

# Progress Towards Eradication of Salt Cedar in Florida

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Jessica Spencer  
Invasive Species Management Branch  
Jacksonville District



US Army Corps of Engineers  
**BUILDING STRONG**



# **Definition of Invasive Species**

**According to Executive Order 13112, the official definition of invasive species is:**

**A non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health**



# THE INVASION CURVE

Asset Based Protection  
& Long-term Management

AREA INFESTED →

CONTROL COSTS →

Containment

Eradication

Prevention

Species  
absent

Small number of localized  
populations; eradication  
possible

Rapid increase in distribution  
and abundance; eradication  
unlikely

Invasive species widespread and abundant; Long-term  
management aimed at population suppression and  
asset protection

TIME →

Introduction



# Know the Species

1. **Growth form** – herbaceous, annual/perennial, woody shrub, tree, vine
2. **Reproductive strategy** – seeds, vegetative, rhizomes
3. **Reproductive timeframe** – how long before plants mature & produce seed, how long are seeds viable
4. **Responses to control** – root sprouting, seed drop
5. **Dispersal** – how can it spread, what are most likely routes/vectors



# Know the Population



- **What is the extent of the population on your property and beyond?**
- **What is the most likely way it was introduced to your property?**
- **Are there populations on neighboring properties that may act as a source?**
- **Has it already produced seed?**



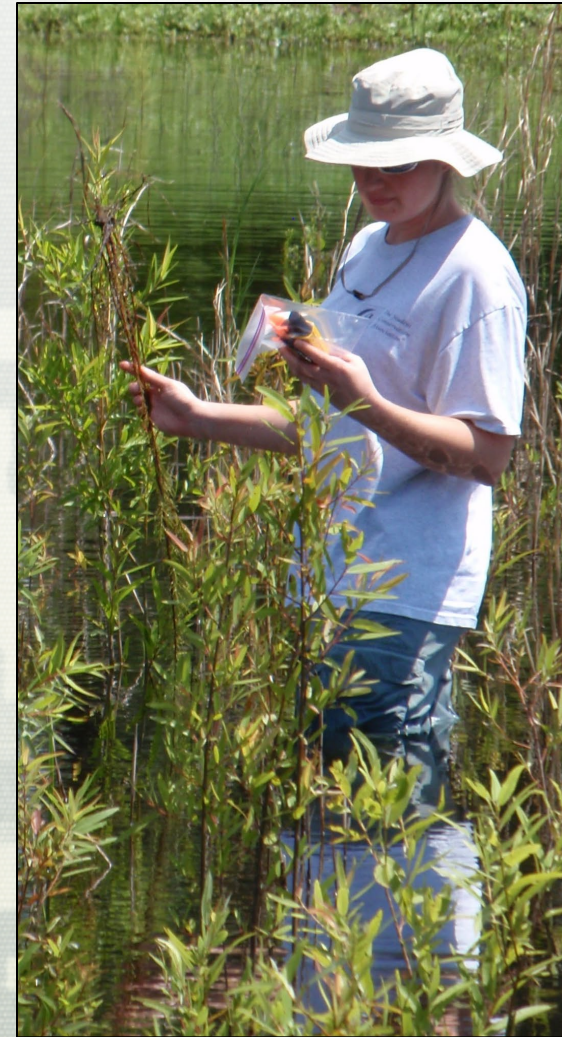
# Control Methods

- **Mechanical** – hand pulling, mowing, grinding, disking, etc.
- **Chemical** – herbicide applied to foliage, cut stumps, basal bark, etc.
- **Biological** – use of natural predators/herbivores that have been extensively screened to ensure that they will only impact the targeted plant.
- **Cultural** – prescribed fire, drawdowns, etc.



# Develop a Management Plan

- Use this information to prioritize treatment
- Identify and, if possible, eliminate source
- Target small populations along the edges
- Target reproductive plants
- Manage the seedbank
- Continue monitoring (failed treatments or new plants)
- Persevere!



# Case Study – Salt Cedar in Jacksonville

- **Know the Species -**  
Introduction to the species (history and biology)
- **Know the Population –**  
Population extent in Jacksonville
- **Make a Plan for Control-**  
Contain and eradicate





# History of Salt Cedar (*Tamarix* sp.)

- Native to Eurasia and Northern Africa
- Introduced to U.S. in early 1800's
- Infested over 1 million acres in western US
- Species in Florida is *Tamarix canariensis*



*Tamarix* monoculture in Jacksonville, FL



# Habitat Requirements

- **Moist soils for 2-4 weeks after germination**
- **Various soil types (sand, loam & clay)**
- **Need full sun**
- **Disturbance**



**Exposed Soil with Salt Cedar Seedlings**



# Invasive Characteristics



5 month old seedling

- Prolific seed producer
- Reproduces vegetatively & by seed
- Grows quickly and can produce seed within first year
- Forms dense monocultures
- Alters soil chemistry



# Seed Characteristics

- **Wind/water dispersed**
- **1 million seeds/yr**
- **No dormancy requirement**
- **Germinate in 24 hours if exposed to moisture**
- **Only viable for 3 to 40 weeks**



**Salt Cedar Seeds**



# Salt Cedar in Florida

**2008** – National Park Service staff alert the Corps to salt cedar growing on a dredge disposal site (Buck Island) that borders the Park. The population was treated.

**2010** – Subsequent surveys revealed salt cedar growing on multiple other dredge material management areas (DMMAs) throughout the Jacksonville area.



Buck Island – First observation of salt cedar invasion in Jacksonville



# DMMAs with Salt Cedar

Locations of dredge material management areas (DMMAs) where salt cedar has been treated in Northeast Florida

Callahan

Nassau Village-Ratliff

Bryceville

Baldwin

Jacksonville

Duval

Orange Park

Lakeside

Fruit Cove

Fleming Island

Atlantic Beach

Jacksonville Beach

Ponte Vedra Beach

Palm Valley

**Legend**

- Bartram
- Blount
- Buck
- DU-2
- DU-3
- DU-6
- Dayson
- Mayport
- Reed
- SJ-14

Google earth

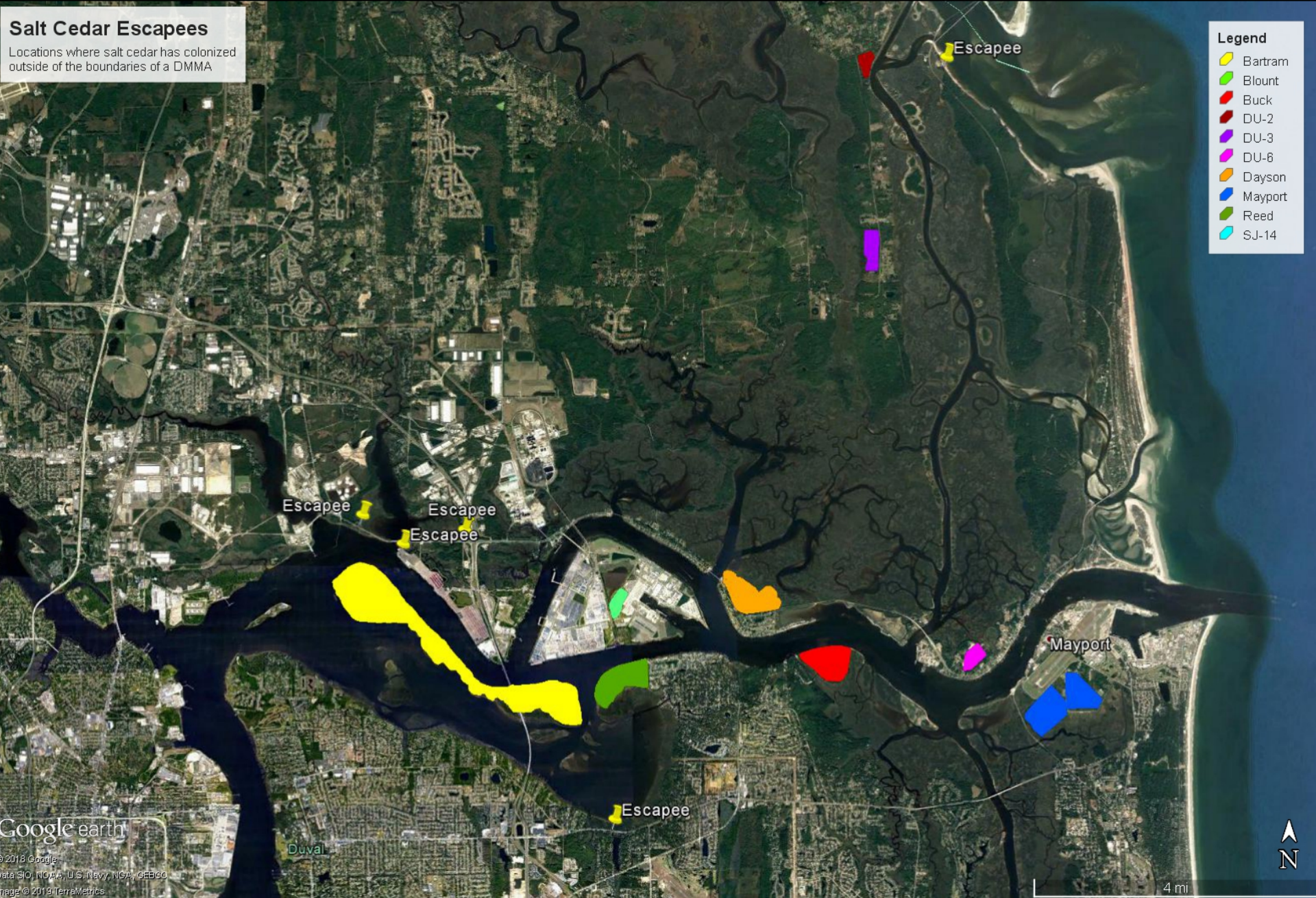
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10 mi



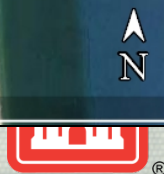
# Salt Cedar Escapees

Locations where salt cedar has colonized outside of the boundaries of a DMMA



- Legend**
- Bartram
  - Blount
  - Buck
  - DU-2
  - DU-3
  - DU-6
  - Dayson
  - Mayport
  - Reed
  - SJ-14

Google earth  
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# 2010 – Dense infestations identified & targeted

US Army Corps contractors treated the large monocultures of salt cedar on Bartram and Buck Islands.

Once the monocultures were controlled, the monitoring and follow up treatments were much less labor intensive.





# **Tamarix monoculture at Bartram**

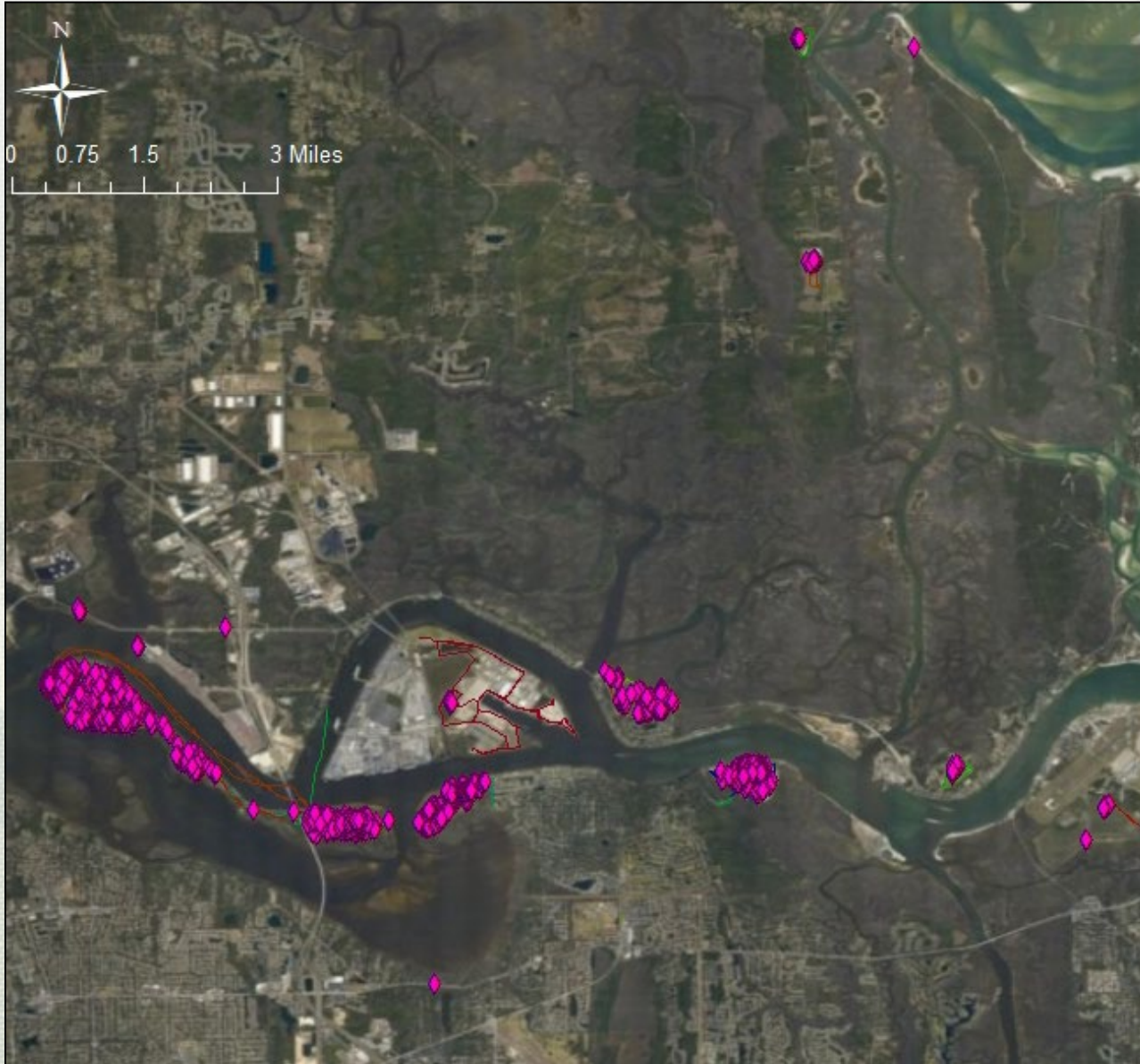




**An exposed shoreline with slowly receding water is the perfect habitat for them to colonize**



# 4,389 Tamarix Killed from 2011-2021



# Reed Island – last known population

- Some DMMA's are more active than others
- Reed Island was deactivated once it reached capacity and mature salt cedar populated the site
- No money was available for Reed Island, so we had to use volunteers
- Several volunteer work days were held in 2012



JaxPort  
City of Jacksonville  
Timucuan Preserve (NPS)  
US Navy  
The Nature Conservancy

Florida Fish and Wildlife Conservation Commission  
US Army Corps of Engineers  
South FL/Caribbean Exotic Plant Management Team (NPS)  
Georgia Department of Natural Resources  
Everglades Cooperative Invasive Species Management Area



Florida Native Plant Society  
Florida State University  
Florida State Parks  
Coastal Georgia Cooperative Invasive Species Management Area  
Guana Tolomato Matanzas National Estuarine Research Reserve



# **Almost there...**

- **JaxPort recently sold their portion of Reed Island to a HOA for additional dredge material disposal (late 2018).**
- **City of Jax made the sale contingent upon doing a full survey and treatment of all salt cedar on Reed Island.**
- **First Coast Invasive Working Group will then coordinate further monitoring and treatment until we can declare the population eradicated!**



# Reed Island – Then & Now



Reed Island 2012  
Orange: dense salt cedar  
Yellow: scattered salt cedar  
Red points : individual salt cedar



Reed Island 2020  
Active Dredge Material Site



# **On the Verge of Eradication???**

- **The westernmost cell of Reed Island has been cleared and is being used for dredge material.**
- **Initial survey and treatment of the remaining portions of the island were delayed due to Covid-19.**
- **Two surveys over the past year have located 9 salt cedar plants. Those have now been treated.**
- **Final survey scheduled for January 2022.**
- **Monitoring for any new plants will continue.**

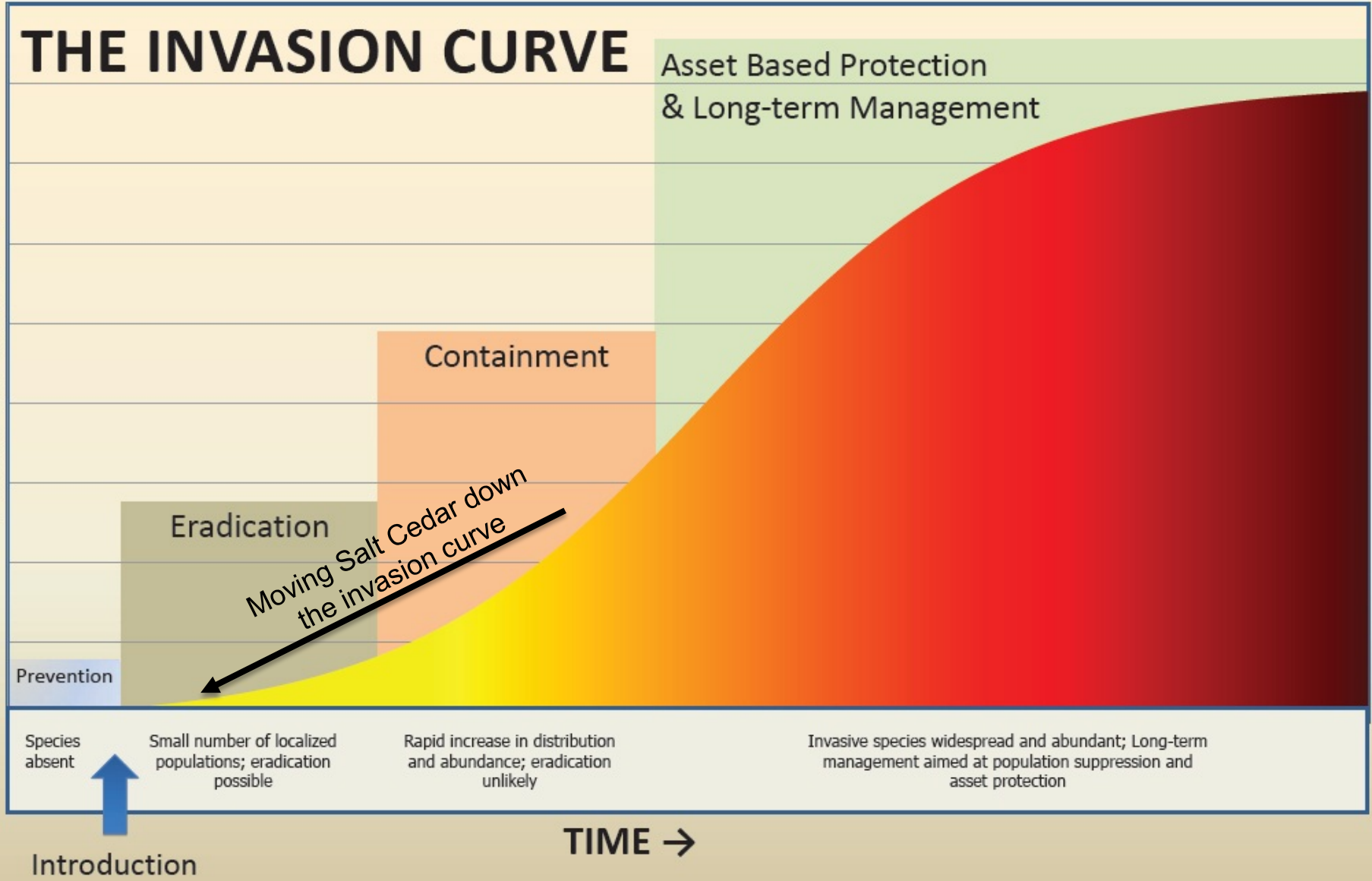




# THE INVASION CURVE

AREA INFESTED →

CONTROL COSTS →



TIME →



# Questions?



Jessica Spencer

904-318-9110

[Jessica.E.Spencer@usace.army.mil](mailto:Jessica.E.Spencer@usace.army.mil)

