

120°W

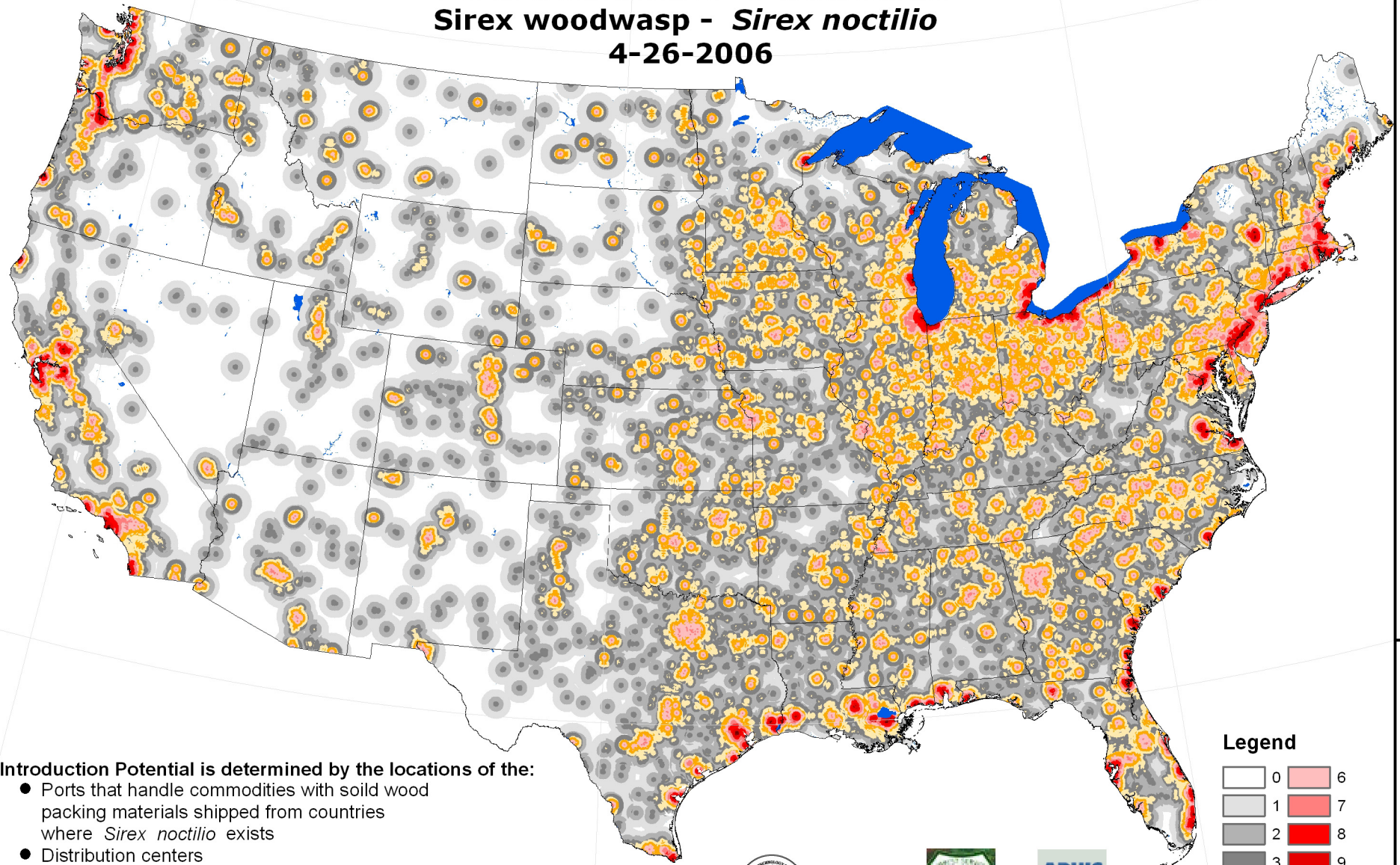
100°W

80°W

# Introduction Potential

## Sirex woodwasp - *Sirex noctilio*

### 4-26-2006



**Introduction Potential is determined by the locations of the:**

- Ports that handle commodities with solid wood packing materials shipped from countries where *Sirex noctilio* exists
- Distribution centers
- Markets

**Susceptibility Potential is the sum of an equal weighted overlay of:**

The Introduction Potential and Establishment Potential

[http://www.fs.fed.us/foresthealth/technology/invasives\\_sirexnoctilio\\_riskmaps.shtml](http://www.fs.fed.us/foresthealth/technology/invasives_sirexnoctilio_riskmaps.shtml)



**Legend**

0	6
1	7
2	8
3	9
4	10
5	Water



Albers Equal Area Conic Projection  
Resolution = one-kilometer

A value of 0 is the lowest potential and a value of 10 is highest potential for introduction.

Map Produced by FHTET  
Fort Collins, CO on 5-9-2006. MFT

file: intro6.mdx  
GRID = intro\_9  
Tool = Sirex\_NewYork model = Sirex\_fin

100°W

80°W

30°N

30°N

**Summary of Introduction Potential for *Sirex noctilio* April 26,2006 Website URL:  
<http://www.fs.fed.us/foresthealth/technology/products.shtml>**

The Introduction Potential Surface for *Sirex noctilio* 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) Invasive Species Steering Committee (Table 1). The product's intended use in conjunction with the Establishment potential is to develop a Susceptibility Potential Surface for *Sirex noctilio*. Three datasets with standardized values from 0 to 10 were used as variables in the analysis. Each data set was multiplied by its arithmetic weight (Table 2), and the resultant values were combined in a weighted overlay. The output values also range from 0 to 10, with 10 having the highest introduction potential. Each of the variables was used to depict potential locations where *Sirex noctilio* 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 50 miles away (Table 3). The Grid Value in Table 3 is calculated by the following formula (Potential (in Percent) \* 10), rounded.

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

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

**Distribution Centers** Sources: National Transportation Atlas Database (2003). Distribution centers that handle commodities that likely use SWPM during transport were considered.

**Table 1**  
**Steering Committee Members**

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 Donald A. Duerr, USFS R8  
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**Table 2**  
 Introduction Variables and  
 Arithmetic Weights

Variables	Weight
Principal Ports	33%
Markets	33%
Distribution Centers	34%

**Table 3**  
 Distance decay for probable flight range  
 of *Sirex noctilio*

Distance in Miles	Potential	Grid Value
0	100	10
> 0 and <= 5	90.3	9
> 5 and <= 10	71.4	7
> 10 and <= 15	52.9	5
> 15 and <= 20	36.9	4
> 20 and <= 25	24.5	2
> 25 and <= 30	15.4	2
> 30 and <= 35	9.2	1
> 35 and <= 40	5.2	1
> 40 and <= 45	2.7	1
> 45 and <= 50	1	1
> 50	0	0

**Point of Contact**

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