

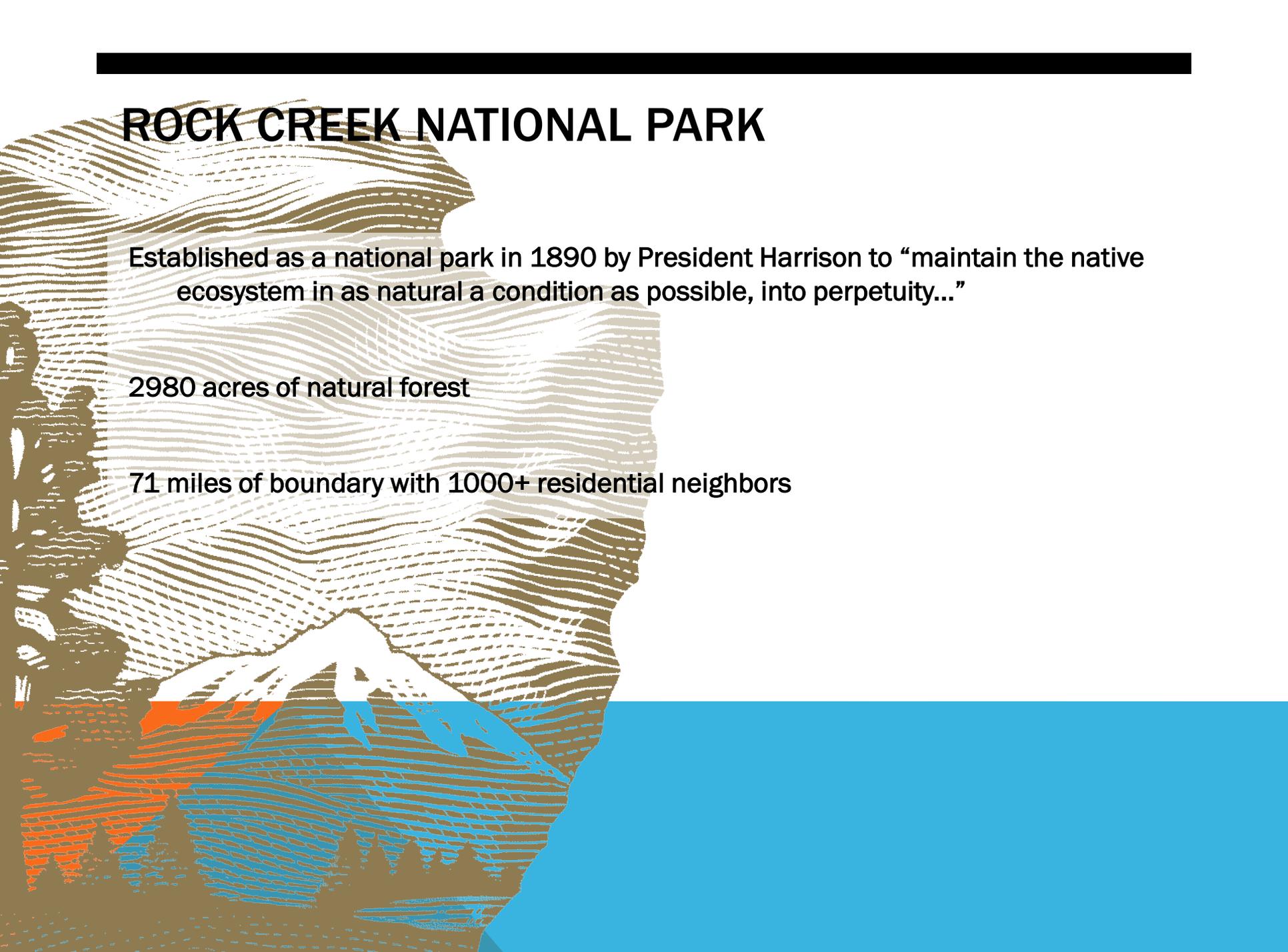
**Geological Society of America**

**National Park Service**

**U.S. Department of the Interior**



**BIOLOGIC INVENTORY AND MONITORING OF  
INVASIVE, NON-NATIVE PLANT SPECIES  
USING EARLY DETECTION & RAPID  
RESPONSE**

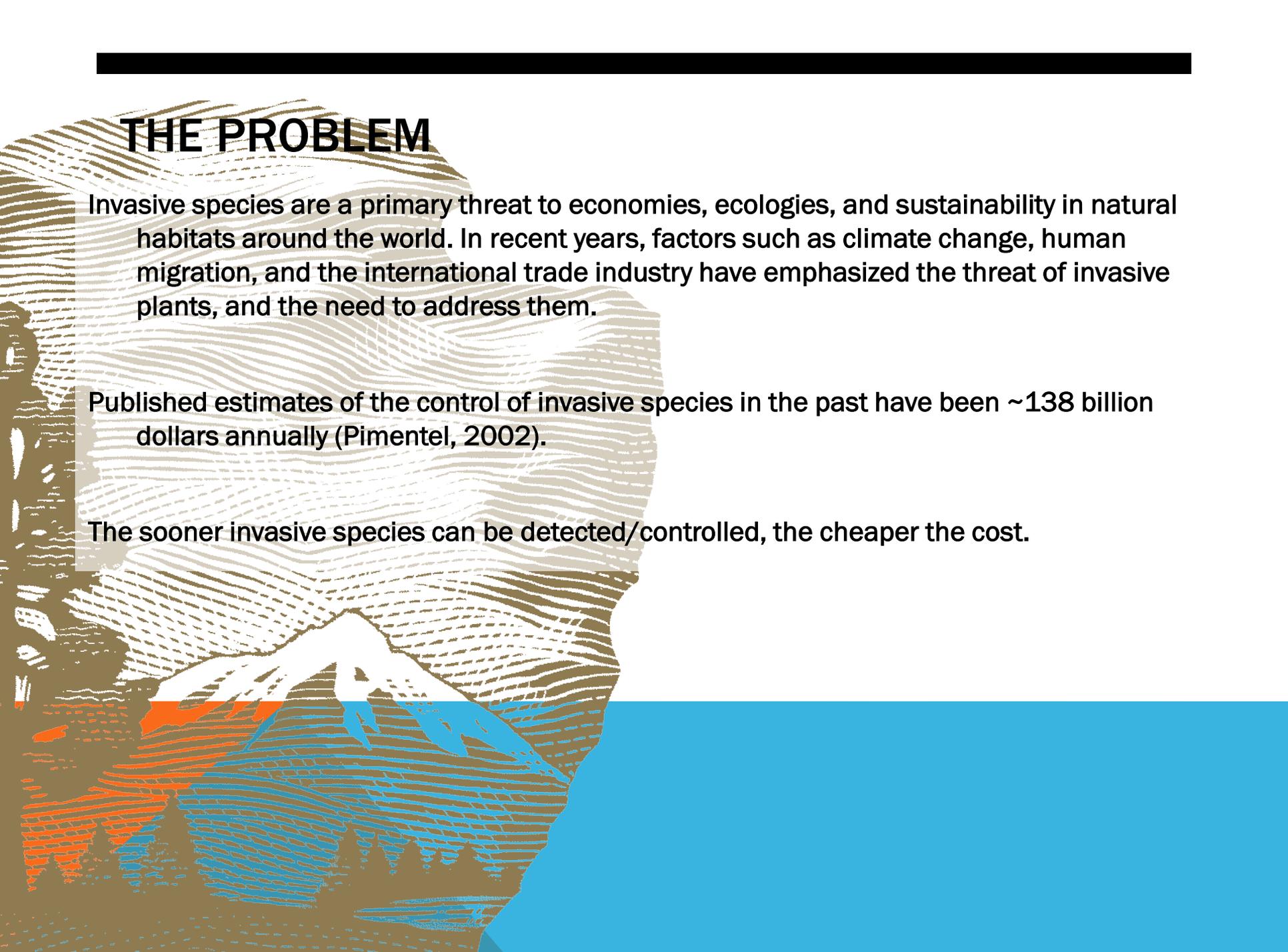


# ROCK CREEK NATIONAL PARK

Established as a national park in 1890 by President Harrison to “maintain the native ecosystem in as natural a condition as possible, into perpetuity...”

2980 acres of natural forest

71 miles of boundary with 1000+ residential neighbors



# THE PROBLEM

Invasive species are a primary threat to economies, ecologies, and sustainability in natural habitats around the world. In recent years, factors such as climate change, human migration, and the international trade industry have emphasized the threat of invasive plants, and the need to address them.

Published estimates of the control of invasive species in the past have been ~138 billion dollars annually (Pimentel, 2002).

The sooner invasive species can be detected/controlled, the cheaper the cost.

# EDRR PROCEDURES

Detecting and responding to invasions requires a series of coordinated and sustained actions that can be summarized into three main categories:

- Early detection
- Rapid assessment
- Rapid response

Actions include:

- Identification of high priority species; at risk sites
- Prevention and containment efforts
- Surveillance and reporting
- Treatment and removal of populations
- Restoration of habitat

# EDRR SPECIES TO LOOK FOR

- Aegopodium podagraria*, Goutweed
- Aralia elata*, Japanese angelica tree
- Arum italicum*, Italian arum
- Aucuba japonica*, Japanese aucuba
- Bamboo spp.*, Bamboo \*
- Buddleja davidii*\*, Butterfly bush
- Cynanchum louiseae*, Black swallowwort
- Elaeagnus umbellata*, Autumn olive\*
- Eleutherococcus sieboldianus*, Five leaf aralia
- Hyacinthoides hispanica*, Spanish blue bells \*
- Mahonia bealei*, Leather leaf mahonia
- Miscanthus sinensis*, Japanese silver grass \*
- Oplismenus hirtellus*, Wavy leaf basket grass
- Osmanthus heterophyllus*, False holly
- Pennisetum setaceum*, Fountain grass
- Rhodotypos scandens*, Jetbead
- Viburnum seiboldii*, Siebold viburnum



# EQUIPMENT AND MATERIALS

## Equipment

- Trimble GPS unit
- Digital camera
- Clippers

## Materials:

- Data sheets
- Identification guide

# METHODS

From the boundary line delineated by NPS markers, walk into the interior within a range of 100-200ft

Identify all plants within this range, keeping in mind EDRR species

Record the presence of all plants known to be invasive in ROCR

GPS large infestations of these known species

Sample unknown plants growing and acting invasively; identify

Document neighboring property with landscaping that contains invasive plants, or potential threats to ROCR natural areas

# RESULTS

Table 1. Identified early detection species found in ROCR

Species scientific name	Species common name	Location	Density
<i>Aralia elata</i>	Japanese angelica tree	Military Rd., Oregon Ave	light 1-10%
<i>Bamboo spp.</i>	Bamboo	Pinehurst	light 1-10%
<i>Elaeagnus umbellata</i>	Autumn olive	Bingham Dr., Upshur St.	trace <1%
<i>Eleutherococcus sieboldianus</i>	Five leaf aralia	Park Rd.	light 1-10%
<i>Mahonia bealei</i>	Leather leaf mahonia	Parkside, Melvin Hazen, Upshur St.	light 1-10%
<i>Osmanthus heterophyllus</i>	False holly	Bingham Dr., Parkside	trace <1%
<i>Pennisetum setaceum</i>	Fountain grass	Dumbarton Oaks	light 1-10%
<i>Rhodotypos scandens</i>	Jetbead	Holly St., Piney Branch	light 1-10%
<i>Viburnum sieboldii</i>	Siebold viburnum	Piney Branch	light 1-10%
<b>Threats to ROCR</b>	<b>Species</b>	<b>Location</b>	<b>Density</b>
<i>Buddleja davidii</i>	Butterfly bush	W Beach Dr.	trace <1%
<i>Vinca major</i>	Bigleaf periwinkle	Crestwood Dr.	trace <1%
<i>Wisteria sinensis</i>	Chinese wisteria	Crestwood Dr.	light 1-10%

# MAPS

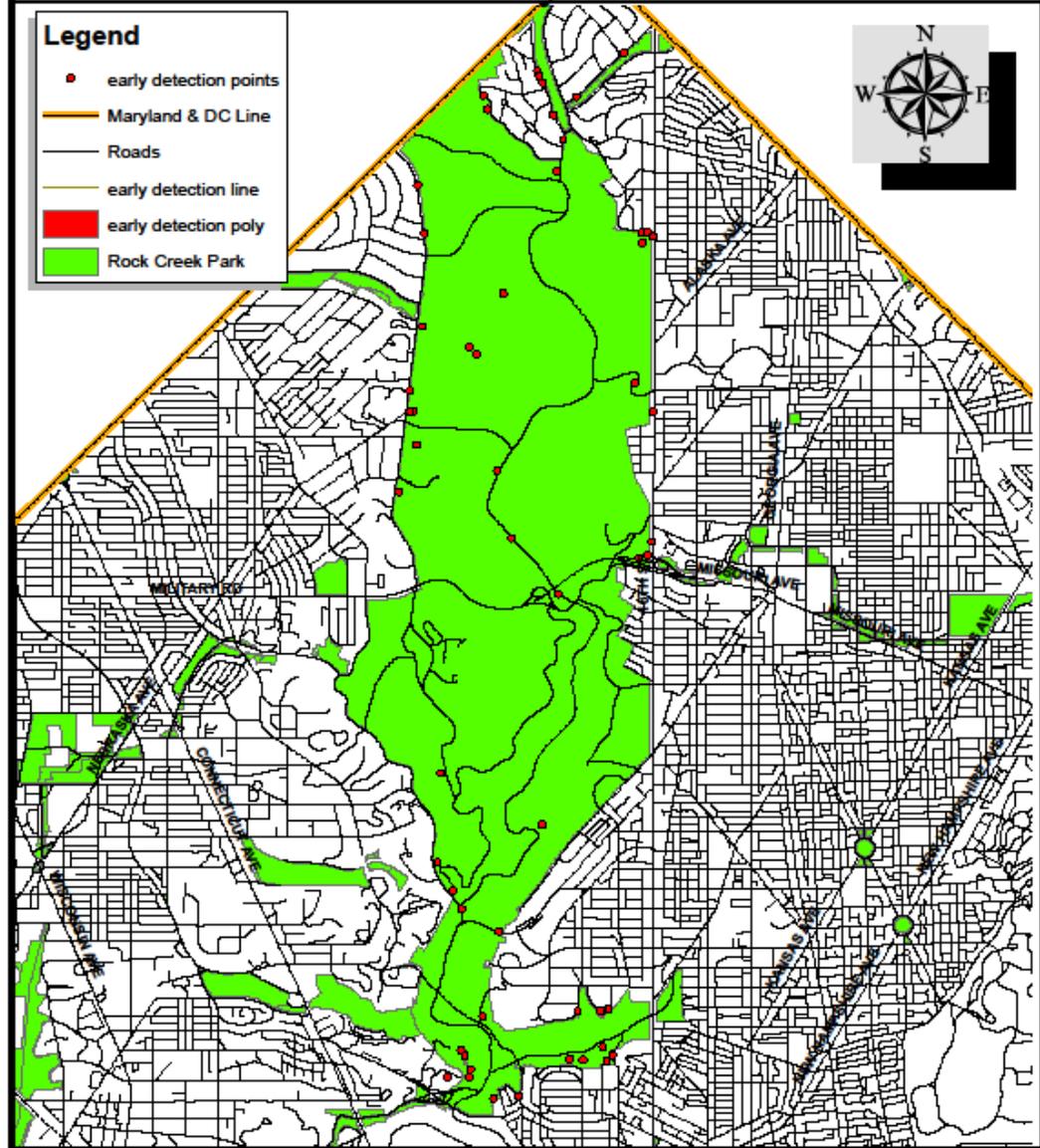
All data points taken using GPS unit



## Overall Early Detection

### Legend

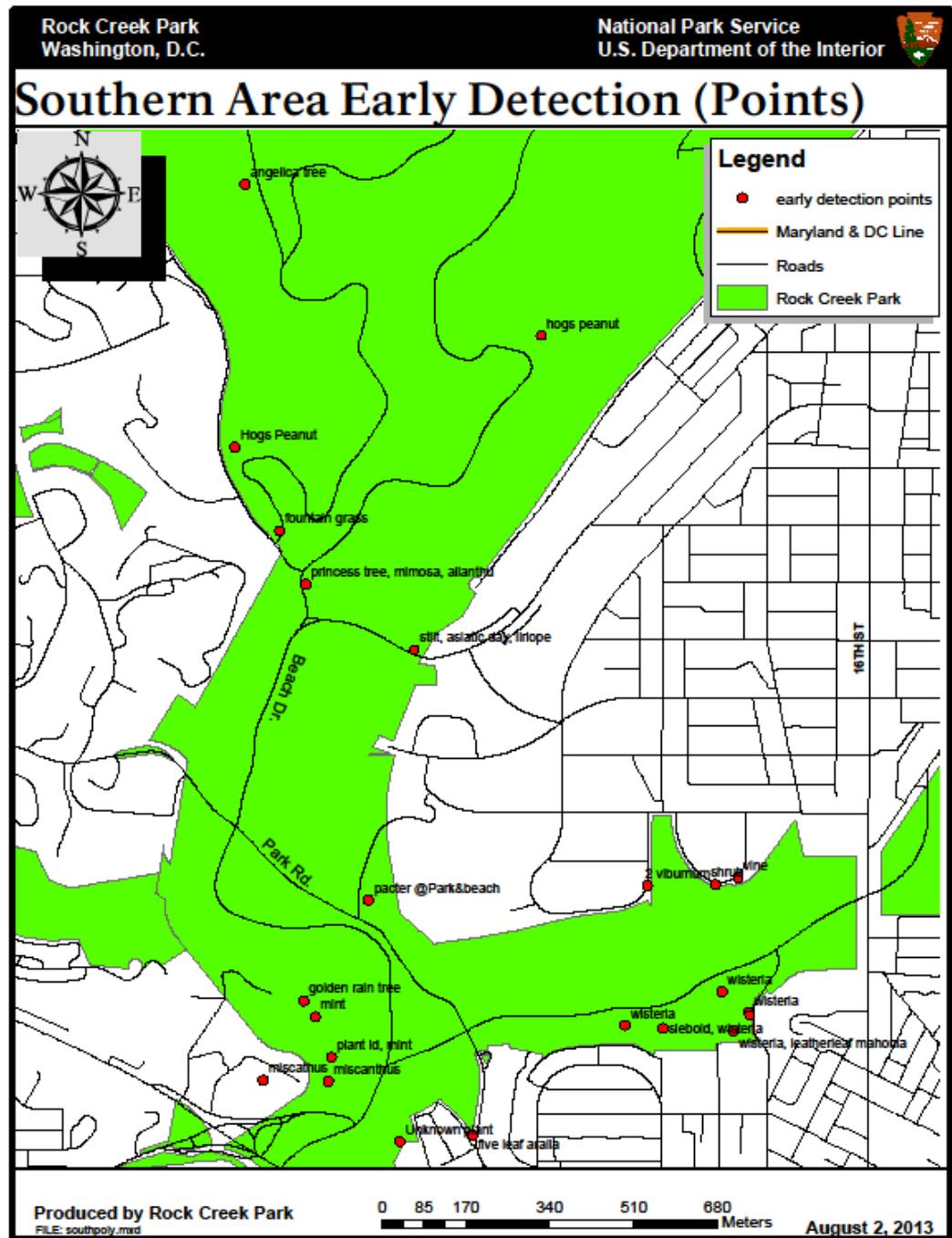
- early detection points
- Maryland & DC Line
- Roads
- early detection line
- early detection poly
- Rock Creek Park





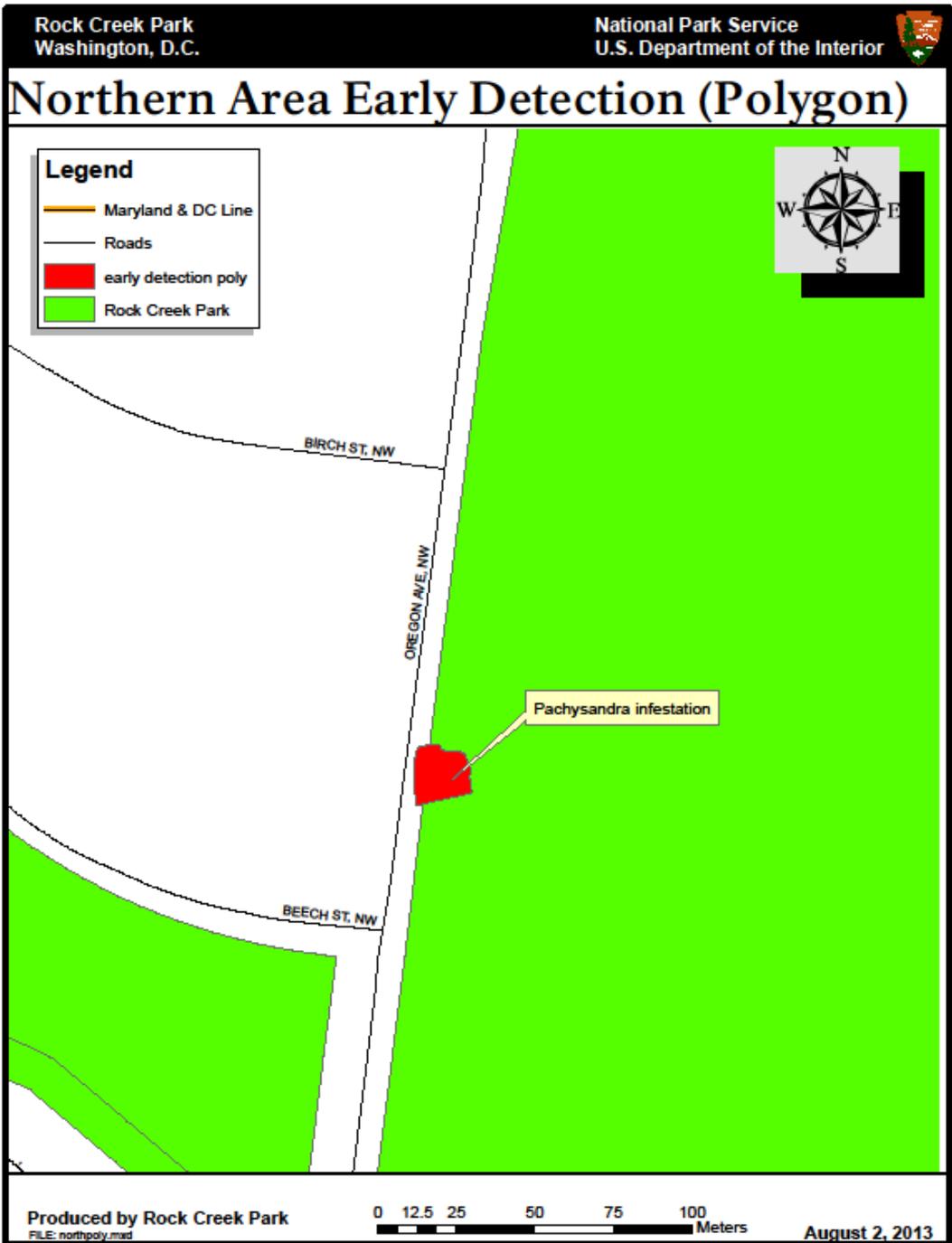
# MAPS

Data points of the south end of ROCR



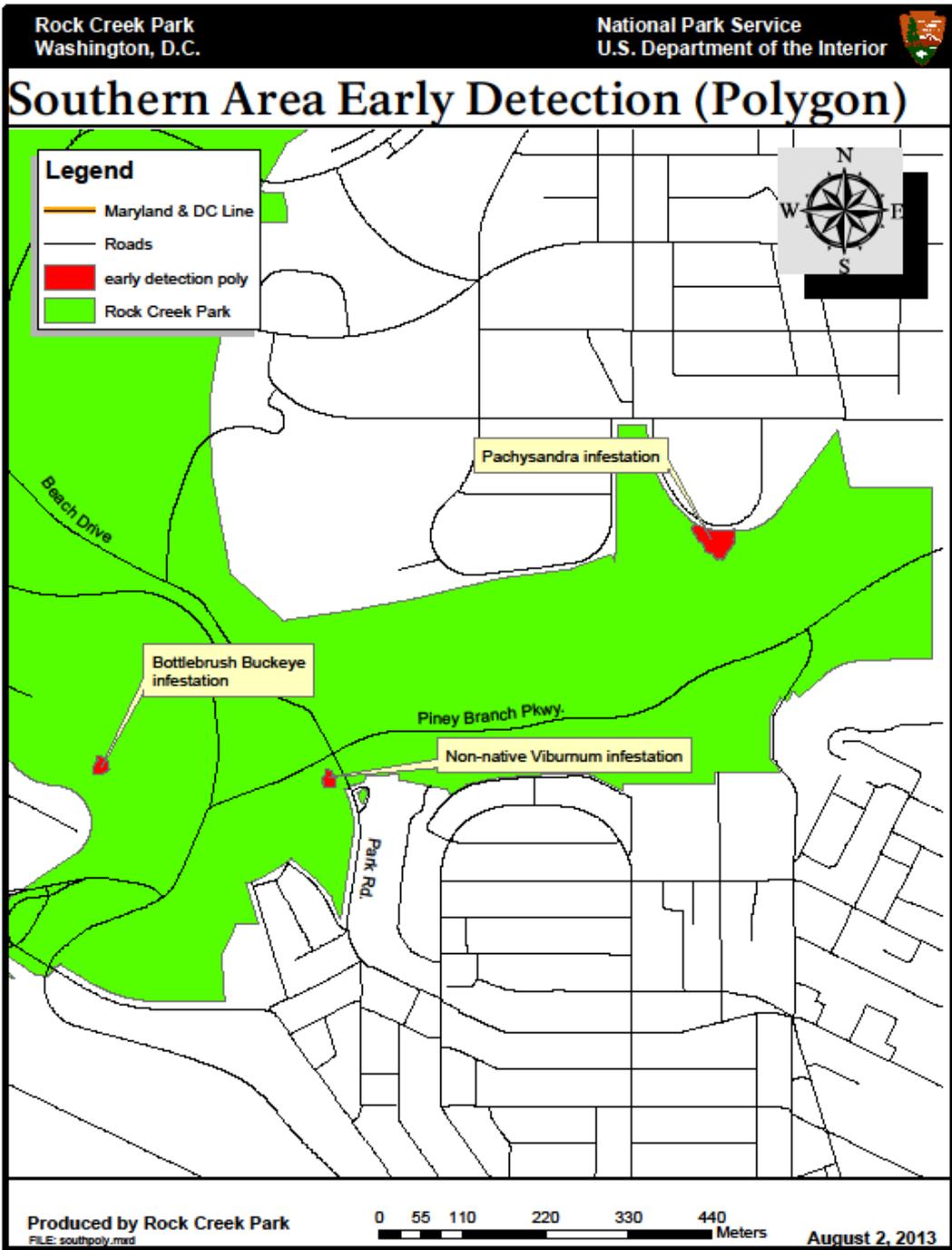
# MAPS

Data collected on an infestation of Japanese spurge



# MAPS

More identified non-native infestations



# RESULTS

## Record of treatments at ROCR

Location	Species treated
Golf course	<i>Cirsium arvense</i>
Dumbarton Oaks	<i>Pennisetum setaceum</i> , <i>Lonicera maackii</i> , <i>Wisteria sinensis</i> , <i>Microstegium</i> <i>vimineum</i>
ROCR Parkway	<i>Ailanthus altissima</i>
Melvin C. Hazen	<i>Aegopodium podagraria</i>

# BUTTERFLY BUSH

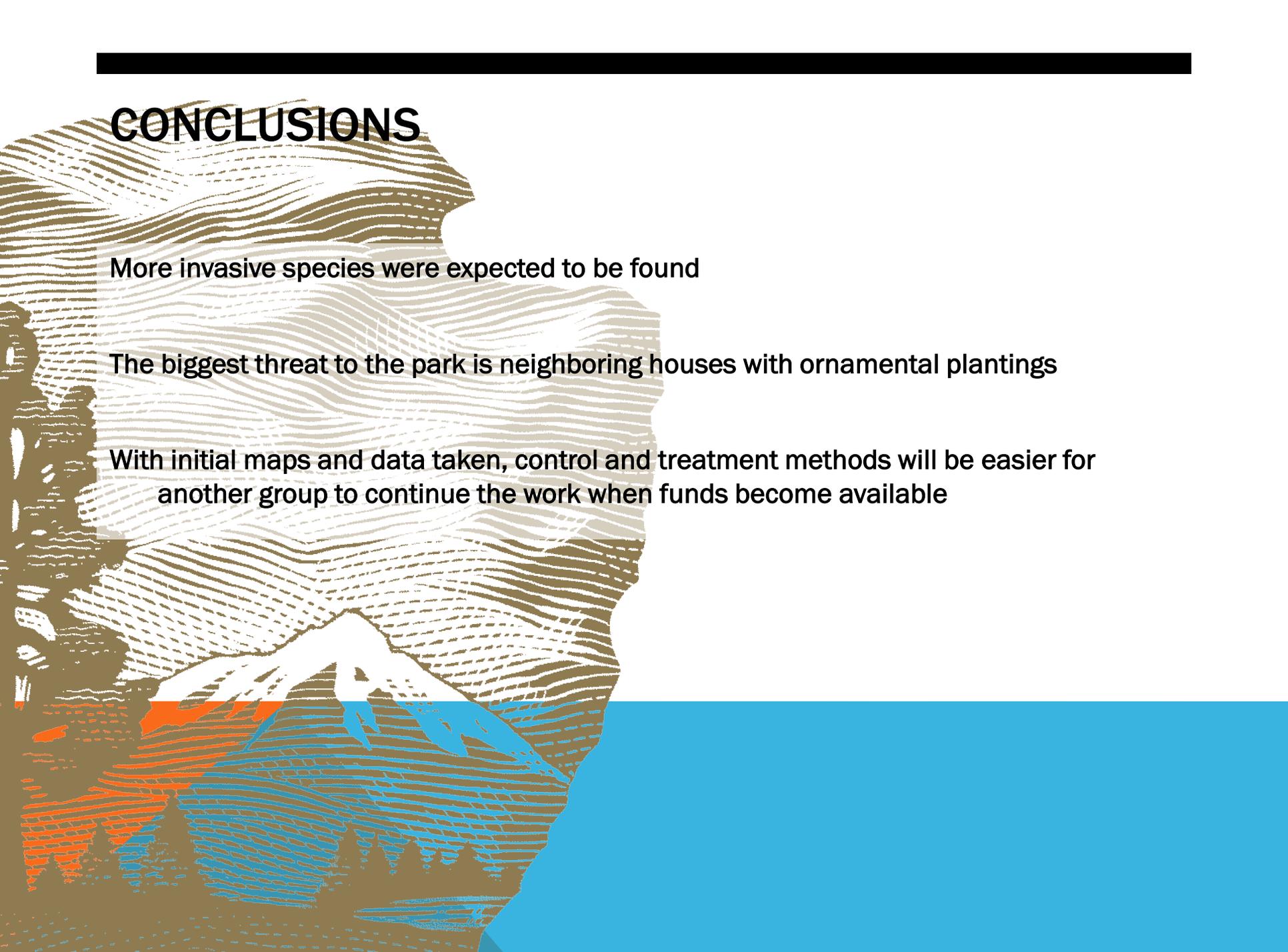


# CHINESE WISTERIA



[Report a problem](#)

38°56'21.68" N 77°02'23.40" W elev 253 ft eye alt 207 ft



# CONCLUSIONS

More invasive species were expected to be found

The biggest threat to the park is neighboring houses with ornamental plantings

With initial maps and data taken, control and treatment methods will be easier for another group to continue the work when funds become available

## ACKNOWLEDGEMENTS

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# QUESTIONS?



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