TIMBER IMPACT ASSESSMENT

Hurricane Idalia - August 30, 2023

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BACKGROUND

On August 30, 2023, Hurricane Idalia impacted multiple southern states from Florida to North Carolina. The southeastern part of Georgia was struck by high winds and large amounts of rain and a large portion of forested, agricultural, and urban landscapes was impacted by the storm. Hurricane Idalia entered Georgia as a category 1 near Valdosta and progressed northeast towards Statesboro and Savannah, becoming a tropical storm as it entered South Carolina (Figure 1). During the event, Georgia experienced winds ranging from 20-70 miles per hour in the storm's path (Figure 2) and rain totals ranging from two to eight inches (Figure 3).

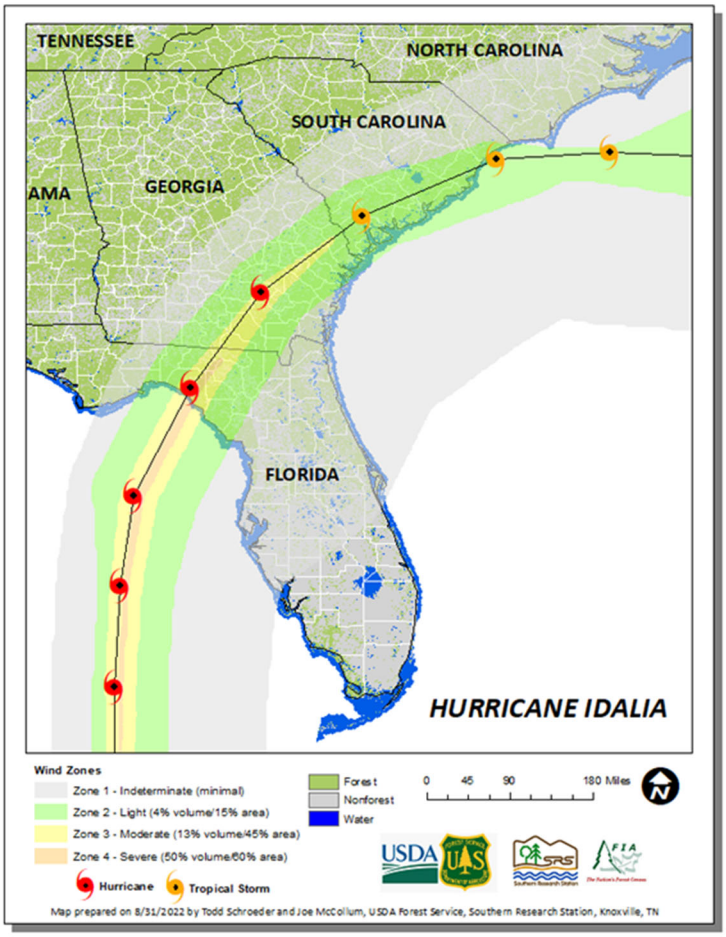

Figure 1: Hurricane Idalia's path with wind zone boundaries obtained from NOAA NHC. Credit: Todd Schroeder and Joe McCollum USDA FS Southern Research Station Knoxville, TN.

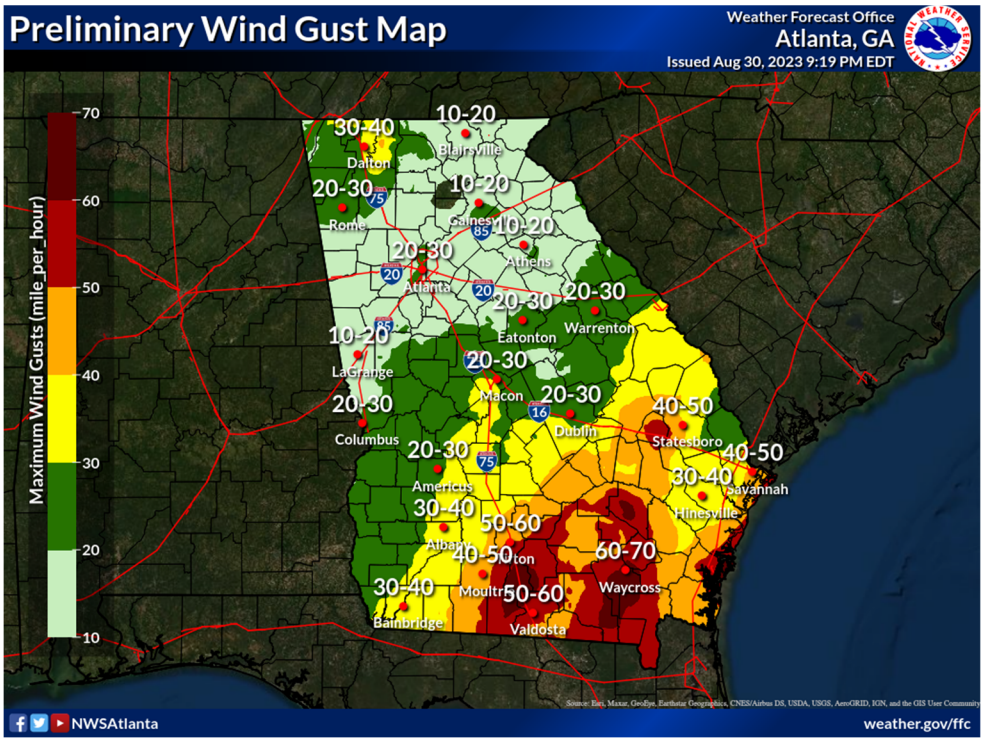

Figure 2: Hurricane Idalia wind gust map with winds ranging from 20-70 mph in the hurricane's path.

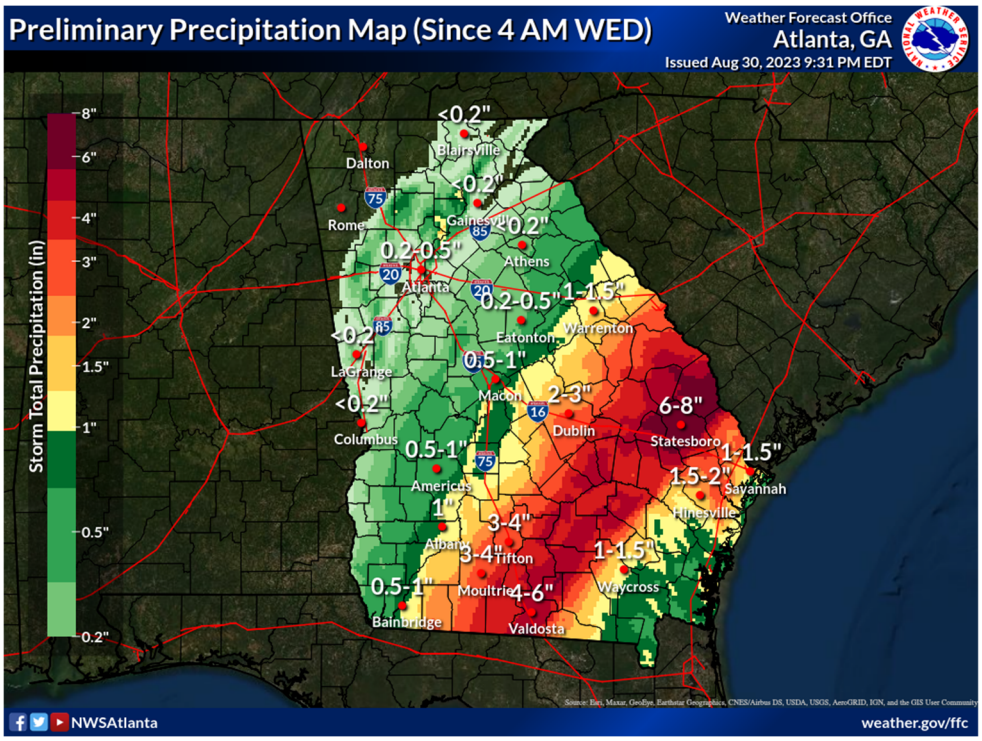

Figure 3: Hurricane Idalia rainfall amounts ranging from 2-8 inches in the path of the hurricane.

Emergency Declarations issued in the State of Georgia:

Governor Brian Kemp declared a state of emergency on Tuesday, August 29, 2023, as Hurricane Idalia was poised to make landfall in Florida the next day. On September 7, 2023, President Biden approved a major disaster declaration for Georgia. Twenty-eight counties fall under the declaration: Cook, Glynn, Lowndes, Appling, Atkinson, Bacon, Berrien, Brantley, Brooks, Bulloch, Camden, Candler, Charlton, Clinch, Coffee, Colquitt, Echols, Emanuel, Jeff Davis, Jenkins, Lanier, Pierce, Screven, Tattnall, Thomas, Tift, Ware, and Wayne.

On September 9, 2023, the Federal Emergency Management Agency (FEMA) posted the Georgia Disaster Declaration emergency map. https://www.fema.gov/disaster/4738/designated-areas

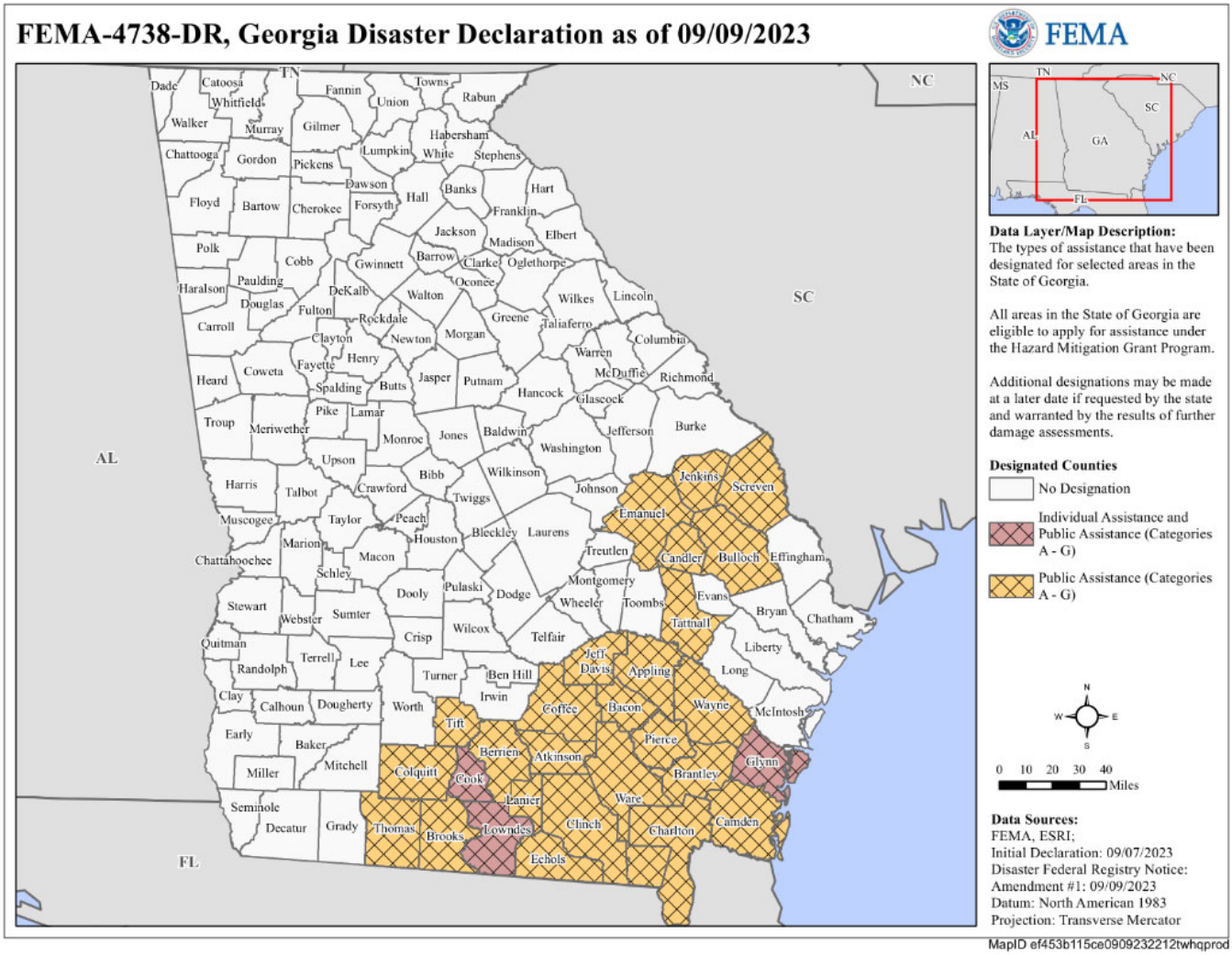

Figure 4: FEMA declaration map showing 28 counties declared and type of assistance designated for the counties.

OBSERVATIONS

The goal of the Timber Impact Assessment survey is to determine the current overall damage to the forest in Georgia and to document widespread impacts to the region affected by hurricane conditions. This is not to say that damage was not or could not be found further outside the declared state of emergency area, but the damage outside the disaster area was isolated and confined to localized impact.

The National Weather Service (NWS) provided continuous predictions and updates to identify areas of risk and potential impact. The US Forest Service utilized a computer program called TreeS-DIP (ForestGALES) which contains modeled tree damage prediction data once the storm has passed through. The NWS updates and TreeS-DIP information narrowed the survey areas for the Timber Impact Assessment. The Forest Management group began ground and aerial surveys on Thursday, August 31, 2023, utilizing GIS spatial data to collect information and locate storm damaged areas. Areas throughout the storm's path from Valdosta to Statesboro were visited and assessed. Initial reports revealed light to moderate damage in forested settings from Valdosta to Waycross. The urban interface suffered the greatest damage, which impacted local infrastructure from rights-of-way to buildings.

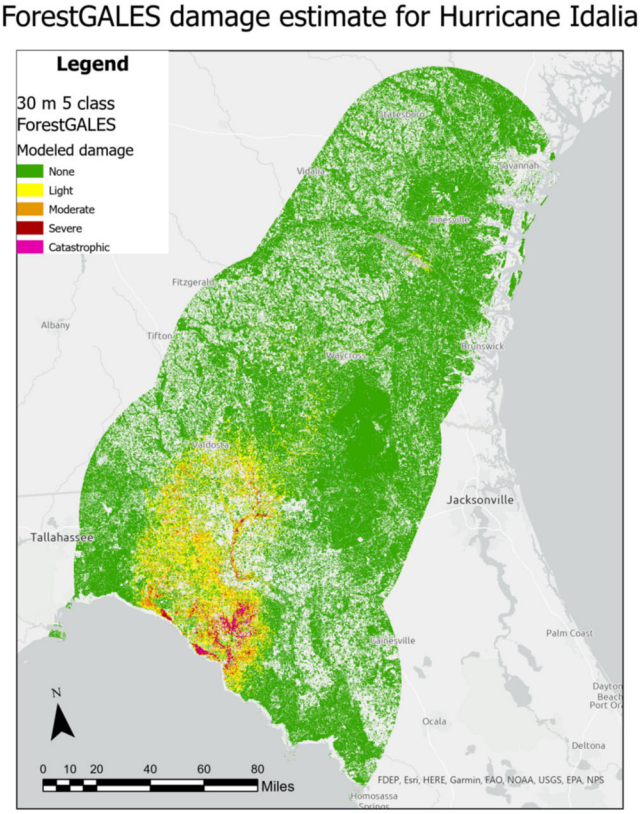

Figure 5: TreeS-DIP (ForestGALES) map produced by US Forest Service Geospatial Technology and Applications Center. Credit: Robert Chastain PhD.

Storm damage was detected in multiple timber types across the counties and damage was seen in all classes of pine stands as well as in hardwood riparian areas. Most timber damage throughout the hurricane's path occurred along field and road edges, causing significant damage on the edges of stands and light damage within the stand. Pine stands with higher densities typically fared better than thinned stands with lower densities. Hardwood riparian areas suffered damage due to saturated soils and hardwood crowns that contained all their foliage which caught the heavy winds and either snapped trees or uprooted them.

Figure 6: Photos of forest impacts seen throughout the storm's path. Stands had trees uprooted and blown over, crowns bent over, leaning trees, and trees with snapped off trunks. Damage is scattered throughout the storm's path and seen more commonly in areas surrounding Valdosta.

Managers and landowners are encouraged to monitor their stands for insect damage during the next year. The stress placed on these trees from the storm could attract pine bark beetles or increase the likelihood of disease as these trees recover. Wind and flooding damage may not become apparent until the following growing season. The areas with substantial damage may see issues with stem defects and sluggish growth rates.

A collector application was utilized on phones and tablets to gather field observations from the Valdosta area to the Waycross area. Spots marked were assigned a damage intensity level and data was collected on species, product class, percent damage, and county. This tool was utilized to track damages throughout the area and help determine the scale of the storm's damage. The TreeS-DIP (ForestGALES) program map was also overlaid on the collector application to help determine if the program matched what was witnessed on the ground. Data from the TreeS-DIP program, as well as Forest Inventory and Analysis from the US Forest Service, has been evaluated and utilized for this report.

Damage levels:
Minimal damage – Scattered branches and limbs broken from trees, with little to no damage to the overall stand and scattered trees bent less than 45 degrees. No salvage operation will be necessary, and the stand should recover with no additional management requirements.

Light damage – Only branches and limbs broken from the tree, with minor damage to the overall stand and trees bent less than 45 degrees. No salvage operation will be necessary, and the stand should recover with no additional management requirements, though long-term yields will likely be impacted.

Moderate damage – Branches and limbs broken from the trees with damage to the overall stand. More than 25 percent of stems broken and a salvage operation should be considered to minimize losses and remove trees that likely will not survive.

Severe damage – More than 30 percent of stems broken, tops broken out across the stand, limbs stripped, and trees bent more than 45 degrees. A salvage operation must be considered, and a clear-cut may be the prudent management decision.

Catastrophic damage – More than 50 percent of stems broken, multiple trees blown down across the stand, tops broken out across the stand, limbs stripped, and trees bent more than 45 degrees. A salvage operation is considered unlikely and the stand may be considered a total loss.

DAMAGE ESTIMATES

The TreeS-DIP map showed that 6,591,776 acres of forestland was located in Hurricane Idalia's path with 116,526 acres impacted by the storm. Of the 116,526 acres impacted, 11,069.97 acres were damaged, causing $9,260,171.71 in timber losses. Also, 153,312.615 tons of pine valued at $2,893,009.05 and 313,190.49 tons of hardwood valued at $6,367,162.66. Forest Inventory Analysis (FIA) data from the Trees-Dip map class along with collector application point data was used to determine volumes and the percentage breakdown of pine and hardwood tonnage across the impacted area. The percentage breakdown was applied to the TimberMart-South Stumpage Price Report (*GA second quarter 2023*) to determine a stumpage price of $18.87 per ton for pine (averaged pulpwood, chip-n-saw, and sawtimber) and $20.33 per ton for hardwood (averaged pulpwood and sawtimber).

The timber damage assessment estimates that a total of 11,069.97 acres of timber was damaged valued at $9,260,171.71.

RECOMMENDATIONS

Landowners are encouraged to utilize professional foresters and arborists to help with decisions about timber management or potentially hazardous trees around homes and urban environments. Seeking independent advice is a sound way to reduce hasty judgments and insure all available options are considered.

With the damage inflicted by this hurricane, there will likely be three distinct categories by which landowners make their evaluations:

1) Light damage or losses that may not warrant a salvage operation. This could include merchantable stands (trees are large enough to sell), which don't have enough timber damage to warrant a commercial harvest, or pre-merchantable stands where there is a good chance it will recover over time.

2) Stands with severe or catastrophic damage mandating a salvage operation to recoup whatever value can be recovered from the stand. In most cases, this could include a complete harvest for widespread damage.

3) Stands with moderate damage in which landowners may need to decide between a partial or complete harvest based on damage levels and landowner objectives.

Landowners can contact their local GFC forester to come visit and provide general advice for their property. GFC foresters can also provide contact lists for consultant foresters, timber buyers, contractors, etc., who will help the landowner accomplish work on their property.

Landowners facing a complete harvest to salvage their damaged timber due to the hurricane should consider reforesting the area. The Farm Service Agency (FSA) has a cost share program called the Emergency Forest Restoration Program (EFRP) that can assist with site preparation and planting costs. Apply at your local FSA office.

Special thanks to our GFC foresters who helped assess and develop this Timber Damage Assessment: Chris Barnes, Mark Madray, Michael Torbett, David Dickinson, Bill Harvey, Amanda Hambrick, Gabe Outlaw, Charles Baker, Jonathan Bamford, Matthew O'Connor, Doug Marshall, Aurora Geoghagan, Jason Stango, Ben Hammond, and Troy Clymer.

Stasia Kelly, Media Relations Specialist, worked to assist with the production of this report.

These resources can help forest landowners learn more about options and considerations for situations in which trees have been damaged by severe weather:

TIMBERLAND SEVERE WEATHER DAMAGE

Assessing Hurricane and Tornado Storm Damaged Forest Stands:
https://bugwoodcloud.org/bugwood/productivity/pdfs/assessing_hurricane_and_tornado_damaged_forest_stands_Dec-2016_final.pdf.

How to Evaluate and Manage Storm Damaged Forest Areas:
http://www.forestpests.org/storm/.

Evaluation and Management of Storm Damage to Southern Yellow Pine:
http://www.ncforestservice.gov/Managing_your_forest/pdf/EvaluationMngt-StormDamageSYellowPines.pdf.

TIMBER SALES

Selling Your Timber:
https://gatrees.org/wp-content/uploads/2020/01/SellingYourTimber.pdf.
https://gatrees.org/wp-content/uploads/2020/01/Selling-Storm-Damaged-Timber-Final.pdf.

TAXES

Tax Tips for Forest Landowners for the 2022 Tax Year:
https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/2022-Tax-Tips-for-Forest-Landowners.pdf.

National Timber Tax website (Master Index has good list of subject areas):
http://www.timbertax.org/.