



When is a Plant a Problem?

October 20, 2014

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Head of Natural Resources



How can a public garden shed light on plant invasions?

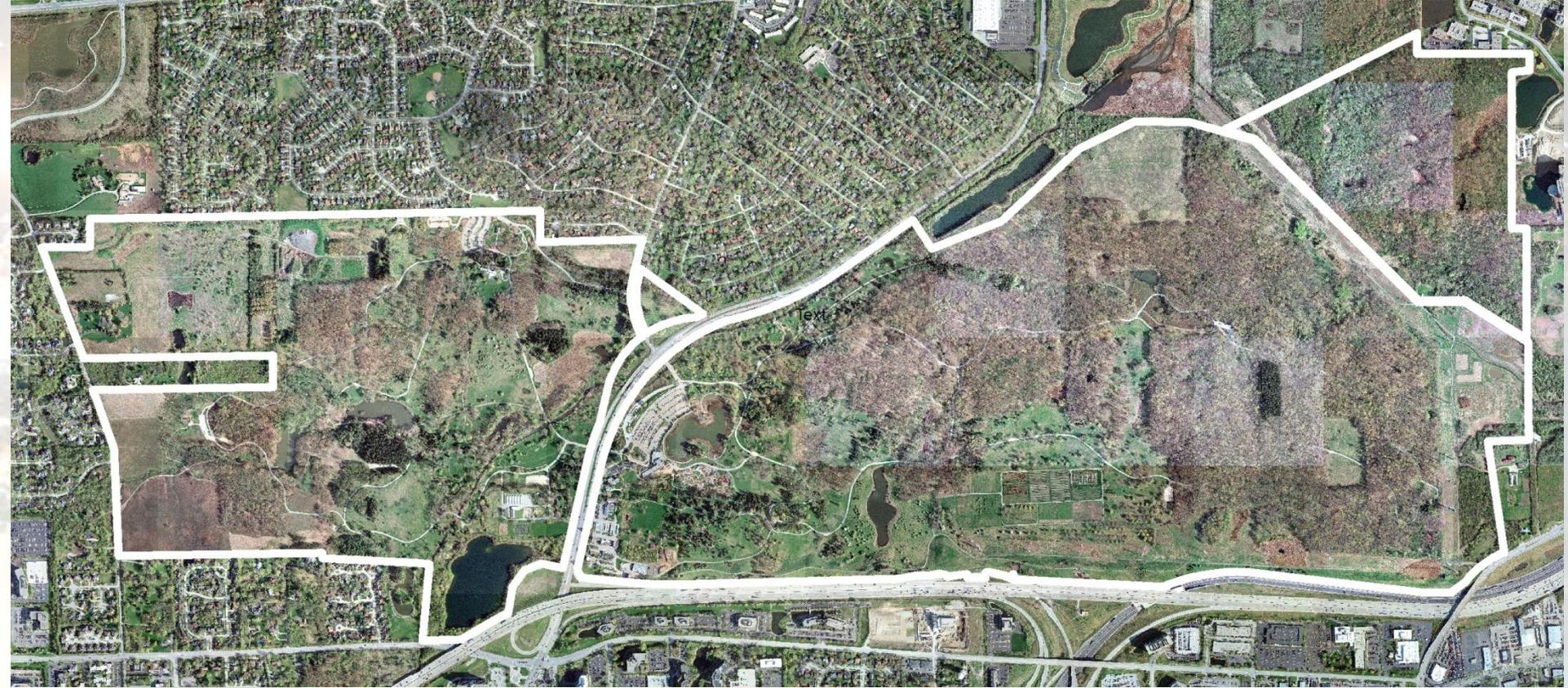
- 1700 acres of Living Collections, gardens, and Natural Areas
- Founded in 1922 (92 years!)
- Herbarium with over 200,000 dried specimens
- Numerous naturalists, horticulturists, plant enthusiasts

Plant Collections

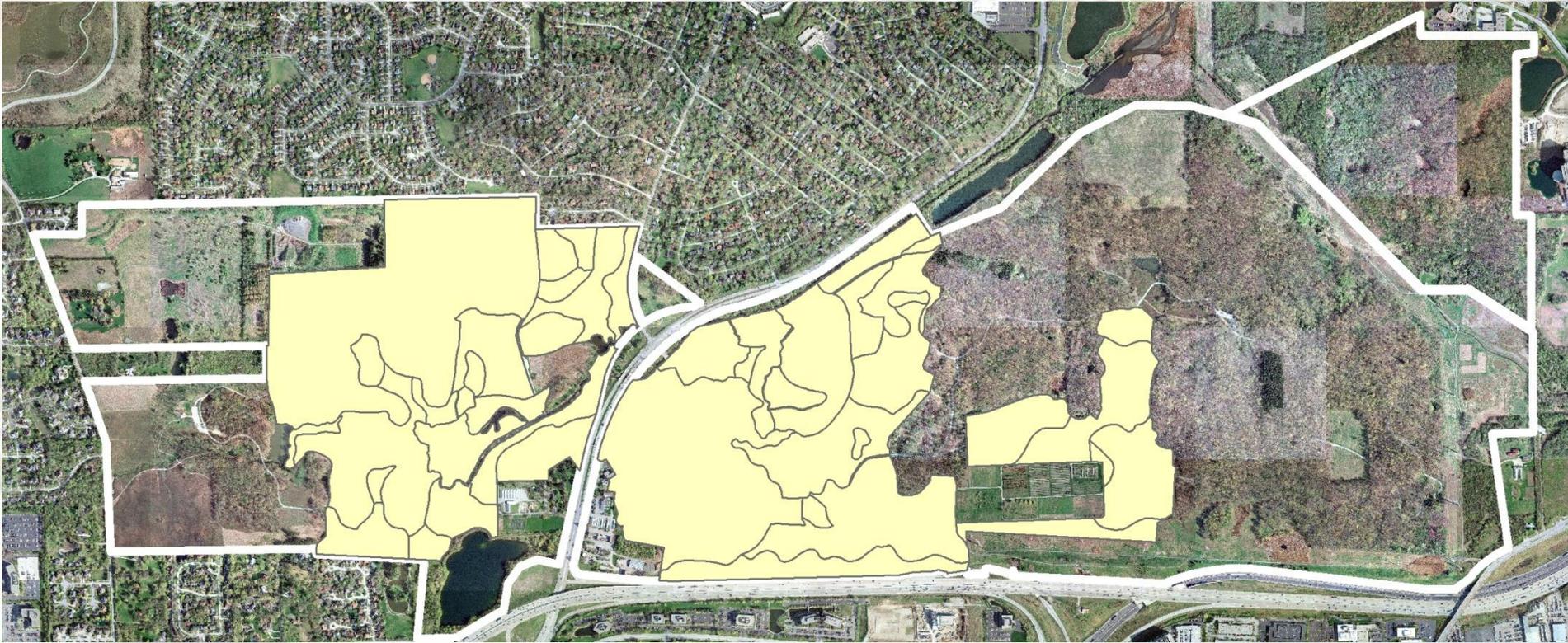
A living museum



- ❑ 75 Living Collections
- ❑ Over 222,000 living plants in collections
- ❑ 9,200 accessions
- ❑ 42 countries
- ❑ International recognition for collection management (Oak, Maple, Magnolia, Elm, & Crabapple Collections)
- ❑ 279 state, federal, or world threatened trees, shrubs, and other plants



Living Collections and Natural Areas



- 1900
- 1910
- 1920
- 1930
- 1940
- 1950
- 1960
- 1970
- 1980
- 1990
- 2000
- 2010
- 2020



Joy Morton

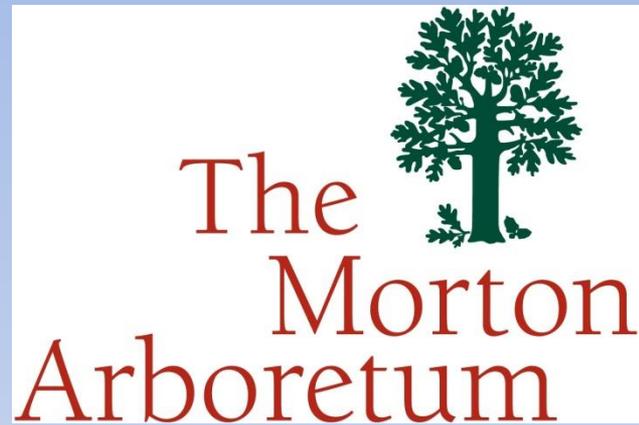


The Thornhill Estate
Circa 1920





The mission of The Morton Arboretum is to collect and study trees, shrubs, and other plants from around the world, to display them across naturally beautiful landscapes for people to study and enjoy, and to learn how to grow them in ways that enhance our environment. Our goal is to encourage the planting and conservation of trees and other plants for a greener, healthier, and more beautiful world.



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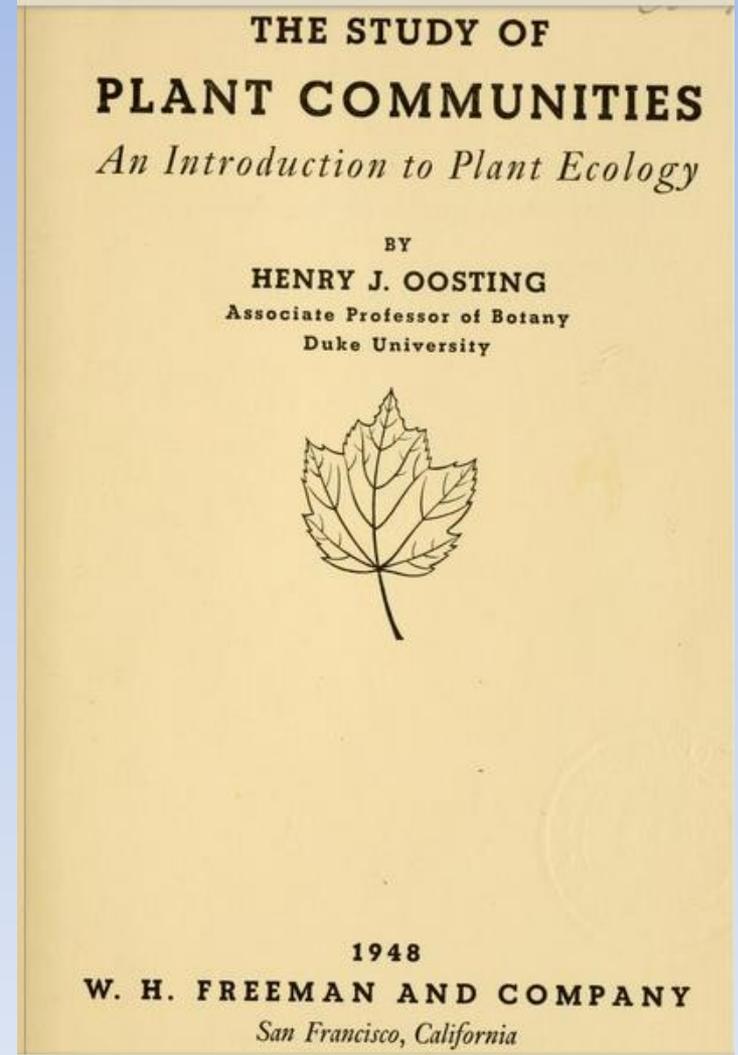
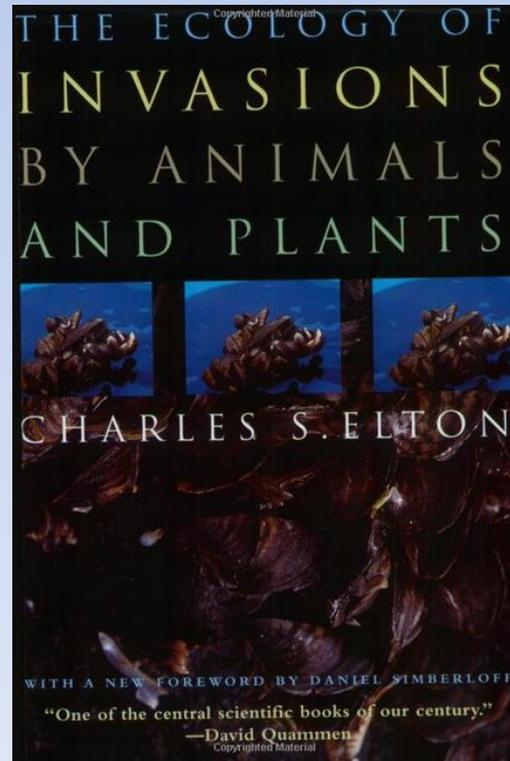
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Invasion Biology

- 1900
- 1910
- 1920
- 1930
- 1940
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Invasion Biology

- 1900
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Scientific community

- 1900
- 1910
- 1920
- 1930
- 1940
- 1950
- 1960
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1980's: Curator of Plant Collections, Ray Schulenberg



Chinese lacquer tree, *Toxicodendron vernicifluum*



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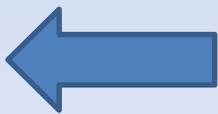
Scientific community AND public

Executive Order 13112

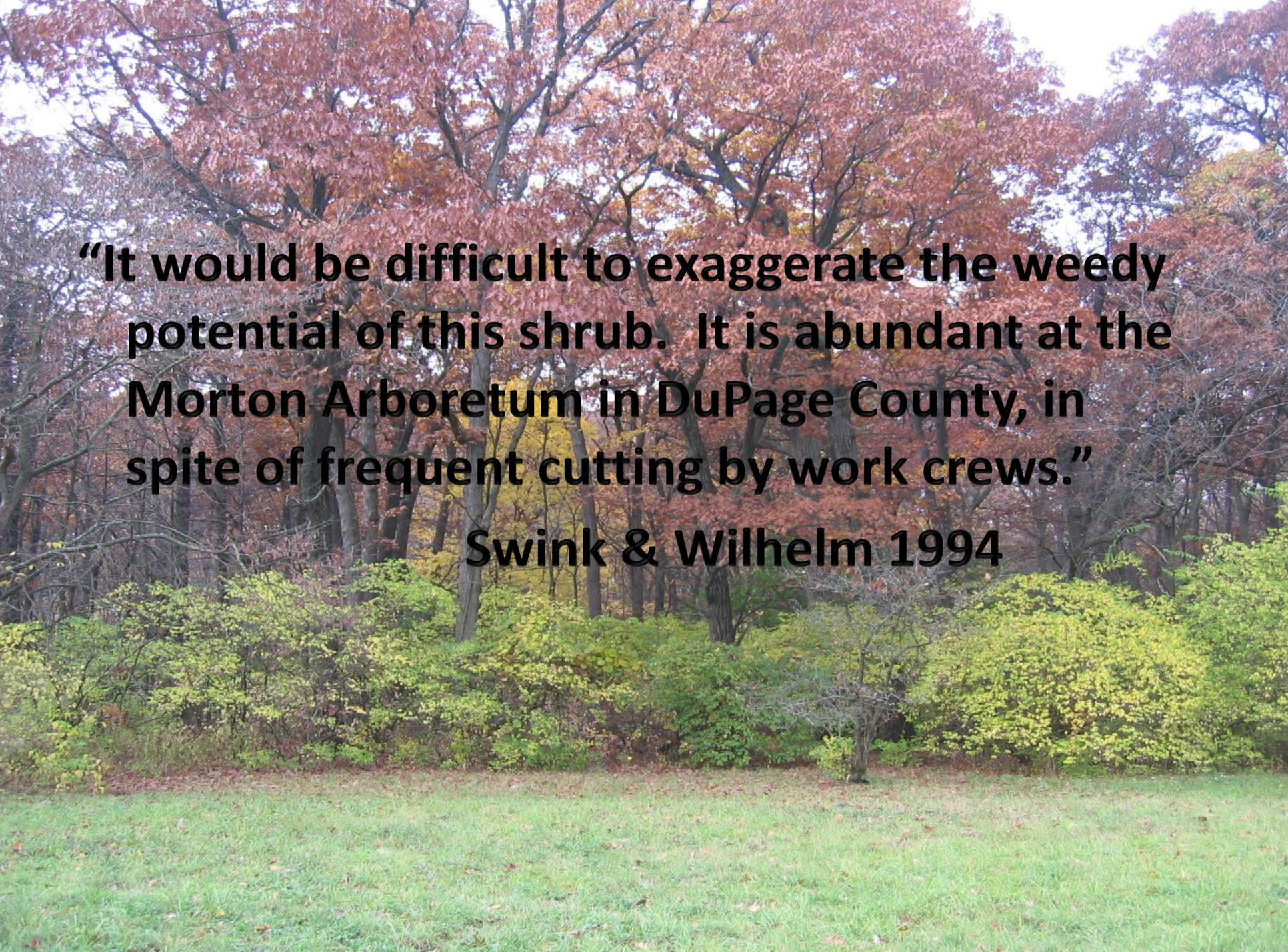
February 3, 1999

President Clinton

- 1900
- 1910
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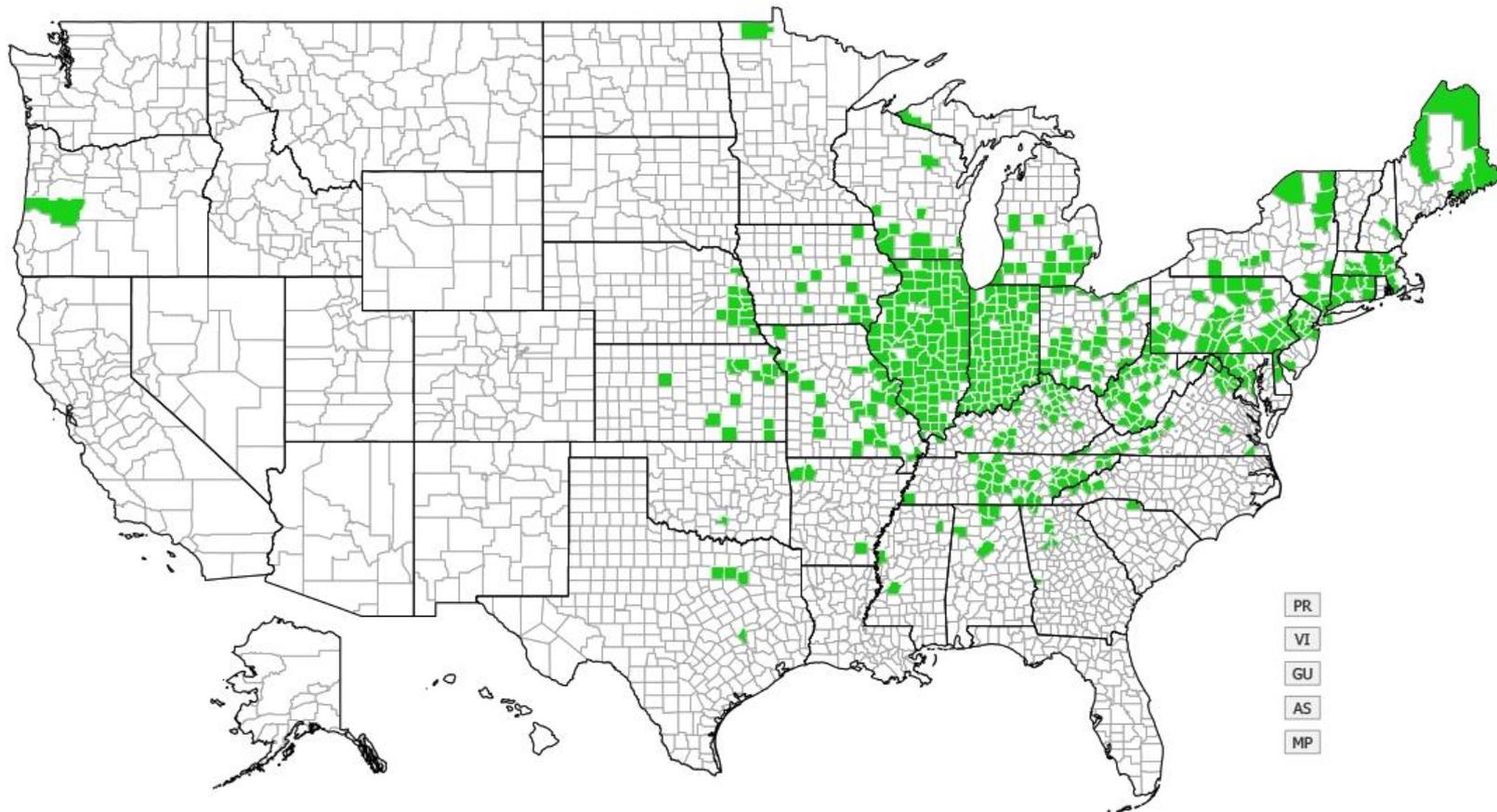
Arboretum's first natural resource
management program begins



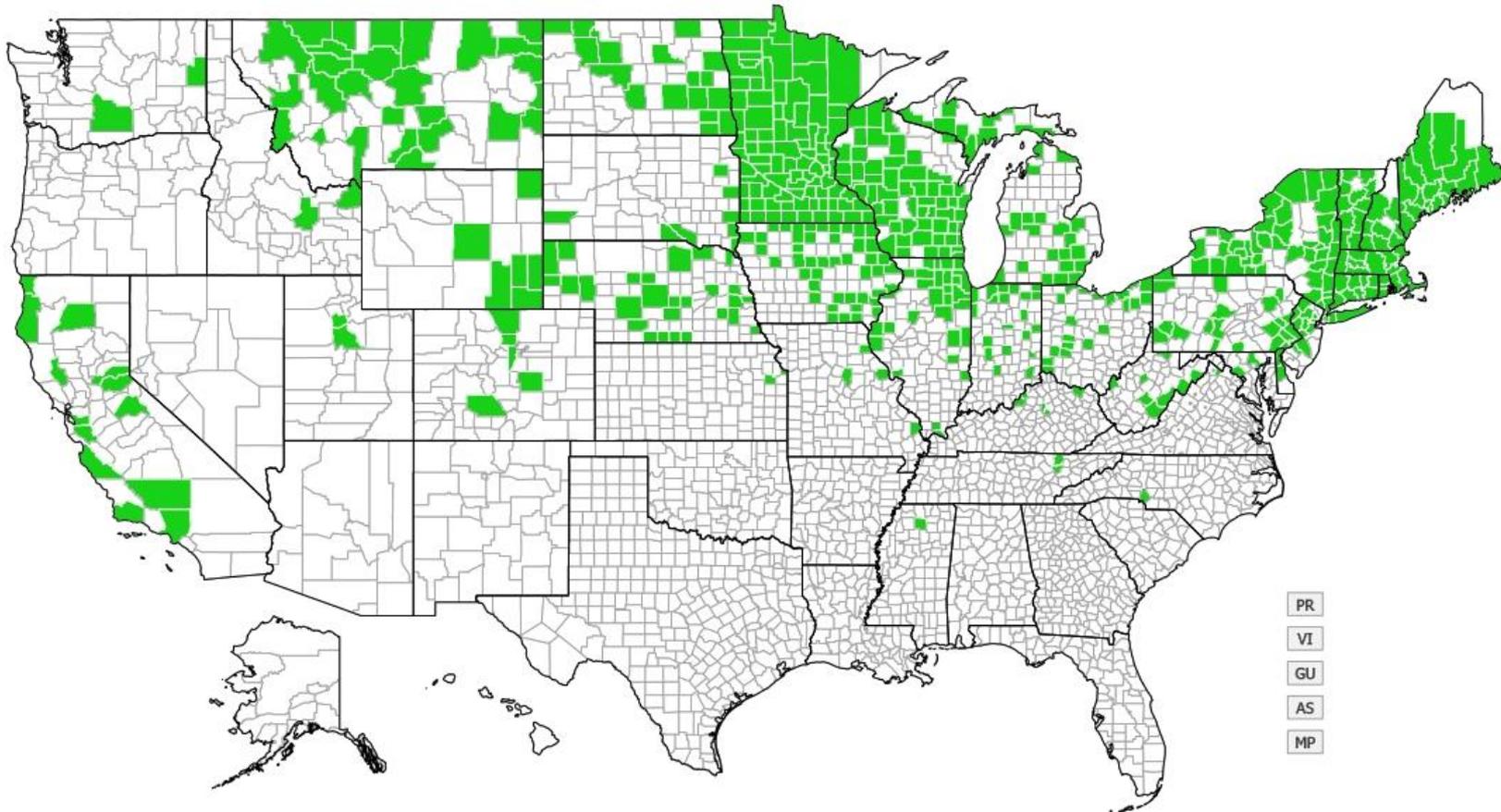
“It would be difficult to exaggerate the weedy potential of this shrub. It is abundant at the Morton Arboretum in DuPage County, in spite of frequent cutting by work crews.”

Swink & Wilhelm 1994

Bush honeysuckle



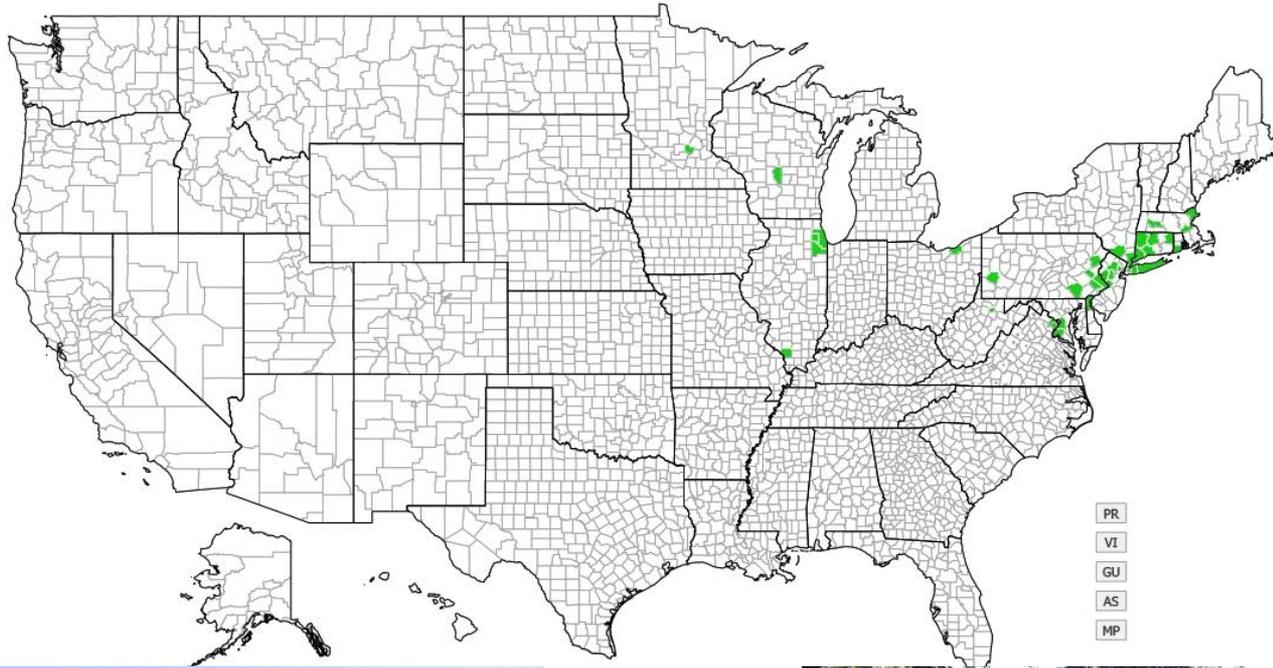
Common buckthorn



Plants with a long record...
Now commonly invasive in the region

Plants with a ~~long~~ record....
Now spreading in the region

Cork tree, *Phellodendron amurense*





“this is a common and vigorous weed throughout the Arboretum”

Floyd Swink, 1987



“escaped cultivation...with numerous wild plants, many of them now large trees”

Swink & Wilhelm 1994

Cork tree removals in Living Collections



- 1996 – 2010 → 13 fruiting specimens removed from Living Collections
- 2013 → a 14th specimen was removed

Cork tree removals in natural areas



- 2004-2010 → isolated large trees removed
- 2010→ Organized “search n’ destroy” effort
- Over 3000 saplings & seedlings removed

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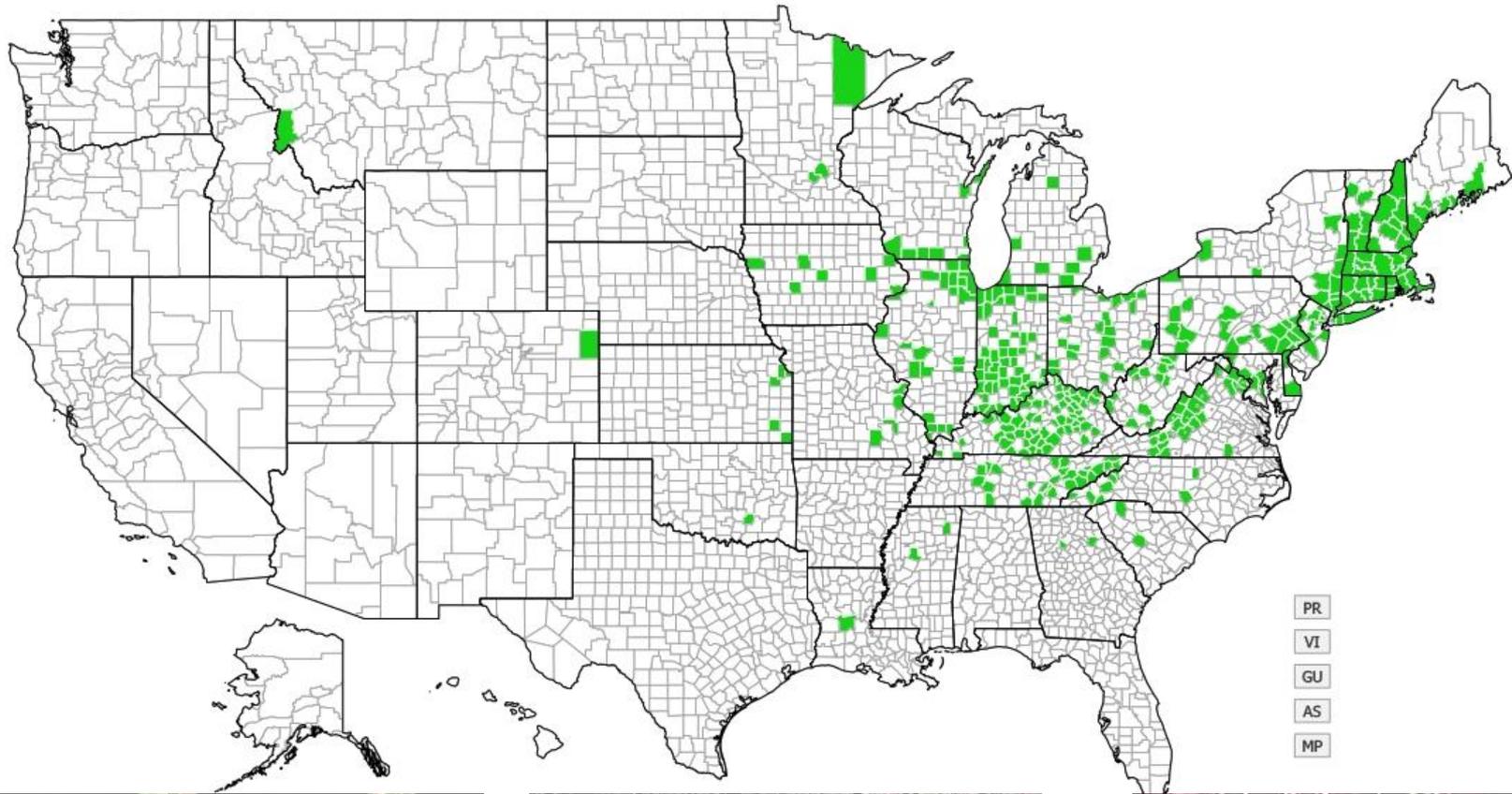
- Level 1 – Highly invasive
 - Norway maple, bush honeysuckle, common buckthorn
- Level 2 – Moderately invasive
 - Amur maple, European privet, white poplar
- Level 3 – Potentially invasive
 - Golden rain tree, Siebold’s shrub ginseng
- Level 4 – Invasive elsewhere
 - Scots broom, sawtooth oak

82 woody species, 38 herbaceous species



today

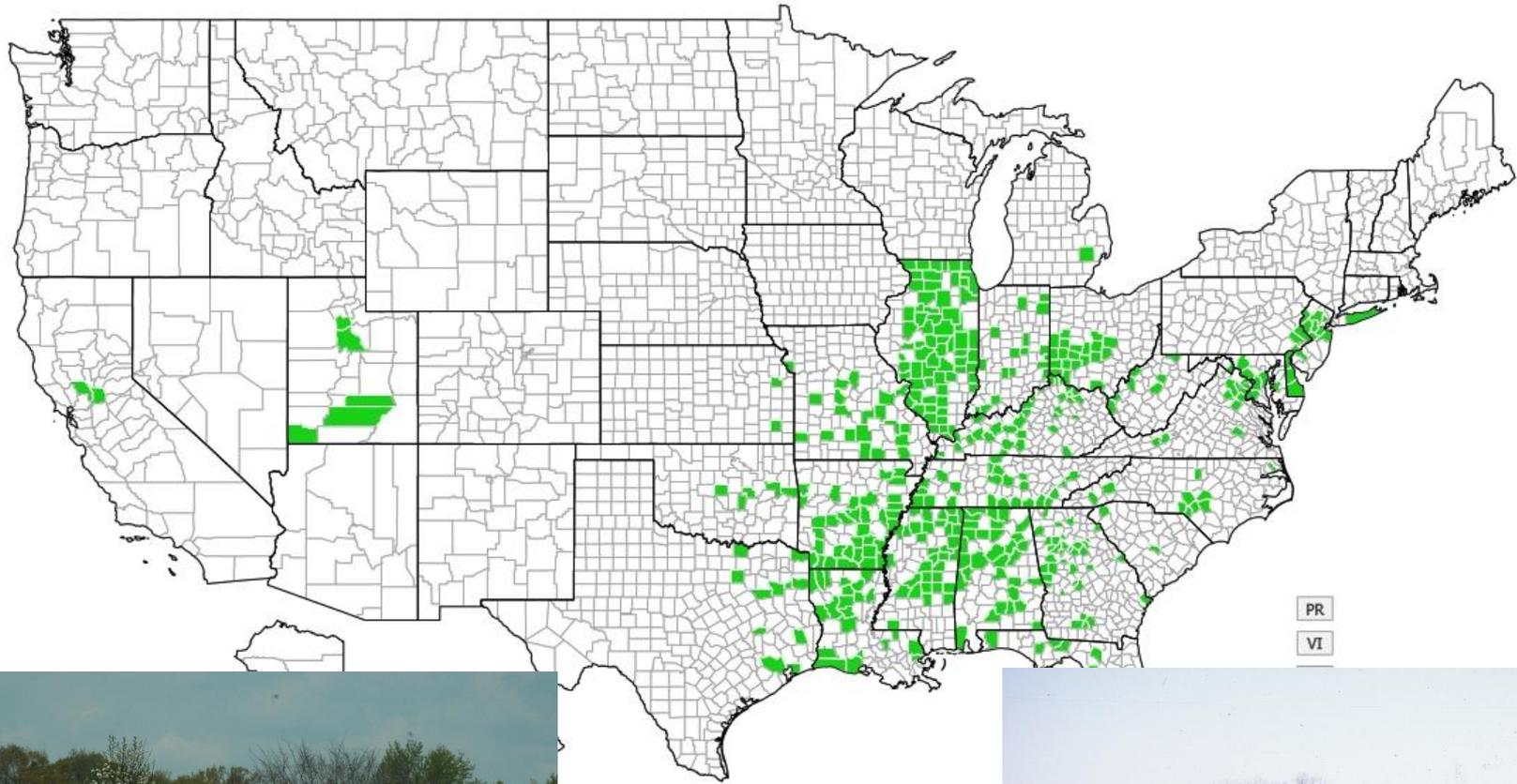
Burning bush





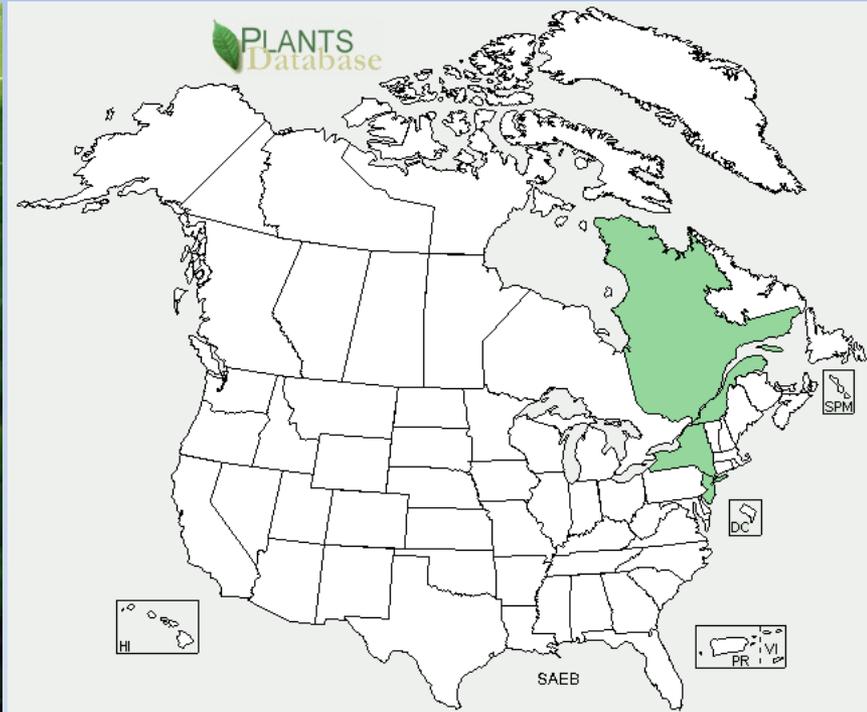
Callery pear

Pyrus calleryana

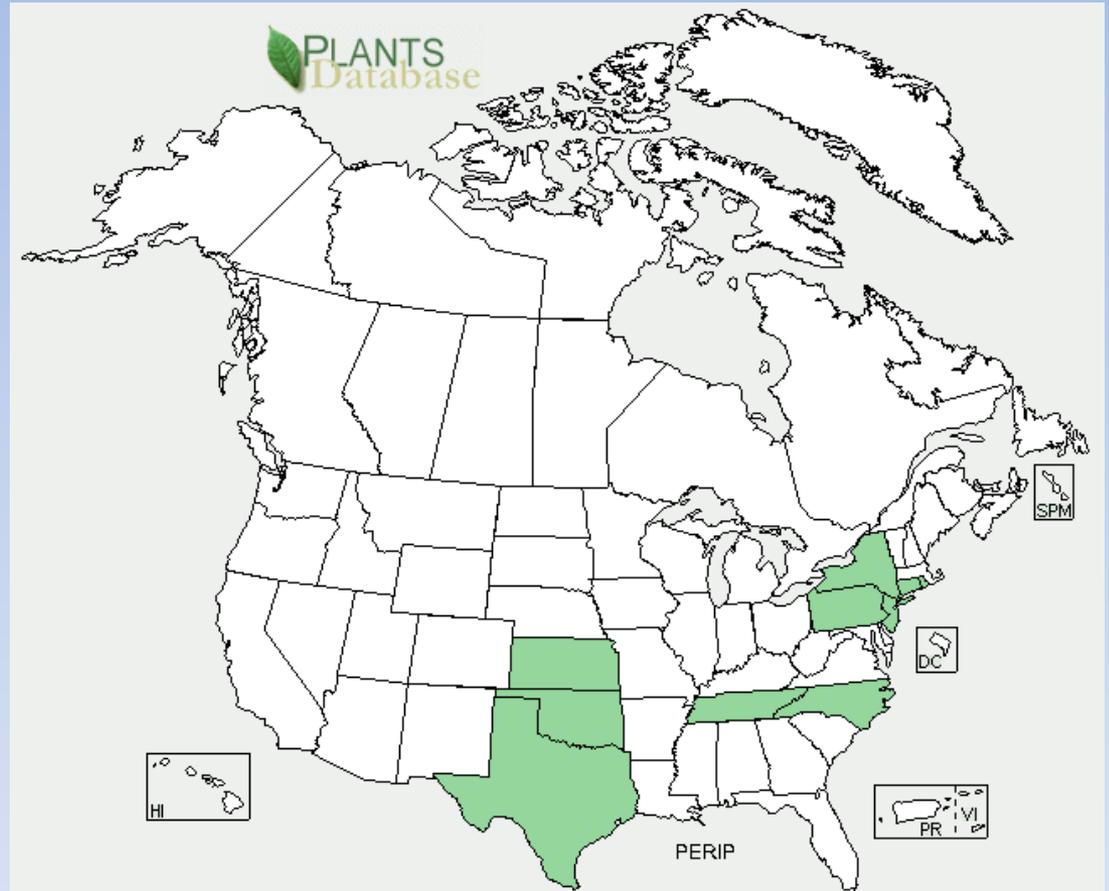
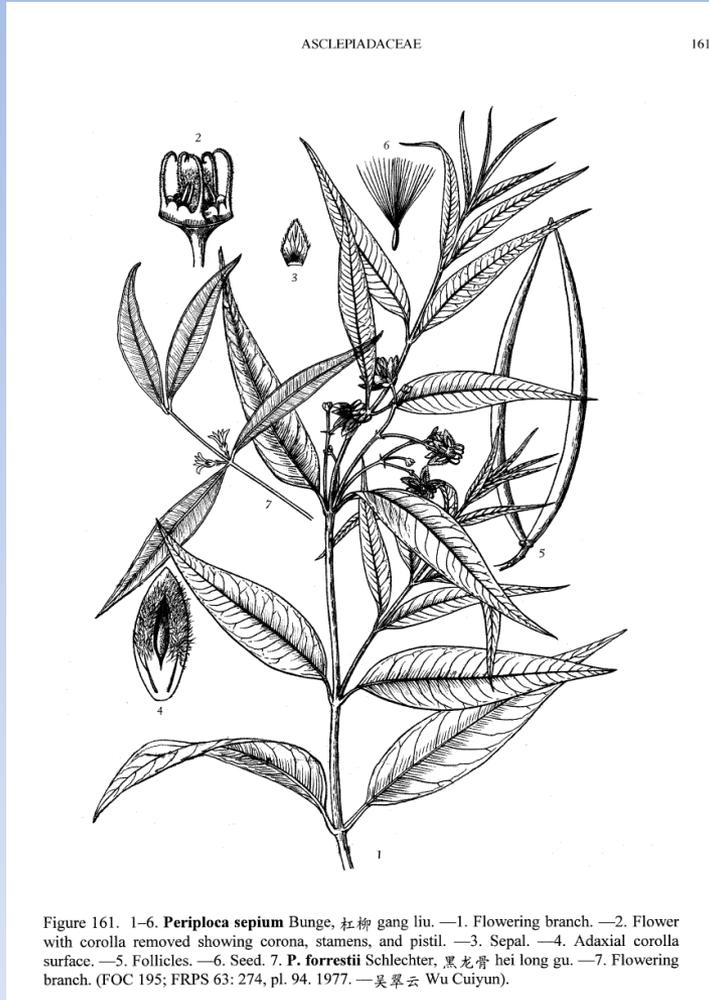


Plants with no record....
Not common in the region

Dwarf elder, *Sambucus ebulus*



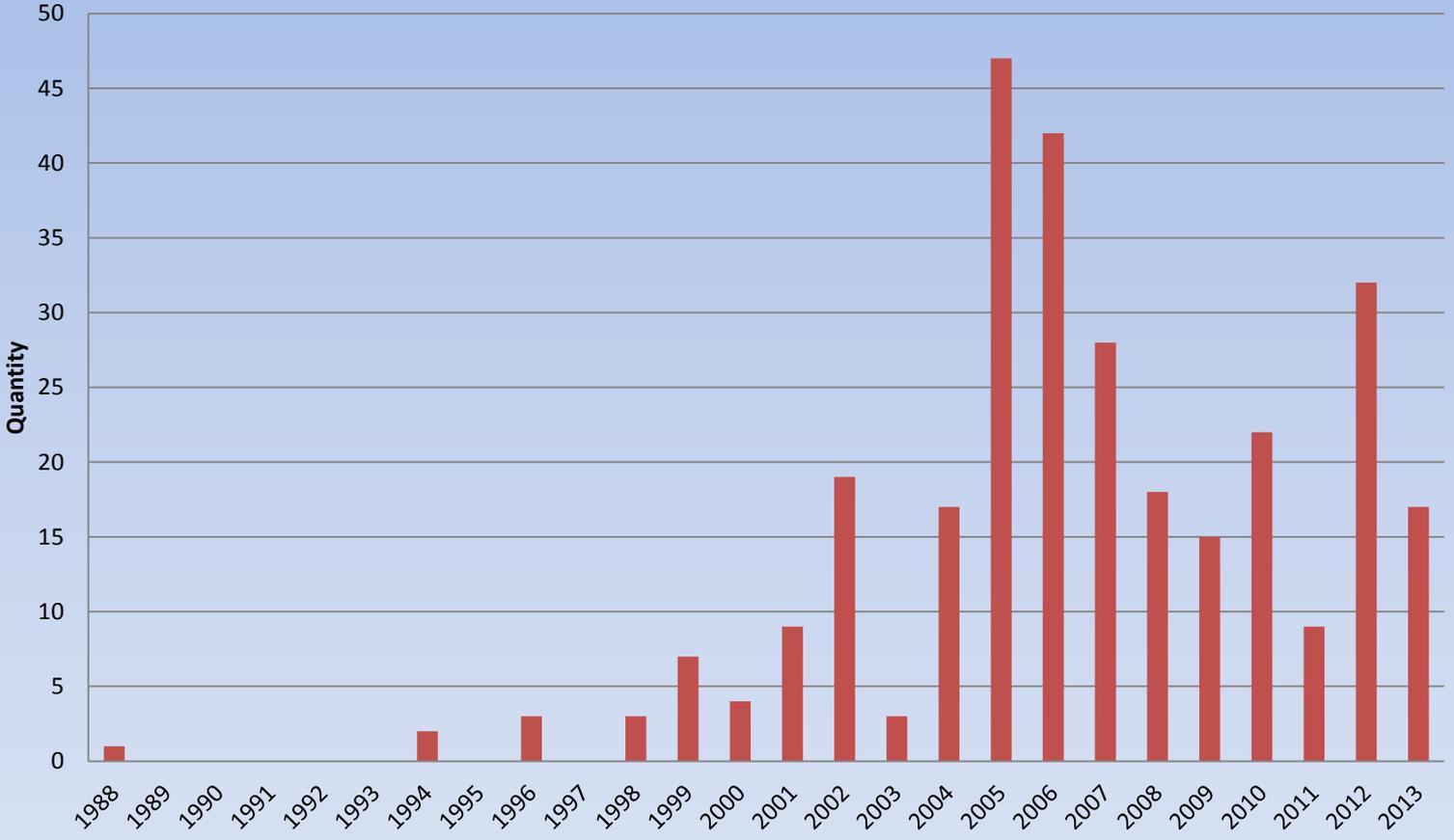
Chinese silk vine, *Periploca sepium*



- Map is for only *Periploca* sp., *P. sepium* is not indicated in this database
- Only 1 or 2 counties are listed in each of the shaded states

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Number of Deaccessioned Specimens per Year Due to Invasiveness



← today

Conclusions

- Invasive species have been planted throughout the Arboretum since 1922.
- Adaptive management:
 - Management of Collections changed over time as our understanding of plant invasions grew (mission statement!)
- Developed ranking system to evaluate collections.
- Track plant behavior of obscure plant species.
- Removed approx. 300 accessions since 1988.
- Lead by example:
 - We can demonstrate *through our actions*
- Education