



TIMBER IMPACT ASSESSMENT

Southwest Georgia Storm Damage, January 2, 2017

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BACKGROUND

On the evening of January 2, 2017, severe storms/EF-1 tornados produced a one to four mile swath of destruction, moving northeast from Leary, Georgia in Calhoun County, across Dougherty County and the city of Albany into Worth County and across Turner County. A separate severe storm, EF-1 tornado, moved across Early, Baker and Mitchell Counties. The National Weather Service (NWS) identified some damaged areas as EF-1 tornado, while other areas had extensive damage due to strong straight line winds.

The severe storms caused widespread damage along their path. In Albany, thousands of trees snapped and/or were uprooted. Minor to severe roof damage to dwelling structures and buildings was recorded. Much of the severe structural damage was a result of trees falling onto structures and power lines. Moderate to severe timber damage occurred in the western portion of Dougherty County, north of the Leary Highway (GA 62).

An EF-1 tornado touched down just inside the Dougherty County line along Cordele Road (GA 300), before moving east-northeast towards the community of Doles in Worth County. The storm's path continued in a northeast direction, moving north of the city of Ashburn in Turner County toward the town of Rebecca in northeast Turner County.

The line of severe storms/EF-1 tornados impacted multiple counties in southwest Georgia. Wind gusts of 80-85 miles per hour were detected by the NWS in the zones classified as straight line winds, while wind gusts of 95-120 miles per hour were detected in the zones classified as EF-1 tornados.

Pine and hardwood timber in the direct path of these storms received moderate to severe damage. The majority of the storm's path left timber uprooted with scattered broken trees. However, the tornado paths left severe to catastrophic broken timber.

In addition to the damage to forested areas, pecan orchards and individual pecan trees were uprooted by the strong winds. Furthermore, extensive damage occurred to numerous agricultural center-pivot irrigation systems.



Figure 1: Storm Destruction Path in southwest Georgia

Governor Deal declared a state of emergency on Tuesday, January 3, for four counties in southwest Georgia: Baker, Calhoun, Dougherty and Mitchell. Governor Deal added the counties of Early, Miller, Turner and Worth on January 9. Figure 1 displays the storm's path. The Federal Emergency Management Agency (FEMA) conducted ground inspections across the impacted areas on Wednesday, January 11, 2017.

Georgia Forestry Commission Air Operations and Forest Health staff began aerial reconnaissance on Thursday, January 5, 2017. Widespread damage was observed along the storm's path. Figure 2, right, shows an aerial view of a damaged pine stand uprooted by high winds. Forest Health staff began conducting ground surveys to determine the extent of timber damage on Friday, January 8.

The goal of the Timber Impact Assessment survey was to determine current overall damage to the forest in Georgia, and to document widespread impacts to the region struck by the severe storms. The storm path was the primary timber assessment observation area. However, this is not to say that damage was not or could not be found further outside the primary storm path.

OBSERVATIONS

Local Georgia Forestry Commission foresters surveyed the primary zone impacted by the strong winds/EF-1 tornados. Overall, the Timber Impact Assessment revealed moderate to severe damage in rural forested areas. However, tornado-impacted areas had catastrophic damage. Tornado-impacted areas had severe tree breakage (Figure 3), while areas with strong straight line winds had numerous uprooted trees (Figure 4). Even well-established pine plantations that were properly stocked, healthy, and vigorously growing suffered damage ranging from occasional wind-bent trees to severe wind-bent, broken and uprooted trees (Figure 5). Hardwood timber damage was primarily located within Streamside Management Zones (SMZs) or mixed pine/hardwood timber stands.

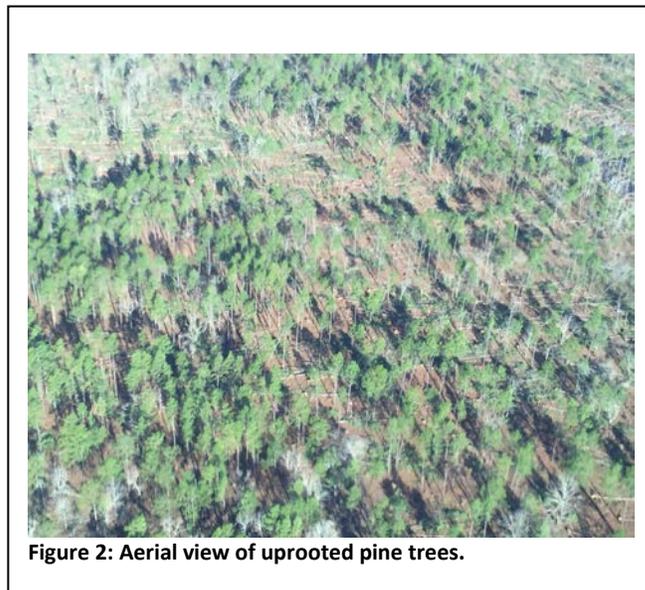


Figure 2: Aerial view of uprooted pine trees.



Figure 3: Tornado damaged site: tree breakage



Figure 4: Straight line wind damage; trees uprooted



Figure 5: Fifteen year old un-thinned pine plantation

Storm Damage Intensity:

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% of stems broken, wind-bent or uprooted and a salvage operation should be considered to minimize losses and remove trees that likely will not survive.

Severe damage – more than 30% of stems broken, tops broken out across the stand, limbs stripped, trees uprooted and/or trees bent more than 45 degrees. A salvage operation must be considered ASAP, with clear-cutting recommended. The stand is, from a management perspective, a total loss.

Catastrophic damage – more than 50% 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 necessary ASAP. The stand is considered a total loss.

Storm damage was detected in all timber types in the direct path of the storms. The only timber stands observed with little to no damage were pre-commercial planted pine stands five years old and younger.

EXTENT OF DAMAGE

GFC foresters evaluated the counties noted on the previous map (*Figure 1*) and developed estimates of damage based upon field work. These estimates do not include areas outside this primary storm zone. Georgia Forestry Commission Geographic Information System (GIS) Specialist Michael Torbett created the maps used to estimate the amount of damage across the affected area. Overall, there were approximately 5,400 acres of rural timberland impacted by the storms. In addition to the rural areas, thousands of urban forest trees were damaged and/or destroyed. The urban damage assessment was incomplete at the time this report was written.



Damage estimates from the severe storms showed that 539 acres (10.0%) of **minimal to light damage** was detected across forested, agricultural, and urban landscapes. These areas suffered little to no damage in forested lands other than broken limbs, and will require no salvage operations. Forested stands in these areas should recover with no additional management requirements. Minimal to light damage was seen two to three miles outside the primary storm path.

There is an estimated area of **moderate damage** totaling 1,079 acres (20.0%). This area of damage is located along the outer edges of the storm path, from Calhoun County to Turner County, and from Miller County to Mitchell County. This would indicate more severe damage to the overall stands, and that more than 25% of stems would be broken or uprooted and a salvage operation to minimize losses should be considered. Landowners in this moderately damaged area are encouraged to use the services of a professional forester to assist in making informed decisions about the management of their individual stands.

The majority of the impacted area was classified as **moderate-severe damage**. An estimated 3,775 acres (70.0%) have been identified across the eight counties. The majority of the timber type impacted was pine saw timber and chip-n-saw. Most of these stands were estimated to be 25 years of age or older. Pine pulpwood was the second most impacted timber type, with the majority of the timber being 15-22 years of age. The least impacted timber type was mixed hardwood saw timber/pulpwood. Much of this timber was located in drains, riparian zones and SMZs. From an agricultural perspective, several pecan orchards sustained moderate to severe damage, and numerous center pivot irrigation systems were damaged or destroyed.

An area of **catastrophic damage** was detected along Ga. Highway 300 (Cordele Road) near the Dougherty/Worth County line, moving in a northeast direction along Camp Osborne Road all the way to the Doles community along Highway 313. The tornado damage appeared to be approximately a half-mile wide, with wind damage noted two to three miles beyond the primary path.

RECOMMENDATIONS

With the damage inflicted by the combination of EF-1 tornados and strong straight line winds, 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 simply don't have enough timber damage to warrant a commercial harvest, or pre-merchantable stands where there is a good chance they will recover over time.
- 2) **Stands with severe damage, mandating a salvage operation to recoup whatever value can be obtained from the stand.** This might include a complete harvest for widespread damage, or a partial harvest of damaged timber to provide a commercial harvest.
- 3) **Stands with moderate damage or situations falling between the two scenarios above, in which a good bit of the timber is damaged but there might be enough timber to leave growing.** In these cases, landowners are encouraged to use the services of a professional forester to help make the best decision for the situation.

For landowners facing a complete harvest to salvage their damaged timber, please consider reforesting the area. Contact your local Farm Service Agency (FSA) about potential cost-share assistance with site preparation and tree planting. Assistance with site preparation and tree planting may be available through the Emergency Forest Restoration Program (EFRP). Apply at your local FSA office. Landowners enrolled in the Conservation Reserve Program (CRP) who have damage to the enrolled acreage should report to the Farm Service Agency.

ADDITIONAL PHOTOS



Photos 1&2: Pine timber damage-Worth County



Photos 3&4: Pine timber damage-Worth County



Photos 5&6: Pine timber damage-Worth County



Photos 7&8: Center pivot damage (7) and pecan orchard damage (8)-Turner County & Dougherty County

*Special thanks to other GFC personnel who helped develop this Timber Damage Assessment:
Greg Klett-forester, Flint District pilots, and Michael Torbett-GIS Specialist.*

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

URBAN TREE ASSESSMENTS

The urban assessment was incomplete at the time 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:

Wind Wood Utilization (this has numerous documents and links that are beneficial):

<http://www.windwoodutilization.org/salvage.asp>

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.ncforests.gov/Managing_your_forest/pdf/EvaluationMngt-StormDamageSYellowPines.pdf

TIMBER SALES:

Selling Your timber (General Advise)

<http://www.gatrees.org/forest-management/private-forest-management/timber-selling/>

Selling Your Timber

<http://www.gfc.state.ga.us/resources/publications/sellingyourtimber.pdf>

TAXES:

National Timber Tax website (Master Index has good list of subject areas):

<http://www.timbertax.org/>

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.