

OUR FORESTS AREN'T FUEL.

Enviva's Wood Pellet Mill in Ahoskie, North Carolina Threatens Endangered Ecosystems and Wildlife



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Forested wetlands surrounding Enviva's wood pellet facility in Ahoskie, North Carolina

Conversions of large coal-burning power plants to wood (co-)firing in Europe have resulted in the explosive growth of wood pellet exports from North America, most of which originate in the forests of the southern United States. Enviva, the South's largest exporter of wood pellets, currently leads this market and has some of the most biologically diverse and valuable forest ecosystems in the world in its crosshairs. The Wall Street Journal has documented that Enviva, the South's largest exporter of wood pellets, sources wood for its pellet-manufacturing mill in Ahoskie, North Carolina, from clearcut wetland forests in the Mid-Atlantic Coastal ecoregion.¹ This mill produces approximately 400,000 tons of wood pellets per year for export to Europe as fuel for electricity.²

Forested wetlands surrounding Enviva's wood pellet facility in Ahoskie, North Carolina, are in serious decline across the landscape. As European demand for wood pellets continues to grow at an alarming rate, these forests will be increasingly vulnerable to impacts from logging. As a result, valuable ecosystems and wildlife are endangered, and nearby communities risk losing myriad benefits provided by natural forests such as the maintenance of water quality and flood protection. It is imperative that Enviva and other companies using biomass or producing wood pellets for utilities establish adequate policies to protect our climate and forests before expanding their activities. Alternatives to burning trees for electricity exist. Wood residuals (such as tops and limbs) or sustainably grown agricultural materials that would otherwise end up in a landfill or burned represent better options for reducing carbon emissions, provided strict sustainability standards are adopted. Energy conservation and efficiency, combined with solar and wind energy are also feasible, preferred alternatives.



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Black bear

NATURAL FORESTS ARE DISAPPEARING

Enviva's Ahoskie facility sources wood from the Southeastern Mixed Forests and the Middle Atlantic Coastal Forests ecoregions, both of which have been designated by the World Wildlife Fund as Critical/Endangered, because of their high biodiversity and the combination of habitat fragmentation, conversion, and other threats.^{6,7,8,9} The forests within a 75 mile radius—the distance generally considered to be economical for transporting logs for pellets—around Enviva's mill in Ahoskie are made up of pine plantations, natural upland pine hardwoods, and forested wetlands. Historically, large-acreage loblolly, shortleaf, and slash pine plantations have replaced substantial acreages of natural forests. This is true throughout the Coastal Plain and Piedmont regions of the U.S. South, where upland longleaf pine forests (in the Coastal Plain), as well as wetland forests including Carolina bays and bottomland hardwood forests, have been reduced to just a small percentage of their original size.¹⁰ Pine plantations generally provide poor wildlife habitat, and the biological diversity they support pales in comparison with the diversity found in natural forests.¹¹ Remaining natural and seminatural forests in this landscape are highly fragmented (see Map 1). Much of the forested wetlands in the broad ecoregion from which Enviva is sourcing have already been lost to logging.¹² The North Carolina and Virginia Natural Heritage Programs already consider these forests highly imperiled where soil conditions, periodic flooding, and low commercial value of the often twisted and less desirable trees have made utilization of wood product resources less profitable.^{13,14}

CLEARING WETLAND HARDWOOD FORESTS HAS SERIOUS ECOLOGICAL IMPACTS

Enviva's pellet mill, which is using wetland species to make wood pellets, puts additional demand pressure on these forests, making clearcut logging and shorter-rotation harvesting of these remaining forests economically practical. Because of the relative importance of forested wetlands as anchors for remaining biodiversity across this broad landscape, increased industrial logging in these forests will have significant negative impacts. Restoring bottomland hardwood wetlands is challenging because of the long time frame necessary for these forests to mature and because altered flood patterns can reduce the future diversity of trees and plants when a forest regenerates.¹⁵

Forested wetlands play a vital role in maintaining both biodiversity and ecosystem services in this region, offering habitat for waterfowl, songbirds, black bear, and a variety of reptiles and amphibians while also providing services for communities such as improved water quality, flood storage, and the buffering of water flow during drought. This forest type occurs mainly in and adjacent to wetlands, both riverine and non-riverine (see Map 2). According to the World Wildlife Fund, these forests "contain the most diverse assemblage of freshwater wetland communities in North America and

The expansion of wood pellet capacity in the South over the past few years has made the United States the largest wood pellet exporter in the world, larger even than Canada. Export volumes reached 1.5 million tons in 2012 and are expected to jump to 5.7 million tons in 2015, according to the *North American Wood Fiber Review*.³ This new market creates greater demand for wood at a time when forests are already under tremendous pressure from traditional markets for wood and paper, compromising the future ecological integrity and resiliency of important ecosystems.⁴ In addition, multiple scientific studies have shown that burning trees to generate electricity releases more carbon than burning coal.⁵ While there is some regional variability in their results due to variations in climate and forest type, all have concluded that most forest biomass is not carbon neutral and, in particular, burning whole trees in power plants increases carbon emissions relative to fossil fuels for many decades—anywhere from 35 to 100 years or more.

It is imperative that Enviva and other companies using biomass or producing wood pellets for utilities establish adequate policies to protect our forests and climate *before* expanding their activities.

perhaps of all temperate forest ecoregions” and “are some of the most biologically important habitats in North America.” In addition, these bottomland forests “serve as a resource sink for upland aquatic communities, support[ing] aquatic food webs when flooded and terrestrial food chains during the dry season.”¹⁶

In other words, these forests are important for maintaining healthy populations of all kinds of aquatic animals, including economically important species such as fish and shrimp.

Wetland hardwood forests are also critical to the maintenance and recovery of songbirds and raptors deemed to be declining and vulnerable to continued losses.¹⁷ Many priority bird species (those that are threatened due to the degradation and/or disappearance of their habitat), including the Swainson’s warbler, yellow-throated warbler, Wayne’s black-throated green warbler, and prothonotary warbler depend on mature bottomland forests during their annual cycle. Some bird species demonstrate a negative response to any timber harvest in bottomland habitat including Yellow-throated Vireo, while other forest interior species, such as Prothonotary Warblers, can tolerate thinning but only if 60-70% of the canopy is left intact.¹⁸ Additionally, radar analysis of bird migration in the Southeast reveals that mature forested wetlands are disproportionately important stopover habitat for migrating land birds.¹⁹

THE EVOLVING FOREST LANDSCAPE IS VULNERABLE AND FRAGMENTED

The main forest types available for pellets in the area surrounding Enviva’s Ahoskie facility are Loblolly/Shortleaf Pine (see Map 3), nearly all of which are pine plantations and early successional stands (young forests), although it is not clear to what degree these stands will be exploited for pellets. This could mean that the remaining, more natural forest types in the region, which consist principally of Upland Oak-Hickory (concentrated toward the western edge of the Ahoskie radius), Bottomland Oak-Gum-Cypress, and Bottomland Elm-Ash-Cottonwood (see Map 4), could become candidates for logging for pellets. Less than one percent of the forests in the Ahoskie facility’s sourcing region are protected from logging activities that would degrade native ecosystems.^{20,21} Increased use of these (more natural) forest types will lead to additional fragmentation of an already highly fragmented landscape, decreasing landscape integrity, water quality and flood storage, wildlife corridors and habitats, and recreational resources. At the same time, increased use of plantation pine will incentivize future conversion of the few remaining natural and semi-natural forests to intensive uses.



Bottomland hardwood swamp, along a tributary of the Neuse River, Kinston, NC, North Carolina, October, 2008.



Prothonotary Warbler (*Protonotaria citrea*) with insects in its bill at its nest hole. Eastern USA.

Map 1



Created by: Hetty Chin, 2013

Legend

Forest Fragmentation--Interior, Southeastern US

Displaying: GRIDCODE

Interior

- Ahoskie, N.C. Enviva Flagship Facility
- Ahoskie, N.C. Enviva Flagship Facility (Including 120 km buffer)

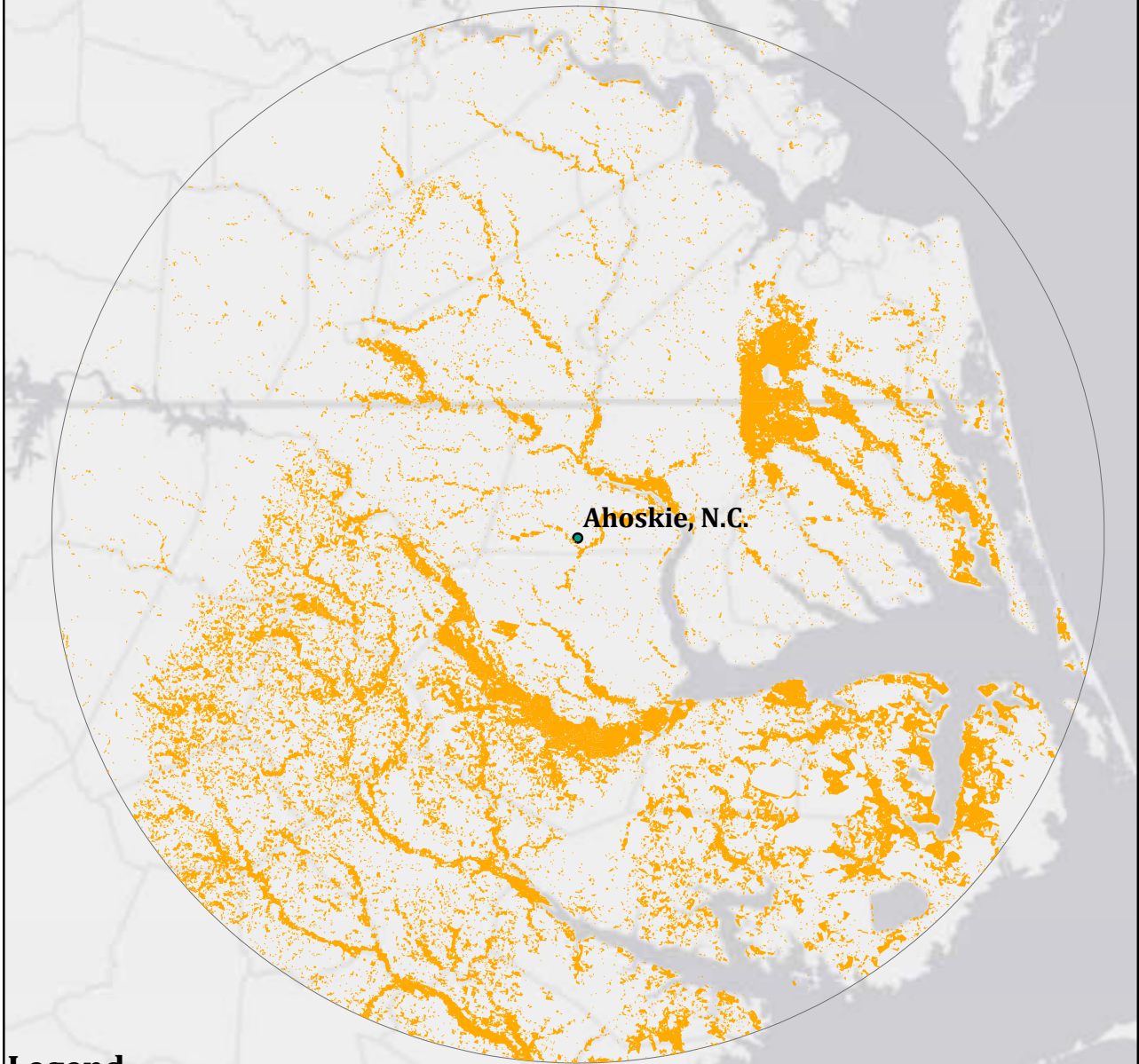


Document generated by Hetty Chin on July 12, 2013




Data Provided By:

National Atlas of the United States and the U.S. Geological Survey
(Conservation Biology Institute manipulated the original dataset for purposes of this analysis March, 2013)

Wetland Hardwood Forests



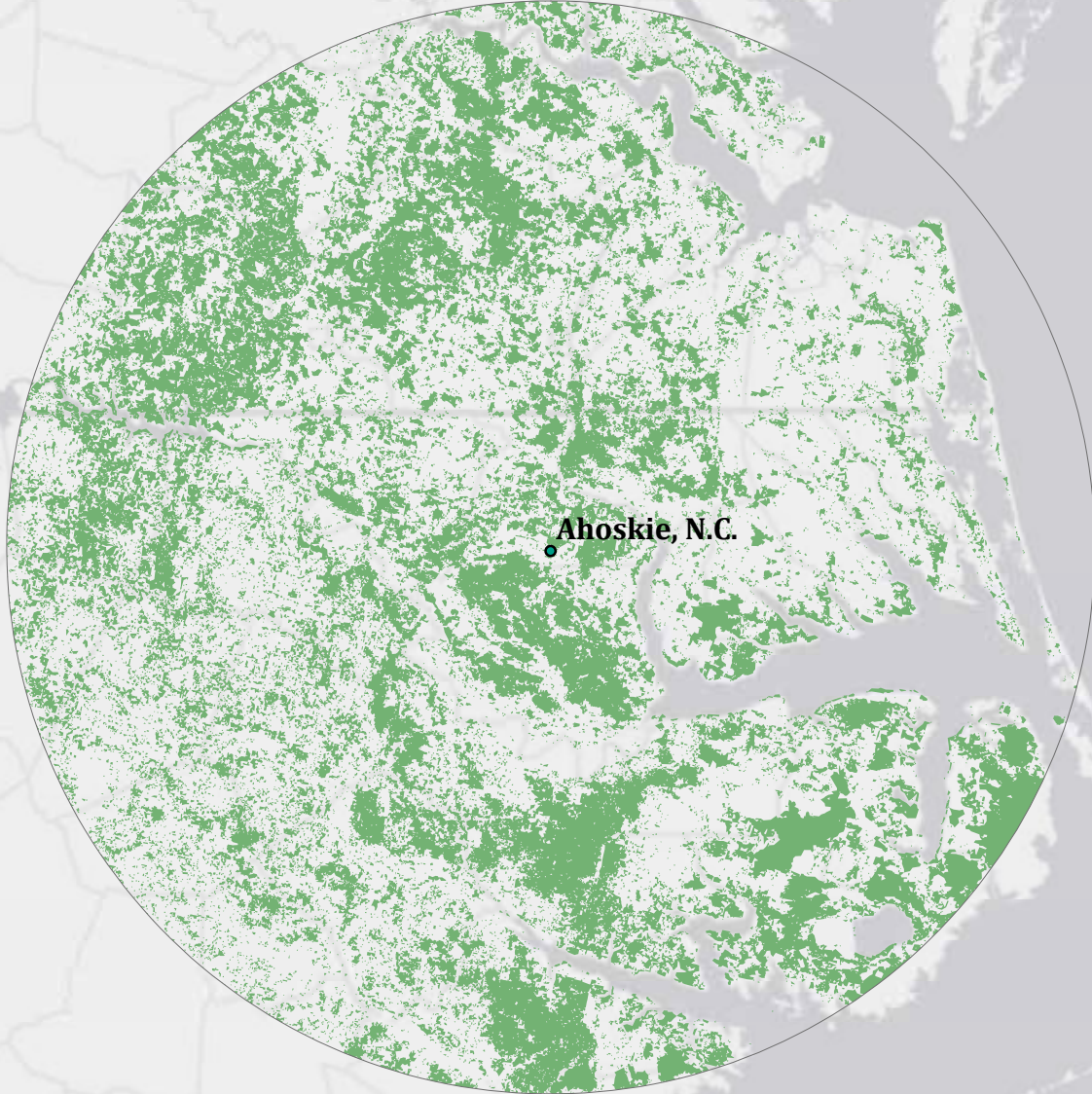
Legend

-  Wetland Hardwood Forests
-  Ahoskie, N.C. Enviva Pellet Factory
-  Ahoskie 75-mile buffer

Data Derived from:
USDA Forest Service - Forest Inventory and Analysis (FIA) Program
and Remote Sensing Application Center (RSAC).
Dataset portrayals of 28 forest type groups across the contiguous United States.
These data were derived from MODIS composite images from the 2002
and 2003 growing seasons in combination with nearly 100 other geospatial data
layers, including elevation, slope, aspect, ecoregions, and PRISM climate data.

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Loblolly Shortleaf Pine Forest Type



Legend

• Ahoskie, N.C. Enviva Pellet Factory

○ Ahoskie 75mile buffer

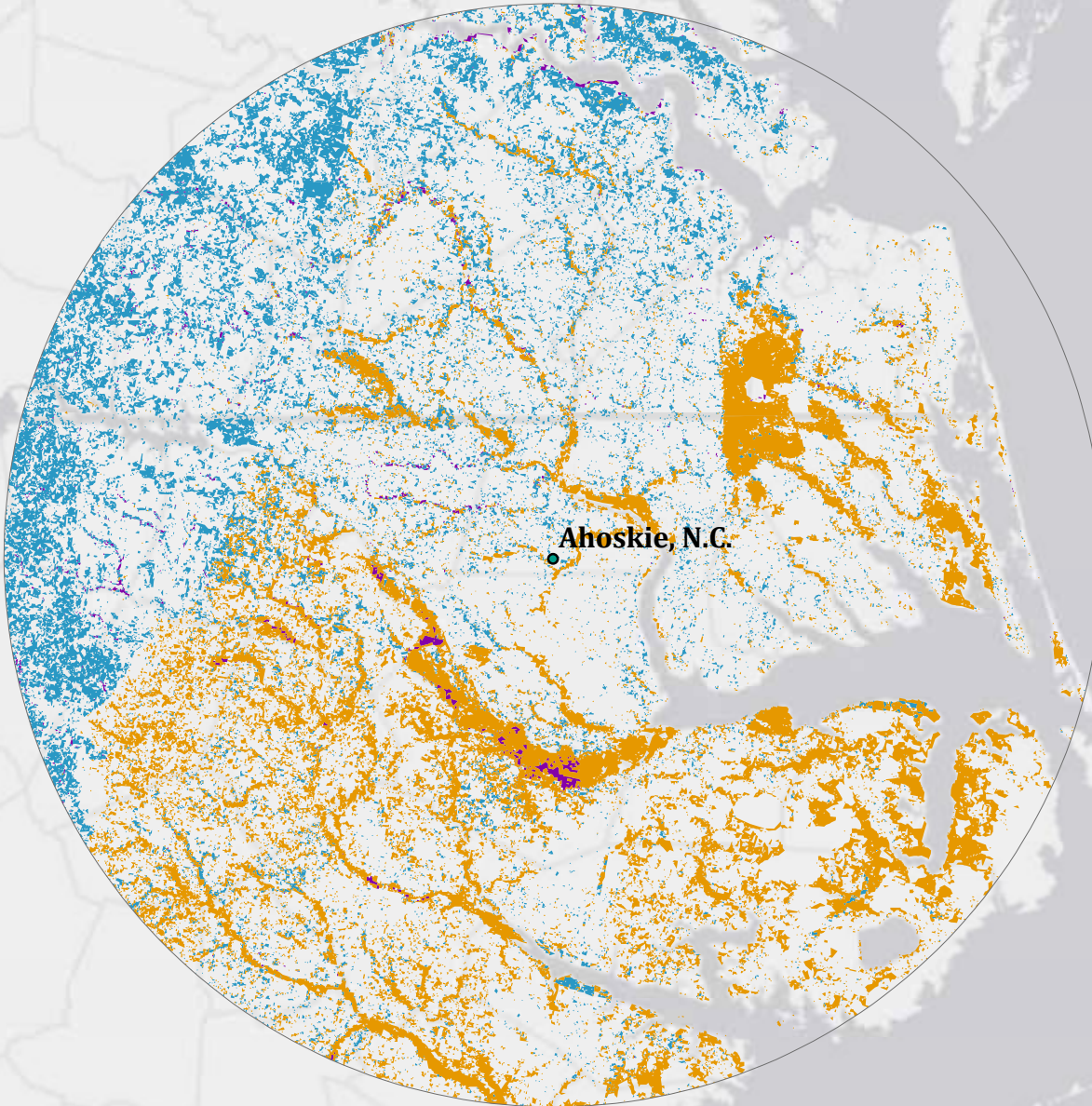
Ahoskie Forest Type

■ Loblolly/Shortleaf Pine Group

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Elm Ash Cottonwood. Oak Gum Cypress, Oak Hickory Forest Types



Legend

● Ahoskie, N.C. Enviva Pellet Factory

○ Ahoskie 75mile buffer

Ahoskie Forest Types

■ Elm/Ash/Cottonwood Group

■ Oak/Gum/Cypress Group

■ Oak/Hickory Group

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Endnotes

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