

## United States Fish and Wildlife Service National Wildlife Refuge System: Metadata for 2016 Cover Type Mapping

**Data prepared by:** Sewall

**Metadata description is for the following Refuges:**

New York:

Conscience Point (CNP), Elizabeth Alexandra Morton (MOR), Seatuck, Target Rock (TGR), and Wertheim (WRT)

New Jersey:

Cherry Valley (CHV), Great Swamp (GSR), and Walkkill (WLK)

**Projection and Datum:** NAD 1983, Zone 18N, meters

**Brief Description:** This data was prepared for the US Fish and Wildlife Service. The overall goal of the data is to provide forested and non-forested delineation and classification for the project area as described above.

**Source Data:** Stereo aerial imagery & derivative ortho imagery – near infrared, ground sampling distance of 20-cm. Ortho imagery is 0.3-m pixel resolution; infrared and digital ortho in MrSID MG4 format. Base data provided by USFW was also used.

**Date of aerial image acquisition:** Spring 2016

**Photo Interpretation and Mapping of Cover Types:** Forest cover types were interpreted using a typing scheme consisting of species composition, height, and canopy closure classes. Up to two stories (overstory and understory) can be described in forest cover types; each story describes the species, height and canopy closure of that story. Sewall worked with refuge managers to develop a species list for the local vegetation, hydrology, and landforms of the project area. Up to two species composition codes were used for each story described. For a given story, the first species code comprises at least 50% of that story's crown closure and the second species code at least 25%. If no second species code appears, then the first species code is understood to comprise at least 75% of that story's crown closure. The species codes SW and HW were used when a story was young and/or the species were very mixed. Otherwise, one of the other species codes was used. Individual species codes were used by the interpreter if an individual species could be positively identified and it made up an adequate percentage of the story's

composition according to the percentage rules stated above. Forest types were interpreted to a minimum size of five acres and non-forest types to a minimum of one acre.

### **Example Forest Cover Types:**

THSF3A: Primarily tolerant hardwood (50% or more), with at least a 25% component of spruce-fir, 36-50 feet tall, 91-100% crown closure.

WP4C/SF1B: White pine overstory, 51-70 feet tall, 25-60% crown closure with a young spruce-fir understory, 0-15 feet tall, crown closure 61-70%.

SFCE4B-W: Primarily spruce/fir, with at least a 25% component of cedar, 51-70 feet tall, 61- 90% crown closure, wet stand.

**File Format:** Feature class within an ESRI ArcGIS 10 File Geodatabase

**File Name:** USFW\_2016\_Cover\_Typing\_Z18\_Area\_2\_v1

**Attribute Descriptions:** The fields in this data are listed below by:

(Name - Data type – description)

**OBJECTID** - Object ID - ESRI ArcGIS assigned unique integer to individual polygons

**Shape** - Geometry – contains shape geometry data

**Area** - Double – surface area in square meters of polygon geometry

**Perimeter** - Double – perimeter in meters of the polygon geometry

**NWRUNIT** – Text [length 3] - not populated, as determined by USFW

**NWRNAME** - Text [length 3] – three letter USWF code for the refuge

**Acreage** - Double – as calculated from Area polygon

**Alpha** - Text [length 20] - non-forested (as defined below); forested a concatenation of OSTORY and USTORY (each as defined below), separated by “ / “; should there be a modifier (as defined below), it will be appended at the end, separated by a “ – “; should there only be an OSTORY, the “ / “ and USTORY will be omitted.

**OS1** - Text [length 2] - primary (at least 50% of story) overstory species (as defined by Species/Group Codes list below)

**OS2** - Text [length 2] - secondary (at least 25% of story) overstory species (as defined by Species/Group Codes list below)

**OHGT** - Text [length 1] – height class of the overstory (as defined in Height Class list below)

**ODEN** - Text [length 1] - overstory canopy closure class (as defined in Canopy Closure list below)

**US1** - Text [length 2] - primary (at least 50% of story) understory species (as defined by Species/Group Code list below)

**US2** - Text [length 2] - secondary (at least 25% of story) understory species (as defined by Species/Group Code list below)

**UHGT** - Text [length 1] - height class of the understory (as defined in Height Class list below)

**UDEN** - Text [length 1] - understory canopy closure class (as defined in Canopy Closure list below)

**NF\_Name** - Text [length 50] - non forest designation (as defined in non-forest Codes list below)

**NF\_Code** - Text [length 2] - non forest type code (as defined in non-forest Codes list below)

**OSTORY** - Text [length 8] - combined overstory type codes (as defined in Species/Group Code list below); a concatenation of OS1, OS2 (if present), OHGT, and ODEN – no spacing, ie, OS1OS2OHGTODEN

**USTORY** - Text [length 8] - combined understory type codes (as defined in Species/Group Code list below); a concatenation of US1, US2 (if present), UHGT, and UDEN – no spacing, ie, US1US2UHGTUDEN

**MODIFIER** - Text [length 4] – Additional information used to help describe forest stand (as defined in Modifier Codes list below)

**Structure** - Short integer – not populated, USFW schema requirement

**MAP\_CLASS** - Text [length 5] - not populated, USFW schema requirement

**UNIQ\_ID** - Long integer – unique stand identifier

**MAP\_CLASS\_F** - Text [length 5] - not populated, USFW schema requirement

**MAP\_CLASS\_N** - Text [length 30] - not populated, USFW schema requirement

**CEGL\_1** - Text [length 14] - not populated, USFW schema requirement

**CEGL\_2** - Text [length 14] - not populated, USFW schema requirement

**CEGL\_3** - Text [length 14] - not populated, USFW schema requirement

**ECOLSYS\_CO** - Text [length 14] - not populated, USFW schema requirement

**COMMENTS** - Text [length 100] - interpretation special notes.

**Shape\_Length** - polygon perimeter in meters automatically calculated by ESRI ArcGIS

**Shape\_Area** - Double - polygon area in square meters automatically calculated by ESRI ArcGIS

Species/Group Code	Species/Group Common_Name	Species/Group Code	Species/Group Common_Name
AG	Allegheny Hardwoods	PE	American persimmon
AH	American holly	PH	*Pine / Hardwood
AL	Alder spp.	PI	Pine spp.
AS	Fraxinus spp.	PN	Pin oak
BA	Black ash	PP	Pitch pine
BB	Black birch	PW	Paw Paw
BC	Black cherry	QA	Quaking aspen
BE	American beech	QC	Scarlet oak
BF	Balsam fir	RC	Eastern red cedar
BG	Black gum	RD	Rhododendron spp.
BL	Black locust	RG	*Red maple / Black gum
BM	*Black gum / Red maple	RH	Red maple / Hardwood
BO	Black oak	RM	Red maple
BS	Black spruce	RO	Northern red oak
BT	Bigtooth aspen	RP	Red pine
BW	Black willow	RS	Red spruce
CH	Hemlock / Hardwood	RV	River birch
CM	Black cherry / Maple	RW	Riparian Hardwoods
CO	Chestnut oak	SA	Sassafras
CP	Scotch pine	SC	Bear oak
CS	Atlantic white cedar / Black spruce	SD	Shadbush spp.
CT	Baldcypress / Tupelo	SE	Slippery elm
CY	Baldcypress	SG	Sweet gum
DW	Dogwood spp.	SH	Shagbark hickory
GM	*Sweet gum / Red maple	SK	Swamp white oak
GP	Sweetgum / Yellow poplar	SL	Shortleaf pine
HB	Highbush blueberry	SM	Sugar maple
HE	Hemlock	SR	Southern red oak
HI	Hickory spp.	SU	Sumac spp.
HL	Honey locust	SV	Silver maple
HP	*Hardwood / Pine	SW	Softwood
HW	Hardwood	SY	Sycamore
IH	Northeast Intolerant Hardwood	TH	Northern Hardwood
IM	Midcoast Pioneer Hardwood	TV	Tree of heaven
LH	Bottomland Oak / Hickory	UH	Upland oak / Hickory
LP	Loblolly pine	US	Upland shrub
LS	Lowland shrub	VA	Virginia pine / Pitch pine
ML	Mountain laurel	VI	Viburnum spp.
MS	*Red maple / Sweet gum	VP	Virginia pine
NH	Pignut Hickory	WA	White ash
NS	Norway spruce	WC	Atlantic white cedar
OB	Oak / Beech	WN	Black walnut
OD	Oak / Pitch Pine	WO	White oak
OH	Oak / Hardwood	WP	White pine
OM	Mixed Oak	YB	Yellow birch
OU	Sourwood	YP	Yellow poplar / Tulip tree

\* Indicates that the species listed in the group name are in order of more prevalent to less prevalent. An additional group code with the species listed in reverse order exists.

Non_Forest_Code	Non_Forest_Description
AF	Abandoned Field
AL	Alder Swale
BB	Blueberry Barren
BL	Blueberry Shrubland Swamp
BN	Buttonbrush Shrub Swamp
BR	Upland Brush
BV	Beaver Marsh/Bog/Pond
CB	Cobble
CL	Commercial, Abandoned Military
CM	Cattail Marsh
CR	Cropland
ES	Ericaceous Shrubs
GM	Graminoid Marsh
GP	Gravel pit
JY	Junkyard / Dump
LG	Ledge
MB	Macrophyte Bed
MG	Managed Grassland
MS	Maritime Shrub
MW	Meadow
OB	Peat Bog
OT	Other
PA	Animal Pasture
PB	Pitch Pine Bog
PH	Phragmites spp.
RE	Residential
RM	Reed Marsh
SB	Sand Beach
SM	Salt Marsh
SS	Shrub Swamp
SW	Red Maple Swamp
TB	Treed Peat Bog
UT	Utility/Transportation
WA	Open Water
WI	Wetland Impoundment
YD	Log Yard

**ES** = blueberry, huckleberry, rhododendron, mountain laurel

**Height Class:**

1	0-15 feet
2	16-35 feet
3	36-50 feet
4	51-70 feet
5	71-100 feet
6	100+ feet

**Canopy Closure:**

A	91-100%
B	61-90%
C	25-60%
D	5-25%

**Modifier Codes:**

A	Former Agriculture
C	Recently Cut
D	Dead
P	Plantation
R	Rocky
T	Recently Thinned
W	Wet

For additional information or clarification, please contact either:

Mary McDonald  
Sewall Project Manager  
136 Center Street, P.O. Box 433  
Old Town, ME 04468  
Direct Phone: (207)-817-5446  
Business Phone: (207)-827-4456  
Fax: (207)-827-3641  
[mcdm@sewall.com](mailto:mcdm@sewall.com)  
[www.sewall.com](http://www.sewall.com)  
Please reference Sewall project number 84510L

Jeff Horan  
FWS Project Manager  
Forest Ecologist, NWRS  
Division of Natural Resources  
U.S. Fish and Wildlife Service  
300 Westgate Center Dr.  
Hadley, MA 01035  
(o) 413-253-9228  
(m) 413-345-8294  
[Jeff\\_Horan@fws.gov](mailto:Jeff_Horan@fws.gov)