

WV_LULC_NAIP_2016.tif

Raster Dataset

WV_LULC_NAIP_2016	
01	Water
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03	Small Stream Riparian Habitats
04	Roads
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06	Mixed Development
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22	Mine Grass
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Tags

2016, land cover, rule based classifiers

Summary

This goal of this project was to take advantage of the free publicly available statewide 2016 high resolution National Aerial Image Program (NAIP) imagery for West Virginia and the training data points previously used for classifying the 2011 NAIP imagery to create high spatial and temporal land cover mapping products.

Description

1 Water was classified spectrally using the methods described in Maxwell et al. (2019). Water includes all standing water, including rivers, streams, ponds, lakes, and impoundments.

2 River Floodplains River Floodplains were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest or Low Vegetation areas were present and River Floodplains overlapped from the WV Terrestrial Habitat Map, then River Floodplains were mapped in the final classification.

River floodplains are the natural vegetation in the floodplains of rivers. These habitats include jurisdictional wetlands and areas of floodplain that are not jurisdictional wetlands. Wetland habitats include forests, shrublands, and herbaceous communities that are flooded for

significant periods during the growing season, have hydric soils, and support hydrophytes. Natural non-wetland floodplain vegetation is usually forested and occupies well-drained levees and other floodplain positions that are not flooded for significant periods during the growing season, but which may be flooded in the dormant season or by occasional high water events. Most floodplains include both wetland and non-wetland habitats. They often occur in complex mosaics of natural, semi-natural, and cultural vegetation. Common names for these habitats include floodplain forests, swamp forests, riparian forests, riverscours woodlands, shrub swamps, marshes, wet meadows, backwater sloughs, oxbows, rivershores, cobble bars, and riverscours prairies. Common trees of forested floodplains at lower elevations include Sycamore (*Platanus occidentalis*), Silver Maple (*Acer saccharinum*), River Birch (*Betula nigra*), White Ash, Green Ash (*Fraxinus pennsylvanica*), Sugar Maple, Pin Oak (*Quercus palustris*), and Tuliptree. High elevation floodplain forests are often dominated by Red Spruce, Yellow Birch, and/or Eastern Hemlock. Shrub swamps of lower elevation floodplains are often dominated by Smooth Alder (*Alnus serrulata*) or Buttonbrush (*Cephalanthus occidentalis*). Riverscours prairies are usually characterized by warm-season grasses such as Big Bluestem (*Andropogon gerardii*) and Switch Grass (*Panicum virgatum*), but these are lacking in riverscours prairies at higher elevations. Herbaceous wetland floodplain communities may be dominated by species of bulrushes (*Scirpus* spp., *Schoenoplectus* spp.), burreeds (*Sparganium* spp.), rushes (*Juncus* spp.), sedges (*Carex* spp., *Dulichium* spp.), water lilies (*Nuphar* spp., *Nymphaea* spp.) and/or other species.

3 Small Stream Riparian Habitats Small stream riparian habitats were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest or Low Vegetation were present and Small Stream Riparian Habitats overlapped from the WV Terrestrial Habitat Map, then we mapped Small Stream Riparian Habitats in the final classification.

Small stream riparian habitats are natural vegetation of variable physiognomy in the floodplains of small streams, primarily at low to middle elevations. These habitats are mostly jurisdictional wetlands, but narrow riparian zones that are not wetlands may also be included. Habitats include headwater wetlands and seeps, and wetlands and riparian zones along creeks and other small streams. Beaver-influenced wetlands are common. Common names for these habitats include floodplain forests, swamp forests, riparian forests, riparian zones, forest seeps, shrub swamps, marshes, wet meadows, Beaver meadows, and Beaver ponds.

4 Roads Roads had precedence over all other spectrally derived mapped feature classes since they could be found under the canopy of forested or other vegetated areas. Roads were “burned into” the final classification using the road features published by the Census Bureau 2011. US Census utilized local data including but not limited to 2003 SAMP linework to develop 2011 Tiger road data. In addition, the WVGISTC has performed an update and correction of select features. <http://wvgis.wvu.edu/data/dataset.php?ID=300>

5 Impervious Impervious areas were classified spectrally using the methods described in Maxwell et al. (2019). All areas dominated by impervious surface, such as road surfaces, parking lots, airport runways, and buildings were classified as impervious.

6 Mixed Developed Mixed developed areas were classified spectrally using the methods described in Maxwell et al. (2019). It includes areas dominated by mixed development and mixed land cover, such as residential areas, yards, and development.

7 Barren Barren areas were classified spectrally using the methods described in Maxwell et al. (2019). All areas dominated by non-vegetated areas not associated with impervious surface. This class includes bare soil, quarries, and surface mine features.

8 Mine Barren Mine barren was mapped using the WV mine permit polygon boundaries from

the WV Department of Environmental Protection Technical Applications in GIS <https://tagis.dep.wv.gov/home/downloads> office with the spectrally derived land cover. From the spectrally derived land cover, if Barren areas were present and overlapped with the WV mine permit polygon boundaries, then Mine Barren was mapped in the final classification.

9 Oil and Gas Barren The Marcellus Shale Wells are mapped as points by the WV Geologic and Economic Survey <https://www.wvgs.wvnet.edu/www/datastat/devshales.htm>. The correct points were used to match the date of the 2016 NAIP imagery, and the SPUD dates were checked to verify activity at the well permit. After a 25-ha buffer was applied to each well, all impervious land cover within the buffer was classified as Oil and Gas Barren. This work was accomplished by Kevin Harris and Dr. Shawn Grushecky from the Energy Land Management Program at WVU.

10 Other Forests Other forests were mapped as all the remaining forested land that was spectrally derived but did not include the specific types classified as River Floodplains, Small Stream Riparian Habitats, Red Spruce Forests, Northern Hardwood Forests, Mixed Mesophytic Forests, Dry-Mesic Oak Forests, Dry Oak (Pine) Forests, Pine Oak Rock Woodlands, Dry Calcareous Forests, Montane Red Oak Forests.

11 Red Spruce Forests Red Spruce Forests were mapped using the Red Spruce polygons defined by the WV DNR <http://wvgis.wvu.edu/data/dataset.php?ID=455> (Elizabeth Byers contact) with the spectrally derived land cover. From the spectrally derived land cover, if Forest were present and the Red Spruce polygons overlapped, then Red Spruce Forests were mapped in the final classification.

Red Spruce Forests are usually found where soils are rocky, highly acidic, and cold. Associated trees may include the evergreen Eastern Hemlock, and deciduous Yellow Birch, Red Maple, American Beech, Mountain Ash, and Black Cherry. Common shrubs include Mountain Holly, Great Rhododendron, Striped Maple, Southern Mountain Cranberry (*Vaccinium erythrocarpum*), and Mountain Laurel. The herb layer is characterized by species adapted to short, cool growing seasons, including Intermediate Woodfern, Mountain Woodfern (*Dryopteris campyloptera*), Mountain Wood Sorrel, Canada Mayflower, and Painted Wakerobin (*Trillium undulatum*). Mosses and liverworts often have heavy cover over the rocky ground. This upland forest ecosystem may include forest seeps which are too small to map as a separate wetland habitat.

12 Northern Hardwood Forests Northern hardwood forests were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest areas were present and Northern Hardwood Forest overlapped from the WV Terrestrial Habitat Map, then Northern Hardwood Forests were mapped in the final classification.

Northern Hardwood Forests are upland deciduous and mixed deciduous-evergreen forests at high elevations in the Allegheny Mountains Ecoregion. Common deciduous tree species in natural forests include Sugar Maple, Red Maple, American Beech, Yellow Birch, Sweet Birch, Black Cherry, Red Oak, Cucumber-tree (*Magnolia acuminata*), and White Ash. Some stands may include or be dominated by Eastern Hemlock. Red Spruce (*Picea rubens*) is often present but is not abundant in the tree canopy. Common shrubs include Striped Maple and Mountain Holly. The herb layer is characterized by species adapted to short, cool growing seasons, including Intermediate Woodfern (*Dryopteris intermedia*), New York Fern (*Thelypteris noveboracensis*), Mountain Wood Sorrel (*Oxalis montana*), and Canada Mayflower (*Maianthemum canadense*). This upland forest ecosystem may include forest seeps which are too small to map as a separate wetland habitat. Semi-natural forests within this map class often have canopy composition similar to natural forests, or may be dominated by a single species such as Black Cherry or Red Maple. The map class may also include plantations of Red

Pine, Eastern White Pine, Norway Spruce (*Picea abies*), and Red Spruce.

13 Mixed Mesophytic Forests Mixed Mesophytic forests were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest areas were present and Mixed Mesophytic Forest overlapped from the WV Terrestrial Habitat Map, then Mixed Mesophytic Forests were mapped in the final classification.

Mixed Mesophytic Forest are upland deciduous and mixed deciduous-evergreen forests in moist (mesic) habitats at lower to middle elevations throughout the state. Examples can be found on concave slopes that promote moist conditions, commonly called cove forests. Common deciduous tree species in natural stands include Sugar Maple, American Basswood, American Beech, Red Maple, Tuliptree, Red Oak (*Quercus rubra*), Sweet Birch, White Ash, and Yellow Buckeye (*Aesculus flava*). Some stands may include or be dominated by Eastern Hemlock (*Tsuga canadensis*). Common shrubs include Great Rhododendron (*Rhododendron maximum*), Spicebush, Witch Hazel, and Striped Maple. The herb layers of deciduous Mixed Mesophytic Forests are often lush and diverse, characterized by a flush of spring ephemerals followed by late season dominance by Wood Nettle (*Laportea canadensis*) and ferns. In contrast, hemlock dominated Mixed Mesophytic Forests typically have low cover and diversity of herbs. Bryophytes may be abundant in all types. Semi-natural forests within this map class may be dominated by Tuliptree, Black Walnut (*Juglans nigra*), White Ash, and/or Black Cherry. Semi-natural forests on more acidic sites (with hemlock potential) may be dominated by pines.

14 Dry-Mesic Oak Forests Dry mesic oak forests were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest areas were present and Dry Mesic Oak Forest overlapped from the WV Terrestrial Habitat Map, then Dry Mesic Oak Forests were mapped in the final classification.

Dry Mesic Oak Forests are upland, mostly deciduous forests at lower and middle elevations throughout the state. Soils are usually somewhat less acidic and more fertile compared to the Dry Oak (-Pine) Forest, but are dryer than the Mixed Mesophytic Forest or Northern Hardwood Forest. Most stands have a large component of oaks, including Red Oak, Chestnut Oak, White Oak, and Black Oak. A subset can be described as oak – hickory forests with a large component of hickory species including Pignut, Mockernut (*Carya alba*), and Shagbark. Other common trees include Red Maple, Sugar Maple, White Ash, Tuliptree, Black Gum (*Nyssa sylvatica*), and American Beech (*Fagus grandifolia*). Common small trees and shrubs include Sourwood, Witch Hazel (*Hamamelis virginiana*), Hop Hornbeam, Serviceberry (*Amelanchier arborea*), and Dogwood. Heath shrubs may be present but are not abundant as in the Dry Oak (-Pine) Forest. Common vines include Virginia Creeper (*Parthenocissus quinquefolia*) and Greenbrier (*Smilax rotundifolia*). The herb layer ranges from sparse to moderate and is often quite diverse. Semi-natural forests within this map class may be dominated by Tuliptree, Black Locust (*Robinia pseudoacacia*), Red Maple, Sweet Birch, or Eastern White Pine. This map class also includes areas of pine plantations.

15 Dry Oak (-Pine) Forests Dry oak (-Pine) forests were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest areas were present and Dry Oak (-Pine) Forests overlapped from the WV Terrestrial Habitat Map, then Dry Oak (-Pine) Forests were mapped in the final classification.

Dry Oak (-Pine) Forests are upland deciduous and mixed evergreen-deciduous forests on warm, dry topographic positions and soils throughout the state, except at the highest elevations, most extensive in the Ridge and Valley Ecoregion. Soils are typically shallow, dry, and highly acidic, with low to moderate fertility. Dominant trees include Chestnut Oak, Scarlet Oak (*Quercus coccinea*), Black Oak (*Quercus velutina*), White Oak, and Red Maple (*Acer rubrum*). Sourwood (*Oxydendrum arboreum*) is a common small tree, except in the Ridge and

Valley Ecoregion, where it is absent. In the eastern counties there are large areas where Eastern White Pine is codominant with oaks. Other pines are often found scattered in mostly deciduous stands. Some small patches in the Western Allegheny Plateau and Cumberland Mountains ecoregions are dominated or codominated by Virginia Pine or Short Leaf Pine. Understories are usually dominated by heath shrubs, including Mountain Laurel, Black Huckleberry, and blueberries. Herb layers are usually sparse and have low diversity.

16 Pine-Oak Rocky Woodlands Pine-Oak Rocky Woodlands were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest areas were present and Pine-Oak Rocky Woodlands overlapped from the WV Terrestrial Habitat Map, then Pine-Oak Rocky Woodlands were mapped in the final classification.

Pine-Oak Rocky Woodlands are upland evergreen and mixed evergreen-deciduous woodlands and forests in hot, very dry topographic positions. Soils are usually shallow, rocky, coarse textured and highly acidic. This habitat type is confined to the eastern counties where a dry climate is produced by the rain shadow on the lee side of the Allegheny Mountains. Stands are often small patches on rocky summits, outcrops, and cliffs. Habitats include edaphic pine stands on extremely dry sites such as cliff tops, and successional pine stands which follow fire on deeper soils. Dominant pines which comprise distinct subtypes include Pitch Pine (*Pinus rigida*), Table Mountain Pine (*Pinus pungens*), Virginia Pine (*Pinus virginiana*), and Red Pine (*Pinus resinosa*). Oaks are sometimes codominant. Trees are often stunted and stand physiognomy is sometimes dwarf forest with canopy less than 16 feet tall. The understories are usually dominated by dense heath shrubs including Mountain Laurel (*Kalmia latifolia*), blueberries (*Vaccinium* spp.), and Black Huckleberry (*Gaylussacia baccata*). The herb layer is typically sparse and has low diversity. This habitat type also includes sandstone glades with high exposure of bedrock pavement with scattered, dwarfed trees, including pines and Eastern Red Cedar (*Juniperus virginiana*).

17 Dry Calcareous Forests, Woodlands, and Glades Dry Calcareous Forests, Woodlands, and Glades were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest areas were present and Dry Calcareous Forests, Woodlands, and Glades overlapped from the WV Terrestrial Habitat Map, then Dry Calcareous Forests, Woodlands, and Glades were mapped in the final classification.

Dry to dry-mesic calcareous forests, woodlands, and glades within the range of Chinquapin Oak (*Quercus muehlenbergii*) at low to middle elevations, most abundant in areas with drier climates in the rain shadow on the lee side of the Allegheny Mountains. They are restricted to areas where soils are influenced by calcareous geology, including limestone and dolomite. Natural vegetation of forests is dominated by oak and hickory species, including Chinquapin Oak, White Oak (*Quercus alba*), Red Oak, Bitternut Hickory (*Carya cordiformis*), and Shagbark Hickory (*Carya ovata*), with codominance by a variety of other hardwoods, including Black Maple (*Acer nigrum*), Sugar Maple (*Acer saccharum*), and White Ash (*Fraxinus americana*). Common shrubs and small trees include Paw Paw (*Asimina triloba*), Muscletree (*Carpinus caroliniana* ssp. *virginiana*), Redbud (*Cercis canadensis*), Dogwood (*Cornus florida*), Spicebush (*Lindera benzoin*), Hop Hornbeam (*Ostrya virginiana*), and Black Haw (*Viburnum prunifolium*). Herb layers are usually diverse, combining species with affinities for other oak-hickory forests in the region and more strict calciphiles. Open stand structure of woodland and glade habitats is maintained by drought stress to trees and in some cases by avalanches, fire, or grazing. Common woodland trees include Eastern Red Cedar, Chinquapin Oak, Red Oak, and White Ash. Some of the oldest known living trees in the eastern United States are Eastern Red Cedars found in this habitat in West Virginia. The herb layer is usually diverse and includes several globally and state rare species.

18 Montane Red Oak Forests Montane Red Oak Forests were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land

cover. From the spectrally derived land cover, if Forest areas were present and Montane Red Oak Forests overlapped from the WV Terrestrial Habitat Map, then Montane Red Oak Forests were mapped in the final classification.

Montane Red Oak Forests are forests dominated by Red Oak at high elevations in the Ridge and Valley Ecoregion and along the border with Virginia on Allegheny Mountain in the Allegheny Mountains Ecoregion. Other oaks and hickories are generally excluded and canopy height is stunted due to severe climate. There is usually abundant coarse woody debris and an open canopy structure due to tree damage from wind and ice storms. Associated trees include Red Maple, Sugar Maple, Black Cherry (*Prunus serotina*) and Sweet Birch. Common subcanopy trees and shrubs include Striped Maple (*Acer pensylvanicum*), Witch Hazel, and Mountain Holly (*Ilex montana*). Some stands have shrub layers dominated by heaths. Herb layers are variable, with variants dominated by combinations of grasses, forbs, and ferns.

19 Low Vegetation Low vegetation was classified spectrally using the methods described in Maxwell et al. (2019). Low vegetation includes such vegetation as grasslands, pastureland, agricultural fields, and croplands..

20 Hay/Pasture Hay/Pasture was mapped using the National Land Cover Dataset for 2016 <https://www.mrlc.gov/data/nlcd-2016-land-cover-conus> with the spectrally derived land cover. From the spectrally derived land cover, if Low Vegetation areas were present and Hay/Pasture overlapped from the NLCD 2016 Map, then Hay/Pasture were mapped in the final classification.

Hay/Pasture are areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.

21 Cultivated Crops Cultivated Crops was mapped using the National Land Cover Dataset for 2016 <https://www.mrlc.gov/data/nlcd-2016-land-cover-conus> with the spectrally derived land cover. From the spectrally derived land cover, if Low Vegetation areas were present and Cultivated Crops overlapped from the NLCD 2016 Map, then Cultivated Crops were mapped in the final classification.

Cultivated Crops are areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.

22 Mine Grass Mine grass was mapped using the WV mine permit polygon boundaries from the WV Department of Environmental Protection Technical Applications in GIS <https://tagis.dep.wv.gov/home/downloads> office with the spectrally derived land cover. From the spectrally derived land cover, if Low Vegetation areas were present and overlapped with the WV mine permit polygon boundaries, then Mine Grass was mapped in the final classification.

23 Shale Barrens Shale Barrens were mapped using the WV Terrestrial Habitat Map <http://wvgis.wvu.edu/data/dataset.php?ID=465> with the spectrally derived land cover. From the spectrally derived land cover, if Forest or Low Vegetation areas were present and Shale Barrens overlapped from the WV Terrestrial Habitat Map, then Shale Barrens were mapped in the final classification.

Shale Barrens are small patch woodlands and openings on hot, dry topographic positions on Devonian shales in the Ridge and Valley Ecoregion and in the Greenbrier Valley of the Allegheny Mountains Ecoregion. Substrates are usually acidic, but a smaller subset of communities occurs on calcareous shale. An open stand structure and short canopy is maintained by drought stress to trees, compounded by continual erosion of the bare shale

substrate. The most common trees are Virginia Pine and Chestnut Oak, with lesser amounts of Red Oak (*Quercus rubra*), Pignut Hickory (*Carya glabra*), and Eastern Red Cedar. The herb layer is often diverse and includes a distinct assemblage of herbs called "shale barren endemics," which occur nowhere else in the world.

24 Wetlands PEM National Wetlands Inventory palustrine emergent wetlands were burned into the final classification using the Wetland_TY attribute field Palustrine Emergent Wetland. This wetland dataset was created by the WV DEP in coordination with the U.S. Fish and Wildlife Service.

In this wetland Class, emergent plants—i.e., erect, rooted, herbaceous hydrophytes, excluding mosses and lichens—are the tallest life form with at least 30% areal coverage. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants. All Water Regimes are included except Subtidal and Irregularly Exposed. Not all Water Regimes apply to all subclasses. In areas with relatively stable climatic conditions, Emergent Wetlands maintain the same appearance year after year. Emergent Wetlands are found throughout the U.S. and occur in all Systems except the Marine. Emergent Wetlands are known by many names, including marsh, wet meadow, fen, prairie pothole, and slough. Areas that are dominated by pioneer plants, which become established during periods of low water, are not Emergent Wetlands and should be classified as Vegetated Unconsolidated Shores or Vegetated Streambeds. <https://www.fws.gov/wetlands/documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States-2013.pdf>

25 Wetlands PFO PSS National Wetlands Inventory palustrine forested and palustrine shrub scrub wetlands were burned into the final classification using the Wetland_TY attribute field for PFO and PSS. This wetland data was created by the WV DEP in coordination with the U.S. Fish and Wildlife Service.

The wetland class Palustrine Forested are in forested wetlands where trees are the dominant life form—i.e., the tallest life form with at least 30 percent areal coverage. Trees are defined as woody plants at least 6 m (20 ft) in height. In Scrub-Shrub Wetlands, woody plants less than 6 m (20 ft) tall are the dominant life form—i.e., the tallest life form with at least 30 percent areal coverage. For the wetland class Palustrine Shrub Scrub, the "shrub" life form actually includes true shrubs, young specimens of tree species that have not yet reached 6 m in height, and woody plants (including tree species) that are stunted because of adverse environmental conditions. All Water Regimes except Subtidal and Regularly Flooded-Tidal Fresh are included. Not all Water Regimes apply to all subclasses. Forested Wetlands are most common in the eastern U.S. and in those sections of the West where moisture is relatively abundant, particularly along rivers and in the mountains. They occur only in the Palustrine and Estuarine Systems and normally possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer. Scrub-Shrub Wetlands may represent a successional stage leading to Forested Wetland, or they may be relatively stable communities. They occur only in the Estuarine and Palustrine Systems, but are one of the most widespread Classes in the U.S. (Shaw and Fredine 1956). Scrub-Shrub Wetlands are known by many names, such as shrub swamp (Shaw and Fredine 1956), shrub carr (Curtis 1959), bog (Heinselman 1970), fen (Jeglum 1974), and pocosin (Kologiski 1977). For practical reasons we have also included stands of young trees less than 6 m tall." <https://www.fws.gov/wetlands/documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States-2013.pdf>

Credits

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Use limitations

There are no access and use limitations for this item.

Extent

West -82.703366 **East** -77.657749
North 40.639777 **South** 37.160600

Scale Range

Maximum (zoomed in) 1:5,000
Minimum (zoomed out) 1:50,000

ArcGIS Metadata ►

Topics and Keywords ►

* **CONTENT TYPE** Downloadable Data
EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

Hide Topics and Keywords ▲

Citation ►

* **TITLE** WV_LULC_NAIP_2016.tif
PRESENTATION FORMATS * digital map

Hide Citation ▲

Citation Contacts ►

RESPONSIBLE PARTY
INDIVIDUAL'S NAME Mike Strager
ORGANIZATION'S NAME West Virginia University
CONTACT'S POSITION Professor
CONTACT'S ROLE principal investigator

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TYPE
CITY Morgantown
ADMINISTRATIVE AREA WV
POSTAL CODE 26506

Hide Contact information ▲

Hide Citation Contacts ▲

Resource Details ►

DATASET LANGUAGES * English (UNITED STATES)

SPATIAL REPRESENTATION TYPE * grid

* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.5.1.7333

CREDITS

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ARCGIS ITEM PROPERTIES

* NAME WV_LULC_NAIP_2016.tif

* LOCATION file:///C:/MIKE/Projects/Landscape Characterization for 2016 imagery/FINAL DELIVERABLES AND REPORT/for-delivery/WV_LULC_NAIP_2016.tif

* ACCESS PROTOCOL Local Area Network

[Hide Resource Details ▲](#)

Extents ►

EXTENT

GEOGRAPHIC EXTENT

BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

* WEST LONGITUDE -82.703366

* EAST LONGITUDE -77.657749

* NORTH LATITUDE 40.639777

* SOUTH LATITUDE 37.160600

* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM

* WEST LONGITUDE 355936.992285

* EAST LONGITUDE 782841.992285

* SOUTH LATITUDE 4117440.159232

* NORTH LATITUDE 4498770.159232

* EXTENT CONTAINS THE RESOURCE Yes

[Hide Extents ▲](#)

Spatial Reference ►

ARCGIS COORDINATE SYSTEM

* TYPE Projected

* GEOGRAPHIC COORDINATE REFERENCE GCS_North_American_1983

* PROJECTION NAD_1983_UTM_Zone_17N

* COORDINATE REFERENCE DETAILS

PROJECTED COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER 26917

X ORIGIN -5120900

Y ORIGIN -9998100

XY SCALE 450445547.3910538

Z ORIGIN -100000

Z SCALE 10000
 M ORIGIN -100000
 M SCALE 10000
 XY TOLERANCE 0.001
 Z TOLERANCE 0.001
 M TOLERANCE 0.001
 HIGH PRECISION true
 LATEST WELL-KNOWN IDENTIFIER 26917
 WELL-KNOWN TEXT PROJCS["NAD_1983_UTM_Zone_17N",GEOGCS
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 ["Central_Meridian",-81.0],PARAMETER["Scale_Factor",0.9996],PARAMETER
 ["Latitude_Of_Origin",0.0],UNIT["Meter",1.0],AUTHORITY["EPSG",26917]]

REFERENCE SYSTEM IDENTIFIER

* VALUE 26917
 * CODESPACE EPSG
 * VERSION 6.13(3.0.1)

Hide Spatial Reference ▲

Spatial Data Properties ►

GEORECTIFIED GRID ►

* NUMBER OF DIMENSIONS 2

AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE column (x-axis)

* DIMENSION SIZE 85381

* RESOLUTION 5.000000 m (meter)

AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE row (y-axis)

* DIMENSION SIZE 76266

* RESOLUTION 5.000000 m (meter)

* CELL GEOMETRY area

* POINT IN PIXEL center

* TRANSFORMATION PARAMETERS ARE AVAILABLE Yes

* CHECK POINTS ARE AVAILABLE No

CORNER POINTS

* POINT 355936.992285 4117440.159232

* POINT 355936.992285 4498770.159232

* POINT 782841.992285 4498770.159232

* POINT 782841.992285 4117440.159232

* CENTER POINT 569389.492285 4308105.159232

Hide Georectified Grid ▲

ARCGIS RASTER PROPERTIES ►

GENERAL INFORMATION

* PIXEL DEPTH 16
 * COMPRESSION TYPE LZW
 * NUMBER OF BANDS 1
 * RASTER FORMAT TIFF
 * SOURCE TYPE continuous
 * PIXEL TYPE unsigned integer
 * NO DATA VALUE 65535
 * HAS COLORMAP No
 * HAS PYRAMIDS No

[Hide ArcGIS Raster Properties ▲](#)

[Hide Spatial Data Properties ▲](#)

Spatial Data Content ►

IMAGE DESCRIPTION

* TYPE OF INFORMATION image

BAND INFORMATION

* DESCRIPTION Band_1
 * MAXIMUM VALUE 25.000000
 * MINIMUM VALUE 1.000000
 * NUMBER OF BITS PER VALUE 16

[Hide Spatial Data Content ▲](#)

Geoprocessing history ►

PROCESS

PROCESS NAME

DATE 2019-12-11 14:01:08

TOOL LOCATION c:\program files\arcgis\pro\Resources\ArcToolbox\toolboxes\Spatial Analyst Tools.tbx\Reclassify

COMMAND ISSUED

```
Reclassify combo2 VALUE "1 1;2 2;3 3;4 4;5 5;6 6;7 7;8 8;9 9;10 10;19 19;20
20;21 21;22 22;23 23;24 24;25 25;401 1;404 4;405 5;406 6;407 7;408 8;410 17;419
19;420 20;421 21;422 22;424 24;425 25;601 1;604 4;605 5;606 6;607 7;608 8;609
9;610 11;619 19;620 20;621 21;622 22;624 24;625 25;1101 1;1104 4;1105 5;1106
6;1107 7;1108 8;1109 9;1110 16;1119 19;1120 20;1121 21;1122 22;1125 25;1201
1;1204 4;1205 5;1206 6;1207 7;1208 8;1209 9;1210 15;1219 19;1220 20;1221
21;1222 22;1224 24;1225 25;1301 1;1304 4;1305 5;1306 6;1307 7;1310 18;1319
19;1320 20;1321 21;1322 22;1324 24;1601 1;1604 4;1605 5;1606 6;1607 7;1608
8;1609 9;1610 13;1619 19;1620 20;1621 21;1622 22;1624 24;1625 25;1901 1;1904
4;1905 5;1906 6;1907 7;1908 8;1909 9;1910 14;1919 19;1920 20;1921 21;1922
22;1924 24;1925 25;2001 1;2004 4;2005 5;2006 6;2007 7;2008 8;2009 9;2010
12;2019 19;2020 20;2021 21;2022 22;2024 24;2025 25"
C:\temp\WV_lulc_2016_REDONE\working\decfinal.tif DATA
```

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS

PROCESS NAME

DATE 2020-01-08 22:04:54

TOOL LOCATION c:\program files\arcgis\pro\Resources\ArcToolbox\toolboxes\Data Management Tools.tbx\Copy

COMMAND ISSUED

```
Copy C:\temp\WV_lulc_2016_12-11-19\decfinal.tif C:\temp\WV_lulc_2016_12-11-19
```

```
\for-delivery\decfinal.tif "Raster Dataset" #
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No
```

PROCESS**PROCESS NAME**

DATE 2020-01-08 22:05:39

TOOL LOCATION c:\program files\arcgis\pro\Resources\ArcToolbox\toolboxes\Data Management Tools.tbx\Rename

COMMAND ISSUED

```
Rename C:\temp\WV_lulc_2016_12-11-19\for-delivery\decfinal.tif
C:\temp\WV_lulc_2016_12-11-19\for-delivery\WV_LULC_Naip_derived.tif
RasterDataset
```

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

PROCESS**PROCESS NAME**

DATE 2020-01-08 22:07:13

TOOL LOCATION c:\program files\arcgis\pro\Resources\ArcToolbox\toolboxes\Data Management Tools.tbx\Rename

COMMAND ISSUED

```
Rename C:\temp\WV_lulc_2016_12-11-19\for-delivery\WV_LULC_Naip_derived.tif
C:\temp\WV_lulc_2016_12-11-19\for-delivery\WV_LULC_NAIP_2016.tif RasterDataset
```

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

*Hide Geoprocessing history ▲***Distribution ►****DISTRIBUTION FORMAT**

* NAME Raster Dataset

*Hide Distribution ▲***Fields ►****DETAILS FOR OBJECT WV_LULC_NAIP_2016.tif.vat ►**

* TYPE Table

* ROW COUNT 25

FIELD OID ►

* ALIAS OID

* DATA TYPE OID

* WIDTH 4

* PRECISION 0

* SCALE 0

* FIELD DESCRIPTION

Internal feature number.

* DESCRIPTION SOURCE

Esri

* DESCRIPTION OF VALUES

Sequential unique whole numbers that are automatically generated.

Hide Field OID ▲

FIELD Value ►

* ALIAS Value
 * DATA TYPE Integer
 * WIDTH 10
 * PRECISION 10
 * SCALE 0

Hide Field Value ▲

FIELD Count ►

* ALIAS Count
 * DATA TYPE Double
 * WIDTH 19
 * PRECISION 0
 * SCALE 0

Hide Field Count ▲

Hide Details for object WV_LULC_NAIP_2016.tif.vat ▲

Hide Fields ▲

Metadata Details ►

* METADATA LANGUAGE English (UNITED STATES)
 * METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
 SCOPE NAME * dataset

* LAST UPDATE 2020-01-15

ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0
 STANDARD OR PROFILE USED TO EDIT METADATA FGDC

CREATED IN ARCGIS FOR THE ITEM 2020-01-08 22:04:54
 LAST MODIFIED IN ARCGIS FOR THE ITEM 2020-01-15 13:09:38

AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes
 LAST UPDATE 2020-01-15 13:04:50

ITEM LOCATION HISTORY

ITEM COPIED OR MOVED 2020-01-08 22:04:54
 FROM C:\temp\WV_lulc_2016_12-11-19\decfinal.tif
 TO \\AGRRES184213\C\$\temp\WV_lulc_2016_12-11-19\for-delivery\decfinal.tif

Hide Metadata Details ▲

Thumbnail and Enclosures ►

THUMBNAIL

THUMBNAIL TYPE JPG

Hide Thumbnail and Enclosures ▲

FGDC Metadata (read-only) ▼