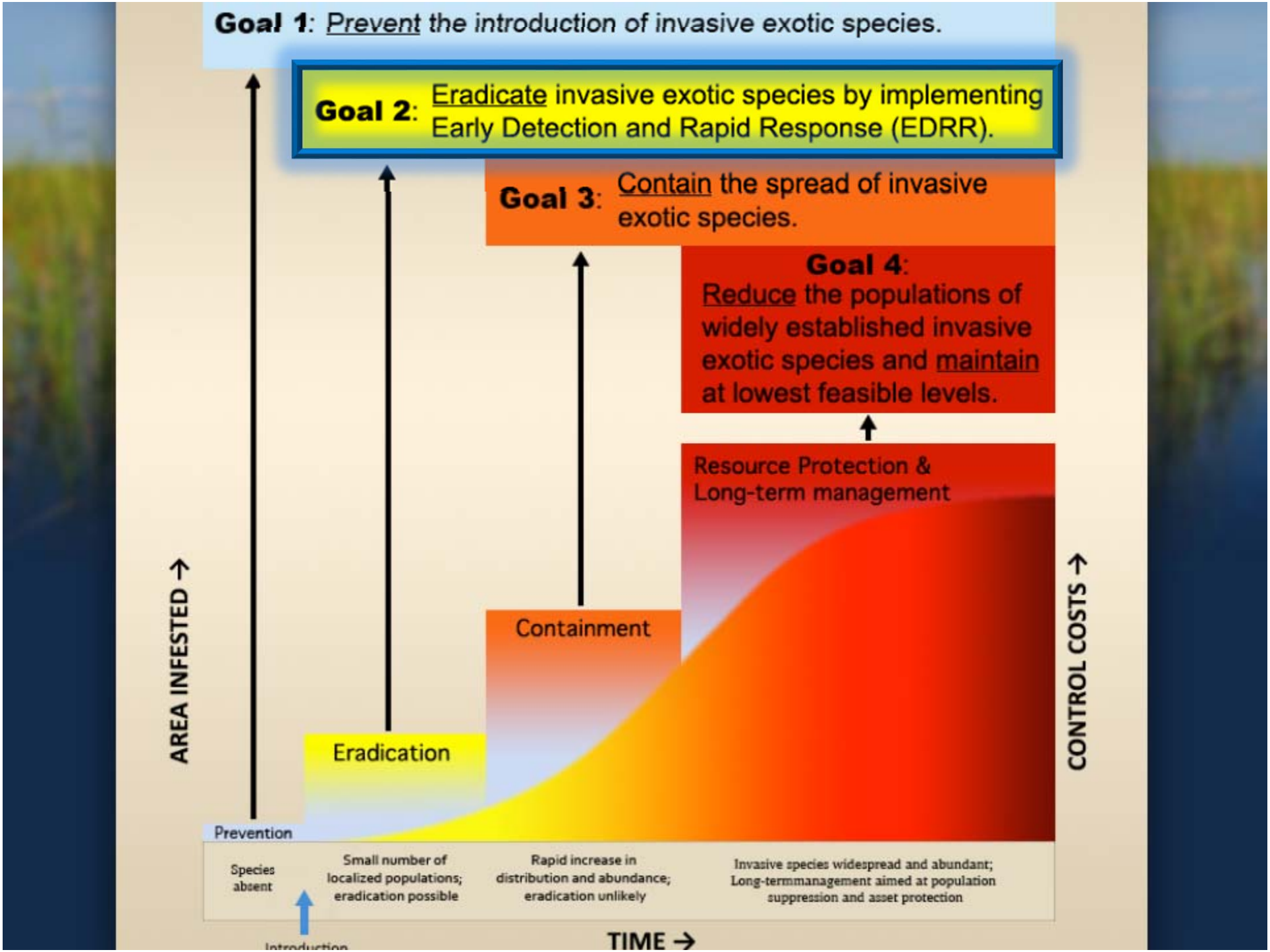
Implementing the Invasive Exotic Species Strategic Action Framework:

Early Detection and Rapid Response (EDRR)


Goal 1: Prevent the introduction of invasive exotic species.
Goal 2: Eradicate invasive exotic species by implementing Early Detection and Rapid Response (EDRR).
Goal 3: Contain the spread of invasive exotic species.
Goal 4: Reduce the populations of widely established invasive exotic species and maintain at lowest feasible levels.
Resource Protection & Long-term management
Containment
Eradication
Prevention
AREA INFESTED →
CONTROL COSTS →
Species absent
Small number of localized populations; eradication possible
Rapid increase in distribution and abundance; eradication unlikely
Invasive species widespread and abundant; Long-termmanagement aimed at population suppression and asset protection
Introduction
TIME →

Goal 2: Eradicate invasive exotic species by implementing Early Detection and Rapid Response (EDRR)

Obj 2A: Prepare & monitor to enhance early detection.

- **Priority Strategy 2A5:** Establish rapid assessment & response programs/processes/cooperatives/tool that allow for nimble reactions for eradication.

Obj 2B: Ensure rapid assessment of new non-native species.

- **Priority Strategy 2B1:** Rapidly assess status & potential threat of new species and develop a response/no response plan.

Addressing priority strategies 2A5 and 2B1

US Geological Survey – Greater Everglades Priority Ecosystem Science

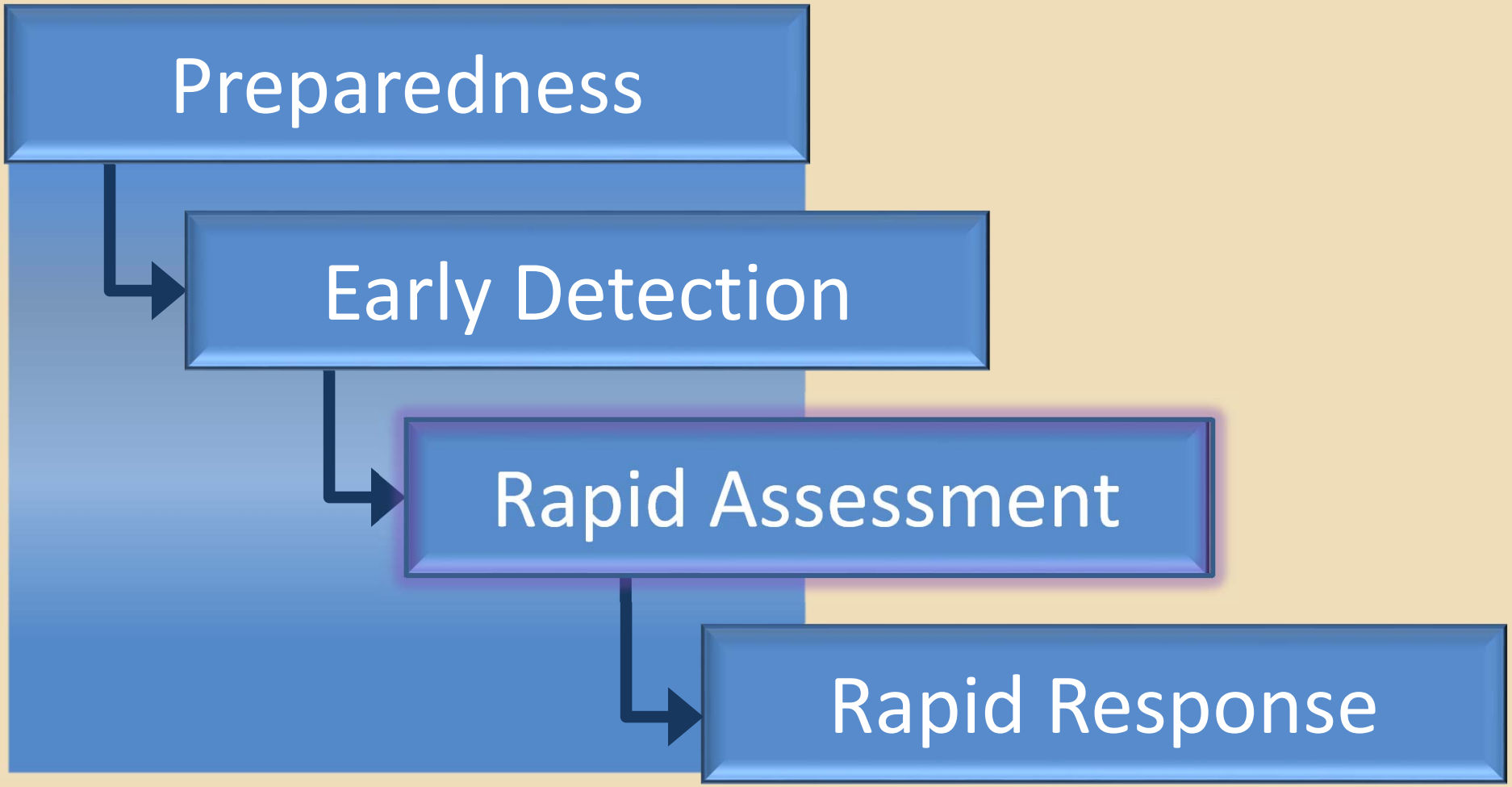
- USGS/FAU Cooperative Agreement – Florida Center for Environmental Studies
  - Oct 2015, USGS/CES Technical Meeting: "Improving the EDRR Decision Framework for the Greater Everglades"

USGS science for a changing world

UF IFAS UNIVERSITY of FLORIDA

FAU FLORIDA CENTER FOR ENVIRONMENTAL STUDIES CHARLES E. SCHMIDT COLLEGE OF SCIENCE

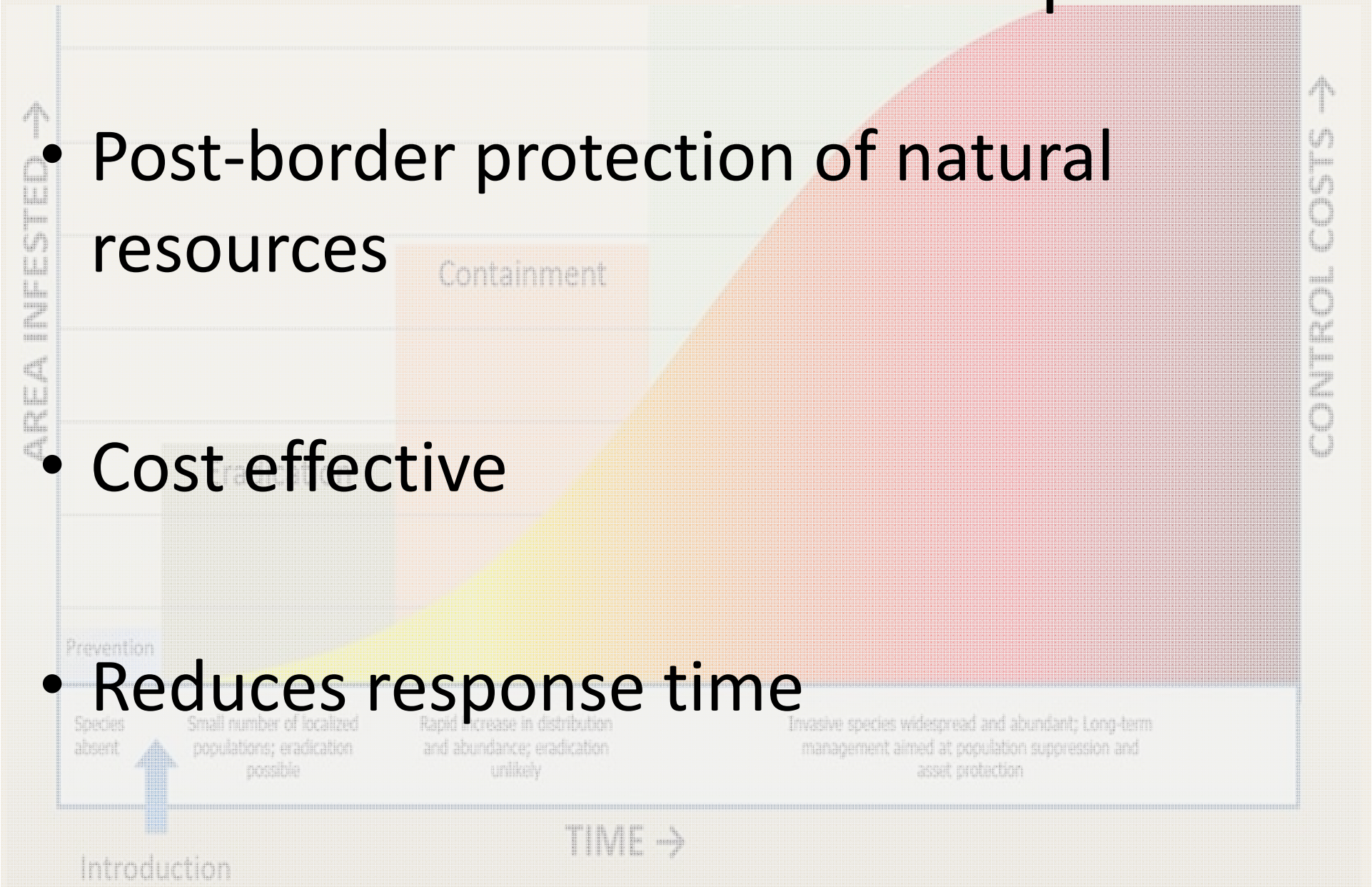
Four general stages of EDRR process



The U.S. Department of the Interior. 2016. Safeguarding America's lands and waters from invasive species: A national framework for early detection and rapid response.

Benefits of established EDRR protocol

- Post-border protection of natural resources
- Cost effective
- Reduces response time



EDRR success for the Greater Everglades

–Sacred Ibis

Everglades CISMA
May 27 at 8:37am ·

http://m.focustaiwan.tw/news/asoc/201605260014.aspx

Taiwan seeking to reduce ecological impact of alien bird | Society | FOCUS TAIWAN - CNA ENGLISH NEWS

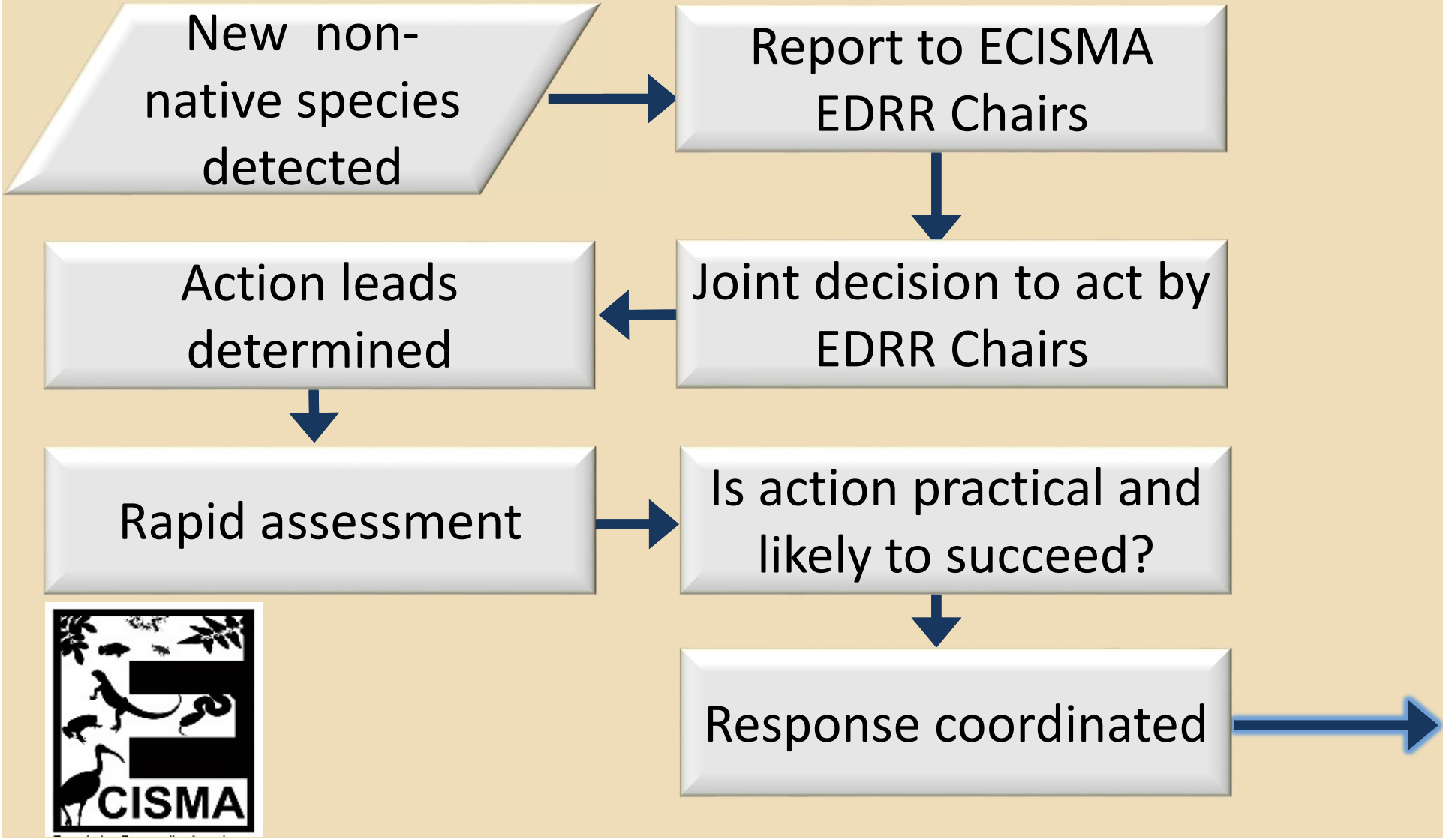
Taipei, May 26 (CNA) Taiwan is taking steps to deal with the problem of an

Everglades CISMA Good thing ECISMA did EDRR on this species

Like · Reply · 1 · May 27 at 8:38am

Everglades Cooperative Invasive Species Management Area

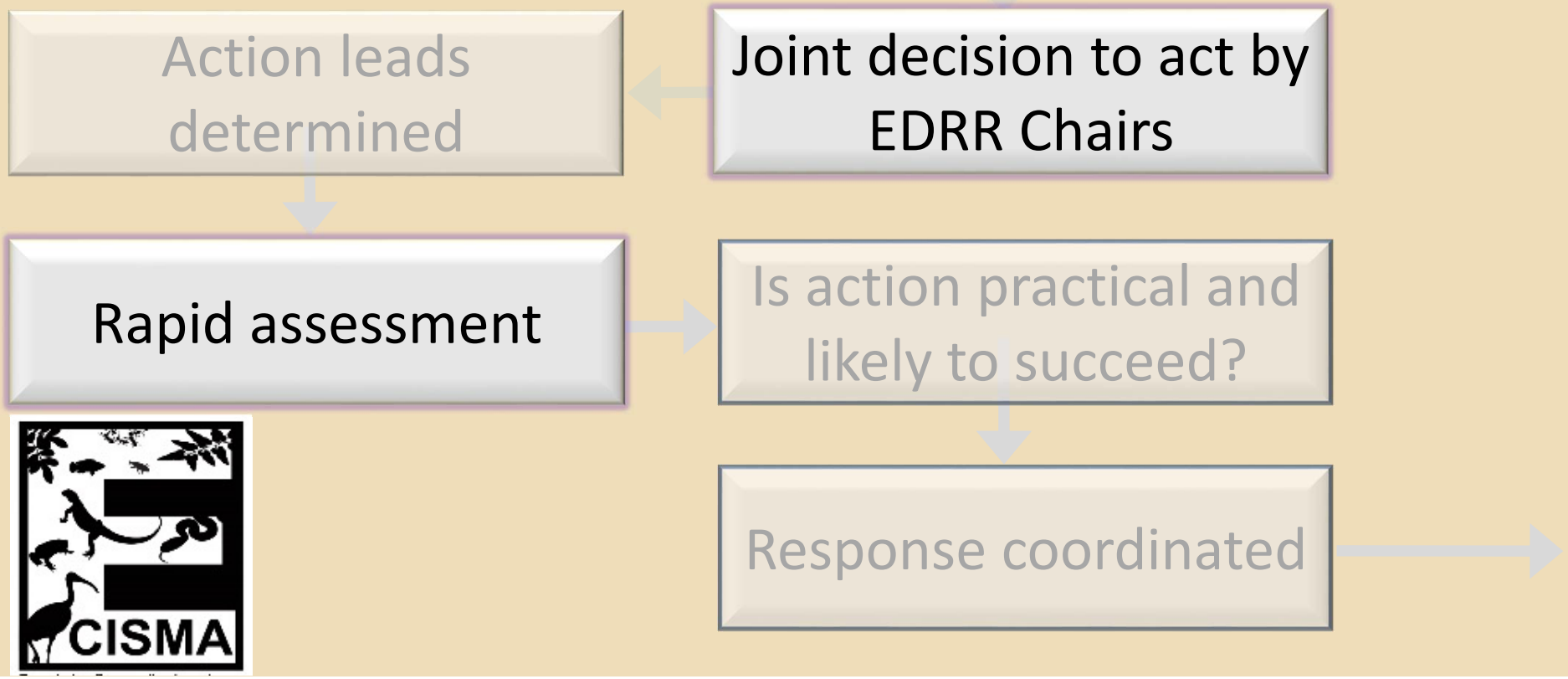
Abbreviated Rapid Response Action Planning Protocol



Everglades Cooperative Invasive Species Management Area

Abbreviated Rapid Response Action Planning Protocol

Decision-making process currently lacks transparency and standardization



Greater Everglades Ecosystem Rapid Response Screening Tool

Greater Everglades Ecosystem Rapid Response Screening Tool (GEERReST)

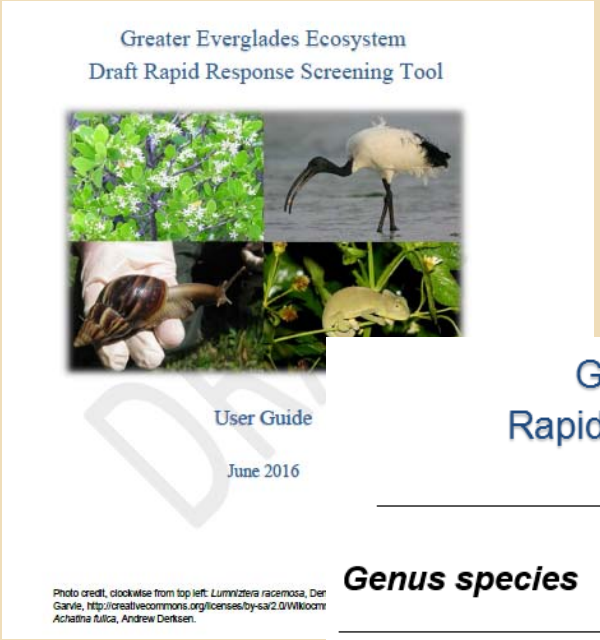
- Decision support tool – so that decisions to act are quick, transparent, standardized, and defensible
- Can be used across all agencies and cooperators
- Across all taxonomic groups

GEERReST Development

- Existing invasive species ranking systems
  - South Australia/New South Wales Weed Risk Management System
  - USFWS Ecological Risk Screening Summary
  - Lake Champlain Basin Rapid Response Action Plan
  - Copp GH, et al. Risk Assessment Protocols & Decision Making Tools for Alien Species in Aquaculture
- Information from the literature
- Participant input during USGS/CES EDRR Technical Meeting

GEERReST Toolkit

- User guide
- Report template
- Excel calculation form


Greater Everglades Ecosystem
Draft Rapid Response Screening Tool

User Guide

June 2016

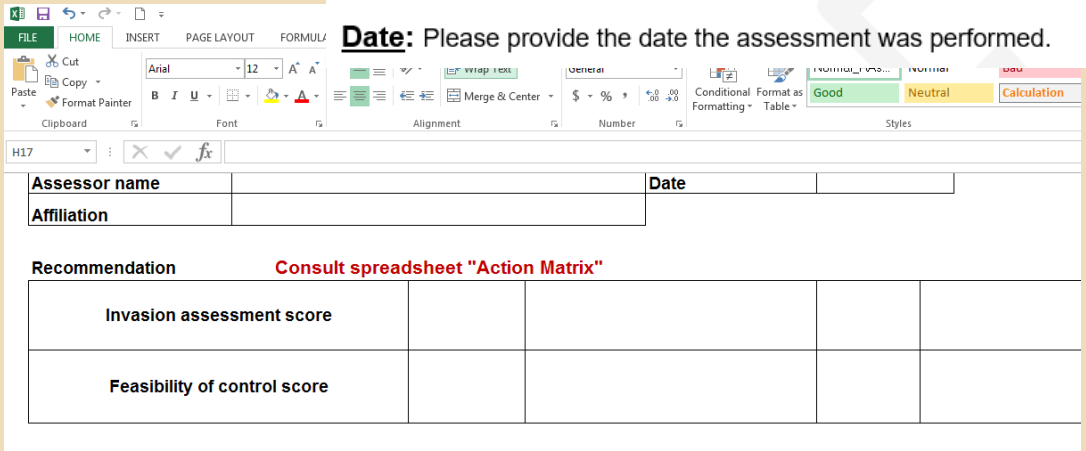
Photo credit, clockwise from top left: *Lumnitzera racemosa*, Der
Garvie, http://creativecommons.org/licenses/by-sa/2.0/Wikicomr
Achatina fulica, Andrew Derksen.

Greater Everglades Ecosystem
Rapid Response Screening Tool Report

Genus species

Assessor name, affiliation: Please provide the name and affiliation of the person performing the screening assessment and affiliation.

Date: Please provide the date the assessment was performed.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Assessor name		**Date**	
Affiliation			

Recommendation **Consult spreadsheet "Action Matrix"**

Invasion assessment score				
Feasibility of control score				

GEEReST Process

Series of questions under two sections:

- **Invasiveness**
  - Current distribution
  - Invasion potential (Invasion history elsewhere, climate matching, dispersal and reproductive potential)
  - Impacts (Native species interactions, animal/human health, habitat alteration)

GEEReST Process

Series of questions under two sections:

- **Feasibility of control**
  - Species/population characteristics
  - Habitat characteristics
  - Methodology and regulatory constraints

GEEReST Process

Uncertainty

- Each question assigned estimate of uncertainty
- Uncertainty codes from Generic Nonindigenous Aquatic Organisms Risk Analysis Review Process
- Meant to categorize level of epistemic uncertainty (reflects lack of knowledge)

Category	Screening question	Response	Uncertainty	Score	Uncertainty Score
B. Hazard Status					
	BQ1 Is species on Injurious/Prohibited/Regulated/ Noxious lists described in User Guide?				
C. Current distribution in Greater Everglades				**0**	**0**
	CQ1 Has species been detected in more than one location in the Greater Everglades Ecosystem?				
D. Invasiveness				**0**	**0**
1. Invasion history elsewhere	DQ1 Is species invasive elsewhere (outside of Greater Everglades Ecosystem)?				
2. Climate suitability	DQ2 What is the climate suitability for this species within the Greater Everglades Ecosystem (Climatematch categorical ranking)?				
3. Dispersal potential	DQ3 How likely are long-distance dispersal events by *natural* means? (answer a-e below)				

GEEReST Process

- Score calculated for both sections
- Assessor directed to matrix that compares scores and provides context for management action

Assessor name		**Date**	
Affiliation			

Recommendation **Consult spreadsheet "Action Matrix"**

Invasion assessment score	216.00	**High**	Low Uncertainty	Information is adequate to support recommendation
Feasibility of control score	125.00	**Medium**	High Uncertainty	Caution - insufficient information to support recommendation

A. Taxonomy	Taxonomic group	
	Scientific name	
	Common Name	

Invasion Assessment	Feasibility of Control				
	Negligible (≤24)	**Low (25-60)**	**Medium (61-158)**	**High (159-376)**	**Very High (≥376)**
Negligible (≤36)	Limited Action	Limited Action	Limited Action	Monitor	Monitor
Low (37-100)	Limited Action	Limited Action	Limited Action	Monitor	Monitor
Medium (101-196)	Limited Action	Monitor	Monitor	Coordinate Rapid Response	Coordinate Rapid Response
High (197-336)	Limited Action	Protect Priority Sites	Protect Priority Sites	Coordinate Rapid Response	Coordinate Rapid Response
Very high (≥337)	Limited Action	Protect Priority Sites	Protect Priority Sites	Coordinate Rapid Response	Coordinate Rapid Response

Next steps

- Continued validation
  - Additional testing on species with known status
  - Updating as new information obtained
- Second USGS/CES Technical Meeting to be arranged
  - Opportunity for potential assessors to evaluate GEERReST

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