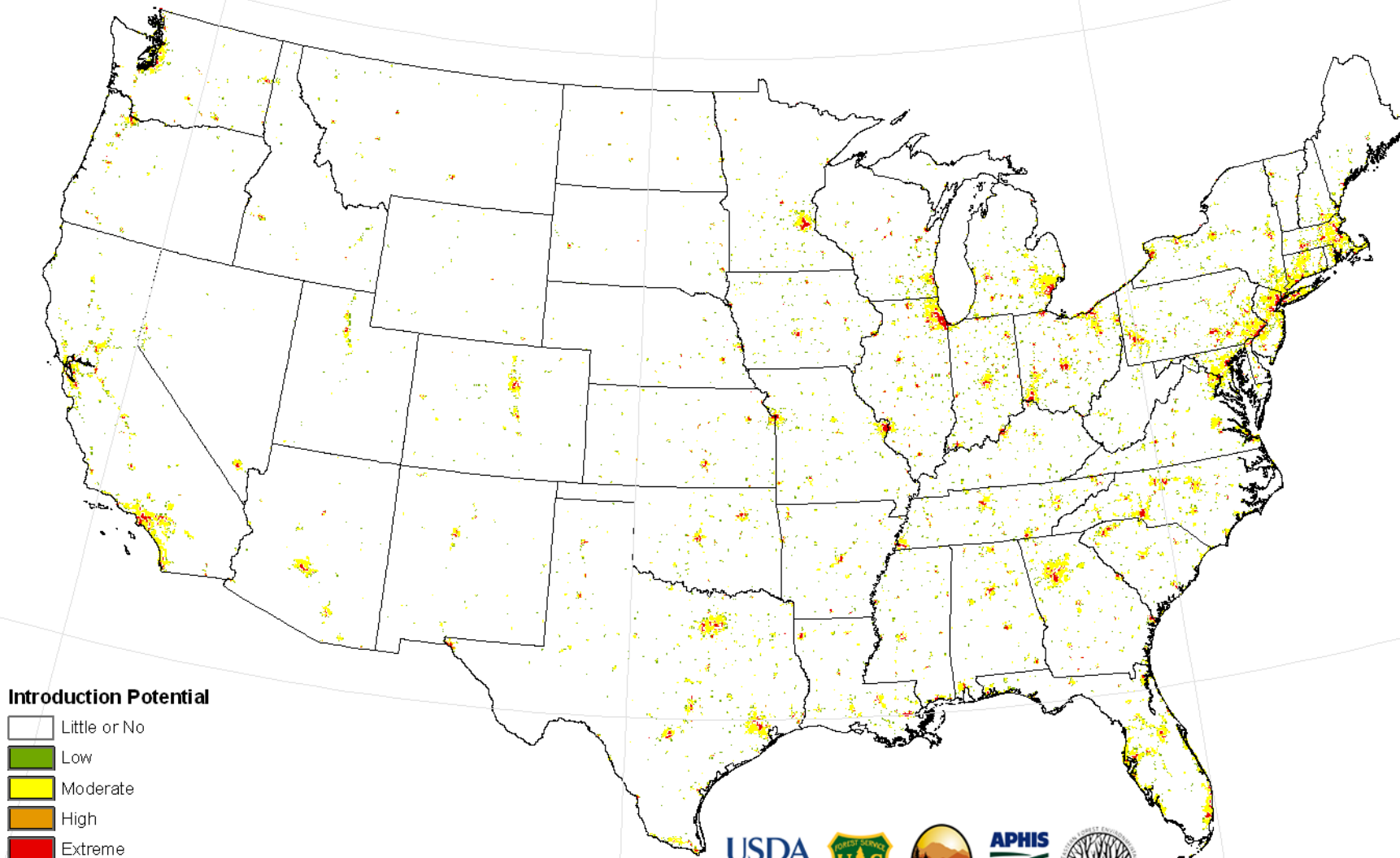


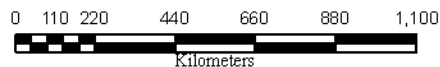
# Introduction Potential

## *Agrilus sulcicollis* (Lacordaire) --- European Oak Borer 1/27/2011



Introduction potential is a function of an equal weighted overlay of:

- a) Distribution Centers
- b) Markets
- c) Ports of Entry



Albers Equal Area Conic Projection

Map produced by FHTET, IL  
Fort Collins, CO on 1-27-2011  
File: as\_intro\_map.mxd  
Project: *Agrilus* sp.

## Summary of Introduction Potential for *Agrilus sulcicollis* (Lacordaire)

European Oak Borer; January 27, 2011

Website URL: [http://www.fs.fed.us/foresthealth/technology/invasives\\_agrilussulcicollis\\_riskmaps.shtml](http://www.fs.fed.us/foresthealth/technology/invasives_agrilussulcicollis_riskmaps.shtml)

The Introduction Potential Surface for *Agrilus sulcicollis* (*A. sulcicollis*) was produced for the Conterminous United States (CUS) in 1-square-kilometer (km<sup>2</sup>) units by the U.S. Forest Service, Forest Health Technology Enterprise Team's (FHTET) *A. sulcicollis* Invasive Species Steering Committee. The product's intended use, in conjunction with the Establishment Potential Surface, is to develop a Susceptibility Potential Surface for *A. sulcicollis*. Supporting information was taken from Haack et al. (2009)<sup>1</sup> and Jendek and Grebennikov (2009)<sup>2</sup>. Three primary datasets with standardized values from 0 to 10 were used as variables in the analysis: 1) Port of Entry, 2) Distribution Centers, and 3) Markets. Each data set was multiplied by its arithmetic weight (Table 1), and the resultant values were combined in an equal weighted overlay. The output values also range from 0 to 10, with 10 having the highest introduction potential. Each of the variables were used to depict potential locations where *A. sulcicollis* could be released into the CUS. To delineate its potential flight range, a curvilinear distance decay value was assigned with a risk value of 10 at the source location and decreasing to 0 at > 4 kilometers away (Table 2). The final product was partitioned into five risk classes: Little or No, Low, Moderate, High, and Extreme.

**Port of Entry** A summary of imported tonnage of commodities that use Wood Packing Material (WPM), the packing material associated with *A. sulcicollis* interceptions, recorded in the APHIS Pest Interception Network (PIN) 309 data base. Only commodities exported from countries where *A. sulcicollis* is present were included. This point data was converted to 1 km<sup>2</sup> grid cells. Source: Army Corps of Engineer, Waterborne Commerce, Foreign Cargo Statistics (1996 to 2003).

**Distribution Centers** Distribution centers that handle commodities that likely use WPM during transport were considered. Source: National Transportation Atlas Database (2003). Furthermore, 193 distribution centers were added and were provided by the following companies: FedEx, IKEA, Kmart, KOHL's, Lowe's, OfficeMax, PETCO, Target, The Home Depot, and Wal-Mart.

**Markets Cities** polygons that had any truck trips were selected to define potential markets. Flow/capacity data was used to determine the number of truck trips occurring within the city polygons. Sources: Federal Highway Administration, Freight Management and Operations, Freight Analysis Framework, Highway Truck Volume and Capacity Data and Environmental Systems Research Institute's (ESRI 2008)<sup>3</sup> City polygon data.

**Table 1:** Introduction Variables

Variables	Weight
Ports of Entry	33.4
Markets	33.3
Distribution	33.3

**Table 2:** Distance decay flight range of *A. sulcicollis*

Distance in km	Value
> 0 and <= 1	10
> 1 and <= 2	5
>2 and <= 4	1
> 4	0

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### References:

1. Haack, Robert A.; Petrice, Toby R.; Zablontny, James E. 2009. First report of the European oak borer, *Agrilus sulcicollis* (Coleoptera: Buprestidae), in the United States. *Great Lakes Entomologist*. 42: 1-7.
2. Jendek, E. & Grebennikov, V., 2009: *Agrilus sulcicollis* (Coleoptera: Buprestidae) a new alien species in North America. *Canadian Entomologist*, 141: 236-245.
3. Environmental Systems Research Institute Redlands, California. Data and Maps Series 2008, U.S. Cities.