open Lands - Rural (2600) - Natural color aerial photograph



Other Open Lands - Rural (2600) – Color Infrared aerial photograph



Other Open Lands - Rural (2600) - Natural color aerial photograph



Other Open Lands - Rural (2600) - Ground photo

Classification Code 2610 – Fallow Crop Land

Level I: Agriculture

Level II: Other Open Lands – Rural

Level III: Fallow Crop Land

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is used for agricultural land that is normally harvested, but has been taken out of the normal crop rotation. It does not include farmland that is temporarily un-vegetated as part of the normal rotation, such as during the period of soil preparation prior to re-planting. 2610 is used primarily for fallow row crops or field crops.

Farmers usually try to maximize production by maintaining a tight rotation schedule, assisted by the use of synthetic fertilizers and irrigation. In olden times, lands were kept fallow as a way to allow the soil to rest and rebuild, but now it is a less frequent practice that usually indicates some difficulty, transition, or change of plans.

Context:

This class is only used for fields that are in an area normally used for harvested crops. Most adjacent fields and properties should be in normal rotation, unless for some reason the whole area is temporarily affected. Context is critical, because fallow fields could easily be confused with many other classes, if only signature is considered.

Recognition Features:

- The former cropland is out of the normal annual rotation cycle - generally out of production for more than one year.
- Old rows may still be evident.
- Newer fallow cropland will have a smooth texture. The longer it is out of production the more irregular and shrubby its appearance.
- Fence lines may still be visible.
- Fallow land may include land set aside for cover crops - growing vegetation that will not be harvested, such as weeds or other non woody vegetation.

Exclusions:

Not used for tree or vine crops, including groves, orchards, nurseries and vineyards.

Similar Classes:

- 2120 Unimproved pastures
- 2140 Row crops
- 2150 Field crops
- 3000s Upland Non-forested classes - Herbaceous , Shrub and Brushland , and Mixed

Mapping Conventions:

Priority classes such as water bodies and wetlands are always broken out if they meet their minimum size criteria.

Pictures of Classification Code: 2610



Fallow Crop Land (2610) – Color Infrared Aerial



Fallow Crop Land (2610) – Natural Color Aerial



Fallow Crop Land (2610) – Aerial Photo

Non-Forested

Classification Code: 3000 – Upland Non-Forested

This is a description of the FLUCCS 3000 classes, which fall into the general category of "Upland Non-Forested", formerly Rangeland. The Level 3 class 3000 may not be used in the map itself - a more specific class must be selected. The active classes are **3100** (herbaceous), **3200** (shrub and brushland) and **3300** (mixed). For details on each, see the separate PI Key description.

This SWFWMD class is a departure from the original FLUCCS system - the class has been renamed from 'Rangeland' to 'Upland Non-Forested' to better describe land cover in open upland landscapes. However, while the name is different, the usage does not vary significantly from statewide practice. It is simply intended to be a more accurate description, and expands the class to include open upland areas that do not fit the rangeland definition, such as open urban areas.

Background: The historic meaning of 'Rangeland' comes from a national USDA definition, referring to natural plant cover composed of principally native grasses, forbs and shrubs that are valuable for forage. In Florida, such lands were frequently found at the margins of marshes, and therefore characterized as transitional between uplands and wetlands. While they may be adjacent to wetlands and occasionally inundated, the 3000s classes never include wetland areas - it is the intent of the District to make a clear differentiation between uplands and wetlands, and any areas that meet wetlands definitions must be coded in the 6000s class.

In the FLUCCS system, rangeland had the following general characteristics:

- Capable of being grazed by cattle (although there may be no clear indications on photo).
- Management practices include brush control, regulation of grazing intensity and season of use.
- Predominantly native vegetation. If re-vegetated, it is managed like native vegetation.
- The land is not fertilized, cultivated or irrigated. It may be cut for hay or other purposes.

The above meaning still applies in the SWFWMD system. There are many areas, particularly in the southern portion of the District, that are typical rangeland. However, there are also open, non-forested uplands in both rural and urban landscapes that **do not fit** the traditional definition, or any other class. Rangeland was the most similar class to such areas, so they were usually mapped in the 3000's. Such landscapes are diverse in nature, and may have any of the following characteristics:

- Land cover and/or use may be transitional, and future use not interpretable.
- Prior use may have been agriculture, citrus, silviculture, mining, wetlands. It is frequently not interpretable.
- Vegetation within the polygon is diverse in type, texture and pattern.
- The shape of the polygons is irregular, giving a natural appearance.
- Management is very low intensity, too low to qualify as unimproved pasture or hay crop.
- Clear indication of cattle is lacking. The presence or absence of cattle cannot be concluded.

Two FLUCCS codes that were historically used to classify such areas are 1900- Urban Open Land and 2600- Rural Open Land. These were catch-all categories for areas that were in transition or of indeterminate use or cover. Such attributes do not give a clear enough description of the polygon - most importantly, they do not describe vegetation. Also, the fact that land use (vs. cover) is transitional or cannot be determined is not a useful definition. Rather, it is the case for much of the District, especially the "natural" areas. In the new system, the class 2600 is still used as default for agricultural lands whose vegetation cannot be determined, and rural lands that have been cleared. 1900 is still used as a default code to signify open lands in an urban context, but always in conjunction with a land cover code - generally from the 3000's category.

Mapping Conventions:

Minimum mapping units: The minimum mapping unit for differentiating between level II classes **within** the 3000 series and **adjacent to each other** is 5 acres. This allows aggregation, in order to conform to general mapping practice and to avoid unnecessary linework in areas that are very similar, intermixed, transitional and difficult to break out into distinct sub-areas.

Differentiating subclasses:

The subclasses 3100, 3200, and 3300 are based on the proportions of herbaceous vs. shrub vegetation and the presence of trees. In general, if the vegetation is herbaceous over 2/3 of the area or more, then 3100 is used. If more than 2/3 of the area is composed of shrubs then it is classed as 3200. If there is a mixture and neither reaches a 2/3 dominance, then the class 3300 is used. The herbaceous or shrub component may have up to 25% trees. If there are inclusions of solid forest patches within the polygon, then the proportion of herbs vs. shrubs applies to the remaining area.

Similar Classes:

2120 Unimproved Pasture or 2130 Woodland Pasture are used where livestock grazing is evident. Upland Non-forested classes are commonly used to indicate citrus groves which have been abandoned for long periods of time (more than six years), have less than 50% citrus trees standing within the original grove, and have returned to a naturally vegetated state

Classification Code: 3100 – Herbaceous Upland Nonforested

Level I: Rangeland

Level II: Herbaceous

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This is one of three land cover classes used for upland nonagricultural, non-forested lands which contain no evidence of cattle grazing. 3100 is used for areas that have over 67% herbaceous cover, not counting any forested inclusions, which may be up to 25% of the area. It includes prairie grasses which occur on the upland margins of the wetland zone and may be periodically inundated by water. Generally, it is the marginal area between marsh and upland forest areas, but can also appear in vegetated areas that have been disturbed. These grasslands are generally treeless, but in wet areas would have many types of soils resulting in a variety of vegetation types dominated by grasses, sedges, rushes, and other herbs while drier grass areas would be dominated by wire grasses with some saw palmetto present.

Context:

Upland non-forested lands are found throughout the District, including urban areas. It is predominantly limited to small tracts and the upland zones around wetland basins. This category represents open grasses expansive of natural dry prairie vegetation.

This type of vegetation occurs on relatively flat terrain with sandy soil and is dependent on fire for the exclusion of shrubs and trees. Consequently, many acres of dry herbaceous prairie have grown into more shrub and brushland or mixed rangeland. The native vegetation consisted of natural grasses and forbes such as wiregrass, bottle brush, three-awn, broomsedge, and love grasses with scattered palmetto and shrubs.

Recognition Features:

- 67% or more herbaceous cover is present, not including forest patches. The cover may be naturally occurring grassland or an introduced mixture of species, depending on land use.
- No evidence of cattle grazing
- Treeless expanses of grass - naturally occurring
- Edges of area have more natural shapes, follow land forms, and frequently transitions to forested or brush communities
- May also occur as the upland fringe area around wetland depressions or wet prairies
- This class may be in a transition zone between forested and herbaceous communities, or in re-vegetated areas that have been disturbed.
- May have scattered shrubs and trees if less than 25 percent
- The land is typically not fertilized, cultivated or irrigated. Brush control or hay cutting may be practiced.
- This class includes unimproved rural land or open urban areas that do not fit any other land use in the classification system.
- Usually show fine texture, smooth and mottled tones (unlike the smooth and consistent tones of planted or improved grasslands)
- Rural residential areas are frequently non-forested, and will use 3100 as a land cover code.

Similar Classes:

2120 Unimproved Pasture and 2130 Woodland pasture. These classes may look very similar to 3100, but livestock grazing is evident.

2220 Abandoned tree crops. Upland Non-forested classes are used for citrus groves which have been abandoned for long periods of time (over six years), have less than 50% of the citrus trees still standing and have returned to a naturally vegetated state

3300 Mixed Upland non-forested. Neither herbaceous vegetation nor shrubs are dominant.

Mapping Conventions:

Although some dry prairies having wetter conditions or slowly drained soils may support sedges and rushes at low percentages, prairies with higher concentration or more of a dominance of sedges and rushes were included in the Wet Prairies (6430) category.

It was believed that most of the vegetation of this type was used for cattle grazing whenever possible and therefore considered to be an unimproved pasture (2100) land use. However, when cattle grazing seemed to be a conflictual use, the herbaceous rangeland category was used for the similar gray, even textured tone. These natural areas seemed to dominate small isolated areas without access to cattle and in areas where natural vegetation was being promoted (parks, wildlife management areas, etc.).

Types of Plants

Prairie Grass

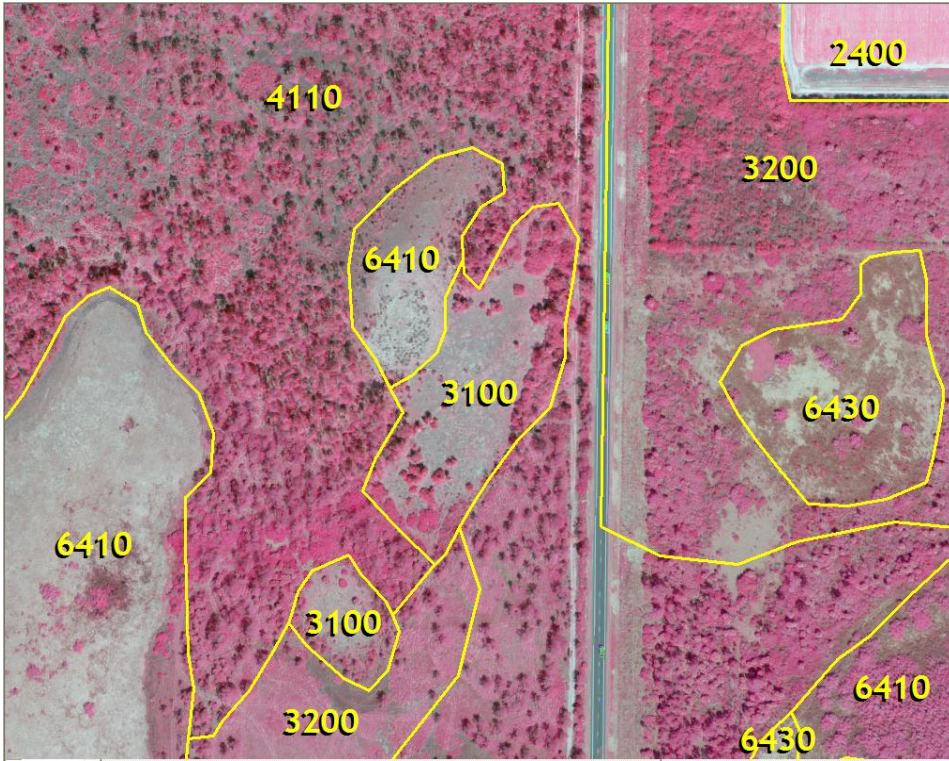


A dry prairie (3100, 3200, 3300) consists of large areas of native grass or shrublands on dry, flat terrain which are subject to frequent fires, with trees occupying less than 15 percent of the area. Although classified as a Dry Prairie, the sandy, acidic soils often have a hardpan substrate which impedes drainage resulting in flooding during the rainy season. Grasses, sedges, herbs, and shrubs. Saw palmetto, Fetterbush, Tarflower, Gallberry, Wiregrass, and Carpet grass

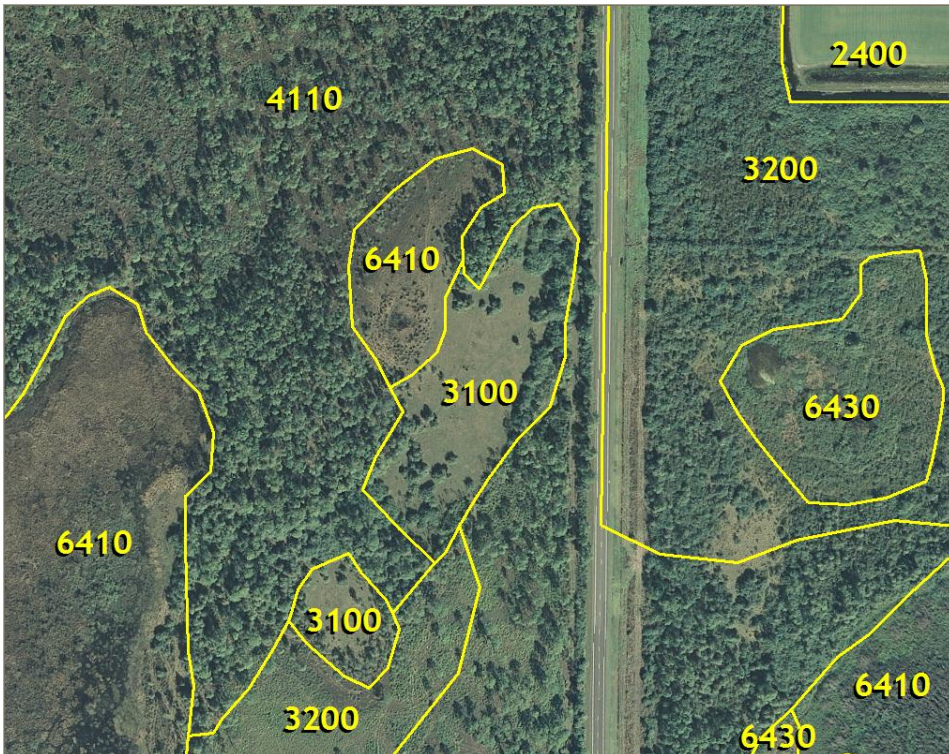
By contrast, a wet prairie (6430) is a seasonally flooded, shallow freshwater marsh found in depressions, sloughs, finger glades, and on the floodplains or margins of lakes, streams, and rivers. Some of the plants common to wet prairies include St. John's Wort, Sedges, Muhly grass, Sawgrass, Groundsel bush, Wax Myrtle, Sundew, Meadowbeauty, Marshpinks, & Coreopsis spp.

Common plants: Wiregrass, bottle brush, three-awn, broomsedge. love grasses, palmetto, shrubs, and sedges (a little), rushes (a little).

PICTURE OF CLASSIFICATION CODE: 3100



Herbaceous (3100) - Color infrared aerial photograph



Herbaceous (3100) – Natural color aerial photograph



Herbaceous (3100) - Ground Photo

Classification Code: 3200 – Shrub and Brushland

Level I: Rangeland

Level II: Shrub and Brushland

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This is one of three land cover classes used for upland nonagricultural, non-forested lands which contain no evidence of cattle grazing. 3200 is used for areas that have over 67% shrub cover and less than 33% herbaceous. This proportion ignores any forested patches, which may cover up to 25% of the total area. Vegetation is usually native rather than introduced.

This category includes saw palmettos, gallberry, wax myrtle, coastal scrub and other shrubs and brush. Generally, saw palmetto is the most prevalent plant cover intermixed with a wide variety of other wood scrub plant species as well as various types of short herbs and grasses. Coastal scrub vegetation would include pioneer herbs and shrubs composed of such typical plants as sea purslane, sea grapes, and sea oats without any one of these types being dominant.

Context:

Two types of communities were common: palmetto prairies and coastal scrub. In the flatwood region, these prairies were similar to the flatwoods communities (4110) but with pine tree coverage less than 10%. This community was dominated by saw palmetto, gallberry, scrub oaks and wire grass. Coastal scrub includes saw palmetto, scrub oaks, wax myrtle, railroad vine, sea oats and prickly pear.

3200 includes areas where tree species are regenerating naturally after clear cutting or fire, but are less than 20 feet tall.

Shrub and brushlands are mainly found in central and southern rangelands, but small patches may occur throughout the District, including neglected urban areas.

Recognition Features:

- Used for areas that have over 67% shrub cover and less than 33% herbaceous. This proportion ignores any forested patches, which may cover up to 25% of the total area.
- Medium to rough textured, mottled tones, void of trees or limited to less than 25 percent
- Brushlands can include a wide variety of species of small woody shrubs or one dominant species that is well adapted for the site and terrain
- No evidence of cattle grazing
- May have visible sandy or droughty under story - typically arid areas
- Usually follow natural contours on land forms or adjacent to forested areas
- The land is not fertilized, cultivated or irrigated. No regular brush control is occurring.
- This class may be in a transition zone between forested and herbaceous communities, or in re-vegetated areas that have been disturbed.

- The mapping unit has natural shapes, follows landforms, and frequently transitions to forested or herbaceous communities.
- The signature is typically a coarse texture with mottled tones, unlike the smoother textures of herbaceous cover.

Similar Classes:

2220 Abandoned Tree Crops. Upland Non-forested classes are used for citrus groves which have been abandoned for long periods of time (over six years), have less than 50% of the citrus trees still standing, and have returned to a naturally vegetated state.

4110 Pine Flatwoods. The Pine Flatwoods category (4110) and the Longleaf-Pine/Xeric Oak (4120) categories were also used to classify scattered pine areas that did not meet the density requirement.

Upland pine forests may also be confused with woodland pastures and non-forested uplands. These classes often border each other, creating errors in transitional zones

Mapping Conventions:

This classification has been modified from FLUCCS, which refers to upland non-forested category as rangeland. It is to be used solely for upland non-agricultural, non-forested lands which have no evidence of cattle grazing.

Types of Plants

Saw Palmetto (most predominant)



Saw palmetto (*Serenoa*) is a fan palm, with the leaves that have a bare petiole terminating in a rounded fan of about 20 leaflets. The petiole is armed with fine, sharp teeth or spines that give the species its common name. It is a slow-growing, clumping, multi-trunked shrub that typically grows four to six feet tall. It has stout stems that usually crawl across the ground and produce green, fan-shaped fronds. This native plant tolerates a range of conditions and is highly salt-tolerant.

..

Gallberry



Gallberry is a persistent shrub that is commonly found in acidic soil, especially sandy wetlands and swamps. It is frequently the most abundant shrub in flatwood forests of the Lower Coastal Plain. It reproduces abundantly by both seed and sprouting following a disturbance such as fire.

Wax myrtle



Wax myrtle is an evergreen shrub that grows in areas with warm, mild climates. It produces glossy green, elongated leaves year-round and flowers in the spring, followed by faintly aromatic, waxy berries in late summer. The bush grows as much as 5 feet in one summer and can reach 15 to 20 feet high and wide. It tolerates salt, heavy soils and pollution but is not tolerant of frost.

Coastal Scrub (sea purslane, sea grapes, sea oats)

Sea Purslane





Sea purslane is a native, herbaceous perennial found along the coasts of Florida ([Fig. 1](#)). It grows on the ocean side of the dunes down to the high tide mark. The thick, fleshy leaves are borne on succulent, reddish-green stems that branch regularly, forming dense stands close to the ground. Small, showy pink flowers are borne more or less continually throughout the year. Each flower opens for only a few hours each day. These plants help build the dunes by catching sand in between stems and leaves. The plant is closely related to the more familiar purslane commonly found in garden centers.

Sea Grapes



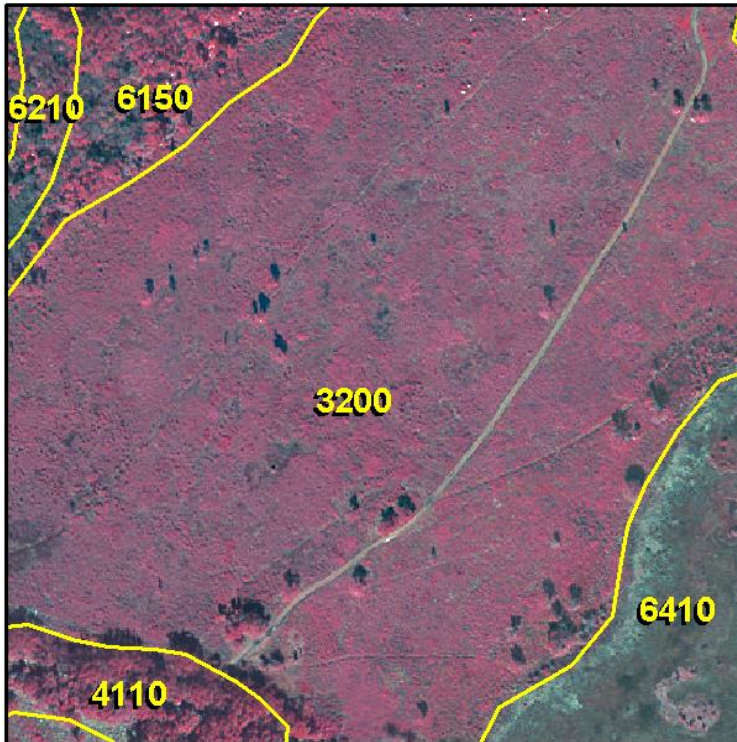
Sea Grapes are an evergreen which varies from a low shrub along coastal areas to a tree when it has more favorable growing conditions. It resembles the grapevine.

Sea Oats



Sea oats are a tall, grassy plant that lives on beaches along the coastline of the Gulf of Mexico. They help stabilize sand dunes and prevent beach erosion.

Pictures of Classification Code: 3200



Shrub and Brushland (3200) - Color infrared aerial photograph



Shrub and Brushland (3200) - Natural color aerial photograph



Shrub and Brushland (3200) - Ground photo

Classification Code: 3300 – Mixed Upland Nonforested

Level I: Rangeland

Level II: Mixed Rangeland

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is used for upland non-forested landscape in which neither herbaceous nor shrubs cover over 2/3 of the area. If herbaceous vegetation covers over 2/3 the area, 3100 is used, and if shrubs cover over 2/3 the area, 3200 applies.

Context:

This occurred mainly in areas where the herbaceous vegetation was becoming more dominant in scrub community with wetter or newly burned areas. However, this category was used sparingly in an attempt not to over analyze small changes in the percentage of cover type caused by the natural, uneven distribution of grasses and shrubs.

3300 may include areas where tree species are regenerating naturally after clear cutting or fire, but are less than 20 feet tall.

Recognition Features:

- Mixture of rough and smooth texture usually showing two or more distinct tones (herbaceous or shrubs)
- The percentage of herbaceous cover or shrub cover is between 33% and 67% - neither covers over 2/3 of the area.
- May have a mixture of trees (less than 25 percent) with an absence of dominant single under story (more than 1/3 mixture of grasses or brushland)
- No evidence of cattle grazing
- Usually a transition zone between forested and herbaceous communities or as re-vegetation areas that have been disturbed
- This class includes unimproved rural land that does not fit any other land use in the classification system.
- This class includes agricultural property where the farming use has been abandoned and natural vegetation has re-established.
- The land is typically not fertilized, cultivated or irrigated. Brush control or hay cutting may be practiced.

Similar Classes:

- 2120 Unimproved Pasture and 2130 Woodland pasture. These classes may look very similar to 3300, but livestock grazing is evident
- 3200 Shrub and Brushland
- 2220 Abandoned tree crops. Upland Non-forested classes are used for citrus groves which have been abandoned for long periods of time (over six years), have less than 50% of the citrus trees still standing, and have returned to a naturally vegetated state

Mapping Conventions:

Where the intermixture is less than one-third, it is classified as the dominant type of Rangeland, whether Grassland or Shrub and Brushland categories.

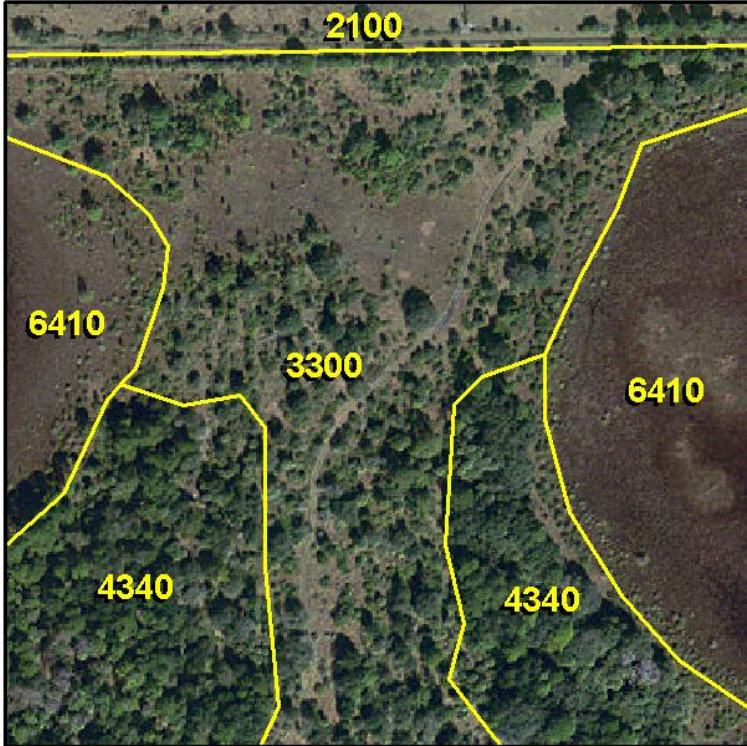
Mixed Rangeland category was applied when neither grasses nor shrubs were more than 66% dominant. This occurred mainly in areas where the herbaceous vegetation was becoming more dominant in scrub community with wetter or newly burned areas.

This classification has been modified to be used solely for upland non-agricultural, non-forested lands which contain no evidence of cattle grazing.

Pictures of Classification Code: 3300



Mixed Rangeland (3300) - Color infrared aerial photograph



Mixed Rangeland (3300) - Natural color aerial photograph



Mixed Rangeland (3300) - Ground photo

UPLAND FORESTS

Classification Code: 4100 – Upland Coniferous Forest

Level I: Upland Forest

Level II: Upland Coniferous Forest

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Any natural forest stand whose canopy is at least 25% dominated by coniferous species is classified as a Coniferous Forest. The similar morphology of the pine species occurring in Florida makes them difficult to distinguish from one another on aerial photographs. Examples include: Slash Pine, Sand Pine, and Long Leaf Pine.

Context:

Upland Coniferous Forests represented areas where the canopy closure of trees was greater than 25%, and the composition of the trees was 66% or more coniferous. As much as 75% of the ground cover can be a mixture of herbaceous and shrubs. The Pine Flatwoods category (4110) and later the Longleaf-Pine/Xeric Oak (4120) categories were added to classify pine areas that did not meet this density requirement

Canopy closure represents the amount of the ground obscured by the canopy from a certain point in the sky.

Recognition Features:

- Coniferous trees are cone bearing with needles or needle-like leaves (usually)
- Generally exhibit a relatively smooth or pointed crown. Dense stands will take on a smooth, even texture; more sparsely spaced stands may appear more stippled.
- Most coniferous trees are also evergreen and will therefore be less affected by seasonality and will not exhibit a strong photo-synthetic signature.

Exclusions:

Pine plantation monocultures will fall under the Tree Plantation category (the 4400 class).

Similar Classes:

Uplands pine flatwoods can integrate with 6200 hydric pine flatwoods. Various species, including pines, may stretch across the wetlands boundary, and canopy signatures do not clearly indicate a hydric/non hydric boundary.

The Pine Flatwoods category (4110) and later the Longleaf-Pine/Xeric Oak (4120) categories were added to classify pine areas that did not meet this density requirement.

Upland pine forests may also be confused with woodland pastures and non-forested uplands. These classes often border each other, creating errors in transitional zones.

Mapping Conventions:

The closure rule was generally interpreted as a fairly tight stand where tree shadows would touch each other.

Differentiating between natural forest communities sometimes requires extensive experience. The communities can only be identified by the signatures of individual species, rather than by the general color, texture and patterns of the mixture or community.

Types of Plants:

Slash Pine



The slash pine is a fast-growing tree that prefers humid climates and moist soils. It grows to a height of 59 to 98 feet and has a trunk diameter of 2 to 2.6 feet. The leaves reach 7.1 to 9.4 inches long and are needle-like and slender, and grow in clusters of two or three.

Sand Pine



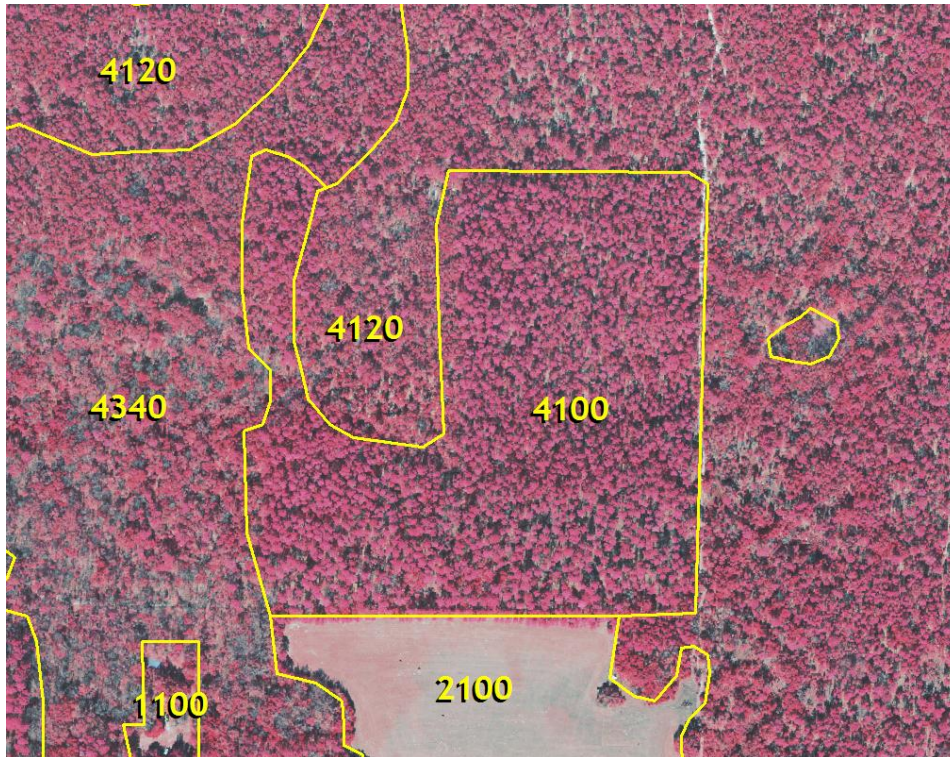
The sand pine is a small, bushy, fast-growing short-needled pine with small, ovulate cones. The needles are 2 to 3.5 inches long and borne in bundles of two. They seldom reach over 25 feet in height and 12 inches in diameter. They often can have a scrubby look to them.

Long Leaf Pine

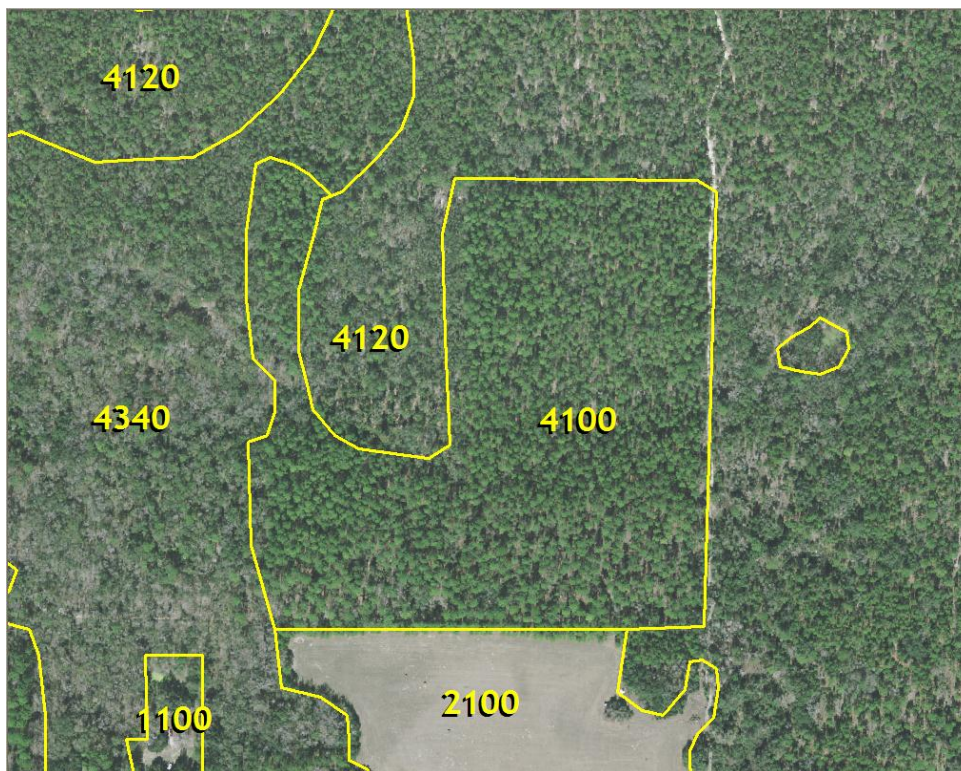


The long leaf pine reaches a height of 98 to 115 feet with a diameter 28 inches. The bark is thick, reddish-brown and scaly. The leaves are dark green and needle-like, and occur in bundles of three. They are often twisted, and are 7.9 to 17.7 inches long.

Pictures of Classification Code: 4100



Upland Coniferous Forest (4100) - Color infrared aerial photograph



Upland Coniferous Forest (4100) - Natural color aerial photograph



Upland Coniferous Forest (4100) – Ground photo

Classification Code: 4110 – Pine Flatwoods

Level I: Upland Forest

Level II: Upland Coniferous Forest

Level III: Pine Flatwoods

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class includes pine communities of a mostly open canopy with scrub and herbaceous understories but generally with at least 10% pine trees with as much as 90% a mixture of herbaceous and shrubs. The trees must average over 20 feet tall at the time of photography. It was also used in areas of selective pine cutting where the tree densities were reduced and no hardwood understory was evident.

Context:

Pine flatwoods are the most prevalent community in natural areas. Most pine flatwoods acreage in the District is on broad, low flat areas with seasonal high water tables but not hydric. They transition into mesic flatwoods and hardwoods communities on higher ground and into hydric flatwoods, cypress and other wetlands on the lower edges.

This class is found extensively in the classic pine flatwoods communities of the southern part of the District where the slash pine/palmetto community is dominant and in areas recently burnt that still showed the flatwoods vegetation, but are also common in north and central Florida.

This category is also used in areas of selective pine cutting where the tree densities are reduced and no hardwood understory is evident.

Recognition Features:

- Describes flat areas of sparse pine in the northern flatwoods areas that tend to run between the coast and the hilly regions to the east.
- Understory species include saw palmetto, wax myrtle, gallberry, and a wide variety of herbs and brush.
- Xeric conditions produce scrubby flatwoods with a scrubby oak understory and patches of white sand.
- Flatwoods are often pockmarked with wet depressions dominated with prairie/marsh vegetation, pond pine or cypress.
- Generally exhibits a relatively smooth or pointed crown. Sparsely spaced stands may appear more stippled than the Upland Coniferous Forest 4100 category.
- Saw palmetto is often visible as irregular shaped patches with detectable height.
- Mesic pine flatwoods may have cabbage palms, and some hardwood species, with gallberry, St. Johns wort, and various grasses or grass-like species.
- Tree densities vary considerably, with canopy closure of 25 to 100%.

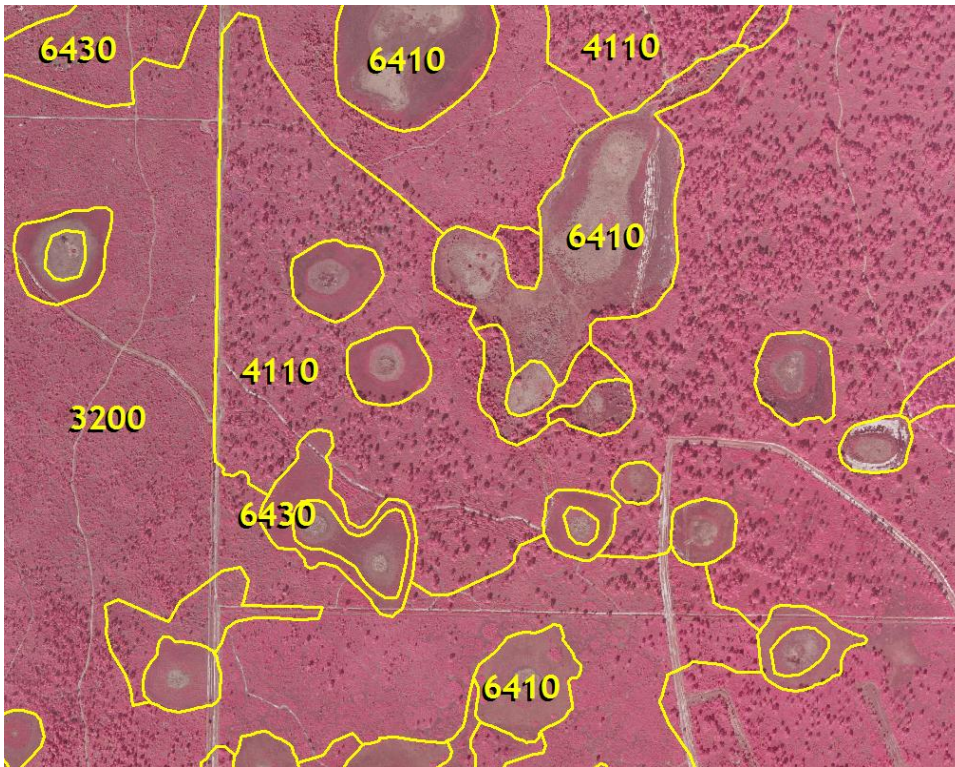
Similar Classes:

- 4120 Longleaf pine - Xeric oak. Canopies are sparse and bare sand patches are visible.
- 6200 Wetland Coniferous Forests. High water prevents saw palmetto and other upland shrubs; grasses predominate with darker, green tones in the understory. Hydric conditions produce muted color tones in the canopy, which may be wider spaced and appear stunted or ragged compared to upland pine.

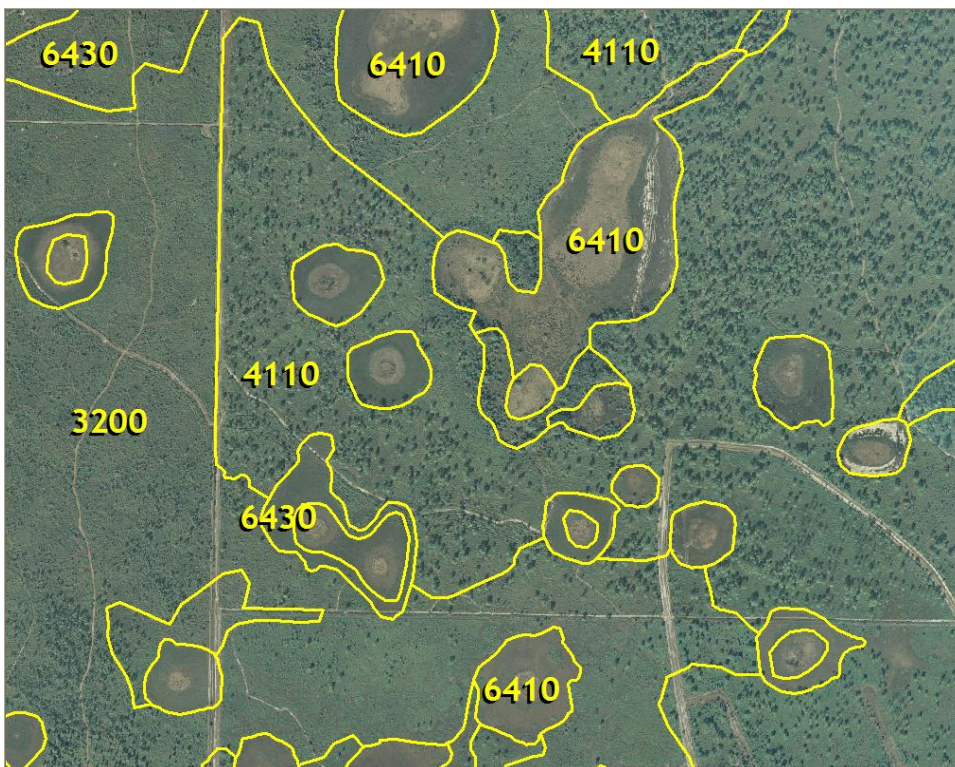
Types of Plants:**Pine Flatwoods**

The pine flatwoods is an ecological community that are maintained by wildfire or prescribed fire, and are dominated by the longleaf pine and slash pine in the tree canopy and saw palmetto, gallberry, or other flammable evergreen shrubs in the understory. There is also a large presence herb species.

Pictures of Classification Code: 4110



Pine Flatwoods (4110) - Color infrared aerial photograph



Pine Flatwoods (4110) - Natural color aerial photograph



Pine Flatwoods (4110) – Ground photo

Classification Code: 4120 – Longleaf Pine – Xeric Oak

Level I: Upland Forest

Level II: Upland Coniferous Forest

Level III: Longleaf Pine - Xeric Oak

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class includes naturally generated longleaf pine and xeric oaks. The canopy closure must be 25% or more, and the trees must average over 20 feet tall at the time of photography. The pine canopy, dominated by longleaf pine, is typically sparse and irregular, revealing its oak mid-story, which may include bluejack oak, turkey oak, sand post oak and other drought-tolerant oaks and hardwoods.

Context:

This Longleaf Pine -Xeric Oak category was added as an attempt to categorize sparse areas with mixed pine and oak species that were becoming more predominant on the hilly areas in the northern regions of the District.

These communities occur on well drained sandy hills and ridges and typically consist of long leaf-turkey oak, central Florida sand pine, and high pine communities. The pine understory is dominated by oaks or hardwoods instead of palmetto.

This category was also used in areas of selective cutting where pines were thinned out and the oak understory was evident

Recognition Features:

- This community is similar to and occupies the same sites as the xeric oak community, except that longleaf pine is the dominant species.
- Sandy areas can be seen through canopy.
- Greyish green signature from grasses scattered among shrubs may be visible.
- Longleaf pines are very tall with large flattened crowns.
- Oak mid-story is often visible and is blue-gray in signature when leaves are on (CIR Imagery).
- Understory is dull pink or brownish pink low shrubs (CIR Imagery).

Similar Classes:

- Distinguished from longleaf dominated Pine Flatwoods by the presence of a mid-story canopy of blue-jack, turkey, and sand post oaks and other dry-site tolerant oaks and hardwoods.
- 4110 Pine flatwoods. These lack the mid-story canopy of Longleaf / xeric oaks as described above.
- 4210 Xeric Oak. Overstory pines are not present.

Mapping Conventions:

The canopy closure must be 25% or more, and the trees must average over 20 feet tall at the time of photography.

Trees may occur in an herbaceous or shrub matrix which covers up to 75% of the area. The trees may be scattered and dispersed in the matrix as individual trees or small (<2 acre) patches. If distinct patches of trees or other classes are greater than 5 acres, they are broken out separately.

In transitional areas where the canopy density, species mixtures or the patch sizes are at cutoff points a precise delineation is not always cost effective - some aggregation may be justified.

Types of Plants:

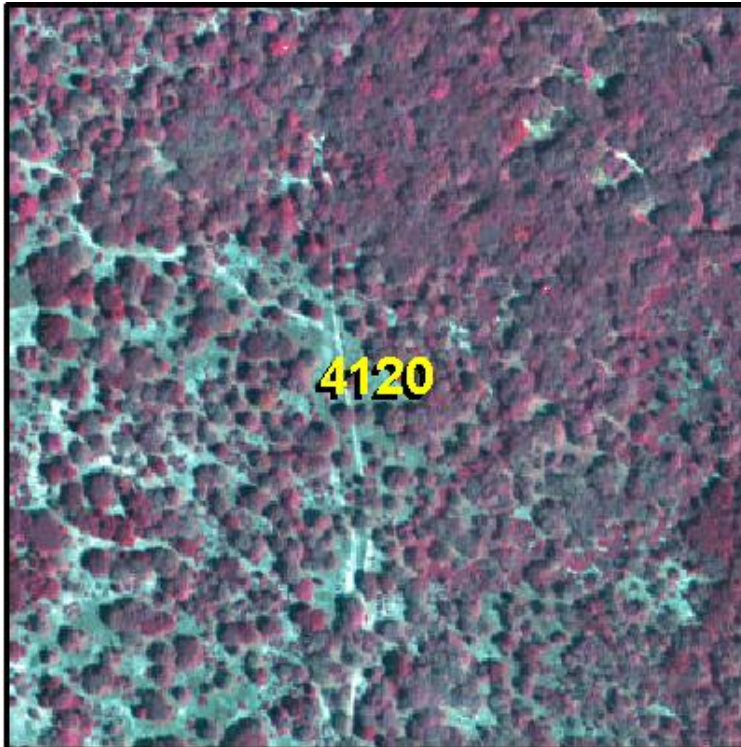


BlueJack Oak

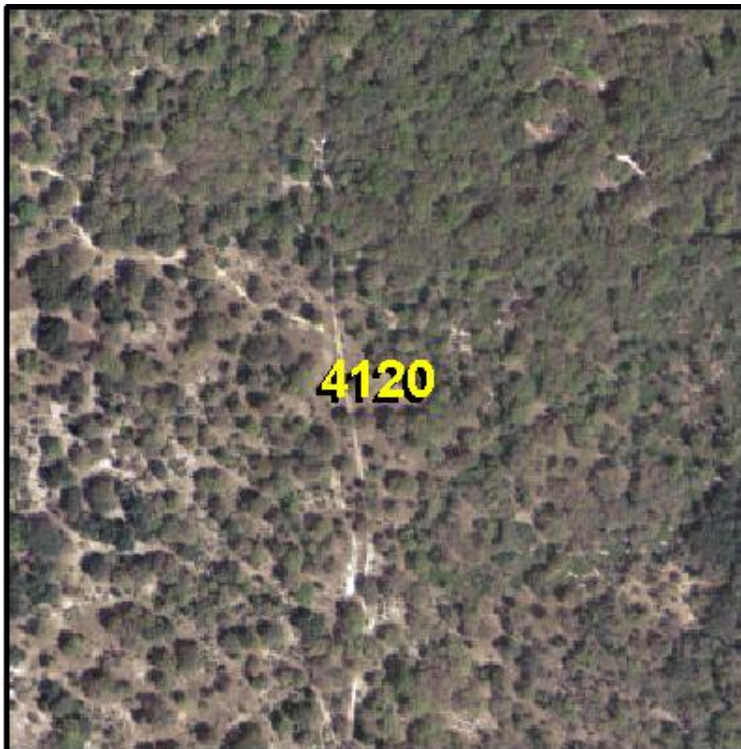


Turkey Oak

Pictures of Classification Code: 4120



Longleaf Pine - Xeric Oak (4120) - Color infrared aerial photograph



Longleaf Pine - Xeric Oak (4120) - Natural color aerial photograph



Longleaf Pine - Xeric Oak (4120) - Ground photo

Classification Code: 4200 – Upland Hardwood Forest

Level I: Upland Forest

Level II: Upland Hardwood Forest

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This classification of upland forest lands has a crown canopy closure of at least 25%, with at least 66 percent dominance of hardwood tree species. This class, like the Upland Conifer class, is reserved for naturally generated stands. The Uplands hardwoods class may include forest communities such as oak-pine-hickory, Brazilian pepper, live oak, wax myrtle-willow (not hydric), mixed temperate or tropical hardwoods, and beech-magnolia. Examples include: Oaks, Maples, Palms, Bays, Wax Myrtle, and Australian Pine. Xeric oaks are broken out separately.

Context:

Other species encountered included Brazilian pepper, melaluca, bays, palms, wax myrtles, magnolia, and Australian pine. Because of its morphological adaptations to resemble a true pine and consequently its similar photo signature, Australian pine is often incorrectly placed into the coniferous category, especially when mixed with other species.

Areas of urban forests greater than five acres are delineated if no underlying land use can be detected. For example, forested areas providing crown closure over residential areas are not delineated as forested. In pasture lands, tightly compacted hardwoods are identified as Woodland forest. Scattered trees and narrow shelterbelts are left in the pasture category.

Hardwood forests are found throughout the District wherever hydrology, fire, and management practices permit. Forests may be found on any of the land uses, and may occur as inclusions in most of the other land cover types. They may occur as scattered individual trees, or as denser patches, or both.

Trees may occur in a matrix of herbs, shrubs, and other cover types, which can cover up to 75% of the area.

Recognition Features:

- Hardwood trees are flowering trees that have conductive fiber tissue. Most are deciduous, however, some are evergreen.
- Usually have large radial crowns and exhibit a fluffy and textured tone
- Most are subject to seasonality and will shed their leaves at some time during dormancy. In this stage, only the woody parts will be visible and it will not have a good photo-synthetic return, providing a sharp contrast in color with conifers during that time period. During periods of peak growth and ample water, deciduous trees will give a strong, bright, CIR return. The degree of return will depend on leaf structure and size.
- The canopy closure must be 25 percent or more, with at least a 66 percent dominance by hardwood tree species.

- Up to 1/3 of the canopy may be comprised of coniferous species, generating a characteristic brick red return throughout the year.
- Hardwoods usually have large radial crowns and exhibit a fluffy and textured tone. Healthy, growing deciduous trees will give a strong, bright red CIR return.

Exclusions:

Hardwood plantations, where they occur, fall under the 4400 class. Citrus groves fall under the 2210 class, and pecan groves fall under the 2200 class.

Similar Classes:

- 1100, 1200 and 1300 Residential Classes.
- 2130 Woodland pastures. Evidence of grazing is present
- 2200 Tree crops. Trees are grown in rows
- 4300 Upland Mixed Forest. Pines exceed 1/3 of the canopy

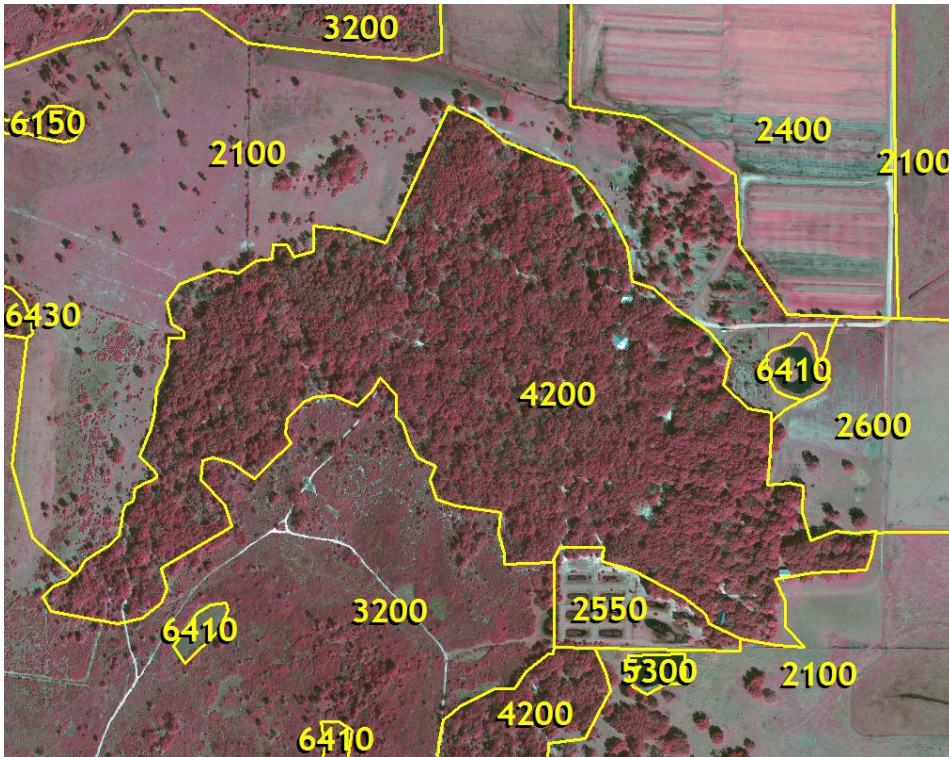
Mapping Conventions:

Areas of urban forests greater than five acres should be delineated if no underlying land use can be detected. For example, forested areas providing crown closure over residential areas were not delineated as forested.

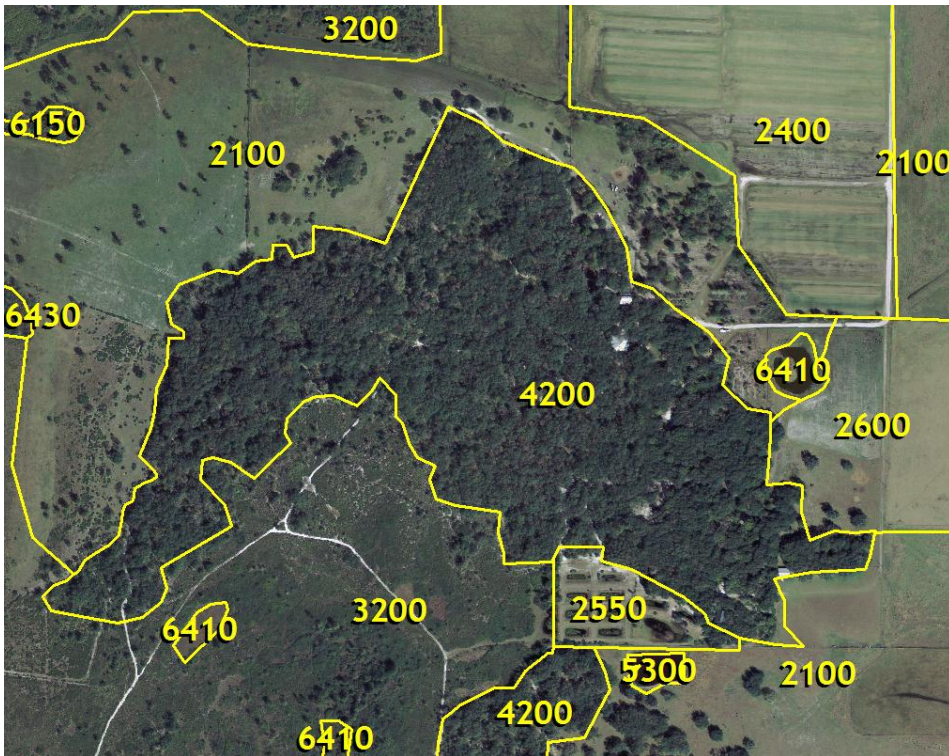
Uplands forests are naturally generated, and do not include hardwood plantations, or planted groves of citrus or pecans. However, almost all forests are subject to human influence, and the composition of the forests is, to large or small degree, determined by management factors.

In transitional areas where the canopy density, species mixtures or the patch sizes are at cutoff points a precise delineation is not always cost effective - some aggregation may be justified.

Pictures of Classification Code: 4200



Upland Hardwood Forest (4200) - Color infrared aerial photograph



Upland Hardwood Forest (4200) - Natural color aerial photograph



Upland Hardwood Forest (4200) - Ground Photo

Classification Code: 4210 – Xeric Oak

Level I: Upland Forest

Level II: Upland Hardwood Forest

Level III: Xeric Oak

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is for forest communities dominated by xeric oaks. The canopy closure must be 25 percent or more, with at least 66 percent dominance by smaller xeric oak species, which include bluejack oak, turkey oak and sand post oak. The trees must average over 20 feet in height at the time of photography.

Trees are low in height and are not dense in coverage, in contrast to mesic oak forests. Color tones are dull, medium red to brownish red on CIR photography. In openings between trees, various xeric herbs and shrubs are present, including wire grass, bluestems, saw palmetto, rusty lyonia, and prickly pear cactus. Bare patches of sandy soil are also generally visible.

Context:

Xeric oaks occur on excessively drained infertile sandy soils of former dunes and ridges. They are common in areas where old geologic sand dunes occur.

Recognition Features:

- This community is similar to and occupies the same sites as the Longleaf Pine-Xeric Oak community, except that pines are not prevalent in the canopy.
- Shrubs and herb species give a variable return depending on composition of species and time of year. Bright patches of bare sand show through in places.
- Color tones are dull, medium red to brownish red on CIR photography.
- In openings between trees, various xeric herbs and shrubs are present, including wire grass, bluestems, saw palmetto, rusty Leonia, and prickly pear cactus.

Similar Classes:

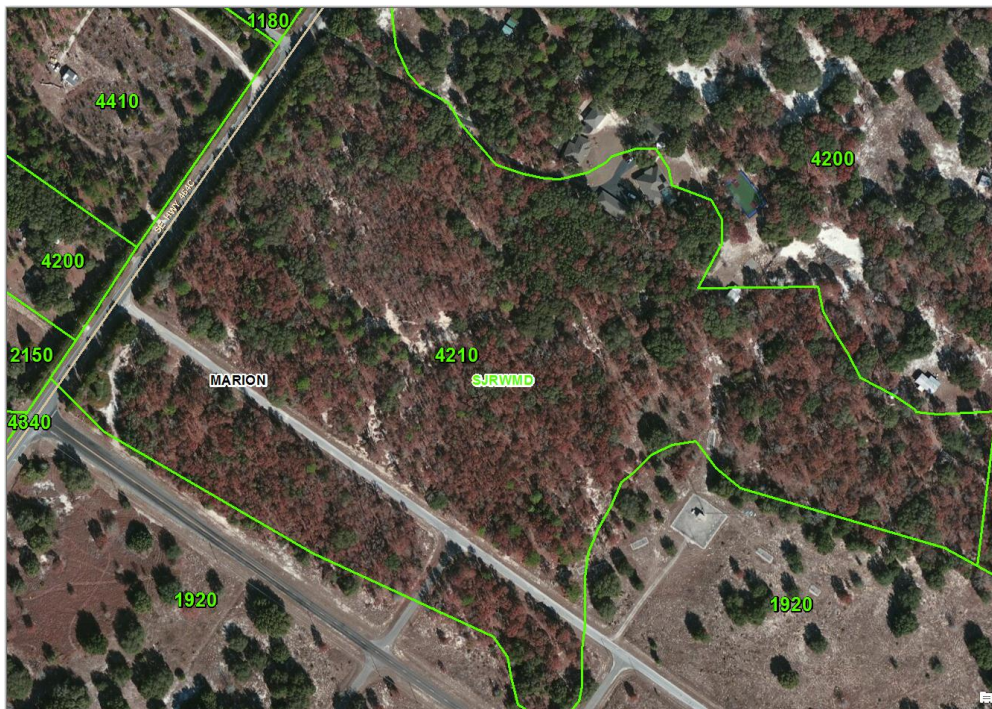
- This forest community is similar to and occupies the same sites as the 4120 Longleaf pine-xeric oak community except that the pines, if present, are not the dominant species. On many sites, longleaf pines may have been prevalent prior to harvesting but were never regenerated, leaving the xeric oak mid-story intact.
- 3200 Shrub and Brushland
- 3300 Mixed Upland Nonforested
- 4120 Longleaf pine - Xeric oak

Mapping Conventions:

Trees may occur in an herbaceous or shrub matrix which covers up to 75% of the area. The trees may be scattered and dispersed in the matrix as individual trees or small (5 acre) patches. If distinct patches of trees or other classes are greater than 5 acres, they are broken out separately.

In transitional areas where the canopy density, species mixtures or the patch sizes are at cutoff points a precise delineation is not always cost effective - some aggregation may be justified.

Pictures of Classification Code: 4210



Xeric Oak (4210) - Natural color aerial photograph

Classification Code: 4340 – Upland Hardwood – Coniferous Mix

Level I: Upland Forest

Level II: Upland Hardwood Forest

Level III: Upland Hardwood - Coniferous Mix

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class is reserved for those forested areas in which neither upland conifer nor hardwoods achieve a 66 percent crown canopy dominance. Realistically, the 4340 code is applied when the area cannot be broken down in to individual hardwood or conifer species due to minimum mapping unit constraints or due to the excessive difficulty for interpreters to delineate the map or for users to work with it. The overall objective is to create a useful model of the landscape.

Species typical of these areas included oaks, magnolia, slash pine, loblolly pine, sand pine, cabbage palm, cedar and a variety of understory vegetation such as wax myrtle and willow (not hydric).

Context:

- Can be found along the upper terraces of flood plains, around wetland basins, and wherever conditions existed to provide a more temperate community.
- Often occurs on the upland areas adjacent to streams or waterways or surrounding wetland depressions.
- Mixed forests tend to prefer more mesic environments (moderately moist soil).
- The Hardwood Conifer Mixed category was found throughout the mapping region and used where the photo signature reflected forested species mixed with at least one-third coniferous or hardwoods and the crown closure was relatively tight. This occurred along the upper terraces of flood plains, around wetland basins, and wherever conditions existed to provide a more temperate community.
- This forested vegetation class was found to be a predominant category for natural closed canopy forests.
- Trees may occur in an herbaceous or shrub matrix which covers up to 75% of the area. The trees may be scattered and dispersed in the matrix as individual trees or small (<2 acre) patches.

Recognition Features:

- Mixture of crown types both large radial hardwood and softer coniferous with neither one being dominant (66 percent or less).
- The canopy closure must be **25 percent or more**. The trees must average over 20 feet tall at the time of photography.
- As a result of the mixing effect, the signatures are typically a complex blend of colors, textures, crown shapes and patch geometry.

- Usually exhibits a mixture of tones and heights; in black & white, conifers will appear darker and hardwood trees lighter. In CIR, conifers will appear darker and duller and hardwoods (with leaves on) will appear brighter with varying color tones.
- Often occurs on the upland areas adjacent to streams or waterways or surrounding wetland depressions.
- The signature typically showed the large reddish round crown of oaks and hardwoods mixing the "fluffier" pink or dark red crowns of pines.
- Usually exhibits a mixture of tones and heights; in black & white, conifers will appear darker and hardwood trees lighter. In CIR, conifers will appear darker and duller and hardwoods (with leaves on) will appear brighter with varying color tones.
- On CIR photography conifers will appear as dull brick red to purple-red in color and hardwoods will exhibit bright red returns. On black & white film conifers will appear darker and hardwood trees lighter.

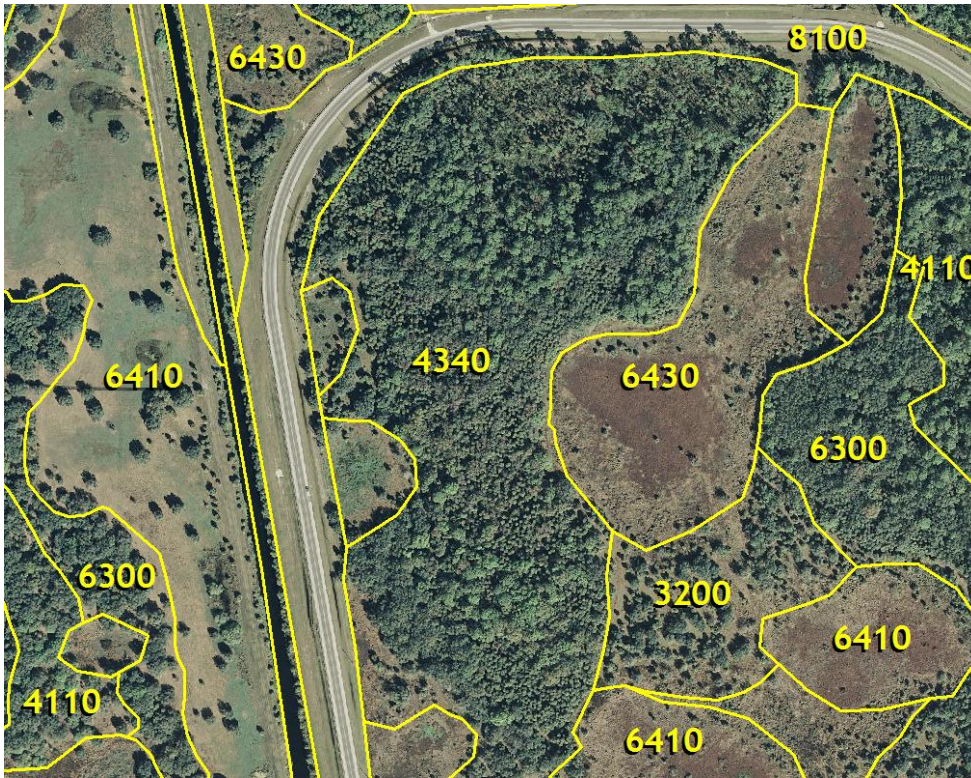
Similar Classes:

- 4110 Pine flatwoods
- 4120 Longleaf Pine-Xeric oak
- 4200 Upland hardwood forests

Pictures of Classification Code: 4340



Hardwood Coniferous Mix (4340) - Color infrared aerial photograph



Hardwood Coniferous Mix (4340) - Natural color aerial photograph



Hardwood Coniferous Mix (4340) - Ground photo

Classification Code: 4400 – Tree Plantation

Level I: Upland Forest
Level II: Tree Plantation

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Florida is part of one of the most productive timber producing regions of the world. Due, in large part, to the monoculture management practices prescribed by its private and industrial professional foresters. Therefore, large parcels of land are devoted to tree plantations. Trees from this class are harvested for lumber, pulp and other wood products other than food.

Examples include: Pine plantation, Christmas tree farms, and Hardwood plantations

Context:

The Pine Plantation category is found throughout the District, mainly in the Northern and central regions. It is usually defined by pine trees planted in straight rows, with trees being roughly the same height.

Plantations are almost universally planted in rows, which is the primary difference between plantations and "natural" forests. Recognizing the miscellaneous examples of 4400 is a process of elimination - they do not have the characteristic signatures of pine plantations or orchards.

Miscellaneous types of plantations can occur anywhere in the District, but are more common in rural areas.

Hardwood Plantations are found mostly in South Florida, and are rare in the SWFWMD.

Recognition Features:

- Trees are purposefully planted for harvesting for timber industry or other wood products and commercial uses (not for food, see Tree Crop 2200)
- Characteristically very large stands of uniform height and high number of trees per acre.
- May be observed at various stages of growth within stand.
- Generally planted in rows but may be seeded by air (rare).
- Rows may be thinned extensively (4400 FLUCCS code is retained unless cleared).
- Gives a carpet-like appearance and even toned signature
- Usually grown in parallel rows on large tracts of land with definite boundaries conforming to land ownership, section lines, etc.
- Christmas tree plantations have smaller size trees on generally smaller sites, with a patchy appearance due to harvesting patterns. Multiple species are typically present, in contrast to pine plantations. They are often located on the outskirts of urban areas for better access to consumers.
- Hardwood plantations have a characteristic hardwood signature but are planted in rows. Mature pecan groves may have an identical signature.
- Ancillary data may be required to break these plantations out from similar classes.

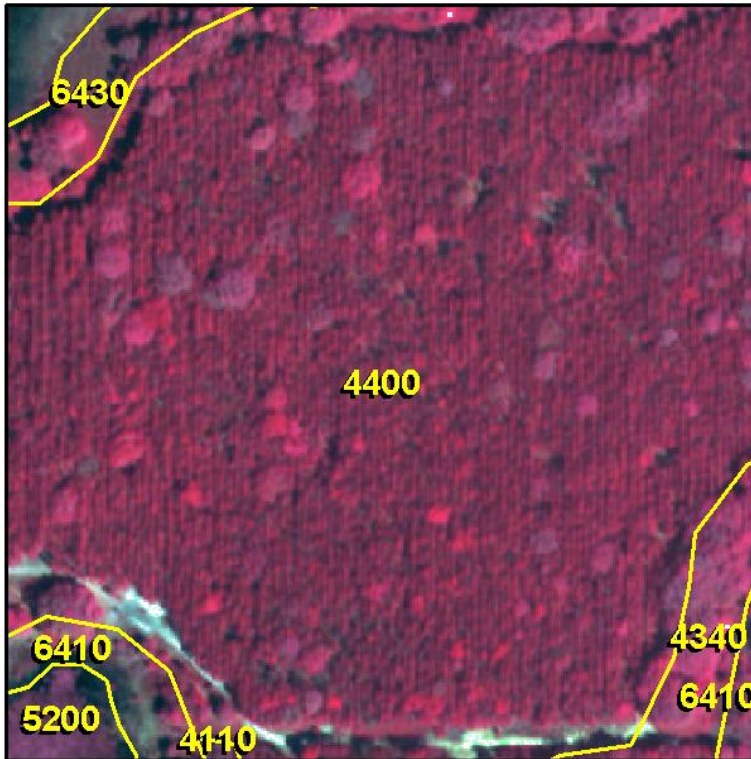
Exclusions:

It does not include tree crops, such as citrus and pecan groves, which produce food crops.

Similar Classes:

- 2210 Citrus groves. A citrus production context will be present
- 2410 Tree nurseries. May be container or green houses operations. Numerous varieties are grown in tightly spaced rows
- 4100 Upland Coniferous Forests. These are not planted in rows

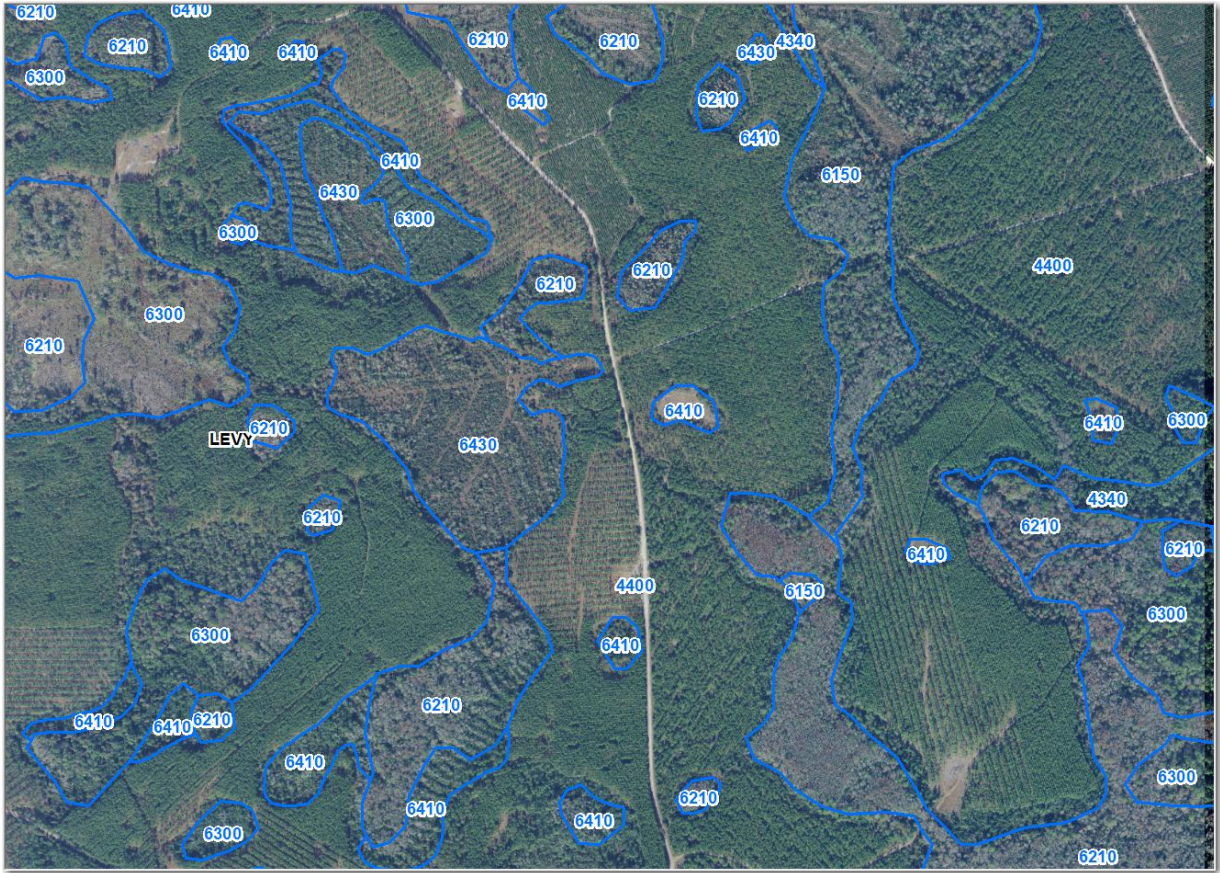
Pictures of Classification Code: 4400



Tree Plantation (4400) - Color infrared aerial photograph



Tree Plantation (4400) - Natural color aerial photograph



Tree Plantation (4400) - Natural color aerial photograph



Tree Plantation (4400) - Ground photo

WATER

Classification Code: 5100 – Streams and Waterways

Level I: Water

Level II: Streams and Waterways

Minimum delineation area: 1/2 acre

Minimum delineation width: 100 ft.

Description:

This category includes rivers, creeks, canals, and other linear water bodies, whether natural or man-made. Where the water course is interrupted by a control structure, the impounded water area will be placed in the Reservoirs category (5300). When a road intersects a 5100 (as a bridge), the water always takes precedence in delineation.

Recognition Features:

- Water will generally exhibit a dark blue or black tone to a medium gray tone.
- Long narrow linear features without impoundment structures that interrupt downstream flow.
- May exhibit varying widths depending on size and nature of waterway and topography
- May also be man-made straight line canals
- Parallel land-water interface, easily recognizable

Similar Classes:

5400 Bays and estuaries. These are inlets of the sea greater than one mile in width.

Mapping Conventions:

The boundary between streams and lakes, reservoirs, or the ocean is the straight line across the mouth of the stream.

When the mouth of a marine waterway is less than one mile in width, code 5100 is used. If the mouth is wider than one mile wide, the code of Bays and Estuaries (5400) is used.

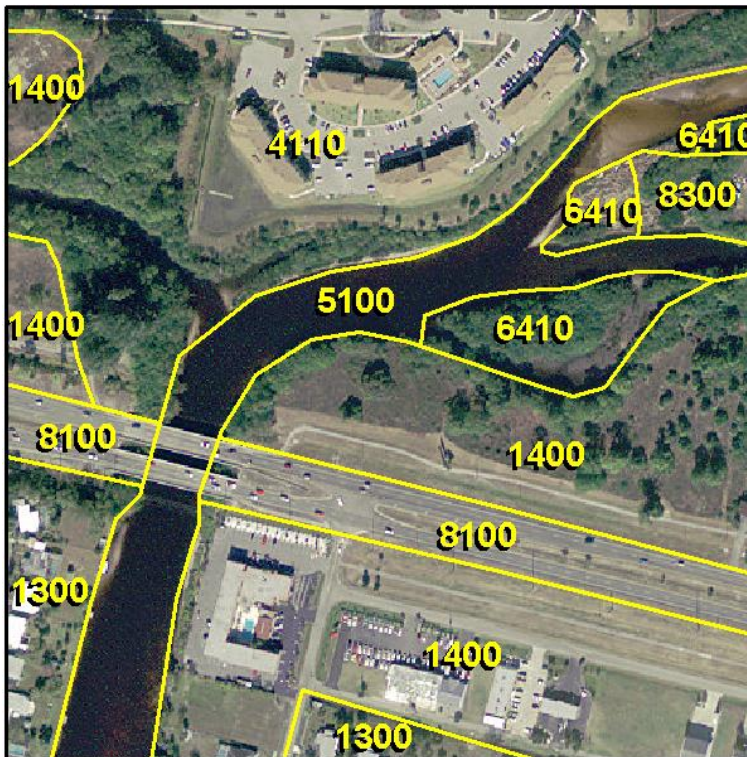
By convention, the rivers and canals were delineated at the water levels at the time the photography was taken.

Water lying under bridges, docks, piers, port facilities or other structures is mapped as water.

Pictures of Classification Code: 5100



Streams and Waterways (5100) - Color infrared aerial photograph



Streams and Waterways (5100) - Natural color aerial photograph



Streams and Waterways (5100) - Ground photo

Classification Code: 5200 - Lakes

Level I: Water

Level II: Lakes

Minimum delineation area: 1/2 acre

Description:

The Lakes category includes extensive inland water bodies, excluding reservoirs. Islands within lakes that are too small to delineate will be included in the water area. The delineation of a lake will be based on the size of the water body at the time the remote sensor data was acquired.

Context:

Water bodies in the 5200 Lakes class have a natural appearance - curved shorelines, normal vegetation, healthy (black) water tones, and few if any control structures. However, the presence of some of these indicators does not necessarily make it a reservoir, since most water bodies are subject to human influence and modification. The PI must determine if the water body is predominantly natural or man-made, based on the water body's context, functions, indicators, and general appearance.

Water bodies in highly developed areas are much more likely to be reservoirs. The PI should examine undeveloped areas of the surrounding landscape to see if water bodies are a common feature. Otherwise, they are likely to be man-made.

Recognition Features:

- Natural inland water bodies of various sizes and shapes.
- Shorelines will appear natural and follow the landscape. May also show evidence of fluctuating water levels on shoreline.
- Total area of inundation (including wetland vegetation) should be considered when determining size.
- Water will exhibit a varying tone from very dark to medium depending on the turbidity and sediment load of the water.

Similar Classes:

- 5100 Streams and waterways
- 5250 Marshy lakes
- 5300 Reservoirs – water bodies in highly developed areas are much more likely to be reservoirs
- 5500 Major springs

Mapping Conventions:

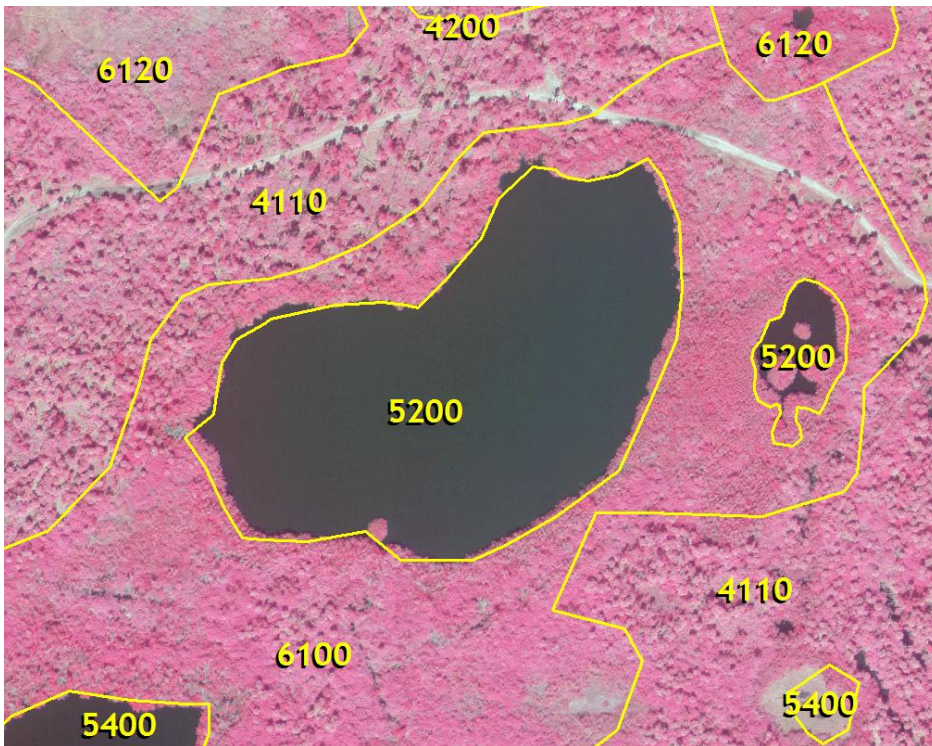
The photo interpreter must determine if the water body is predominantly natural or man-made, based on the water body's context, functions, indicators, and general appearance.

There is no precise dividing line, and errors between 5200 and 5300 are not necessarily high. For larger lakes and those with apparent natural origins, one should err on the side of 5200. Ancillary data such as the National Wetlands Inventory and historical imagery may be used to determine if the lake was excavated (manmade) or not.

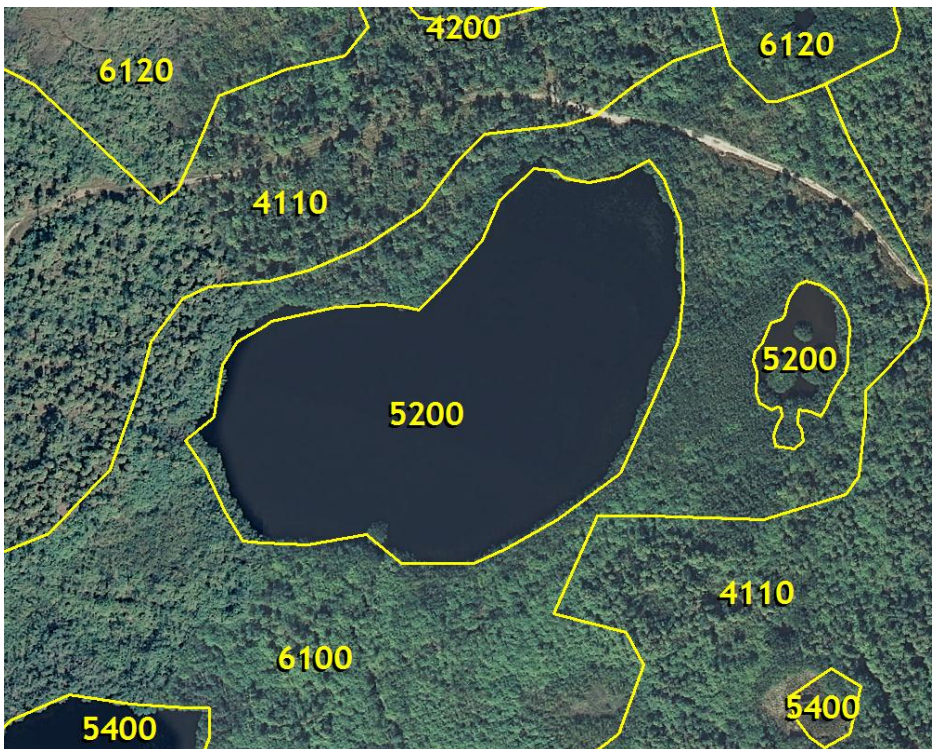
In urban areas, natural lakes may have water control structures to control lake level or discharge. These are still considered 5200 (Lakes), rather than 5300 (Reservoirs).

Emergent marshes may exhibit high water conditions at the time the aerial photography was taken. The emergent vegetation may not be visible in these areas. Even though collateral data may identify these areas as 6410 Freshwater Marshes or 6430 Wet prairies, they should be coded as water bodies (5200, 5300) due to their open water signature at the time of photography.

Pictures of Classification Code: 5200



Lakes (5200) - Color infrared aerial photograph



Lakes (5200) - Natural color aerial photograph



Water - Lakes (5200) - Ground photo

Classification Code: 5250 – Marshy Lakes

Level I: Water

Level II: Lakes

Level III: Marshy Lakes

Minimum delineation area: 1/2 acre

Description:

This code was created by SWFWMD and is not part of FLUCCS.

This class is for aquatic areas with a mixture of vegetation and water that are difficult to separate out. The vegetation comprises more than a third of the total area and less than two thirds, and is usually patchy with indistinct boundaries. Plant species may include free floating vegetation, emergent marsh or wet prairie species, but not submerged aquatics, since these are not delineated separately from water. Class 5250 applies to lake systems, particularly shallow depressional lakes, often isolated in the landscape. It does not apply to riverine marshes or estuarine systems.

Large homogeneous inclusions of water (5200) must be broken out separately if these features appear as **solid** inclusions with **distinct** boundaries. Two acres can be used as a general guideline for determining when to delineate these separately.

This new class provides the opportunity to aggregate lake/marsh features together into larger polygons, preserving the visual integrity of contiguous water bodies, and avoiding costly delineation which might add little real value to the user. The vegetation in these cases may be patchy, dispersed, mobile, or sparse, which lowers the value of breaking it out.

Context:

Class 5250 applies to lake systems, particularly shallow depressional lakes, often isolated in the landscape. It does not apply to riverine marshes or estuarine systems.

Recognition Features:

- Water and vegetation is intermixed in patchy patterns with indistinct boundaries that are difficult to delineate.
- The color tones will vary with water chemistry and vegetation, with a lightened or pinkish tone indicating sparse vegetation.
- Shorelines may show evidence of fluctuating water levels.
- The area may change from water, to marsh or even prairie on different dates of photography, depending on hydrology.

Similar Classes:

- 5200 Lakes
- 5300 Reservoirs
- 6410 Freshwater marshes
- 6440 Emergent aquatic vegetation

Mapping Conventions:

This is an SJRWMD modification to the FLUCCS system.

Large homogeneous inclusions of either water (5200) must be broken out separately if these features appear as **solid** inclusions with **distinct** boundaries. Two acres can be used as a general guideline for determining when to delineate these separately.

The classification is based on the water levels visible at the date of photography. Ancillary data may show other patterns of vegetation and water, due to changes in hydrology.

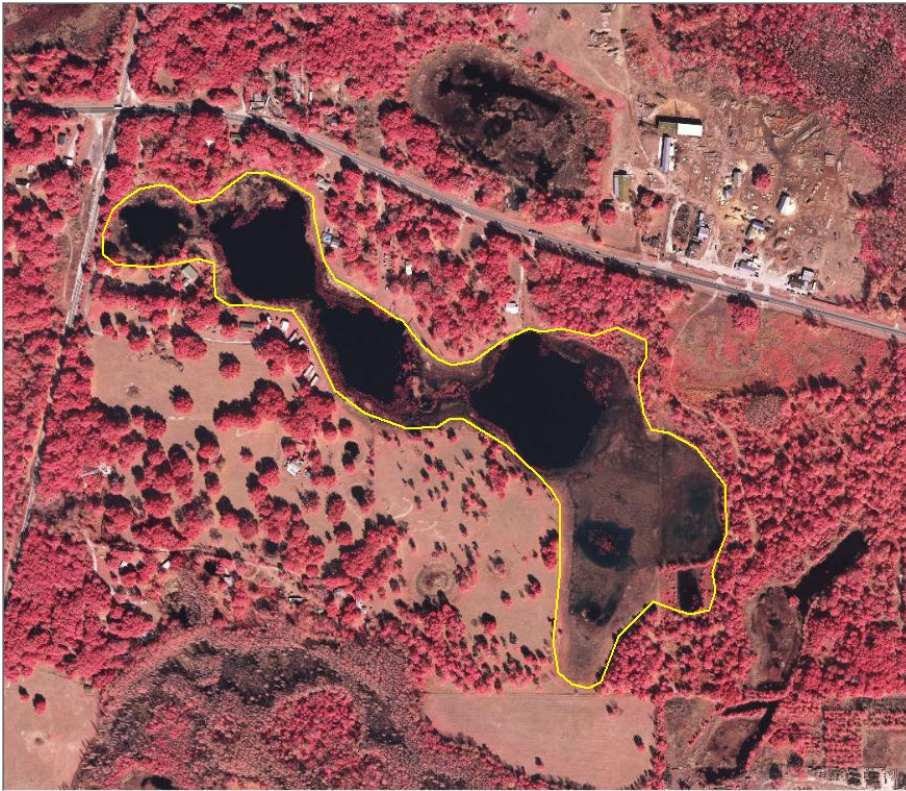
Pictures of Classification Code: 5250



Marshy Lakes (5250) – Color Infrared Aerial



Marshy Lakes (5250) – Natural Color Aerial



Marshy Lakes (5250) – Color Infrared Aerial



Marshy Lakes (5250) – Natural Color Aerial



Classification Code: 5300 - Reservoirs

Level I: Water

Level II: Reservoirs

Minimum delineation area: 1/2 acre

Description:

Reservoirs are artificial impoundments of water. They are used for irrigation, flood control, municipal and rural water supplies, recreation and hydro-electric power generation. Dams, levees, other water control structures, or the excavation itself usually will be evident to aid in the identification.

Context:

Reservoirs occur throughout the District, in varying concentrations. Water bodies in highly developed areas are much more likely to be reservoirs. The PI should examine undeveloped areas of the surrounding landscape to see if water bodies are a common feature. Otherwise, they are likely to be man-made.

Recognition Features:

- Generally, the sides are sharp and straight (at least partially around). Does not necessarily follow surrounding landscapes.
- Often will contain a man-made structure on at least one side of water body.
- Reservoirs are likely to diverge from the black signature of natural water bodies. Signature and tone of the water will be dependent on turbidity and sediments in the water body.
- Will always appear flat and smooth.
- Usually a non-linear water feature.

Similar Classes:

5200 Lakes

Mapping Conventions:

It may be difficult to determine if a body of water is manmade (5300) or natural (5200), and often relies on the presence of man-made impounding structures or excavations. Ancillary data such as the National Wetlands Inventory may be used to determine if the lake was excavated (manmade) or not.

Pictures of Classification Code: 5300



Water - Reservoirs (5300) - Color infrared aerial photograph



Water - Reservoirs (5300) - Natural color aerial photograph



Water - Reservoirs (5300) - Ground photo

Classification Code: 5400 – Bays and Estuaries

Level I: Water

Level II: Bays and Estuaries

Minimum delineation area: 1/2 acre

Description:

In the FLUCCS system, this class is defined as inlets or arms of the sea that extend into the land, and are between 1 and 10 nautical miles in width (1.85 to 18.5 kilometers). Embayments less than one nautical mile in width are classed as Streams and Canals (5100). Embayments or portions of embayments more than 10 nautical miles in width are not considered as included within the limits of the United States.

Context:

Bays and estuaries are found in coastal areas, and have a hydrologic connection to coastal waters.

Recognition Features:

- Inlets or arms of sea water that extend landward
- Tone of water will depend on turbidity, wave energy, and sediment load.
- Usually shows evidence of tidal fluctuation and associated plant communities
- May have man-made structures to control flow, wave action, and channel.

Exclusions:

Embayments or portions of embayments more than 10 nautical miles in width are not considered included within the limits of the United States. If the embayment is less than one nautical wide, it will be classified as streams and canals (5100).

Similar Classes:

- 5100 Streams and waterways. Less than one nautical mile (1.85 km) in width
- 5200 Lakes. No visible access to coastal waters
- 6420 Saltwater marsh. Exhibits emergent vegetation

Mapping Conventions:

In order that this land mass be commensurate with the area the United States government uses in compiling census statistics, the convention employed by the Bureau of Census in setting the outer limits of the United States has been followed. Where bays and estuaries are between one and ten nautical miles (1.85 and 18.5 kilometers) in width, the outer limit of the United States will be a straight line connecting the headlands except where the indentation of the embayment is so shallow that the water area would be less than the area of a semicircle drawn with this straight line as the diameter. In that event, the coastline itself would form the outer limit of the United States.

The extent of the tidal influence was determined photographically, as much as possible, by the change in vegetation from saltwater communities such as *Spartina*, *Juncus* and mangrove swamps to the more freshwater communities of sawgrass, cattail and bottomland hardwood swamps. If the break could not be determined by vegetative signature, photointerpretation conventions were employed. For example, tidal breaks were taken either directly from NWI maps or placed in areas of constricted flow such as a natural meander or a man-made bridge

Pictures of Classification Code: 5400



Bays and Estuaries (5400) - Color infrared aerial photograph



Bays and Estuaries (5400) - Natural color aerial photograph



Bays and Estuaries (5400) - Ground Photo

Classification Code: 5500 – Major Springs

Level I: Water

Level II: Major Springs

Minimum delineation area: 1/2 acre

Description:

This class is for large springs that are clearly visible on aerial photography. Major springs are an upwelling of artesian water with a high volume of flow, creating a large pool of water and a 'spring run' connecting it to downstream rivers and lakes. Additional side pools and smaller springs are likely to feed the spring run downstream of the head water spring.

The characteristic appearance of a spring is a stream that begins at one point with a more or less circular shaped bowl. In many instances, major springs can also be identified by the associated recreational and/or commercial activity in the adjacent areas.

Context:

Major springs are located in the North Central part of Florida at the base of upland recharge areas, such as those in the vicinity of the Ocala National Forest. They are also close to the river systems created by the discharge of ground water. Major springs tend to be well known and documented on topographical maps and ancillary GIS layers.

Recognition Features:

- One or more points of origin of a water source welling from the ground.
- May be associated with adjacent recreational or commercial enterprises.

Similar Classes:

5100 Streams and Waterways

Mapping Conventions:

The broadened head water portion of the spring is delineated, along with side pools, artificial pools, and any facilities falling within this operational aquatic boundary. Also included are broad segments of spring run that are augmented by additional spring discharge. Recreational and commercial facilities outside the aquatic area are not included, because they are not water bodies.

Water lying under bridges, docks, piers, boardwalks, or other structures is mapped as water.

Pictures of Classification Code: 5500



Major Springs (5500) – Color Infrared Aerial



Major Spring (5500) – Natural Color Aerial



Major Springs (5500) – Ground Photo

Classification Code: 5720 – Gulf of Mexico

Level I: Water

Level II: Major Bodies of Water

Level III: Gulf of Mexico

Minimum delineation area: 1/2 acre

Description:

This class includes the non-inland water body known as the Gulf of Mexico. A straight arbitrary line is drawn to separate this area from the Bays and Estuaries (5400) category.

Recognition Features:

Open water areas that are considered the Gulf of Mexico

Pictures of Classification Code: 5720



Gulf of Mexico (5720) - Natural color aerial photograph



Gulf of Mexico (5720) - Color infrared aerial photograph



Gulf of Mexico (5720) - Ground photo

WETLANDS

Classification Code: 6000 – Wetlands

Level I: Wetlands

Minimum delineation area: 1/2 acre

Description:

This is a description of the FLUCCS 6000 classes, Wetlands. The Level I class 6000 may not be used in the map itself – one of the level 2 or level 3 subclasses must be used.

Wetlands are those areas where the water table is at, near or above the land surface for a significant portion of most years. The hydrologic regime is such that aquatic or hydrophilic vegetation usually is established, although alluvial and tidal flats may be non-vegetated. Examples of wetlands include marshes, mudflats, emergent vegetation areas and swamps. Shallow water areas with submerged aquatic vegetation are usually classed as water and not included in the Wetland category.

Mapping Conventions:

Wetland systems can range from large monocultures to complex intermixtures of different classes. Individual plants or trees may be dispersed evenly throughout a matrix or grouped in patches. If distinct patches of any class are greater than 1/2 acre, they are broken out separately. However, in transitional areas where the plant densities, species mixtures or the patch sizes are at cutoff points a precise delineation is not always cost effective - some aggregation may be justified, with MMU's of several acres for closely similar, intermixed communities. PI's must use discretion to avoid excessive line work while adding useful information.

Wetlands drained for any purpose belong to other land use categories whether they are Agriculture, Rangeland, Forested Uplands or Urban and Built-up. When the drainage is discontinued and such use ceases, classification reverts back to Wetlands after characteristic vegetation is re-established.

Wetlands managed for wildlife purposes may show short-term changes in vegetation type and wetness condition as different management practices are prescribed but they retain their proper classification as Wetlands.

Classification Code: 6100 – Wetland Hardwood Forest

Level I: Wetlands

Level II: Wetland Hardwood Forest

Minimum delineation area: 1/2 acre

Description:

Wetland Hardwood Forests are those wetland areas which meet the crown closure requirements for forestland as outlined under the Upland Forest Classification (4000). To be included in the Wetland Hardwood Forest category, the stand must be 66 percent or more dominated by wetland hardwood species, either salt or freshwater.

The Wetland Hardwood Forests category was used on a limited scale because of the implementation of the level III codes in its class. These level III codes more accurately described, in almost every instance, any hardwood wetland swamp identified. Consequently, this broader code will rarely appear.

Recognition Features:

- Dominated by woody forested species specifically adapted to grow in water influenced conditions
- Generally exhibit large radial crowns and lush vegetation, occurring in low lying topography and along stream beds
- Seasonality will influence signature in the deciduous species. "Leaves-on" conditions will portray a highly photosynthetic signature usually with a blue caste (CIR). "Leaves-off" conditions will uncover the darker water strained understory.
- Standing water or water-stained soil may be detected in adjacent cleared areas.
- Communities may be very diverse as in the bottomland hardwoods or may be many different species.

Similar Classes:

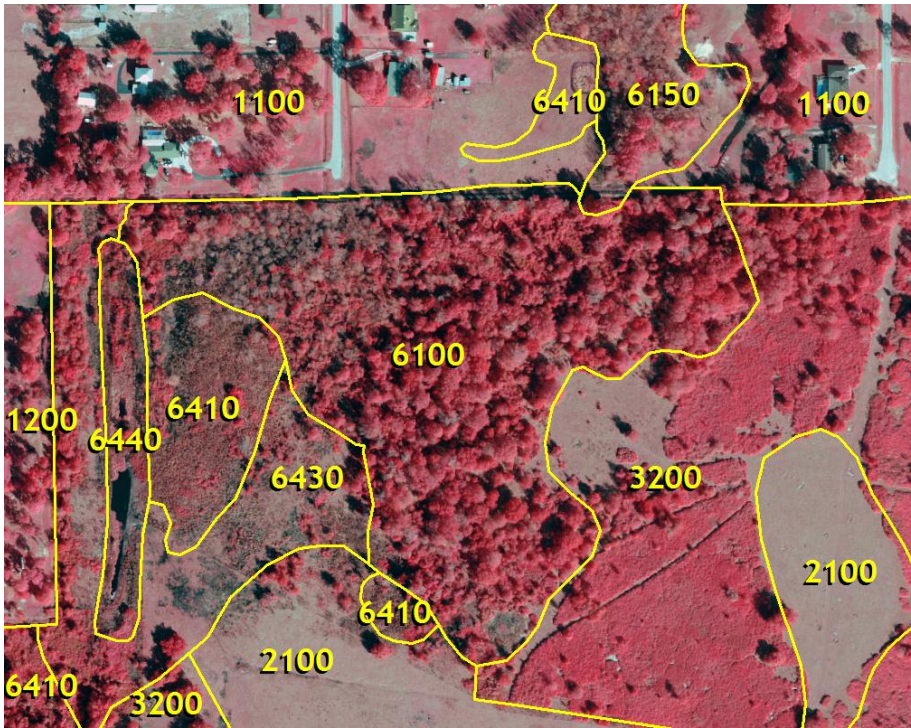
Some of the forested wetlands classes have similar uplands counterparts that occur in transitional or adjacent uplands. Notable examples are hardwood forests, flatwoods, cabbage palms, wet and dry prairies and pastures, and even pine plantations. In addition, the hydrologic regimes can change due to unpredictable, long or short-period climatic fluctuations and human interventions. These factors often make the delineation of a wetlands / uplands boundary problematic. The problem is addressed with experience, ancillary data field checking, and tolerance of an acceptable level of error.

Mapping Conventions:

Differentiating between natural communities requires extensive experience in photointerpretation. The communities can only be identified by the signatures of individual species, rather than by the general color, texture and patterns of the mixture or community.

In transitional areas where the plant densities, class mixtures or the patch sizes are at cutoff points, a precise delineation is not always practical - some aggregation may be justified and delineating down to 1/2 acre may not be feasible

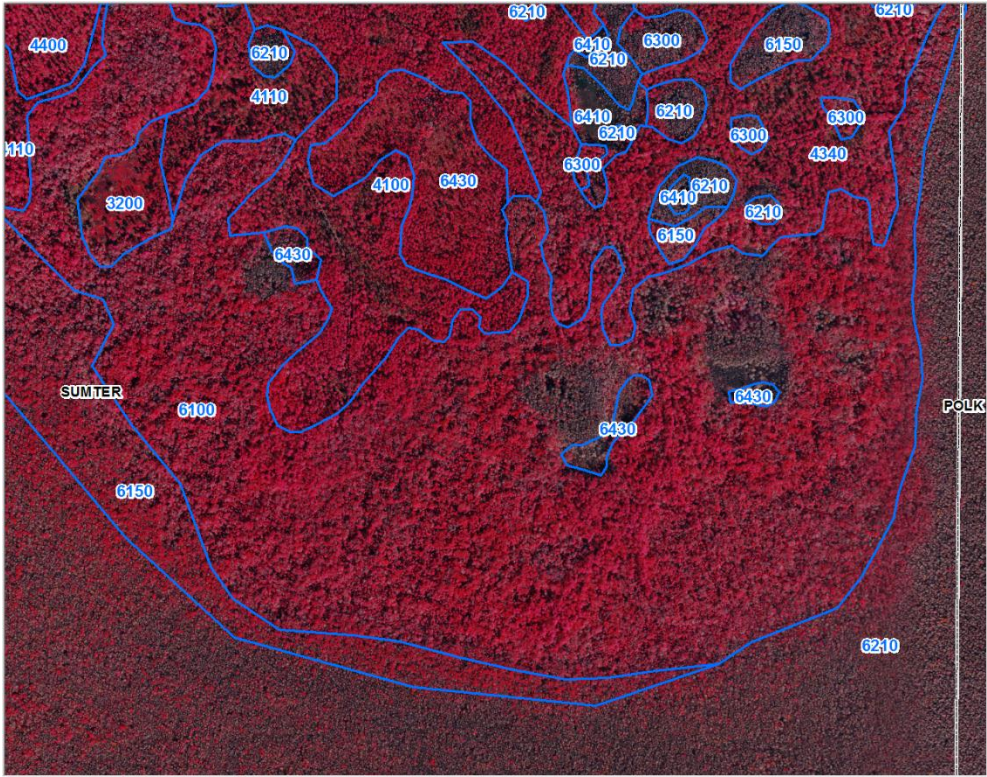
Pictures of Classification Code: 6100



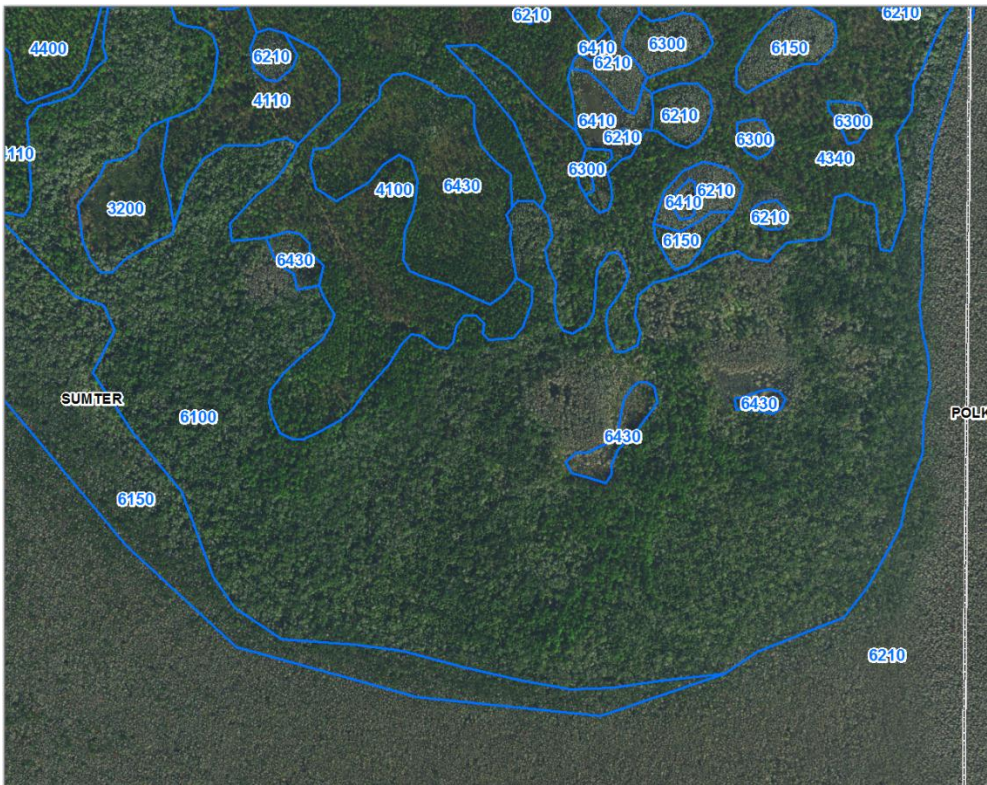
Wetland Hardwood Forest (6100) - Color infrared aerial photograph



Wetland Hardwood Forest (6100) - Natural color aerial photograph



Wetland Hardwood Forest (6100) - Color infrared aerial photograph



Wetland Hardwood Forest (6100) - Natural color aerial photograph



Wetland Hardwood Forest (6100) - Ground photo

Classification Code: 6110 – Bay Swamps

Level I: Wetlands

Level II: Wetland Hardwood Forest

Level III: Bay Swamps

Minimum delineation area: 1/2 acre

Description:

Bay Swamps seldom occur in the SWFWMD and generally are small communities. This community can be found on hillsides, in depressions in pine flatwoods, in ravines, or as strips along edges of creeks. These swamps are characterized by dense, low vegetation and are believed to be fed by groundwater and run-off from higher land.

Context:

The Bay Swamps category describes hardwood swamps that are primarily composed of bays, particularly loblolly bay, sweet bay and magnolia. Bayheads and Bay swamps are often located in depressional pockets of poorly drained soils, have a relatively long hydroperiod and are often fed by ground water. They are broad-leaved, evergreen species and emit a distinct, intense red-orange signature (CIR). The upper canopy of some sites may be dominated by pines, especially slash pine, but bays and other indicators will be prevalent in the subcanopy and understory. Understory species include large gallberry, fetterbush, and wax myrtle. Large gallberry, fetterbush, wax myrtle and titi are included in the understory vegetation

These swamps were often associated with several other hardwood species and identified as Stream and Lake Swamps (6150) when the overall percentage of bays decreased.

Recognition Features:

- There is a stippled texture of medium to tall closely packed narrow tree canopies.
- Colors are usually bright scarlet red (CIR) year round.
- Usually saturated or less often seasonally flooded.
- A crown canopy closure of at least 67% but less than 90% evergreen bay species is required for inclusion in this class.

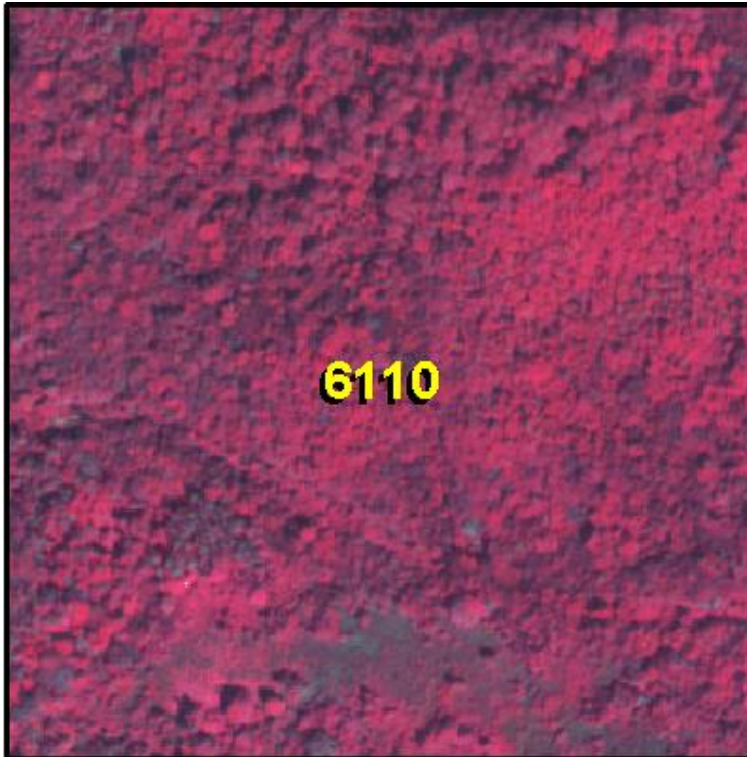
Similar Classes:

- 4200 Upland hardwood forests. Canopy signatures may be very similar if evergreens are dominant, but understories reflect drier conditions
- 6170 Mixed wetlands hardwoods. Evergreen bays and other 6110 species are not as prevalent, and inundation is not sustained. Red maples and other deciduous species may be prominent
- 6150 River/lake swamp (bottomland).

Mapping Conventions

The canopy closure must be 25 percent or more. At least 2/3 of the canopy must be hardwood species, and evergreen species should also be prevalent. In transitional areas where the canopy density, species mixtures, or the patch sizes are at cutoff points, some aggregation may be justified.

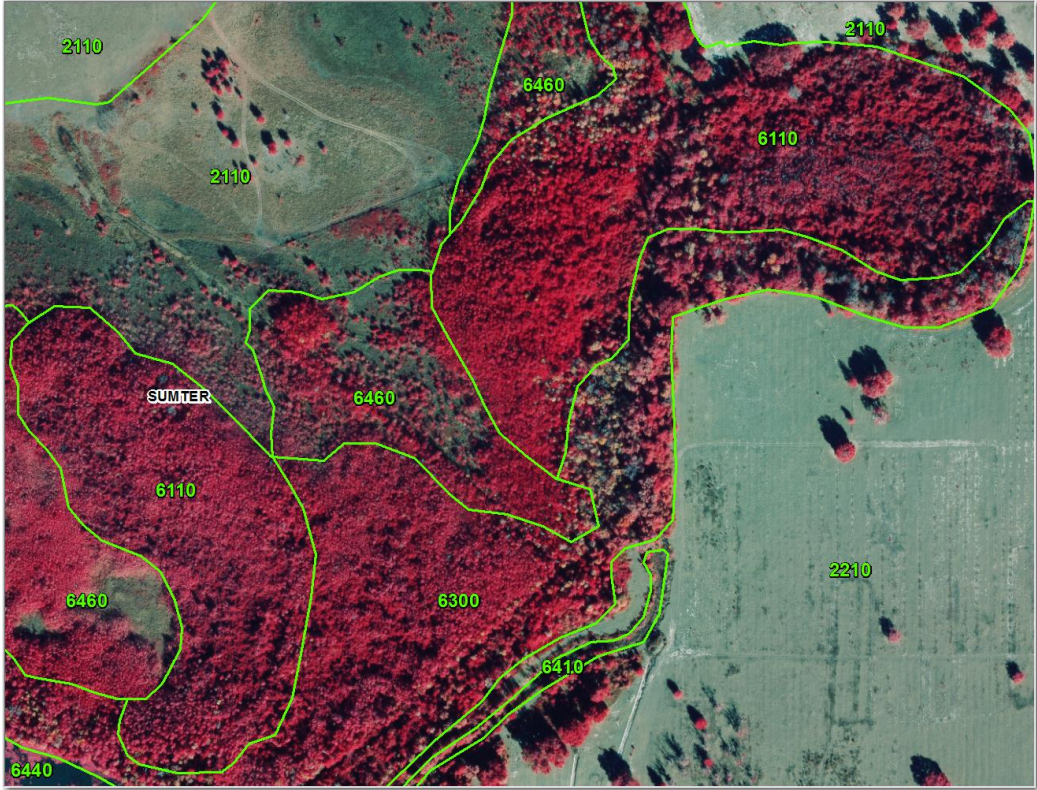
Pictures of Classification Code: 6110



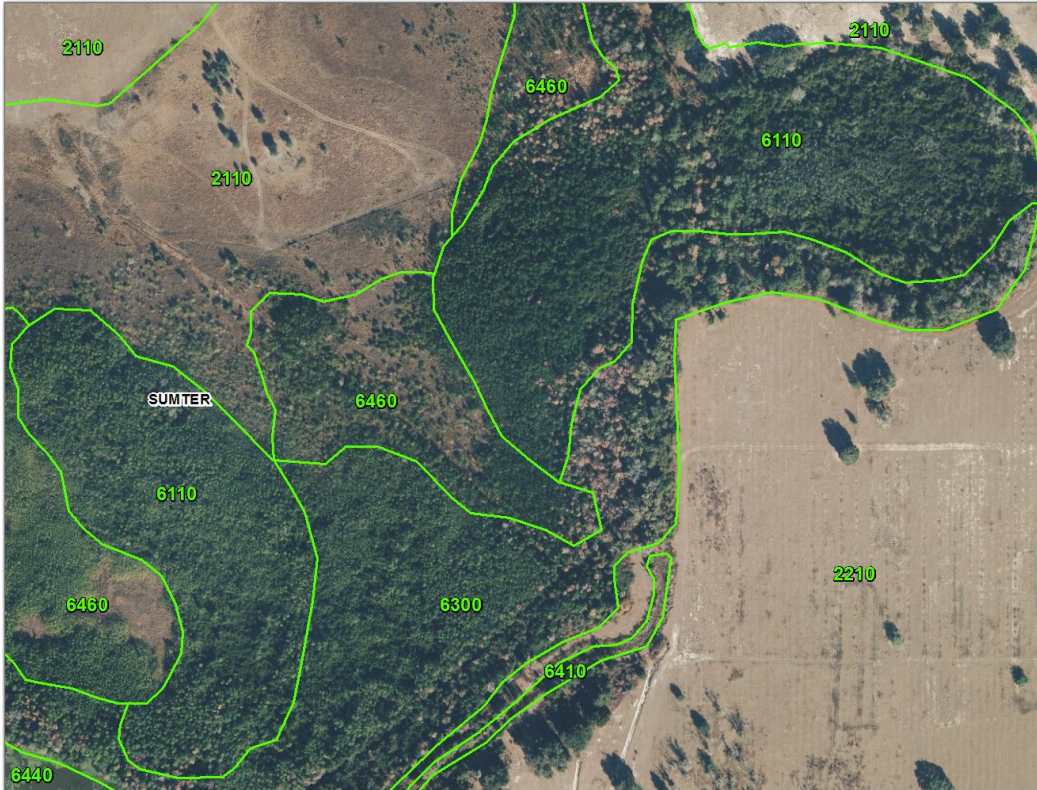
Bay Swamps (6110) - Color infrared aerial photograph



Bay Swamps (6110) - Natural color aerial photograph



Bay Swamps (6110) - Color infrared aerial photograph



Bay Swamps (6110) - Natural color aerial photograph



Bay Swamps (6110) - Ground photo

Classification Code: 6120 – Mangrove Swamps

Level I: Wetlands

Level II: Wetland Hardwood Forest

Level III: Mangrove Swamps

Minimum delineation area: 1/2 acre

Description:

This class is used for communities in which mangrove species are pure or predominant. Mangroves appear as a medium height (10 to 20 feet) thicket of fleshy leaved woody plants in coastal areas subject to periodic or continual inundation by salt or brackish water. In many sites mangroves are prevented from reaching tree stature (20 feet) by natural processes, including climate, nutrients, and wave action.

The communities are dominated by one or more mangrove species, including red, black and white mangroves (*Rhizophora mangle*, *Avicennia germinans*, or *Laguncularia racemosa*). Associate species that may also be present include buttonwood, cabbage palm and sea grape. Herbaceous associates include sea grape and sea oxeye (borrichia).

Context:

The communities were restricted to low energy coastal areas and protected bays with salt or brackish water generally south of the coastline at Hudson, Florida.

Recognition Features:

- Plants may be shrubs or trees, and occur in pure or predominant stands.
- In areas where water levels have been artificially altered (mosquito impoundments) and held too high for too long, plants (especially black mangroves) become stressed and may drop their leaves resulting in a bright greenish color (CIR) and a rough or stippled texture.
- Red mangroves extend to the open water, with black mangroves towards the landwards edge, and white mangrove in the most landward, least inundated.
- Broad crowns and bright red color return (CIR).
- Mangroves are broad-leaved, evergreen species and exhibit an intense red-purple return.

Similar Classes:

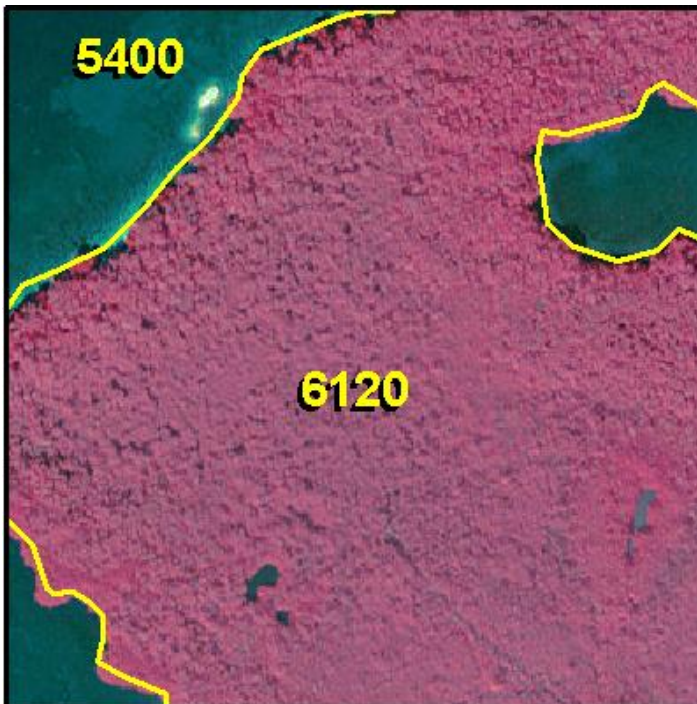
- 6110 Bay swamps
- 6170 Mixed wetlands hardwoods

Mapping Conventions:

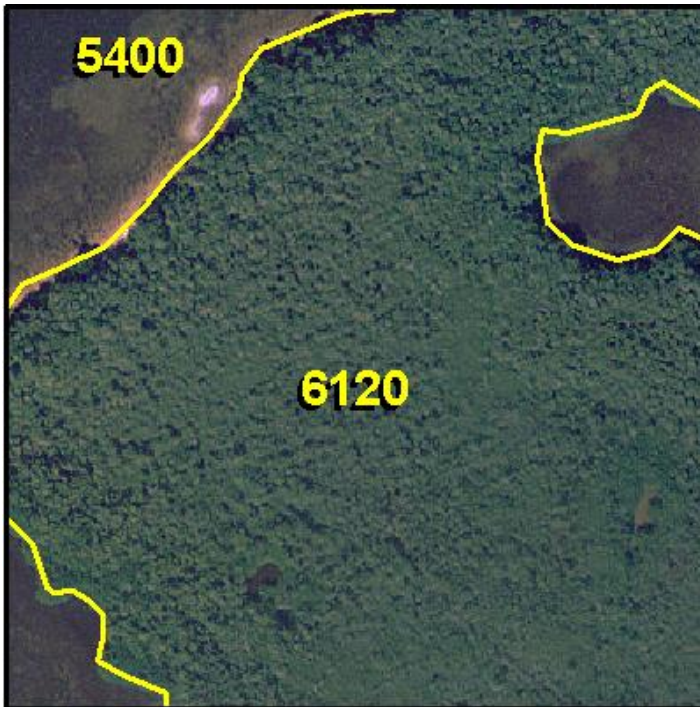
This is considered a forested class, even though it is found here in shrubby form, no taller than 20 feet. In fact, mappable stands (0.5 acre) may be present in heights as short as 6 feet.

Fringes of mangrove community as narrow as 10 meters wide should be mapped. Mangrove species must be dominant in the species mixture.

Pictures of Classification Code: 6120



Mangrove Swamps (6120) - Color infrared aerial photograph



Mangrove Swamps (6120) - Natural color aerial photograph



Mangrove Swamps (6120) - Ground photo

Classification Code: 6150 – Stream and Lake Swamps Bottomland

Level I: Wetlands

Level II: Wetland Hardwood Forest

Level III: Stream and Lake Swamps (Bottomland)

Minimum delineation area: 1/2 acre

Description:

Stream and Lake Swamps (Bottomland) are those wetland areas which are usually found on but not restricted to river, creek, and lake floodplain or overflow areas.

Context:

Found throughout the District and represented a mix of hardwood species on hydric soils or in wet conditions. These usually occurred on rich alluvial soils or poorly drained lake beds in several situations: isolated depressions, along lake fringes, in flood plains and in groundwater seepage areas.

Recognition Features:

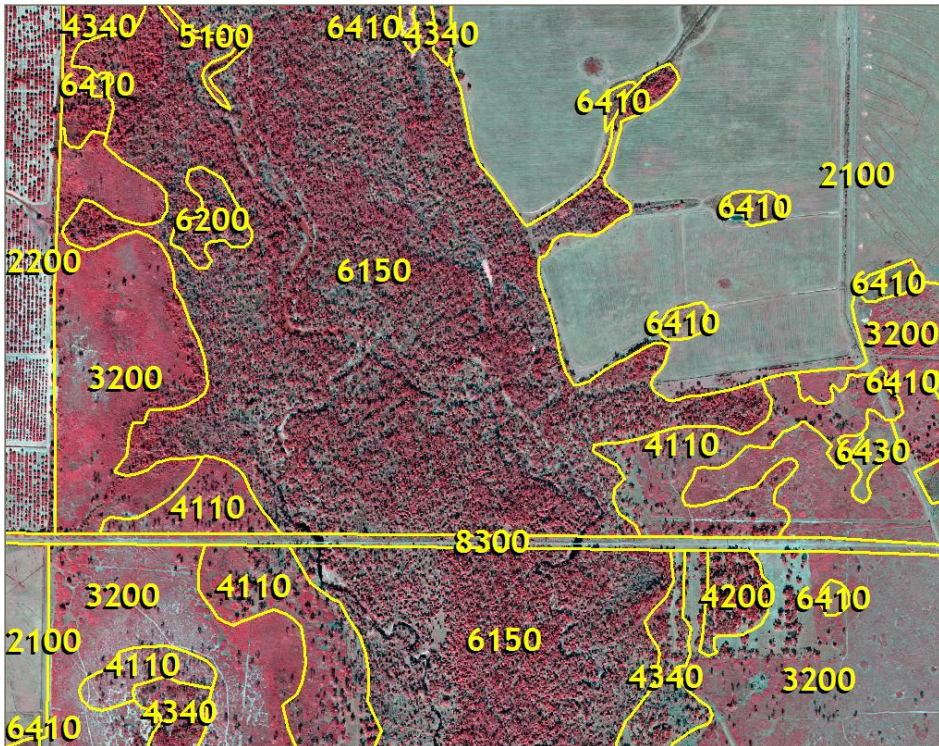
- Dominated by hardwood species of which some of the more common components include red maple, river birch, water oak, sweetgum, willows, tupelo, water hickory, bays, and water ash and buttonbush.
- Can be found surrounding both bodies of water and marshes/wet prairies.
- Associated species include cypress, slash pine, loblolly pine, and spruce pine.
- Communities may be very diverse or may be many different species.
- Characteristically, these swamps exhibited a mixture of tones and textures representing the species diversity and composition typical of bottomland hardwood communities.

Mapping Conventions:

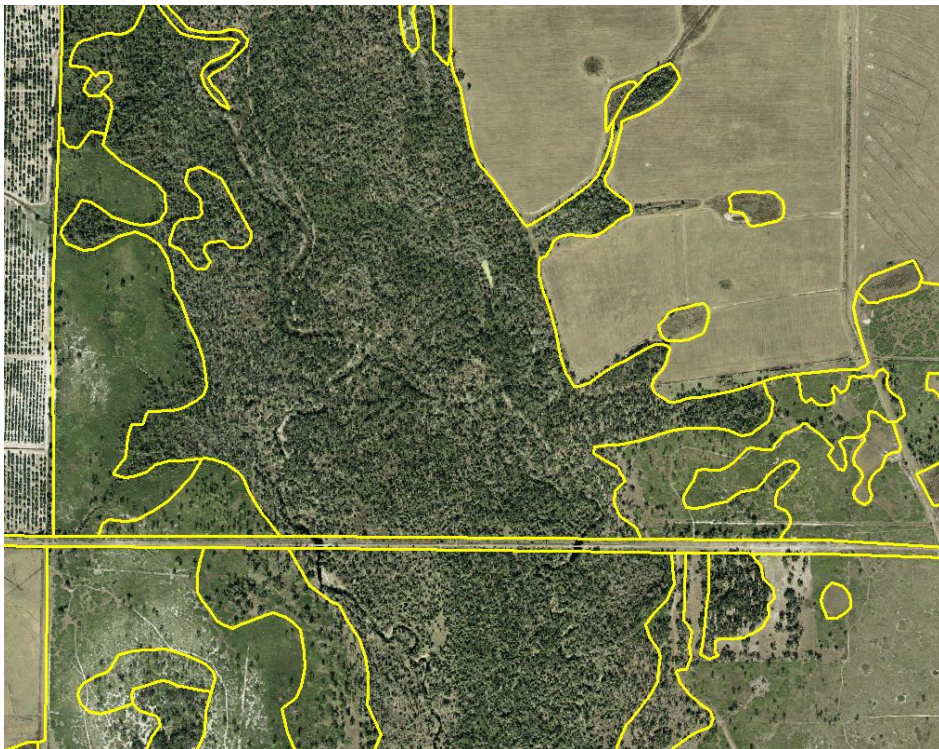
A certain percentage of coniferous coverage, especially cypress, was expected.

This classification was also used to identify more monotypic stands of hardwood species within the broad Stream and Lake Swamps category that were not given categories of their own. Red maple and willows were common species encountered in this classification.

Pictures of Classification Code: 6150



Stream and Lake Swamps (Bottomland) (6150) - Color infrared aerial photograph



Stream and Lake Swamps (Bottomland) (6150) - Natural color aerial photograph



Stream and Lake Swamps (Bottomland) (6150) – Ground photo

Classification Code: 6170 – Mixed Wetland Hardwood Forest

Level I: Wetlands

Level II: Wetland Hardwood Forest

Level III: Mixed Wetland Hardwoods

Minimum Mapping Unit ½ Acre

Description:

This class is a catch-all class for any wetlands hardwoods forests that do not fall in to one of the other 6100 subclasses (bay swamps, mangroves or stream and lake bottomland). Examples of this class include bottomlands and floodplains communities dominated by hardwoods; willow swamps; and mixed hardwoods found in other landscape positions.

Defined as a very broad class, 6170 may have species mixtures ranging from relatively homogeneous stands, such as those dominated by red maple or willows, to a wide diversity of different species. Species in the mixtures may include red maple, black gum, water oak, sweetgum, willows, cabbage palm, water hickory, water tupelo, water ash and bays. Cypress is often present, but not dominant (under 67%).

Context:

Wetland hardwood forests can occur on a range of different landforms and hydrologic regimes, including floodplains and bottomlands (6150), basins and depressions, lake and coastal fringes, and disturbed wet areas. Broad extents occur on wide floodplains along the Hillsborough and Peace Rivers and other major drainage ways.

Recognition Features:

- A number of different types of communities are included in this class, with a broad range of signatures depending on species composition.
- CIR signatures range from blue-gray, bright red to light pink, indicating a diversity of different species.
- Tree crowns are typically broad, except for inclusions of cypress, cabbage palms, and other narrower species.
- Florida's recent Statewide LULC layer should be used as collateral data, taking in to account temporal changes.

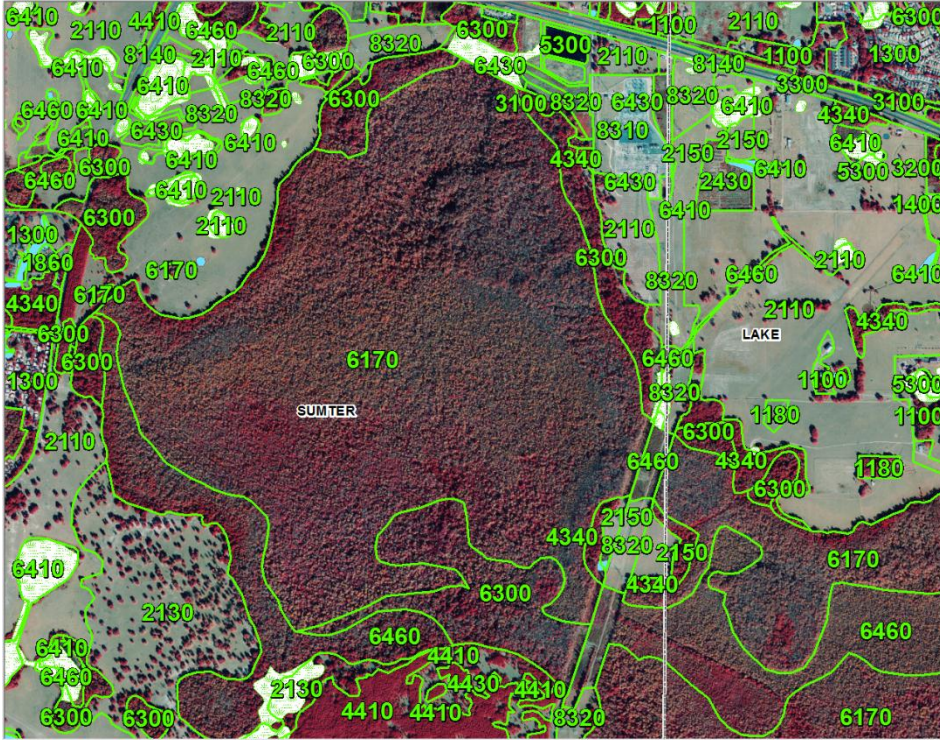
Similar Classes:

- 6110 Bay swamps
- 6150 Stream and Lake Swamps (bottomland)
- 6210 Cypress
- 6300 Wetland Forest Mixed

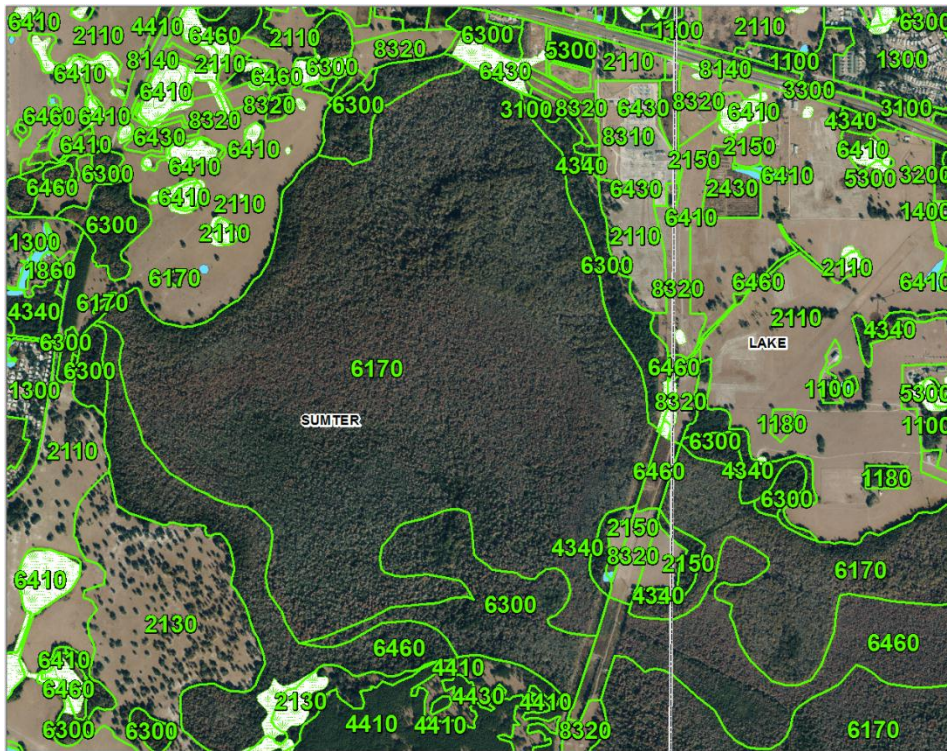
Mapping Conventions:

In transitional areas where the canopy density, species mixtures or the patch sizes are at cutoff points a precise delineation down to 1/2 acre units is not always practical. Some aggregation may be justified, with MMU's of 5 acres or more for closely similar intermixed communities.

Pictures of Classification Code: 6170



Mixed Wetland Hardwoods (6170) - Color infrared aerial photograph



Mixed Wetland Hardwoods (6170) - Natural color aerial photograph



Mixed Wetland Hardwoods (6170) - Color infrared aerial photograph



Mixed Wetland Hardwoods (6170) - Natural color aerial photograph

Classification Code: 6200 – Wetland Coniferous Forest

Level I: Wetlands

Level II: Wetland Coniferous Forest

Minimum delineation area: 1/2 acre

Description:

Wetland coniferous forests are wetlands which meet the crown closure requirement for coniferous forests and are the result of natural generation. It is dominated by pine species, particularly slash or pond pine or a mix of pine and cypress. Examples include: Cypress swamp, Pond-pine swamp.

Context:

These communities are commonly found in the interior wetlands in such places as river flood plains, bogs, bayheads, and sloughs.

Although the occurrence of pure wet pine communities was relatively rare, it did occur along the uppermost terraces of large rivers, in isolated sandy depressions with sufficient hydroperiods, and in wet forested swales within the pine flatwoods communities.

This category was also used to describe the mixing of pine species and cypress in the larger floodplains. These communities usually exhibited a duller red or pink tone with a darker, water-influenced understory (CIR).

Recognition Features:

- Dominated by coniferous forested species specifically adapted to grow in water influenced environments such as Pond Pine and Cypress.
- Generally exhibit a smoother, even texture and often show glimpses of open water through canopy.
- Most often occur in inland areas of low-lying topography, usually more isolated.
- Seasonality may influence the signature, but is less obvious in most cases than hardwoods (with the exception of cypress). Usually exhibit a more dull tone with a dark or bluish cast.

Exclusions:

Wetlands that are currently drained for any purposes belong to other land use categories, such as Agriculture, Rangeland, Forested Uplands or Urban and Built-Up. When the drainage is discontinued and wetlands hydrologic regime re-established the classification reverts to Wetlands.

Similar Classes:

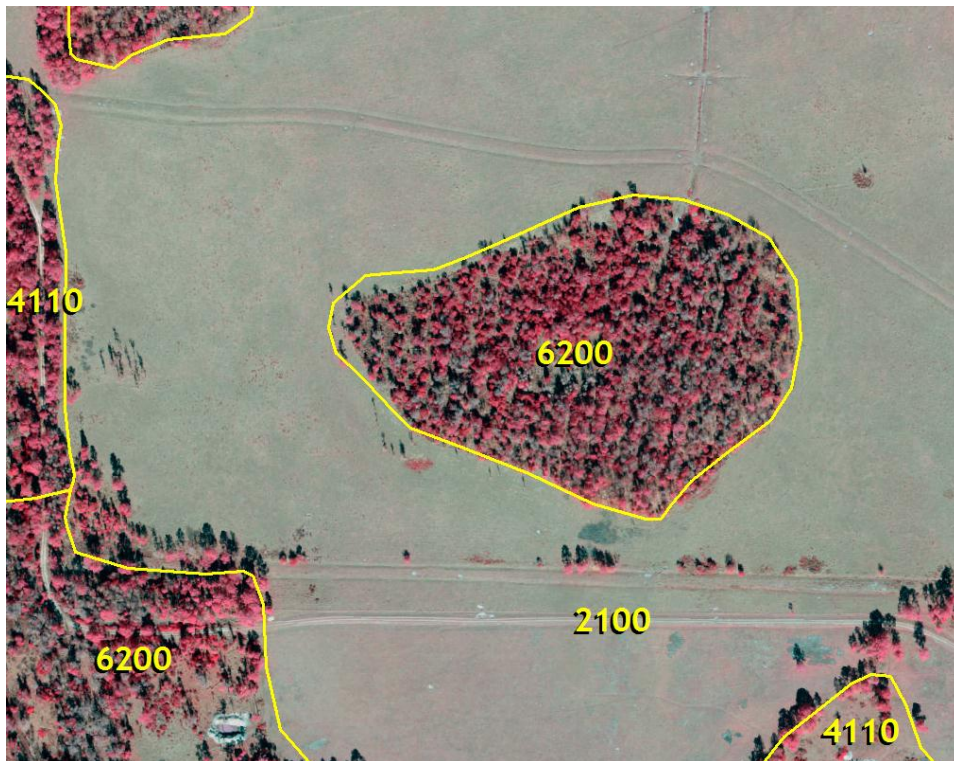
Many of the wetland classes have similar upland counterparts that occur in wetlands/uplands margins or in adjacent uplands. Pine plantations, which occur in both flatwoods and flatwood depressions in the District, are an example. Species such as cypress depend on periodic changes in hydrology to complete life cycles. Other

species, such as slash pine, may be found in uncharacteristic habitats as a result of the changes.

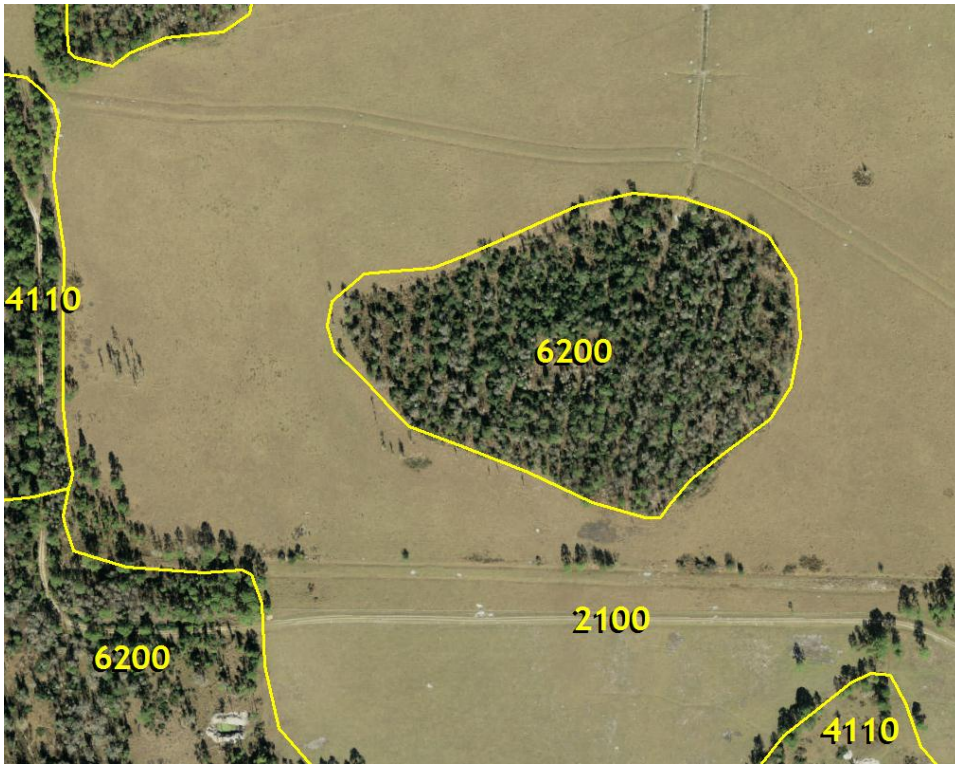
Mapping Conventions:

Wetland systems can range from large monocultures to complex intermixtures of different classes. Individual plants or trees may be dispersed in a matrix or grouped in patches. If distinct patches of any class are greater than 1/2 acre, they are broken out separately. However, in transitional areas where the plant densities, species mixtures or the patch sizes are at cutoff points a precise delineation is not always cost effective - some aggregation may be justified, with MMU's of several acres for closely similar, intermixed communities. Pine has a larger crown signature than cypress. Therefore, if an area appears to be 50% each pine and cypress, there is actually more cypress than pine, and the feature should be classed 6210.

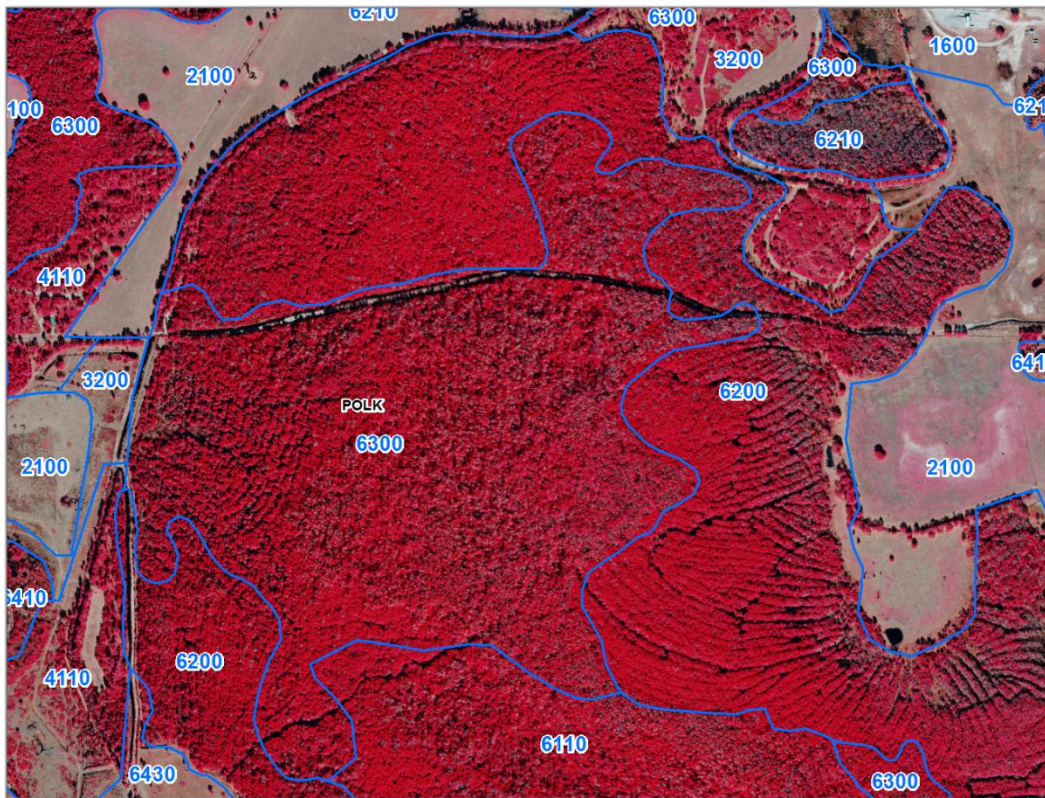
Pictures of Classification Code: 6200



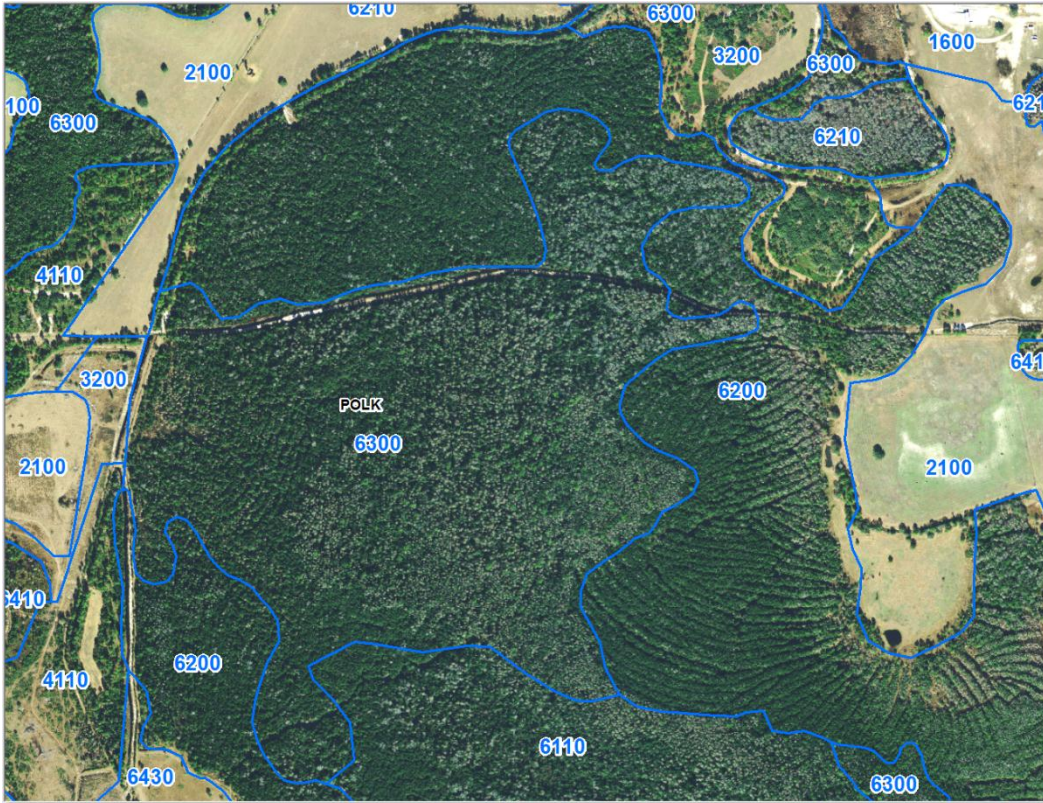
Wetland Coniferous Forest (6200) - Color infrared aerial photograph



Wetland Coniferous Forest (6200) - Natural color aerial photograph



Wetland Coniferous Forest (6200) - Color infrared aerial photograph



Wetland Coniferous Forest (6200) - Natural color aerial photograph



Wetland Coniferous Forest (6200) – Oblique aerial photo

Classification Code: 6210 - Cypress

Level I: Wetlands

Level II: Wetland Coniferous Forest

Level III: Cypress

Minimum delineation area: 1/2 acre

Description:

This class is for forested wetland communities in which pond cypress or bald cypress comprises over 67% of the forest canopy. In the case of pond cypress, common associates are swamp tupelo, slash pine and black titi. In the case of bald cypress, common associates are water tupelo, swamp cottonwood, red maple, American elm, pumpkin ash, Carolina ash, overcup oak, and water hickory. Bald cypress may be associated with laurel and water oaks, sweetgum and sweetbay on drier sites.

Cypress trees are deciduous conifers with a long leaf-off cold period, making them relatively easy to identify with winter photography. Crowns are densely packed and pin-like, although some larger, broader individuals may protrude above the rest or in isolation. In domes and heads, the larger trees are towards the center, and the center itself may be open water.

Context:

Cypress is found in a variety of situations, but typically requiring prolonged inundation and periodic dry spells. It occurs as cypress "domes" in depressions or in long linear drainages as cypress "strands". It may be present as a distinct community along the fringes of lakes, or in bottomlands and floodplains associated with rivers. Cypress "heads" may also occur at the beginning of drainage ways. It can also be part of the mix of hardwood swamps or bay swamps wherever they occur. Soils are very poorly drained and high in organics, with a layer of peat on the surface.

Fully grown cypress portray a characteristic blue or light pink signature (CIR) with a dark understory and was easily identified. However, young cypress could often be misidentified with many other younger trees and shrubs such as a dormant willow and other species that occur in similar hydrologic zones. This was particularly troublesome in the newly logged areas and in areas where cypress is naturally excluded, such as Sarasota County.

Recognition Features:

- Cypress species maintain at least a 67% dominance in the canopy. Tree crowns are usually tightly packed.
- Sites are flooded for long periods - typically 4 to 8 months in any given year.

- Pine has a larger crown signature than cypress. Therefore, if an area appears to be evenly split between pine and cypress, there is actually more cypress than pine, and the polygon should be classified as 6210.
- Usually grayish, or grayish green, puffy signature - classic "Q-Tip" appearance (CIR).
- Spring signature is often pink due to the regeneration of the cypress needles.

Exclusions:

In the case of cypress harvesting, the cleared cypress areas were changed to the Freshwater Marsh category (6410).

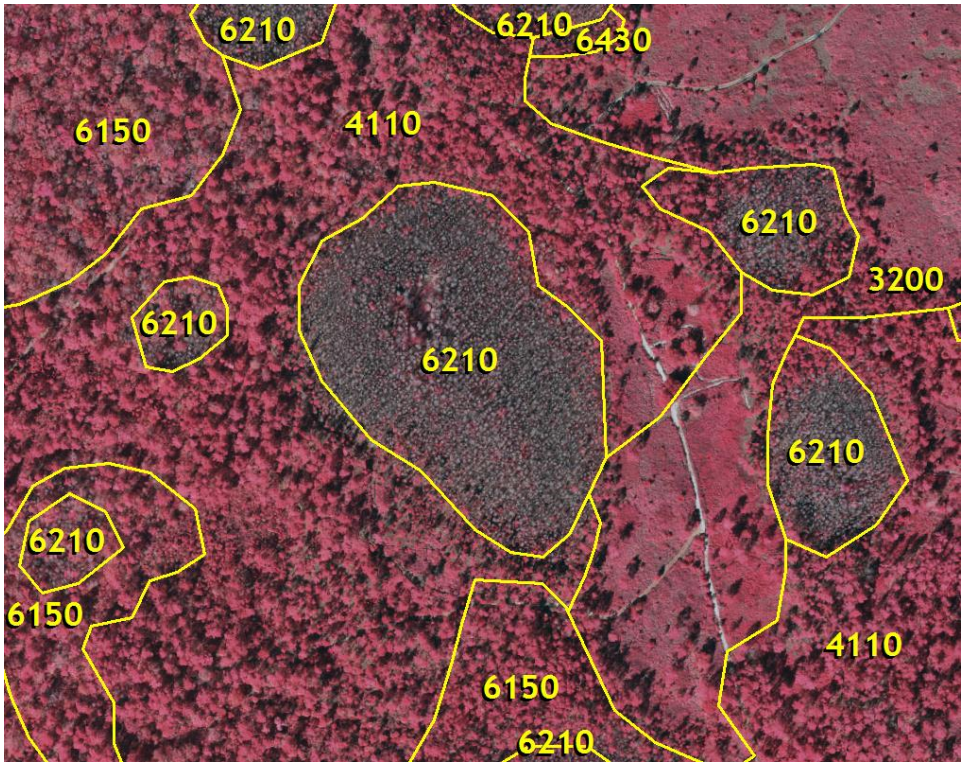
Similar Classes:

6300 Wetland Forested Mixed

Mapping Conventions:

Fringes of cypress community as narrow as 10 meters wide should be mapped, if they meet minimum mapping units.

Pictures of Classification Code: 6210



Cypress (6210) - Color infrared aerial photograph



Cypress (6210) - Natural color aerial photograph



Cypress (6210) - Ground photo - Summer



Cypress (6210) - Ground photo - Winter

Classification Code: 6300 – Wetlands Forested Mix

Level I: Wetlands

Level II: Wetland Forested Mix

Minimum delineation area: 1/2 acre

Description:

This category includes mixed wetlands forest communities in which neither hardwoods nor conifers achieve a 66 percent dominance of the crown canopy composition. Mixed wetland forests occur on a wide variety of soil moisture conditions, from permanently wet to seasonally or infrequently wet. The tree species assemblages range from cypress/gum/maple to pine/cabbage palm/bay, reflecting this range in conditions. The signatures will vary widely depending on which combination of trees and understory species make up the mixture.

Context:

A combination of hardwoods and evergreen conifers can occur in nearly all the foregoing forested wetlands communities, including cypress, bay swamps, hardwood swamps, hammocks and depressions, floodplains and bottomlands. It is not possible to describe a context that is representative.

The signatures of coniferous trees are often obscured by the larger crowns and more vibrant signatures of hardwoods, or they may have been more a component of the understory. Slash pines were sometimes confused with hardwoods because of their sprawling shape and widespread occurrence.

Recognition Features:

- Vegetated by hardwood and coniferous tree species adapted to grow in water environments where neither type is dominant
- Forested systems composed of a mixture of hardwoods and evergreen conifers in which neither species achieves greater than 67% dominance.
- Species may include a mixture of deciduous and evergreen tree species such as black gum, red maple, water oak, cabbage palm, bay trees and evergreen conifers adapted to wet environments.
- Will usually exhibit a variety of textures and crown types depending on species present.
- Open water or water staining may be evident where canopy is open.
- Seasonality may be an influence on photo signature.

Exclusions:

The Mixed category was not applied in bottomland hardwoods communities where the presence of cypress is expected. These remained in the Streams and Lake Swamps (6150) category and cypress (6210) was identified separately only when it became over 66% dominant.

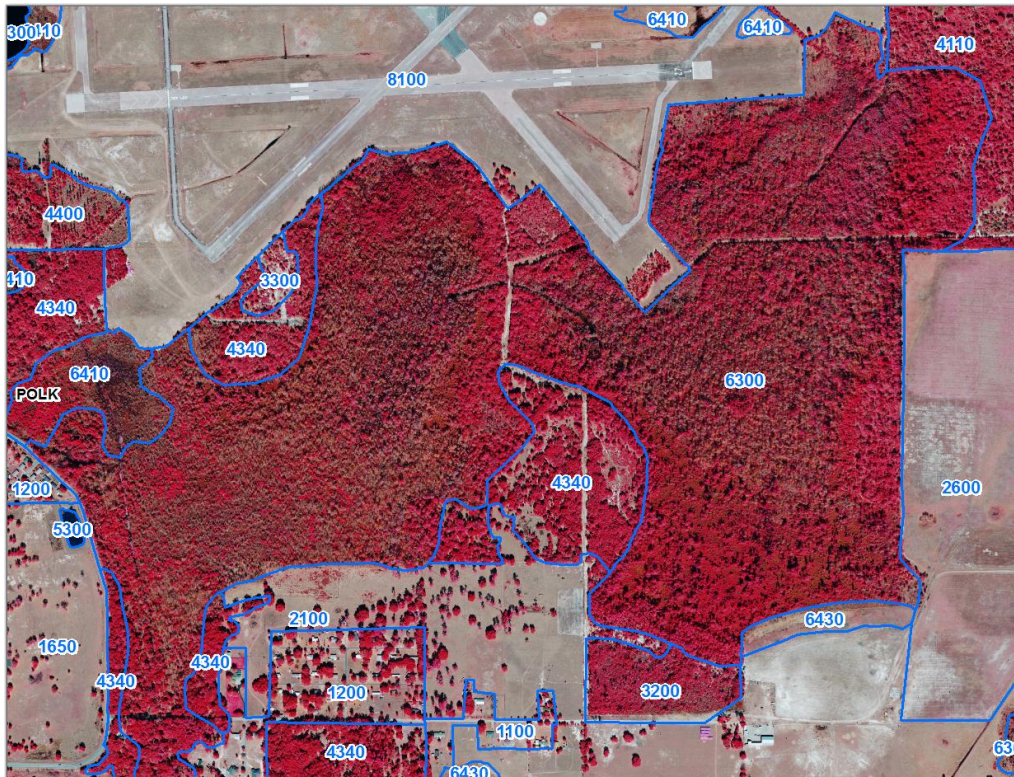
Similar Classes:

- 4300 Upland mixed forest
- 6100 Wetland hardwood forests (except mangroves)
- 6200 Wetland coniferous forests

Mapping Conventions:

The consistent delineation of the Wetland Forested Mixed category proved difficult as it represented the occurrence of several species and percentage of cover as dependent of the size of the area in analysis. For a more accurate portrayal of natural communities, especially wetland forested, it was necessary to examine an area as a whole to determine the species composition instead of breaking into smaller units to suit a minimum mapping requirement.

Pictures of Classification Code: 6300



Wetland Forested Mix (6300) - Color infrared aerial photograph



Wetland Forested Mix (6300) - Natural color aerial photograph



Wetland Forested Mixed (6300 – Ground Photo

Classification Code: 6410 – Freshwater Marshes

Level I: Wetlands

Level II: Vegetated Non-Forested Wetlands

Level III: Freshwater Marshes

Minimum delineation area: 1/2 acre

Description:

This class is used for wetlands communities characterized by herbaceous plant species that occur on sites where surface water is present for extended periods during the growing season, but is absent by the end of the growing season in most years. Freshwater marshes tend to be open expanses of grasses, sedges, rushes and other types of herbaceous plants. Periods of inundation are intermediate between deep marshes (emergent aquatic 6440) and wet prairies (6430) - sites are usually covered with water at least two months of the year, and undergo prolonged periods of soil saturation.

Context:

Freshwater marshes occur on flat, low lying areas subject to prolonged seasonal flooding and occasional fire. They are found adjacent to slow-moving streams, along edges of lakes or ponds, or in tidally influenced freshwater areas.

They represented a wide variety of plant species and although signature was dependent on growth form, height and surface water present at the time of capture it generally exhibited some type of vegetational texture and color over a darker blue water staining. Common species included cattail, sawgrass, arrowhead, reed, bulrush and maidencane.

In addition to herbaceous species, this category was also used to identify many species of shrubs that could tolerate longer periods of surface inundation. These scrubby wetlands were identified in this category if they predominantly occurred with other herbaceous species or did not reach tree height in a climax state. Willows, button bush, wax myrtle and small maples were common examples. On the photography, these appeared more marsh-like than forested.

Recognition Features:

- Signatures are very diverse, as a result of the variety of plant assemblages and land forms that make up freshwater marshes. Monocultures of sawgrass or cattail have smooth, uniform signatures. More diverse, non-graminoid communities may have more patchy and irregular signatures with a variety of height, colors and textures.
- Typically will be dark in color, signifying the wet ground.
- Scattered shrubs and trees may be present, especially on drier sites and in the absence of fires.
- The sites typically have a coarse textured organic surface soil over soft organic muck substrates

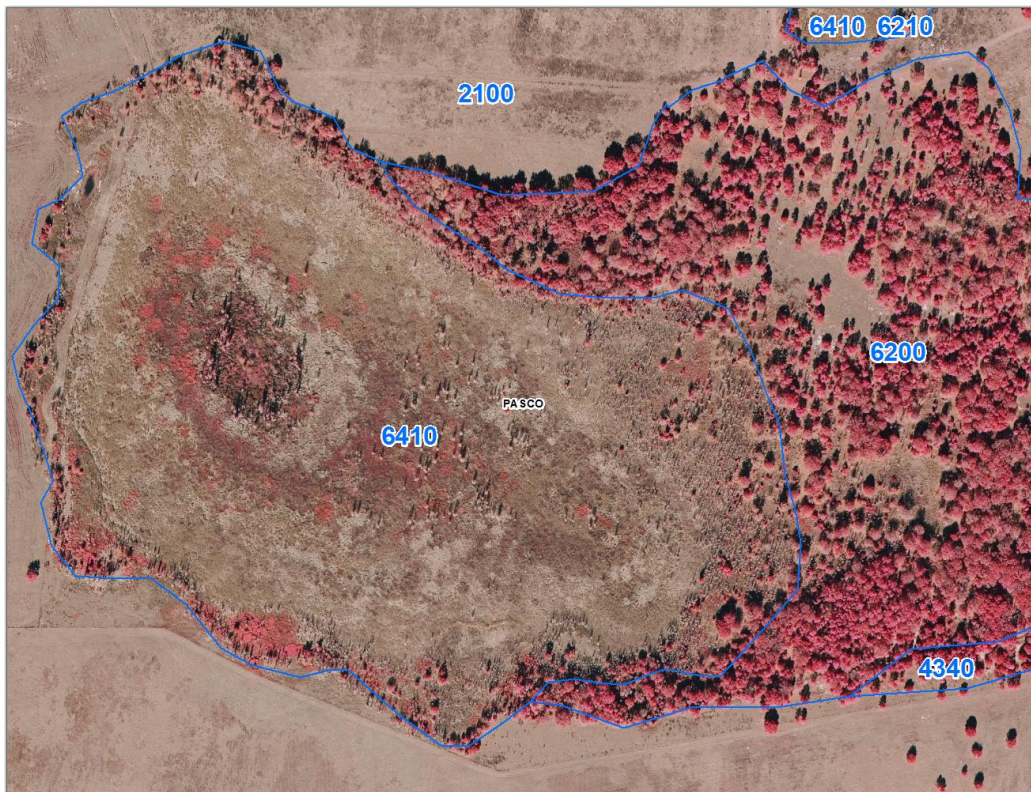
Exclusions:

Non vegetated open water areas within Freshwater marshes were included in the Lakes (5200) category.

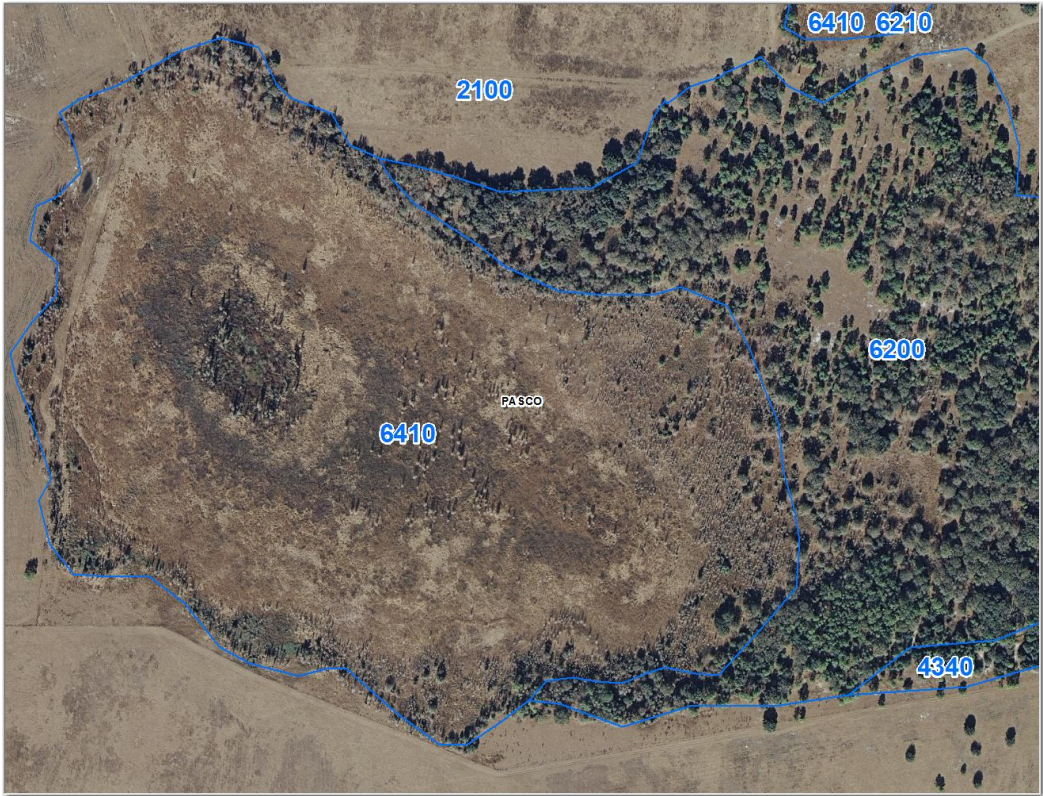
Similar Classes:

- 5000 water bodies - High water conditions at the time of photography may cover over the emergent vegetation in some marsh systems. These areas are coded as water bodies, even though collateral data may identify them as 6410 Freshwater Marshes or 6430 Wet prairies.
- 5250 Marshy Lakes – These are water bodies with patchy vegetation, in which neither vegetation nor open water have a 2/3 dominance.
- 6430 Wet prairies
- 6440 Emergent aquatic vegetation

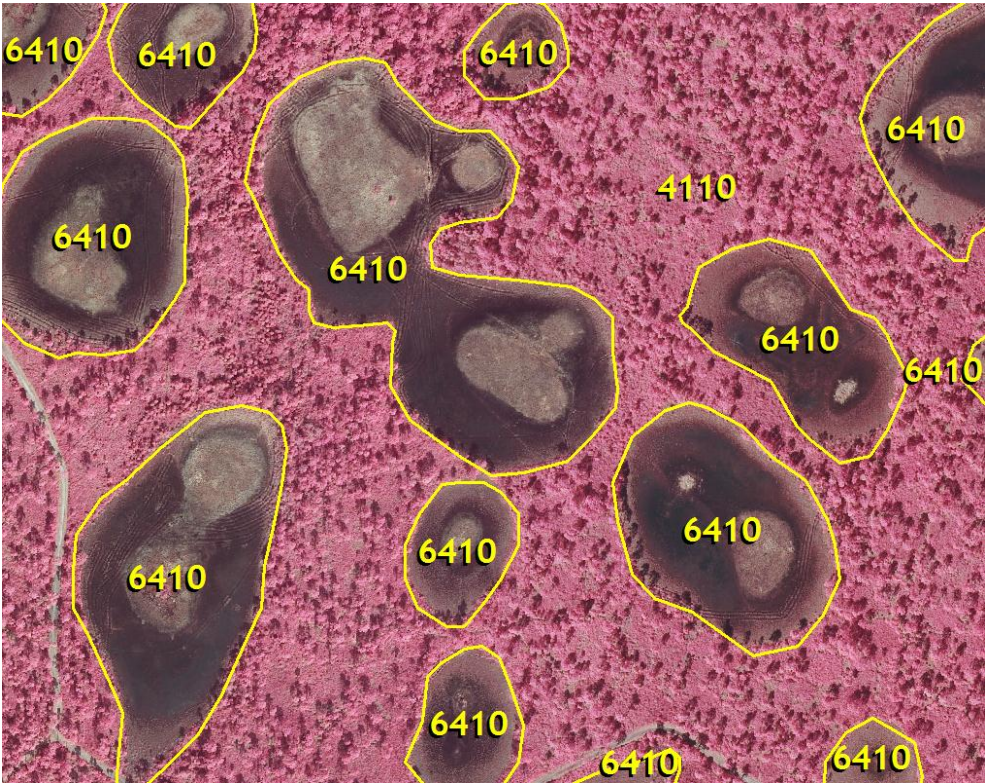
Pictures of Classification Code: 6410



Freshwater Marshes (6410) - Color infrared aerial photograph



Freshwater Marshes (6410) - Natural color aerial photograph



Freshwater Marshes (6410) - Color infrared aerial photograph



Freshwater Marshes (6410) - Natural color aerial photograph



Freshwater Marshes (6410) - Ground photo

Classification Code: 6420 – Saltwater Marshes

Level I: Wetlands

Level II: Vegetated Non-Forested Wetlands

Level III: Saltwater Marshes

Minimum delineation area: 1/2 acre

Description:

This class is used for wetlands communities of non-woody, salt-tolerant plants occupying intertidal zones that are at least occasionally inundated with salt water. They exist at the interface of land and marine waters, wherever wave energy is sufficiently low to allow their development and where mangrove trees are not dense enough to shade out the characteristic vegetation.

Within these constraints, the extent of saltwater marshes is determined in large part by the size of the intertidal zone. Regions of low relief and high tidal range are likely to have extensive salt marshes.

Context:

Saltwater marshes occur in coastal and estuarine environments with high salinities. Lower boundaries grade abruptly into tidal flats or water.

These represent the dominant communities of cordgrass, needle rush, and the higher marsh areas of saltgrasses and other saline-tolerant forbes. The distribution of these species is largely determined on the degree of tidal inundation and salinity. They were also commonly observed interspersed within mangrove swamps.

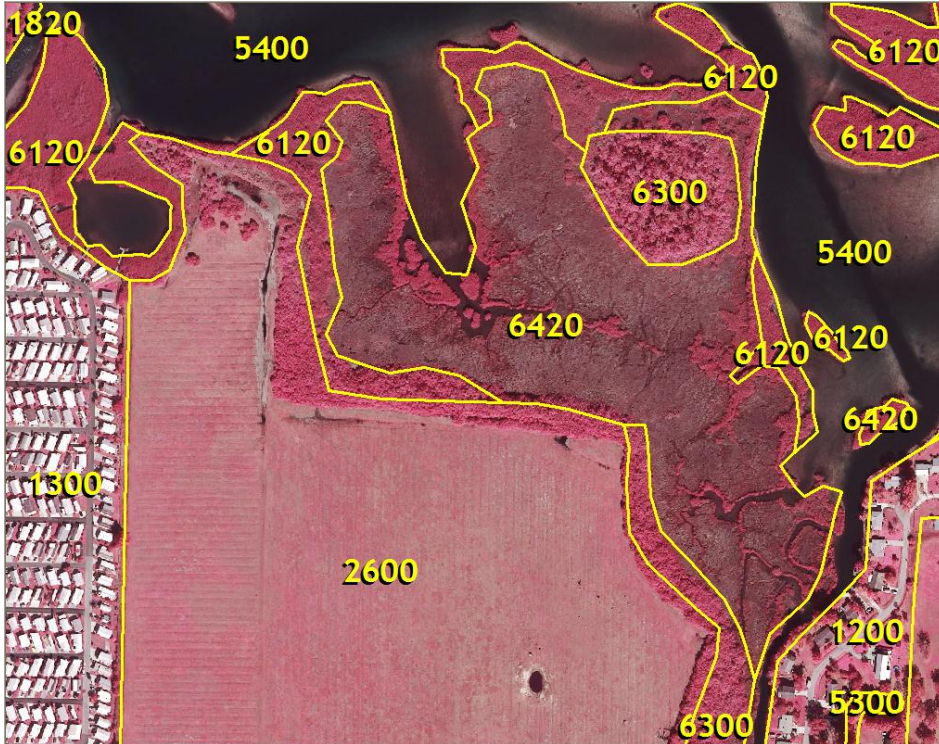
Recognition Features:

- Marshes present a smooth textured appearance with vegetation generally below 3 feet.
- Color tones are dark grey to whitish-green, varying with predominant species.
- A distinct watershed and network of drainage creeks (tidal channels) is often present.
- Vast expanses of vegetation are separated into distinctive zones, often with abrupt boundaries.
- Some dikes may be visible. Large areas have been impounded for mosquito control.
- Vast expanses of vegetation are separated into distinctive zones, often with abrupt boundaries.
- The CIR photo signatures for each of the tidal zones were fairly distinct and easily identifiable. Cordgrass typically displayed a smooth pink-gray tone, needle rush was characteristically bluish-black with a wavy texture, and the high marsh was a more diverse mix. However, because of the high reflectance of sand, sparsely vegetated

flats often appeared as unvegetated on the photography, giving a stark white return on CIR imagery.

- A bare, whitish area, or “salt pan” may be visible in flatter area near the landward limit of salt marshes.

Pictures of Classification Code: 6420



Saltwater Marshes (6420) - Color infrared aerial photograph



Saltwater Marshes (6420) - Natural color aerial photograph



Saltwater Marshes (6420) - Ground photo

Classification Code: 6430 – Wet Prairies

Level I: Wetlands

Level II: Vegetated Non-Forested Wetlands

Level II: Wet Prairies

Minimum delineation area: 1/2 acre

Description:

A wet prairie is a seasonally flooded, shallow freshwater marsh found in depressions, sloughs, finger glades, and on the floodplains or margins of lakes, streams, and rivers. Wet Prairies are communities of grasses, sedges, rushes, and herbs typically dominated by sand cordgrass, maidencane, or a mixture of species. They are subject to frequent fire, and naturally occur on mineral soils that are inundated for a relatively short duration each year, but with prolonged soil saturation. This class is composed of predominantly grassy vegetation on wet soils and is usually distinguished from marshes by having less water and shorter herbage.

Context:

Wet prairies are often delineated as the upper zones around deeper depressions, shallower basins, larger expanses of overflow and slough-like areas on poorly drained sandy soils.

Wet prairies occur in depressions in the landscape within flatwoods and pastures, and are also found at the edges of cypress domes and marshes. Conditions supporting wet prairies may also support forested depressions or wetland savannahs under other management and fire regimes.

Wet prairies may also result from alterations of hydrology, such as former marshes that are drying out from artificial drainage or groundwater drawdowns; or former low flatwoods with a rising water table due to impoundment or precipitation. With these varying conditions, wet prairies can be found throughout the District.

Recognition Features:

- Less water and shorter herbage than marshes.
- Usually found in smaller depressional areas.
- Usually found at wetland fringe, surrounding bodies of water or marshes.
- A slightly darker, almost stain-like area in a grassy area.
- Usually associated with rangeland or pasture.
- Usually on mineral soils that are inundated for a relatively short duration each year but with prolonged soil saturation.
- Subject to frequent fire.
- Communities of grasses, sedges, rushes, and herbs typically dominated by sand cordgrass, maidencane, or a mixture of species.

- The photo signature showed a much lighter blue gray staining than marsh communities.

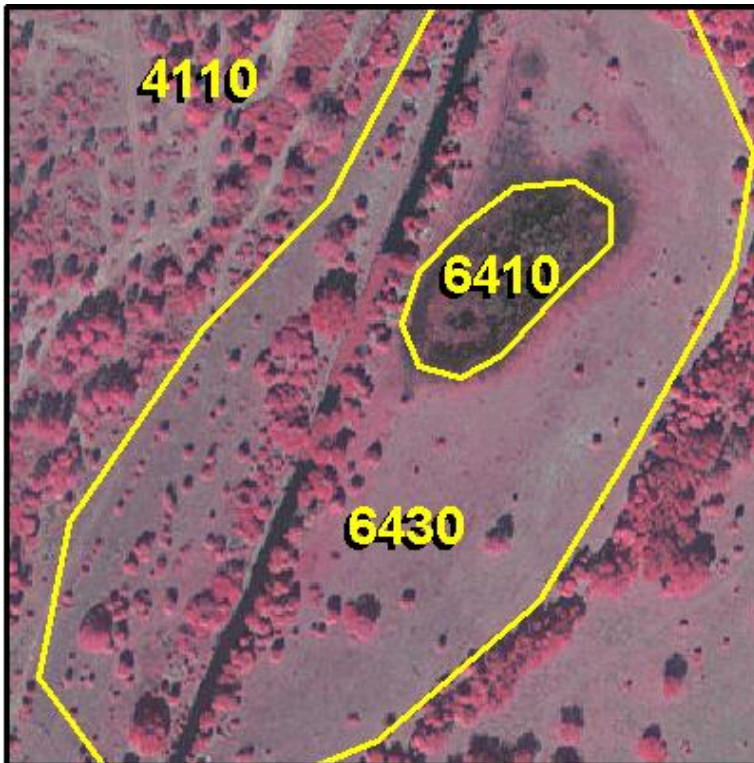
Similar Classes:

- The Wet Prairies classification was reserved for freshwater wetland communities that exhibited a drier condition and shorter hydroperiod than the Freshwater Marsh (6410) category.
- 2120 Unimproved Pastures
- 3100 Herbaceous Upland, Non-forested
- 5000 Water Bodies - Seasonal high water conditions at the time of photography may cover over the herbaceous vegetation in some wet prairies. These areas are coded as water bodies, even though collateral data may identify them as 6410 Freshwater Marshes or 6430 Wet prairies
- 6410 Freshwater Marshes - More water and more broad-leaved species present different signatures.

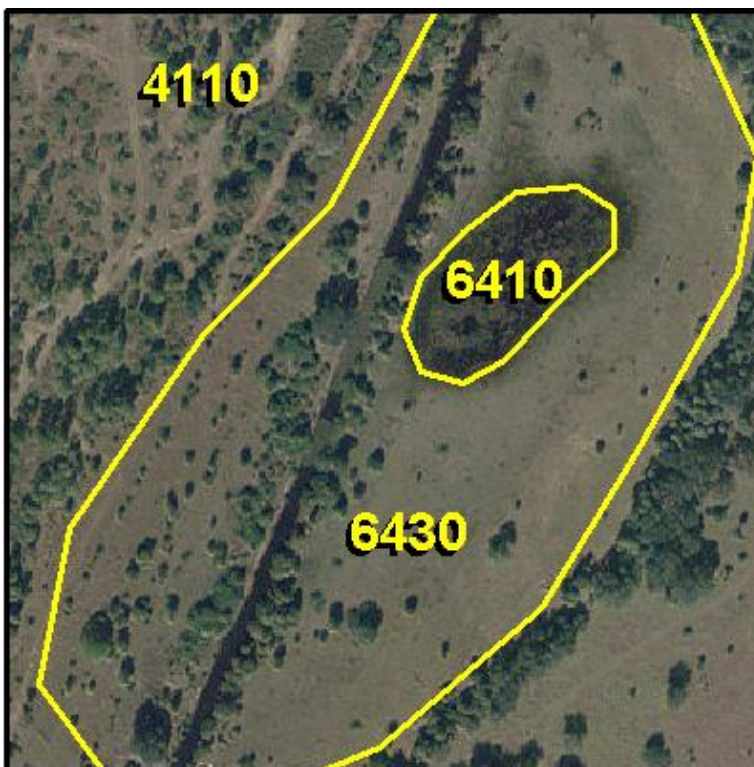
Mapping Conventions:

Wet prairies may have a complex, patchy distribution of different species groups and other communities. In such areas a precise delineation into 1/2 acres units is not always practical - some aggregation may be justified, with MMU's of several acres for closely similar, intermixed communities.

Pictures of Classification Code: 6430



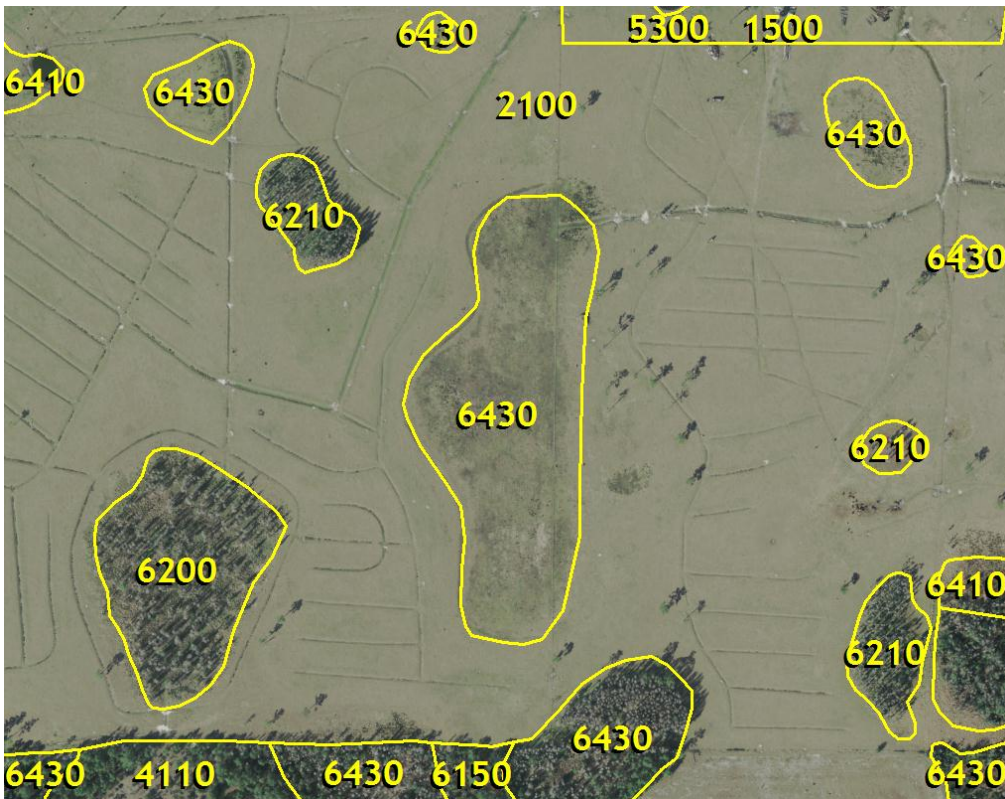
Wet Prairies (6430) - Color infrared aerial photograph



Wet Prairies (6430) - Natural color aerial photograph



Wet Prairies (6430) - Color infrared aerial photograph



Wet Prairies (6430) - Natural color aerial photograph



Wet Prairies (6430) - Ground photo

Classification Code: 6440 – Emergent Aquatic Vegetation

Level I: Wetlands

Level II: Vegetated Non-Forested Wetlands

Level III: Emergent Aquatic Vegetation

Minimum delineation area: 1/2 acre

Description:

This category of wetland plant species includes communities otherwise known as deep marsh or floating marsh. This vegetation is found either partially or completely above the surface of water. This category describes a variety of wetland species that typically grow either floating on slow moving or stationary water, or rooted in shallow water. Its occurrence is a highly variable and dynamic condition. Examples include water lettuce, spatterdock, water hyacinth, duck weed, and water lily.

Context:

Emergent aquatics are found in depressed areas, solution holes, ponds, lakes, canals, rivers, streams and other areas where persistent water prevents the growth of other plants. These areas are permanently inundated and only dry out during extended droughts or artificial drawdowns.

Recognition Features:

- Dominated by herbaceous and shrubby plant species adapted to grow in water-influenced environments.
- Generally occur in low-lying areas, adjacent to slow-moving streams, along edges of lakes or ponds, or on tidally influenced areas.
- Deep water wetlands dominated by free-floating plants, such as water lilies, water hyacinth, water lettuce, or lemna, or floating mats of rhizomatous species, such as alligator weed or various grasses and sedges.
- CIR signatures are variable, including bright pinks or mottled reds and grays, depending on species. Distinct smooth red signatures caused by floating plants are strong indicators of deep marsh.

Similar Classes:

- 5000 Water, including areas of submergent aquatic vegetation
- 6410 Freshwater marshes - The context is not aquatic. Plants are typically taller and less open water is visible.

Mapping Conventions:

- Dominated by herbaceous and shrubby plant species adapted to grow in water-influenced environments.
- Generally occur in low-lying areas, adjacent to slow-moving streams, along edges of lakes or ponds, or on tidally influenced areas.

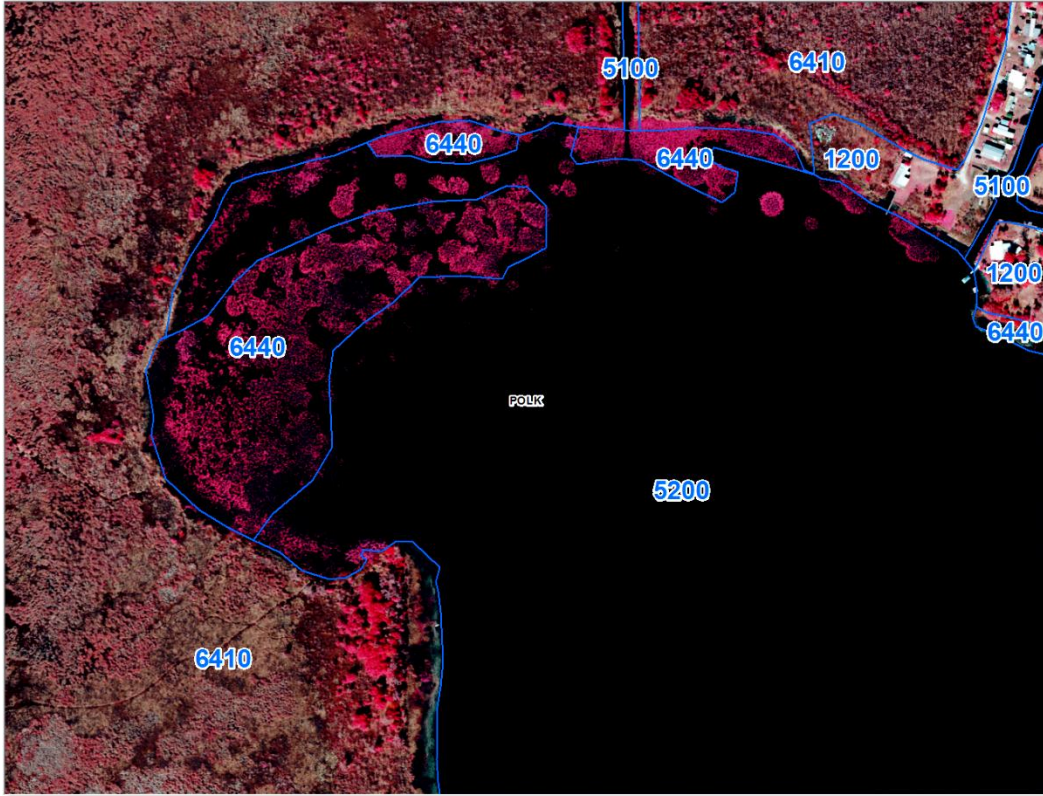
Pictures of Classification Code: 6440



Emergent Aquatic Vegetation (6440) - Color infrared aerial photograph



Emergent Aquatic Vegetation (6440) - Natural color aerial photograph



Emergent Aquatic Vegetation (6440) – Color Infrared photo



Emergent Aquatic Vegetation (6440) - Ground photo



Emergent Aquatic Vegetation (6440) – Oblique aerial photo

Classification Code: 6520 - Shorelines

Level I: Wetlands

Level II: Non-Vegetated Wetlands

Level III: Shorelines

Minimum delineation area: 1/2 acre

Description:

This category is normally defined as the interface between the land mass and a water body. Shorelines are formed primarily by physical or biological agents resulting in environments such as coral reefs and barrier beaches. The shore is defined as the zone extending from the low tide mark to the farthest point inland to which wave action transports beach materials.

Recognition Features:

- Water influenced areas which show no signs of vegetation - either woody or herbaceous.
- Have a characteristic white to grey signature
- Not found in tidally influenced areas.
- Usually occurs on areas where water fluctuations are too rapid to permit establishment of plant communities, or substrate is limiting.

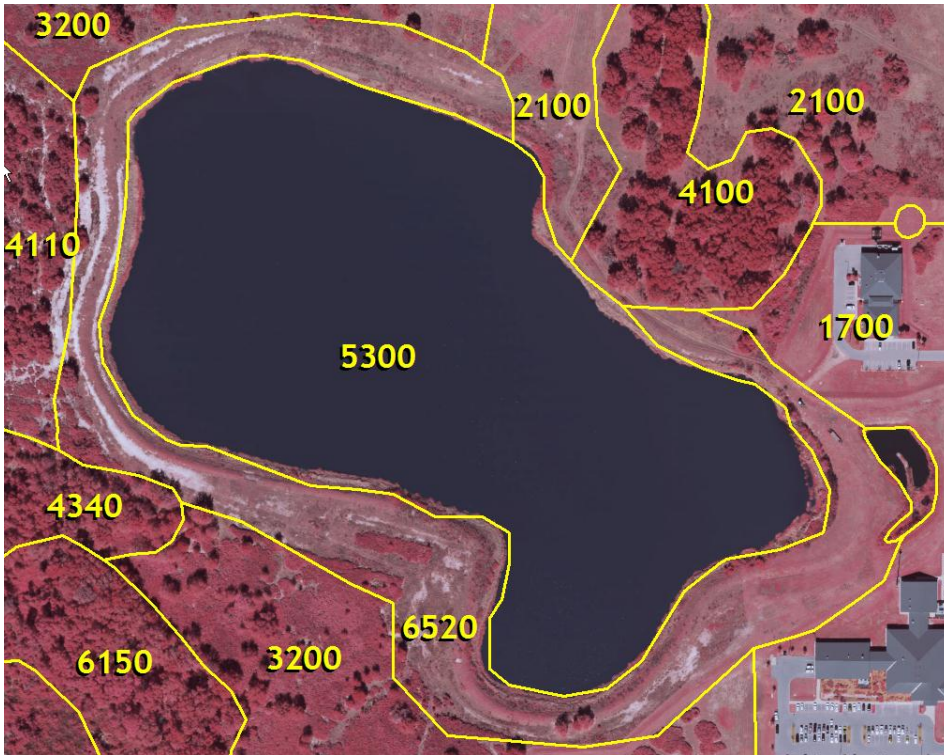
Similar Classes:

If the draw down area was vegetated, as most were, the area was classified as Freshwater Marsh (6410) or Wet Prairie (6430) depending on signature.

Mapping Conventions:

The Shorelines category was used to portray areas around lakes that were drawn down because of drought conditions or artificially controlled water levels. This was common in the sandy Central Lakes region of the District.

Pictures of Classification Code: 6520



Shorelines (6520) - Color infrared aerial photograph



Shorelines (6520) - Natural color aerial photograph



Shorelines (6520) – Ground photo

Classification Code: 6530 – Intermittent Ponds

Level I: Wetlands

Level II: Non-Vegetated Wetlands

Level III: Intermittent Ponds

Minimum delineation area: 1/2 acre

Description:

This category of wetland is defined as a low lying, usually man-made reservoir that is dried up. Reason for the lack of water include use as a retention pond, no water has been added yet to a newly dug reservoir, or a dried up lake or reservoir.

Recognition Features:

- Water influenced areas which show no signs of vegetation - either woody or herbaceous.
- Usually occurs on areas where water fluctuations are too rapid to permit establishment of plant communities, or substrate is limiting.

Similar Classes:

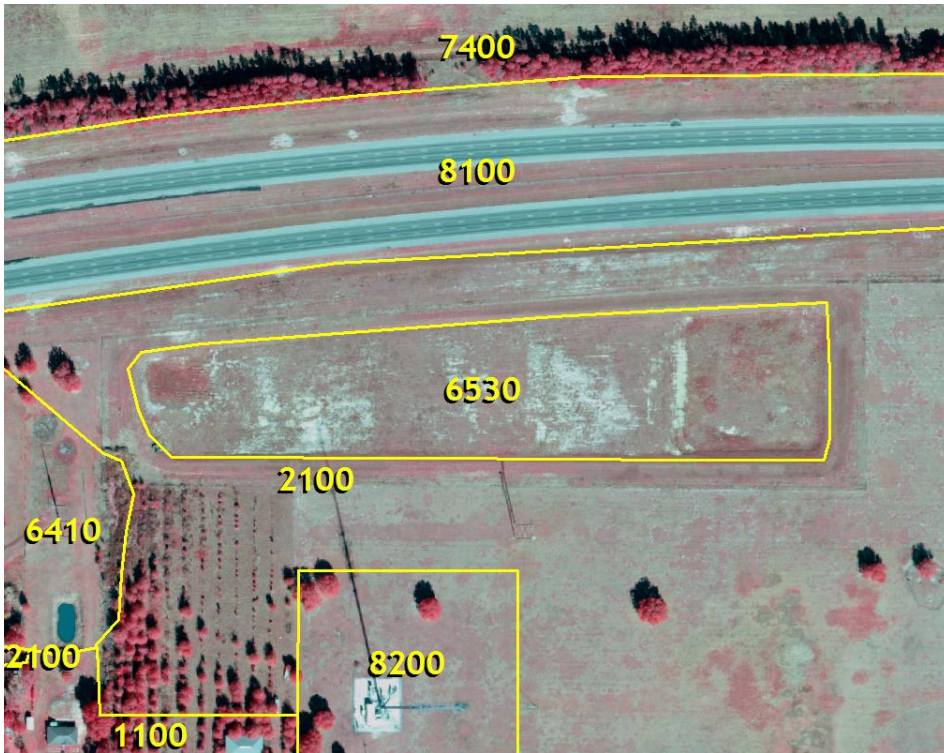
Very few instances of natural ponds were identified as intermittent as they were generally included in one of the vegetated 6400 categories.

Mapping Conventions:

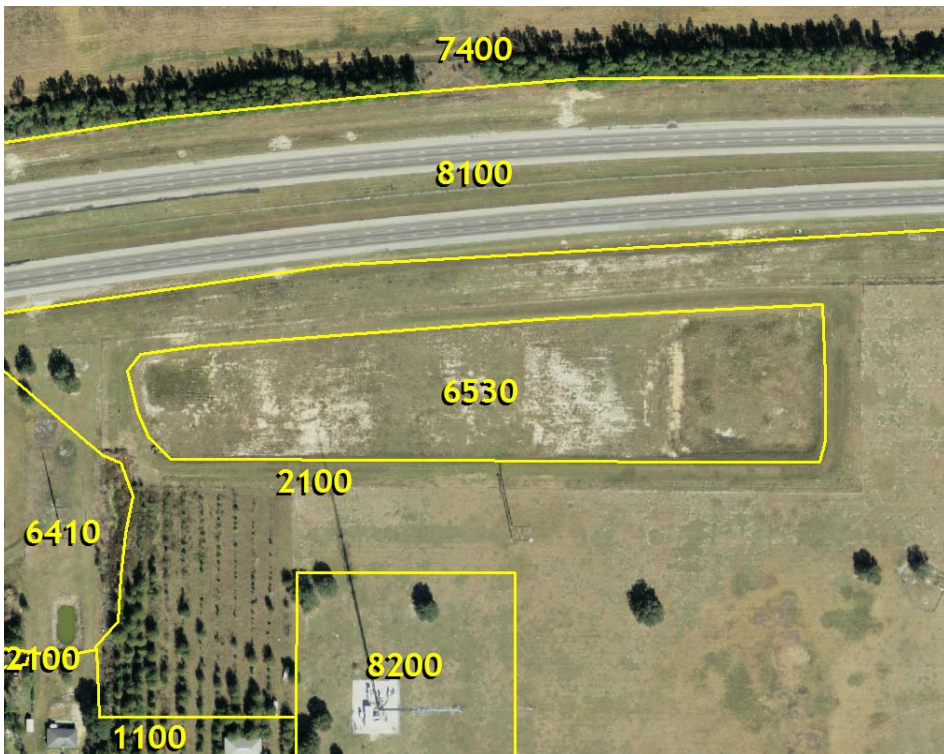
The Intermittent Ponds classification was most often applied to excavated water retention ponds that were dry at the time of capture. These were particularly common in urban areas or newly developed subdivisions.

The intermittent ponds classification is also used for water bodies that exist for only part of the year; often referred to as seasonal water bodies. Its existence relies upon water received directly from precipitation, runoff, or spring flow.

Pictures of Classification Code: 6530



Intermittent Ponds (6530) – Color infrared aerial photograph



Intermittent Ponds (6530) - Natural color aerial photograph



Intermittent Ponds (6530) - Ground photo

Classification Code: 6600 – Salt Flats

Level I: Wetlands

Level II: Salt Flats

Minimum delineation area: 1/2 acre

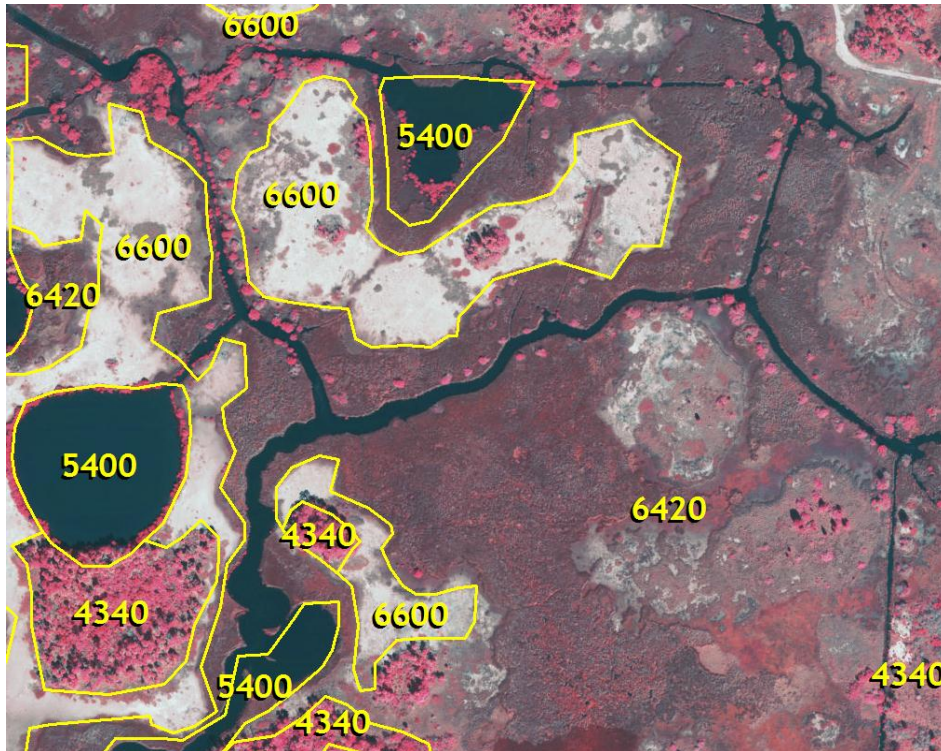
Description:

Usually isolated features located within mangrove forests or salt marshes above mean high water that receive infrequent tidal inundation and exhibit high soil salinities. These areas are often barren and may contain *Batis maritima*, *Salicornia sp.*, *Sesuvium sp.* Or salt grass (*Distichlis spicata.*) scattered within and around the periphery of the salt flat.

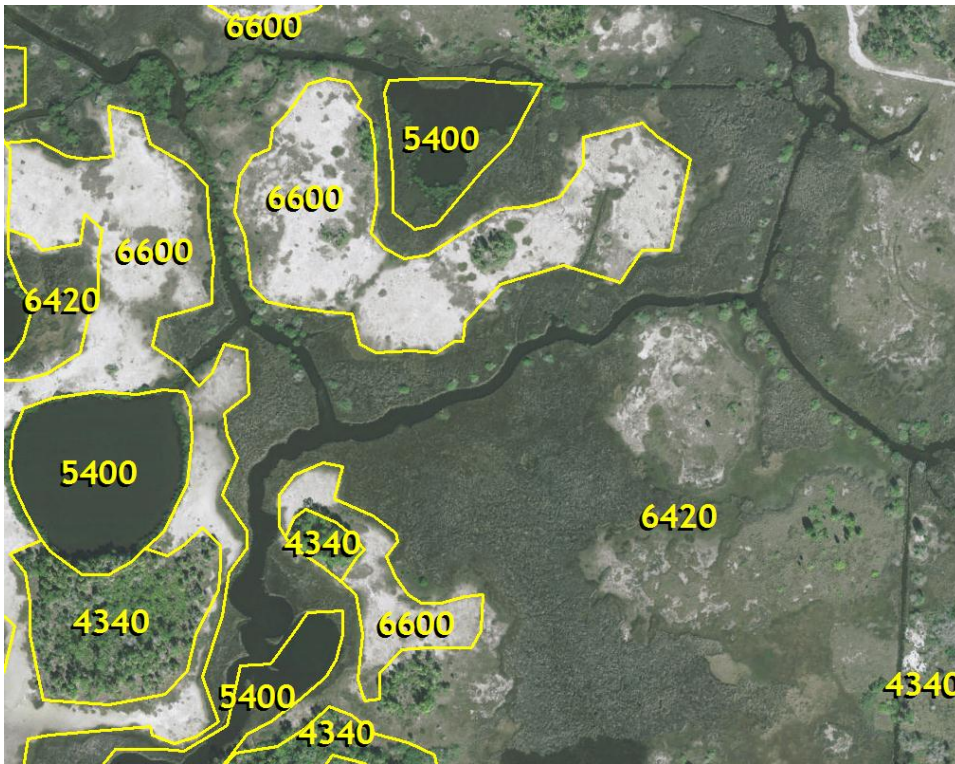
Recognition Features:

- This category was previously identified as Tidal Flats (6510)
- Signatures are very wet sand or mud giving a medium gray to white signature and very smooth texture.

Pictures of Classification Code: 6600



Salt Flats (6600) - Color infrared aerial photograph



Salt Flats (6600) - Natural color aerial photograph



Salt Flats (6600) - Ground Photo

BARREN LAND

Classification Code: 7100 – Beaches Other Than Swimming

Level I: Barren Land

Level II: Beaches other than Swimming

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This code is for beaches that are not used for recreation. They tend to be isolated and not accessible by land transportation. Other uses, such as military or industrial status, may preclude public usage.

Beaches are natural features created by the deposition and erosion caused by wind, wave and tidal action. On the coasts, the fine clays and silts are washed away leaving sand. In protected bay and marsh areas, finer soil particles from surface drainage may settle out. Beach dimensions vary due to the type of depositional material, tides, water levels and wave energy. This class is used for the unstable and mostly barren transition zone between the water and inland land covers that are not subject to the above influences.

Context:

These predominantly occurred on offshore isolated islands.

Not adjacent to major developed areas, usually isolated and not accessible by land transportation. The surrounding land use may render the beach off-limits due to industrial, military, or other precluding factor.

Recognition Features:

- Characteristic long linear white features occurring adjacent to ocean, water bodies, or along streams.
- Usually deposited by water currents and may show varying widths of deposition.
- Not adjacent to major developed areas, usually isolated and not accessible by land transportation.
- Natural features devoid of vegetation.

Similar Classes:

Beaches adjacent to populated developed areas, including protected park areas, were placed in the Recreational (1800) category.

Mapping Conventions:

This code should be used very sparingly, and only for remote or inaccessible sites.

Pictures of Classification Code: 7100



Beaches, Other than Swimming (7100) - Color infrared aerial photograph



Beaches, Other than Swimming (7100) - Natural color aerial photograph



Beaches, Other than Swimming (7100) – Ground Photo

Classification Code: 7200 – Sand Other than Beaches

Level I: Barren Land

Level II: Sand Other Than Beaches

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Sand other than beaches is usually in reference to dune sands. These are of aeolian (wind transport) origin and composed of sand grains downwind from a natural source of sand. Dune sizes vary greatly with diameters ranging from a few feet to more than several hundred feet. Their heights also vary and their shapes display considerable variety. When the dunes are the major feature, shore and strand lines, coastal plains, river flood plains, and deltas are secondary. This category is not restricted to dune sands as bare sands exist in other forms.

Context:

Sand dunes are usually in coastal areas where nearby beaches provide a continuous source of new material. Dune features in inland areas are usually vegetated, not barren. Within the District, this category mainly applied to small isolated areas along the Lake Wales Ridge or similar historic dunes where natural vegetation had not become established.

Recognition Features:

- Characteristically bright white out-cropping occurring in areas of sand deposition or historic dunes. Natural features.
- May be of various sizes and often occur as ridges or on slopes where vegetation cannot grow due to lack of soil accumulation.
- Not associated with water (at present time), may be wind deposited.

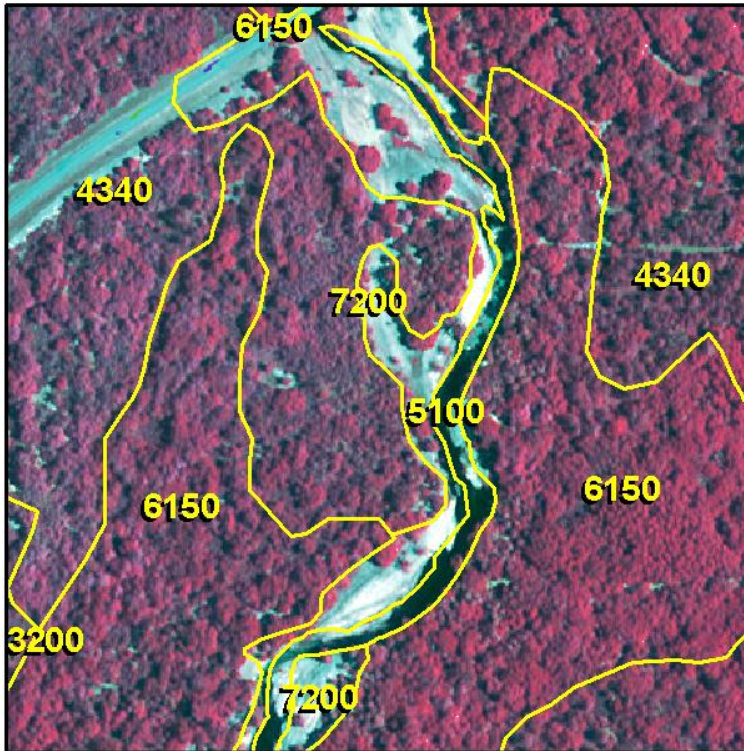
Similar Classes:

This category was interpreted to be the result of natural causes and all exposure of sand due to man influenced activity was placed in other categories such as Disturbed Lands (7400) or Extractive (1600).

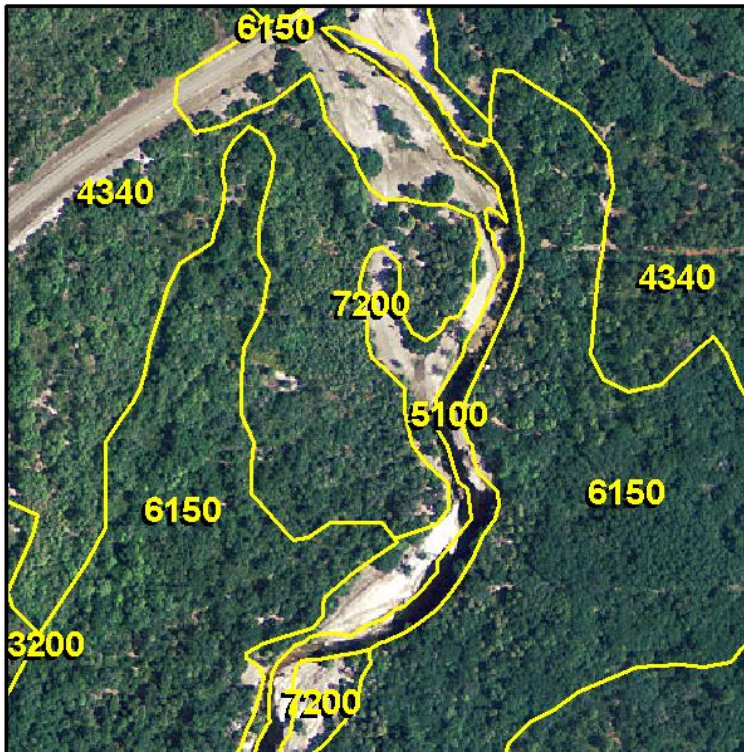
Mapping Conventions:

Point bars along river channels are included in this category if they meet the five acre minimum mapping unit.

Pictures of Classification Code: 7200



Sand Other Than Beaches (7200) - Color infrared aerial photograph



Sand Other Than Beaches (7200) - Natural color aerial photograph



Sand Other Than Beaches (7200) – Ground Photo

Classification Code: 7400 - Disturbed

Level I: Barren Land

Level II: Disturbed

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

Disturbed lands are those areas which have been changed due primarily to human activities other than mining. In Florida, these areas may be rather extensive and often appear outside of urban areas. It has very little or no vegetation and limited potential to support vegetative communities. In general, it is an area of bare soil or rock.

Context:

Barren areas can be found in any part of the District, and may be extensive in size. They are more common in former mining areas and in transitional urban areas.

Recognition Features:

- Represents a variety of situations where soil and/or substrate has been altered or removed by human activity.
- Characteristically white signatures or white signature with mottling of regenerating vegetation.
- Ground looks scraped and worked usually angular or geometric boundaries.
- May be evidence of old machinery, possibly abandoned without visible cause.
- The lack of vegetation cannot be attributed simply to fire damage.
- Examples include: Barrow areas, spoil areas.

Exclusions:

This category was not applied, as FLUCCS describes, to burned areas. Since the practice of burning is very common in agriculture and also occurs naturally, the areas were placed in either an agricultural or natural vegetation category.

It was not also applied to newly cleared rural lands as both of these were considered to be better described in an agricultural category.

Similar Classes:

- Note that there are many similarities between 7400 and 1900. It can be very difficult to determine which code to use in many situations. Typically, the best way to determine the accurate code will be to observe the surrounding land cover. Typically areas of disturbed land around new housing developments, construction areas, in urban areas, or near the urban fringe should be coded 1900. Disturbed land that you cannot determine the future use and there is no noticeable improvement evident should be determined 7400.

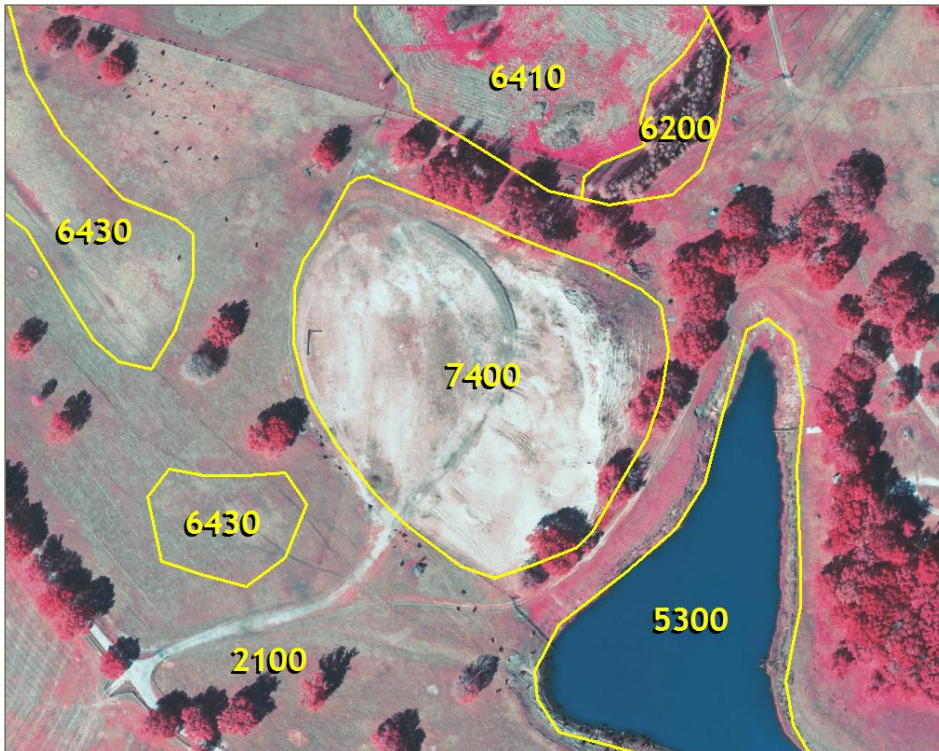
- 1500 Industrial - Industrial areas, particularly heavy industrial, are often disturbed and un-vegetated.
- 1600 Extractive - Active mining areas will appear disturbed, but are not classed as 7000s.
- 2000 Agriculture. - Fields that are un-vegetated because they are fallow or under preparation and cultivation may be confused with barren land. The context should be decisive.
- 3000 Upland Non-forested - These areas will have vegetation. There may be inclusions of barren land, which should be broken out if large and distinct.
- 1190, 1290, and 1390 - Any of the 'Under construction' classes can be disturbed, but are not dual coded with 7400

Mapping Conventions:

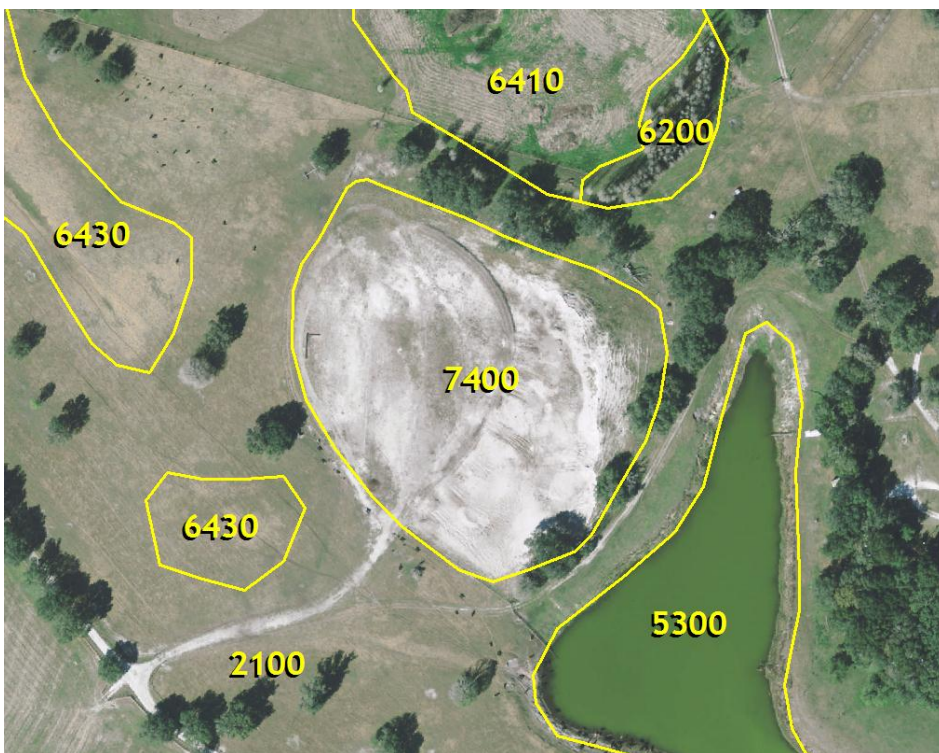
The Disturbed Lands category was used for a variety of situations primarily to denote areas where man had disturbed the ground cover and top soil and no vegetational cover was re-established.

A common use was in abandoned gravel or sand piles where the actual use could no longer be determined. Spoil islands from dredge and fill operations were also included in this disturbed category.

Pictures of Classification Code: 7400



Barren Land - Disturbed (7400) - Color infrared aerial photograph



Barren Land - Disturbed (7400) - Natural color aerial photograph



Barren Land - Disturbed (7400) - Ground photo

TRANSPORTATION, COMMUNICATIONS, AND UTILITIES

Classification Code: 8100 - Transportation

Level I: Transportation, Communication, and Utilities

Level II: Transportation

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Minimum delineation width (specifically for roads and railroads): 100 ft.

Description:

Transportation facilities are used for the movement of people and goods; therefore, they are major influences on land and many land use boundaries are outlined by them.

Examples include: Highways, Airports, Railways, Shipyards, Canals, and locks.

Recognition Features:

- Vehicular transportation routes are generally linear features of varying widths depending on degree of importance. Areas include right of ways, parking lots, facilities, and associated buildings. Photo signature will be dependent on pavement or road surface.
- Airport facilities contain characteristic features such as runways or landing strips, buildings: hangars, maintenance, and terminals, and open space right of ways. Airplanes are often recognizable on field or strip.
- Port facilities are usually located in major urban centers on open seas. Usually include docks, piers, shipyards, and water control structures. Also associated with warehouses and other modes of transportation.

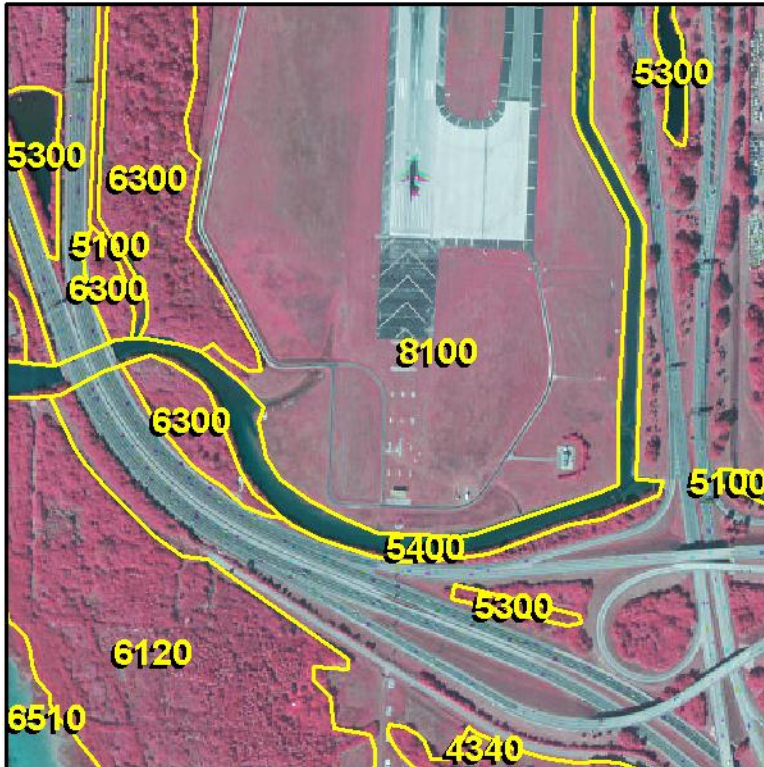
Mapping Conventions:

Highways are easily identifiable on medium altitude photography. Highways include areas used for interchanges, limited access right-of-ways, and service facilities. The center median, pavement, and sizable buffer zone should be included even if exact boundaries cannot be detected. If wetlands are found in the median, pull out as proper wetland code. Do not pull out uplands from the medians.

The transportation category encompasses rail-oriented facilities including stations, round-houses, repair and switching yards, and related areas. Airport facilities include runways, intervening land, terminals, service buildings, navigational aids, fuel storage, parking lots, and a limited buffer zone fall within the Transportation category.

Transportation areas also embrace ports, docks, shipyards, dry docks, locks, and water course control structures designed for transportation purposes. The docks and ports include buildings, piers, parking lots, and adjacent water utilized by ships in the loading and unloading of cargo or passengers. Locks, in addition to the actual structure, include the control buildings, power supply buildings, docks, and surrounding supporting land use (i.e., parking lots and green areas).

Pictures of Classification Code: 8100



Transportation (8100) - Color infrared aerial photograph



Transportation (8100) - Natural color aerial photograph



Transportation (8100) - Ground photo

Classification Code: 8200 - Communication

Level I: Transportation, Communication, and Utilities

Level II: Communication

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Description:

This class refers to communications facilities larger than 5 acres that are not attached to another land use. Airwave communications, radar and television antennas with associated structures are typical major types of communication facilities that will be identified in this category.

Context:

Located in isolated rural areas with open space - usually fenced with small buildings, but is also found in urban areas (i.e. TV and radio stations).

These structures are usually very tall, and are sometimes placed on the tops of tall buildings. They can be located anywhere, including rural areas, but are preferably sited at high points in the landscape.

Recognition Features:

- Generally refers to airwave communications and transmissions.
- Usually small facilities with towers, radars, and antenna present
- The boundaries with adjacent land cover are usually distinct.
- In rural areas these facilities show up as small, well-maintained plots of open area accessed by a service road. The plots are fenced and security is high.
- Transmission towers may be detectable, but antennae are difficult to see on photography except perhaps by their shadows.
- In urban areas the antennas and towers may be roof-mounted.

Exclusions:

When stations are associated with a commercial or governmental facility, they will be included in either of those specific categories when located within their bounds and will not be listed as a separate element (i.e., not listed as 8200.)

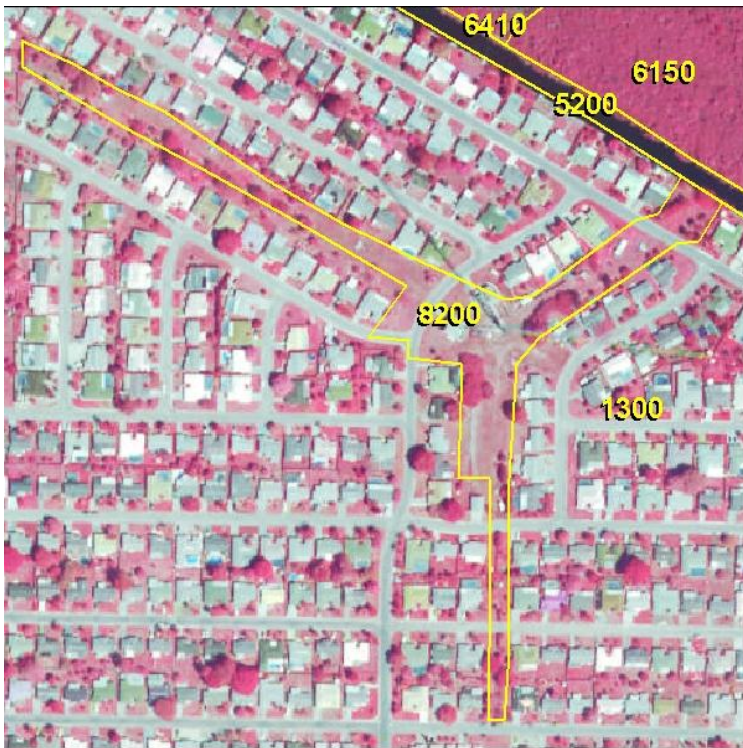
Similar Classes:

- 1900 Open Land
- 3100 Upland Non-forested

Mapping Conventions:

Only include surrounding land if it is being directly used by 8200 (example: stability cables tied down near cell towers) or is surrounded by a fence that marks the border of the site.

Pictures of Classification Code: 8200



Communications (8200) - Color infrared aerial photograph



Communications (8200) - Natural color aerial photograph



Communications (8200) - Ground photo

Classification Code: 8300 - Utilities

Level I: Transportation, Communication, and Utilities

Level II: Utilities

Minimum delineation area: 5 acres (1 acre if found within irrigated agriculture)

Minimum delineation width: 100 feet (specifically for power line corridors)

Description:

Utilities usually include power generating facilities and water treatment plants including their related facilities such as transmission lines for electric generation plants and aeration fields for sewage treatment sites. Power line corridors are also included in this category.

Recognition Features:

- Electrical Power Facilities
- Power line corridors
- Water Supply Plants (Including pumping stations)
- Sewage Treatment
- Solid Waste Disposal

Exclusions:

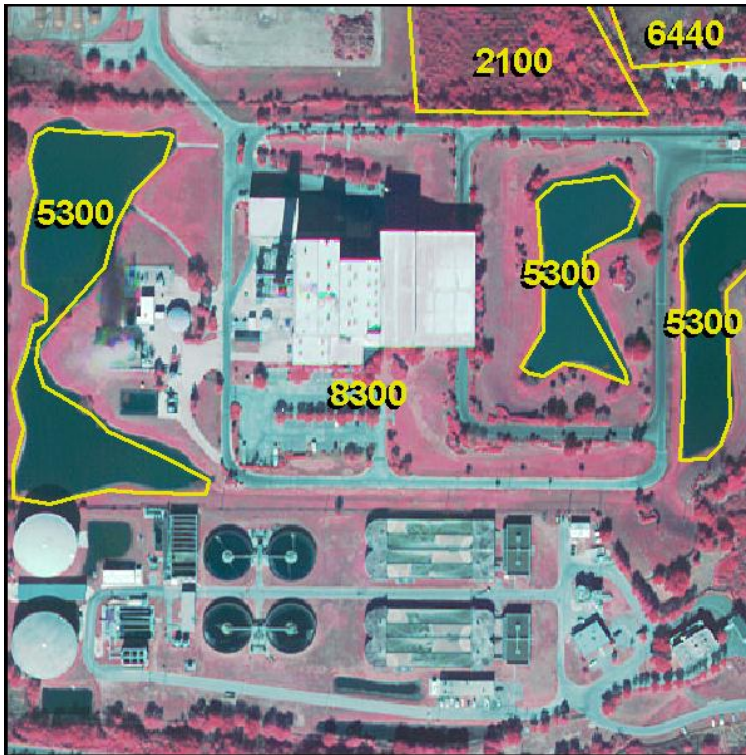
Small facilities or those associated with an industrial, commercial or extractive land use are included within these larger respective categories.

Offices and structures associated with the business functions of Utilities were classified as commercial (1400).

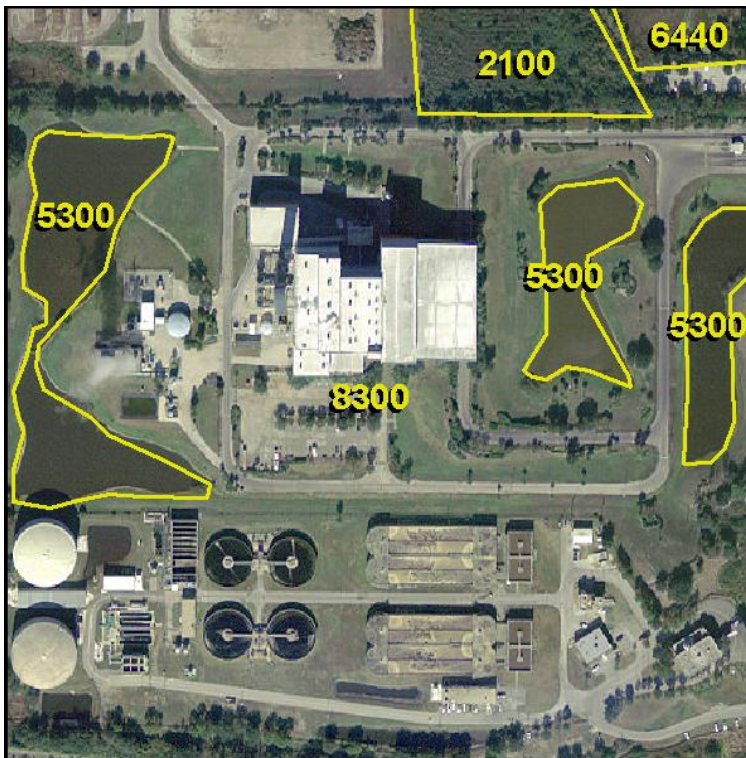
Mapping Conventions:

Power line corridors include the areas where the corridor has been physically altered from the adjacent land. These areas will look like long straight barren tracts of land that can be found across all codes. Typically, you will not see any change in the ground of a corridor that cuts through open areas with minimal structures and trees (such as 2100). It is unnecessary to delineate from these areas.

Pictures of Classification Code: 8300



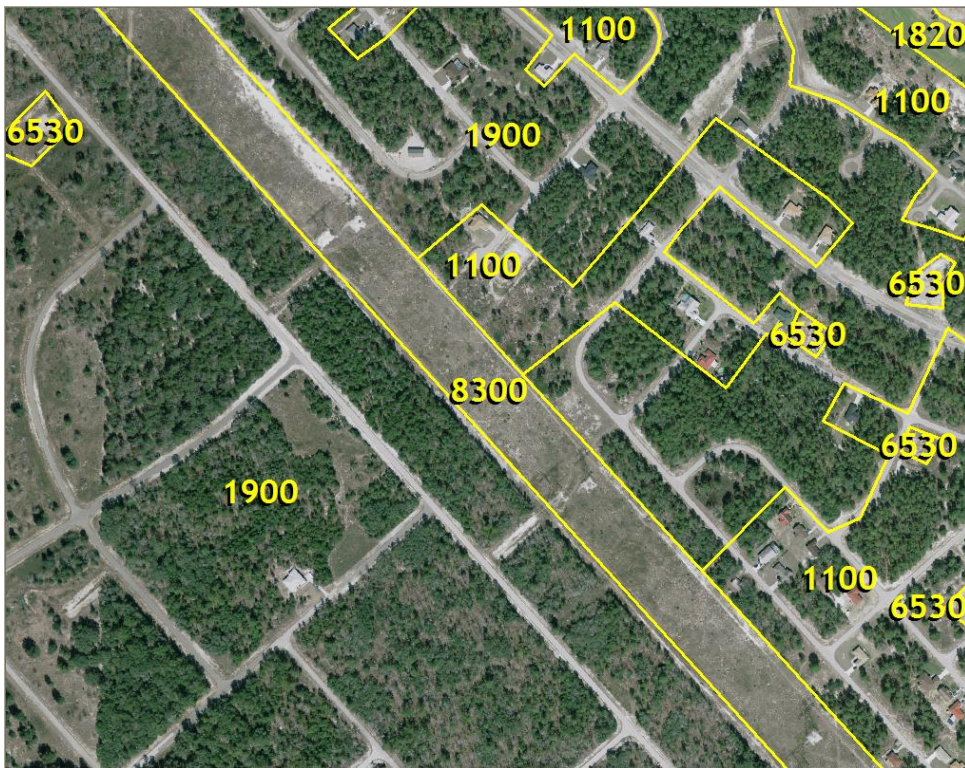
Utilities (8300) - Color infrared aerial photograph



Utilities (8300) - Natural color aerial photograph



Utilities (8300) - Color infrared aerial photograph



Utilities (8300) - Natural color aerial photograph



Utilities (8300) - Ground photo



Utilities (8300) - Ground photo