**The Forest Inventory and Analysis: BigMAP User Documentation**

**July 24th, 2023**

**Contents**

**Preface**

Abstract

Keywords

Authors

Background

* Description of FIA and its mission
* Where the data is sourced from and how to find it
  + Geospatial showcase
    - Image service

Acknowledgements

-Partnership with ESRI

**Chapter 1: Introduction**

1. Early stages of BigMAP
   * CONUS ([Characterization and visualization of the accuracy of FIA's CONUS-wide tree species datasets | US Forest Service Research and Development (usda.gov)](https://www.fs.usda.gov/research/treesearch/46519)
2. History of BigMAP development
   * Partnership between ESRI and FS

**Chapter 2: Raster format -Layer Catalog**

1. Image services
   1. [Folder: / (arcgis.com)](https://di-usfs.img.arcgis.com/arcgis/rest/services)
      1. Table with columns of: Name, description
   2. How to use the image service- web browser
      1. Efficiency
2. Downloading the image service
   1. Description of each one (table)

**Chapter 3: Raster type**

1. Attribute table- [Mosaic dataset attribute table—ArcMap | Documentation (arcgis.com)](https://desktop.arcgis.com/en/arcmap/latest/manage-data/raster-and-images/mosaic-dataset-attribute-table.htm)
2. Image Properties [Mosaic dataset properties—ArcGIS Pro | Documentation](https://pro.arcgis.com/en/pro-app/latest/help/data/imagery/mosaic-dataset-properties.htm)

**Chapter 4: Creating an Area of Interest**

1. Clipping to a polygon -> import mosaic dataset geometry
2. Joining to a .shp

**Chapter 5: Geoprocessing tools/ Raster functions**

1. Calculate Cell pixel statistics
2. Band Arithmetic function- self created functions

**Chapter 6: Use Cases – Choose 2 or 3**

1. Forest Planning
2. Treatment Plans \*
3. Mill locations
4. Wildlife Habitat Assessments
   1. Beaver \* layer of riparian area and summarize pixels
5. Invasive species/pathogens
6. Fire Management \* bring in layer and associate with fire ri
   1. WUI -high risk areas for fire
   2. Fire risk
7. Restoration efforts \*
8. Tribal usages
   1. Seneca nation has a gis offices
9. Policy
   1. Local governance
      1. Jamie Fidel can support
10. Vegetation modeling and mapping
    1. Live vs. dead species distribution
    2. Biomass distribution

**Chapter 7: Validation data**

1. Hex validation
   1. Levels
2. Accuracy Assessment
   1. Reduced major axis regression

**Chapter 8: Common errors/troubleshooting**

1. [Mosaic Dataset Analyzer: Error 70100—ArcMap | Documentation (arcgis.com)](https://desktop.arcgis.com/en/arcmap/latest/manage-data/raster-and-images/mosaic-dataset-analyzer-error-70100.htm)

**Chapter : Creating a connection through Python**

**Chapter 9: Tool development**

1. Dashboard Mike made.

**Literature Cited**

**Appendix**

Image processing:

1. Add raster dataset to your map (C:/Image\_Mgmt\_Workflows/usfs-img-rs\_rwx\_05122021.acs/forest\_carbon\_pools/Hosted\_CONUS\_forest\_carbon\_pools\_2018\_tons\_per\_pixel\_masked\_202105130908132.crf)
2. Create a mosaic dataset
   1. 32 bit float
3. Go to Properties of the .crf
   1. Change source type: Generic ->thematic
   2. Change default resampling method: Bilinear -> Nearest Neighbor
   3. Uncheck compression methods: JPEG, LERC
4. Clip down the mosaic image to the extent you need it to run
   1. Clip Raster using: Clip Raster (Data Management Tools)

How to clip down data: