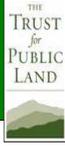




# Carbon Map

Model Criteria  
July 5, 2018

Category	Criteria	Methodology	Data (Description, Date, Resolution)	Data Source
<b>Sequestration</b>				
	Forest aboveground carbon in live trees (Mg/ha)	This model summarizes the total forest aboveground carbon stock within each State and County.	<u>Forest aboveground carbon in live trees, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0004">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0004</a>
	Forest belowground carbon in live trees (Mg/ha)	This model summarizes the total forest belowground carbon stock within each State and County.	<u>Forest belowground carbon in live trees, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0005">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0005</a>
	Forest down dead carbon (Mg/ha)	This model summarizes the total forest aboveground carbon stock within each State and County.	<u>Forest down dead carbon, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0006">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0006</a>
	Forest litter carbon (Mg/ha)	This model summarizes the total forest aboveground carbon stock within each State and County.	<u>Forest litter carbon, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0007">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0007</a>
	Forest standing dead carbon (Mg/ha)	This model summarizes the total forest standing dead carbon stock within each State and County.	<u>Forest standing dead carbon, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0008">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0008</a>
	Forest soil organic carbon (Mg/ha)	This model summarizes the total forest soil organic carbon stock within each State and County.	<u>Forest soil organic carbon, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0009">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0009</a>
	Forest understorey carbon (Mg/ha)	This model summarizes the total forest understorey carbon stock within each State and County.	<u>Forest understorey carbon, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0010">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0010</a>
	Total forest carbon in all stocks (Mg/ha)	This model summarizes the total forest carbon in all stocks within each State and County.	<u>Total forest carbon in all stocks, 2013, 250m</u> Through application of a nearest-neighbor imputation approach, mapped estimates of forest carbon density were developed for the contiguous United States using the annual forest inventory conducted by the USDA Forest Service Forest Inventory and Analysis (FIA) program, MODIS satellite imagery, and ancillary geospatial datasets. This data publication contains the following 8 raster maps: total forest carbon in all stocks, live tree aboveground forest carbon, live tree belowground forest carbon, forest down dead carbon, forest litter carbon, forest standing dead carbon, forest soil organic carbon, and forest understorey carbon.	USFS <a href="https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0011">https://www.fs.usda.gov/rds/archive/Product/RDS-2013-0011</a>
<b>Threats</b>				
	Development	This model calculates the average development risk (1-low to 5-high) on forested lands within each State and County. The administrative units were classified into 5 priority classes (very low to very high) using a natural breaks classification and then weighted by the percent of forested (public, private, or all) area to achieve a final composite priority classification.	<u>USA Development Risk, 2007, 1km</u> Residential development impacts landscapes by altering hydrology, fragmenting wildlife habitat, and directly removing habitat. Residential development requires the building of roads, utilities, schools, and other associated infrastructure. Local governments use information about potential future development to plan for the future needs of their community. Conservation planners can use development risk to design conservation plans that minimize conflict and protect species.	Natural Resource Ecology Lab, Colorado State University <a href="https://landscape.bim.gov/geoportail/catalog/search/resource/details.page?uuid=%7B1B4225C7-F695-46BE-82B9-CAB918E73B23%7D">https://landscape.bim.gov/geoportail/catalog/search/resource/details.page?uuid=%7B1B4225C7-F695-46BE-82B9-CAB918E73B23%7D</a>



# Carbon Map

Model Criteria  
July 5, 2018

Category	Criteria	Methodology	Data (Description, Date, Resolution)	Data Source
	Disease	This model calculates the percent of area within each State and County with risk of forest pests and pathogens. The administrative units were classified into 5 priority classes (very low to very high) using a natural breaks classification and then weighted by the percent of forested (public, private, or all) area to achieve a final composite priority classification.	<a href="#">USFS Forest Health Risk Area, 2012, 240m</a> Binary map of cumulative risk from all forest pests and pathogens. "Risk" cells show where $\geq 25\%$ of total BA at hazard.	USFS <a href="http://www.fs.fed.us/foresthealth/technology/nidrm2012.shtml">http://www.fs.fed.us/foresthealth/technology/nidrm2012.shtml</a>
	Wildfire	This model calculates the average wildfire hazard potential (1-low to 5-high) on forested lands within each State and County. The administrative units were classified into 5 priority classes (very low to very high) using a natural breaks classification and then weighted by the percent of forested (public, private, or all) area to achieve a final composite priority classification.	<a href="#">Wildfire Hazard Potential, 2014, 270m</a> Federal wildfire managers often want to know, over large landscapes, where wildfires are likely to occur and how intense they may be. To meet this need we developed a map that we call wildfire hazard potential (WHP) – a raster geospatial product that can help to inform evaluations of wildfire risk or prioritization of fuels management needs across very large spatial scales (millions of acres). Our specific objective with the WHP map was to depict the relative potential for wildfire that would be difficult for suppression resources to contain. To create the 2014 version, we built upon spatial estimates of wildfire likelihood and intensity generated in 2014 with the Large Fire Simulation system (FSim) for the national interagency Fire Program Analysis system (FPA), as well as spatial fuels and vegetation data from LANDFIRE 2010 and point locations of fire occurrence from FPA (ca. 1992 – 2012).	USFS <a href="http://www.fs.usda.gov/rds/archive/Product/RDS-2015-0046">http://www.fs.usda.gov/rds/archive/Product/RDS-2015-0046</a>
<b>Co-Benefits</b>				
	Rare Ecosystems	This model calculates the average rare ecosystem value (0-not rare to 100-very rare) on forested lands within each State and County. The administrative units were classified into 5 priority classes (very low to very high) using a natural breaks classification and then weighted by the percent of forested (public, private, or all) area to achieve a final composite priority classification.	<a href="#">EPA Rare Ecosystems, 2013, 30m</a> This EnviroAtlas dataset identifies rare ecosystems using base landcover data from the USGS GAP Analysis Program (Version 2, 2011) combined with landscape ecology principles. This raster dataset represents an index of rarity ranging from 0 (common) to 100 (rare). EnviroAtlas ( <a href="https://www.epa.gov/enviroatlas">https://www.epa.gov/enviroatlas</a> ) allows the user to interact with a web-based, easy-to-use, mapping application to view and analyze multiple ecosystem services for the contiguous United States.	EPA EnviroAtlas <a href="https://edg.epa.gov/metadata/catalog/search/resource/details.page?uuid=%7B53D0C152-12F3-4B1A-83A8-F0D7D98F3A8D%7D">https://edg.epa.gov/metadata/catalog/search/resource/details.page?uuid=%7B53D0C152-12F3-4B1A-83A8-F0D7D98F3A8D%7D</a>
	Intact Habitat Cores	This model calculates the percent of area within each State and County with intact habitat cores on forested lands. The administrative units were classified into 5 priority classes (very low to very high) using a natural breaks classification and then weighted by the percent of forested (public, private, or all) area to achieve a final composite priority classification.	<a href="#">Intact Habitat Cores, 2017</a> This layer represents modeled Intact Habitat Cores, or minimally disturbed natural areas at least 100 acres in size and greater than 200 meters wide. Esri created these data following a methodology outlined by the Green Infrastructure Center Inc. These data were generated using 2011 National Land Cover Data. Cores were derived from all "natural" land cover classes and excluded all "developed" and "agricultural" classes including crop, hay and pasture lands. The resulting cores were tested for size and width requirements (at least 100 acres in size and greater than 200 meters wide) and then converted into unique polygons. This process resulted in the generation of over 550,000 cores.  Cores were then overlaid with a diverse assortment of physiographic, biologic and hydrographic layers to populate each core with attributes (53 in total) related to the landscape characteristics found within. These data were also compiled to compute a "core quality index", or score related to the perceived ecological value of each core, to provide users with additional insight related to the importance of each core when compared to all others. See this map image layer for a version that includes popups and ability to query the data.	Esri <a href="https://www.arcgis.com/home/search.html?q=owner%3AEsri_GI&amp;restrict=false&amp;start=1&amp;sortOrder=desc&amp;sortField=relevance">https://www.arcgis.com/home/search.html?q=owner%3AEsri_GI&amp;restrict=false&amp;start=1&amp;sortOrder=desc&amp;sortField=relevance</a>



# Carbon Map

Model Criteria  
July 5, 2018

Category	Criteria	Methodology	Data (Description, Date, Resolution)	Data Source
<b>Ownership</b>				
	Sourcewater Protection	This model calculates the percent of area within each State and County that is within a surface intake sourcewater protection area watershed and then weights the percent area by the EPA importance ranking (0-10). The administrative units were classified into 5 priority classes (very low to very high) using a natural breaks classification and then weighted by the percent of forested (public, private, or all) area to achieve a final composite priority classification.	<u>EPA WaterScape, 2010, HUC12</u> Data provided reflect analytical Source Protection Area (SPA) vector polygons composed of all NHDPlus catchments located one day's time of travel (24 hours) upstream from inland water surface facility point events related to surface water drinking water system facilities from a SDWIS/FED extract for 2010Q3, georeferenced to initialized inland flowlines in the enhanced NHD (NHDPlus) in the EPA Office of Water's Reach Address Database Version 3 (RAD3). The "Drinking Water Sources" were obtained from the Safe Drinking Water Information System/Federal Version (SDWIS/FED), which is a database that contains information about public water systems and their violations of the EPA's drinking water regulations, as reported to the EPA by States.	EPA WaterScape
	Public	This model calculates public ownership from the USGS Protected Areas Database using the following criteria: Category includes Fee, Other, and Unknown. Owner Type does not include Tribal, and Access is not closed.	<u>USGS Protected Areas Database (PADUS), 2016</u> The USGS Protected Areas Database of the United States (PAD-US) is the nation's inventory of protected areas, including public open space and voluntarily provided, private protected areas, identified as an A-16 National Geospatial Data Asset in the Cadastral Theme ( <a href="http://www.fgdc.gov/ngda-reports/NGDA_Datasets.html">http://www.fgdc.gov/ngda-reports/NGDA_Datasets.html</a> ). PAD-US is an ongoing project with several published versions of a spatial database of areas dedicated to the preservation of biological diversity, and other natural, recreational or cultural uses, managed for these purposes through legal or other effective means. The geodatabase maps and describes public open space and other protected areas.	US Geological Survey <a href="https://gapanalysis.usgs.gov/padus/data/download/">https://gapanalysis.usgs.gov/padus/data/download/</a>
	Private	Private lands are defined as those areas within a State or County not included in the USGS Protected Areas Database.	<u>USGS Protected Areas Database (PADUS), 2016</u> The USGS Protected Areas Database of the United States (PAD-US) is the nation's inventory of protected areas, including public open space and voluntarily provided, private protected areas, identified as an A-16 National Geospatial Data Asset in the Cadastral Theme ( <a href="http://www.fgdc.gov/ngda-reports/NGDA_Datasets.html">http://www.fgdc.gov/ngda-reports/NGDA_Datasets.html</a> ). PAD-US is an ongoing project with several published versions of a spatial database of areas dedicated to the preservation of biological diversity, and other natural, recreational or cultural uses, managed for these purposes through legal or other effective means. The geodatabase maps and describes public open space and other protected areas.	US Geological Survey <a href="https://gapanalysis.usgs.gov/padus/data/download/">https://gapanalysis.usgs.gov/padus/data/download/</a>