GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

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February 18, 2010

Docket No. APHIS-2008-0059
Regulatory Analysis and Development
PPD, APHIS, Station 3A-03.8
4700 River Road, Unit 118,
Riverdale, MD 20737-1238

To Whom It May Concern:

The Georgia Department of Natural Resources, Wildlife Resources Division respectfully submits the following comments on the permit application by ArborGen LLC to USDA-APHIS for planting of a transgenic hybrid cultivar of *Eucalyptus grandis* x *E. urophylla* in 29 sites in the southeastern U.S:

We recommend that the request by ArborGen LLC be denied and that a full Environmental Impact Statement (EIS) be prepared for the proposed action. We feel that the Environmental Assessment (EA) for the proposed action, which addresses only the permitting of the 29 field trials, does not adequately address the full range of environmental impacts that could result from the proposed action.

The purpose of the proposed field trials is to assess the feasibility of using this transgenic *Eucalyptus* hybrid (EH1) in plantations for biomass production, and this proposed future use should be the subject and context of the environmental assessment. Based on our understanding of the characteristics of this transgenic hybrid and of *Eucalyptus* species in general, we have serious concerns about potential impacts on hydrology, soil chemistry, native biodiversity, and ecosystem functions, regardless of whether this nonnative hybrid turns out to be invasive in a plantation setting.

The EA acknowledges that the transgenic EH1 trees "could demonstrate allelopathic properties", but states that this fact does not make the *Eucalyptus* species "more invasive or present a plant pest risk" (p. 35). A point that seems to be overlooked in this discussion is that allelopathy toward native organisms is itself an environmental impact. These nonnative plants provide little value to native wildlife species. In contrast to plantations of native trees, EH1 *Eucalyptus* plantations will be extremely inhospitable environments for native flora and fauna. The potential of allelopathic chemicals being transported offsite by runoff or other means is another serious consideration that should be addressed.

The USDA Forest Service Assessment of Impacts on Report on Hydrology (Appendix III, p. 62) states, "Some of the reports cited in the ArborGen document discuss the potential for altering management practices to minimize the impacts of intensively managed *Eucalyptus* plantations on hydrology. The most viable option for reducing hydrologic impacts is to manage stocking.... From a practical standpoint, it is unlikely that lower stocking levels will be an acceptable management practice for Eucalyptus plantations because one of the primary objectives of growing *Eucalyptus* is to maximize biomass production -- this requires fully stocked stands." We agree with this assessment and find the suggestion that these stands would be managed at lower densities in a commercial enterprise highly implausible.

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The USFS report (Appendix III, Executive Summary) further states that *Eucalyptus* plantations are likely to use water at a rate at least twice that of stands of native species, that conversion to *Eucalyptus* plantations will likely reduce stream flows 20% relative to traditional pine plantations, that this species has the potential to impact both surface water and groundwater hydrology, and that if *Eucalyptus* does invade native forests, water use in these stands will likely increase. These findings alone are justification for a more thorough assessment of environmental impacts.

Given the degree of cold intolerance of existing *Eucalyptus* varieties, plantations in Georgia would most likely be developed in the lower Coastal Plain, where local impacts on surface and ground water could be severe. For example, much of southwestern Georgia is already under excessive demand for water resources. Twelve sub-watersheds in the Lower Flint River Basin are already at capacity use for groundwater withdrawal, 14 sub-watersheds are already at restricted use for groundwater withdrawals, and the remainder of the basin is at conservation use for groundwater withdrawals. Engineering the EH1 hybrid to improve cold tolerance through addition of the CBF gene would make it more likely that *Eucalyptus* would be planted widely throughout the Southeast, increasing the potential for significant impacts on water resources and aquatic communities.

We are also concerned about the potential impacts of *Eucalyptus* plantations on other ecosystem processes, including fire frequency and intensity. The leaves of *Eucalyptus* trees produce large amounts of volatile oils; in addition, the leaf litter is high in phenolic compounds that resist decomposition by fungi and allow accumulation of large amounts of highly combustible fuels. Consequently, dense *Eucalyptus* plantations are subject to catastrophic firestorms. The EH1 study sites, and especially future plantations, would likely have a self-reinforcing effect on wildfire danger. The *Eucalyptus* trees will lower water tables and reduce ground moisture in leaf litter and duff, increasing the chance of wildfire ignition. Once ignited, these fires would grow vigorously, potentially spreading to other properties.

With respect to invasiveness, the EA reports that "the non-engineered hybrid *Eucalyptus* (EH1) has been grown in Brazil, on an estimated 400,000 acres planted over 15 years and there has been no indication that large numbers of seedlings are being produced and are becoming invasive from the commercial plantations" (p. 22). However, it should be noted that there are instances in which exotic pests did not initially exhibit invasive properties for a century or more. As noted in the EA, "no formal assessment has been conducted on the weediness or invasiveness potential of this hybrid" (p. 22).

The Georgia Department of Natural Resources has collaborated with the Georgia Forestry Commission and other organizations to develop guiding principles for biomass production and harvest in Georgia. One of the principles related to wildlife habitat and biodiversity is the avoidance of exotic and invasive species in biomass plantations. We oppose the proposed action by ArborGen LLC, and recommend the denial of permit applications 08-011-106rm and 08-014-101rm.

Thank you for the opportunity to comment on this issue.

Sincerely,

Dan Forster

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