

# Ecological Risk Screening: A New Tool to Manage Risk of Imported, Nonnative Fishes

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# A Label on a jar of peanuts

## Nutrition Facts

Serving Size 1oz. (28g)

Servings About 16

**Calories** 170

Fat Cal. 130

\*Percent Daily Values (DV) are based on a 2,000 calorie diet.

Amount Per Serving	%DV*	Amount Per Serving	%DV*
<b>Total Fat</b> 14g	<b>22%</b>	<b>Total Carb</b> 6g	<b>2%</b>
Sat Fat 2g	<b>10%</b>	Dietary Fiber 2g	<b>8%</b>
Trans Fat 0g		Sugars 1g	
<b>Cholesterol</b> 0mg	<b>0%</b>	<b>Protein</b> 7g	
<b>Sodium</b> 0mg	<b>0%</b>		
Vitamin A 0% • Vitamin C 0% • Calcium 2% • Iron 4%			

**INGREDIENTS:** PEANUTS

**ALLERGY STATEMENT:** PRODUCED IN A FACILITY THAT PROCESSES PEANUTS & TREE NUTS **MAY CONTAIN** PEANUTS OR TREE NUTS.

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We Welcome Any Comments Or Questions You May Have.  
When Writing, Please Include The Label Code.  
Write To The Address Above.

# Background

- In world,  $\geq 4,000$  species freshwater ornamental fishes traded
- The US legally imported more than 1 billion live animals during 2005-2008
- We don't know how many animal species are being imported into the US

# Nationally: Management of Invasive Species

- Historically, **Our eyes were wide shut**
  - “**Give me** you tired, your poor, your...” [**invasive species**]...”yearning to breathe free”



## A Public Confession

- I stocked 200 of these species into a water garden
  - Flooding resulted in a breach of the garden, & escapement into a storm drain that connects to Mississippi River



Stone Moroko



Giant Tigerfish

## Now that I have your attention

- The truth
  - Stone Moroko & Giant tigerfish could be legally imported & stocked into water gardens
    - But I did not do so

Which of these is the greatest risk to:  
Midwest, U.S.?



Zander



Giant Tigerfish



Stone Moroko

# Presentation Outline

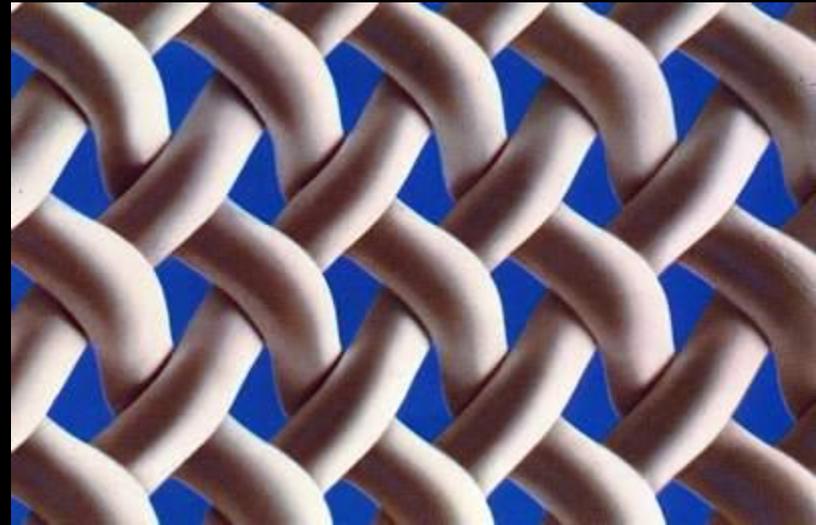
- Risks (Labeling)
  - Nonnative Species Risks
    - Currently
    - Future
  - Managing Risks
    - Regulatory & Non-regulatory approaches

# Definitions

- Risk Analysis:
  - Risk Assessment + Risk Management + Risk Communication
- Risk Assessment:
  - Risk characterization
- Risk Management:
  - ...weighing [and implementing] policy alternatives
- Risk Communication
  - Communicating risk assessment results, and risk management actions

# Definitions

- Risk Screening:
  - Rapid (hours) risk assessment



Issue:

How to Better Protect U.S. biosecurity,

without unnecessarily regulating importation and trade of beneficial and low-risk nonnative species?

# National Invasive Species Management Plan

- 1999 Executive Order required development of National Invasive Species Management Plan

# National Invasive Species Management Plan

- “Prevention is the first-line of defense.”
- “The Strategic Goal for Prevention calls for preventing the introduction and establishment of invasive species ... United States.”

# National Invasive Species Management Plan

- “Objective:
  - Prevent establishment of intentionally introduced invasive species
    - Develop fair and practical screening processes...
    - Encourage agencies to modify and incorporate the processes into their own regulatory and non-regulatory programs”

# U.S. Lacey Act

- The Lacey Act was enacted in 1900
  - Authorizes the Secretary of the Interior to regulate the importation and interstate transport of species, including offspring and eggs, determined to be injurious wild mammals, wild birds, fishes, mollusks, crustaceans, amphibians, reptiles

# History of FWS Risk Assessments and Rulemaking

- Average of 4 years for entire process/species
- Average of about 2 years for risk assessment/species

# Lacey Act Tiger Team

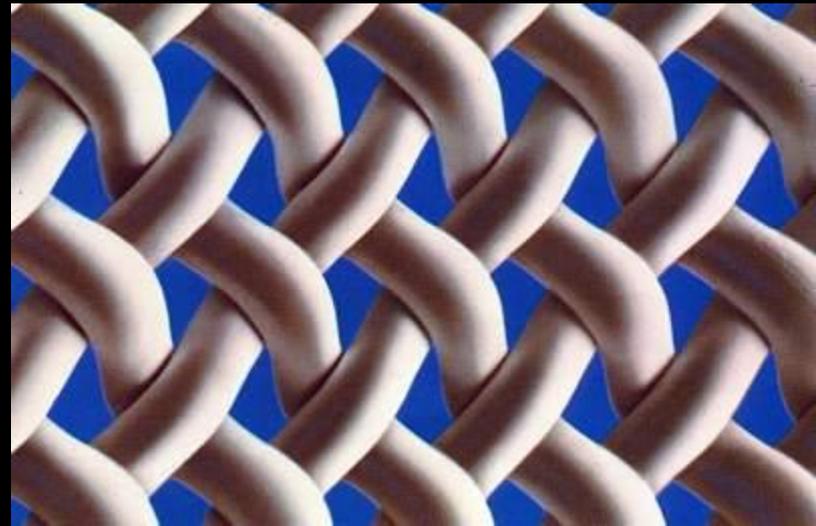
- Press Release Jan 2010
  - Secretary Salazar ...
    - “I’ve asked the U.S. Fish and Wildlife Service to make recommendations regarding the potential tools we need to address the invasive species challenge – both to combat existing invasive species [&] new [invasions] ...”

# 21<sup>st</sup> Century Paradigm for Lacey Act Implementation

- FWS updated risk assessment approach should support a variety of regulatory and non-regulatory actions by partners and stakeholders

# My/FWS Approach: Rapid Risk Assessment (Screening Process)

- Detailed (6 page) **procedure** used to conduct the screening
- **Information/data/outputs/synthesis packaged** in standardized format
- **Supervisory and other internal peer review**



# Screening Report Template

- Native Range, and Status in the United States
- Biology and Ecology
- Impacts of Introductions
- Global Distribution
- Climate Matching with US
- Risk Assessment
  - Summary of Risk to the US
- High Risk Species:
  - Projections of establishment and impacts in US
    - Within habitats, and for ecosystem components,
- References

# Great Lakes Restoration Initiative

- I have received funding for conducting rapid screening to support regulatory and non-regulatory decision making
  - Last three years 2,000 species screened in DRAFT form
    - Screening reports are being posted online
      - FWS website
      - Comments on reports enabled

**FWS Screening Results:  
3 Species**

# Summary of Ecological Risk Screening Summary: Stone Moroko



# Stone Moroko

- History of Invasiveness
  - Coarsest screen:
    - Presently, **Europe's most invasive fish**



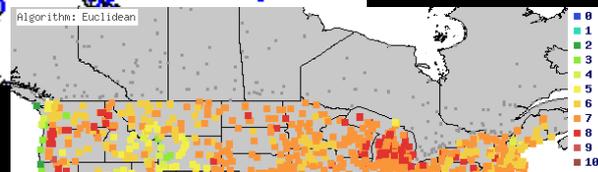
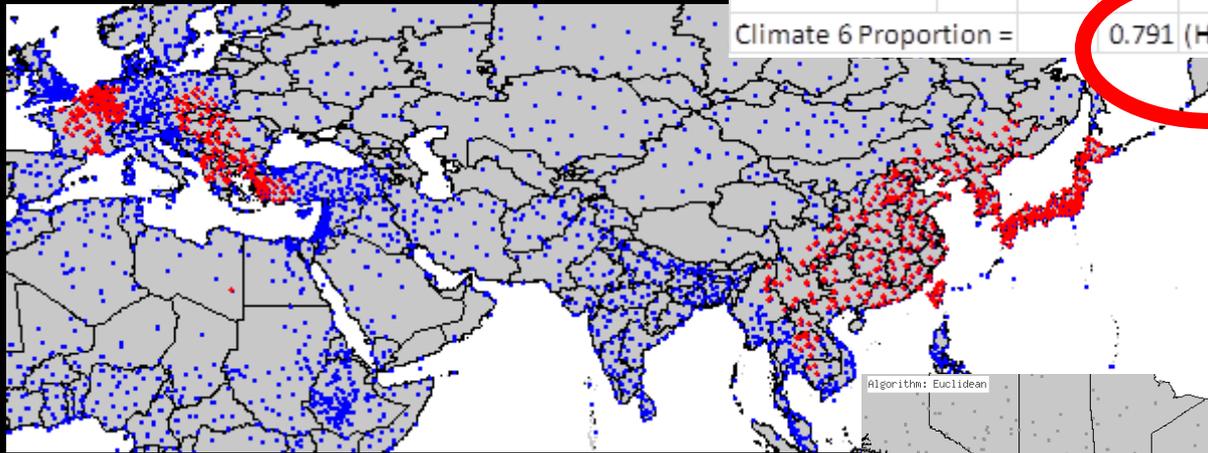
# Stone Moroko: Selection from Screening Report

- Impact outcomes
  - Altered trophic level
  - Changed gene pool/ selective loss of genotypes [of species impacted by *P. parva*]
  - Damaged ecosystem services
  - Ecosystem change/ habitat alteration
  - Negatively impacts aquaculture/fisheries
  - Negatively impacts cultural/traditional practices
  - Reduced [ecosystem] amenity values
  - Reduced native biodiversity
  - Threat to/ loss of endangered species
  - Threat to/ loss of native species...

# Stone Moroko: Climate Matching

CLIMATCH Score	0	1	2	3	4	5	6	7	8	9	10
Count	5	5	8	24	94	305	510	868	279	5	3
Climate 6 Proportion =											

0.791 (High)



Climatch v1.0  
Invasive Animals CRC  
Bureau of Rural Sciences 2008



# Stone Moroko

- Risk Assessment Elements
  - History of Invasiveness: High
  - Climate Match: High
  - Overall Risk Assessment Category: High
  - Certainty of Assessment: High

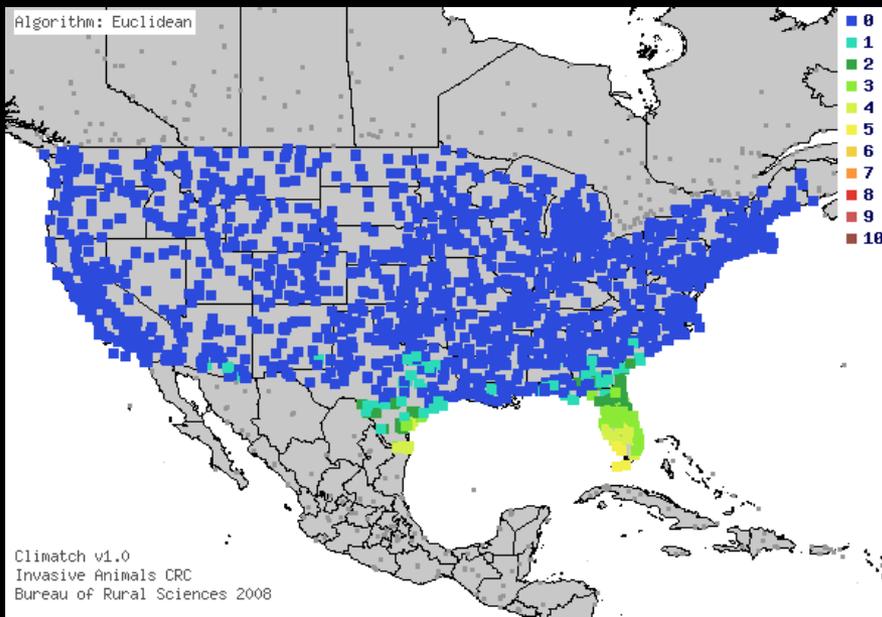


Low Risk Species

# Betta (*Betta splendens*)

## Risk Assessment

- History of Invasiveness: **Low**
  - No impacts documented.
- Climate Match: **Low (0.000 - Lowest possible)**
- Overall Risk Assessment Category: **Low**
  - Certainty of Assessment: **High**



What to do?  
Species Assessed as **Uncertain Risk**  
Based on Screening

# Uncertain Risk Species: Next Steps

- **Advanced Risk Assessment Process** developed to characterize risk
  - Peer Reviewed
- Will help characterize risk



Giant Tigerfish

# Accounting for Climate Change

- FWS has developed a tool that projects climate niche
  - 2050, 2070
  - IPCC emission scenarios:
    - No change
    - Increased impact scenarios
  - Output maps and scores climate match
  - Peer almost completed

# Ecological Risk Assessment is Scientific [& Impartial]



We are impartial, but not blind...  
substantial evidence exists that tips the scales:  
Risk Management Actions Needed

- **High Risk Species**, Needed protection of
  - Environment
  - Public Interest
- **Low Risk Species**
  - System needed to recognize sustainable species in trade
- **Uncertain Risk Species**
  - Evaluate species/regional/state approaches to risk management



# Non-regulatory Risk Management

- June 2013:
  - FWS signed **MOU** with the **Pet Industry** Joint Advisory Council & Association of **Fish and Wildlife Agencies** (AFWA)
    - to help prevent future invasions
  - We expect **other signatories** to join the MOU in time



**Greenwire**  
THE LEADER IN ENERGY & ENVIRONMENTAL POLICY NEWS

An E&E Publishing Service

**INVASIVE SPECIES: FWS reaches out to old adversary in bid to build trade barriers** *(Wednesday, March 28, 2012)*  
Allison Winter, E&E reporter  
The Fish and Wildlife Service is embarking on an effort to try to keep new invasive animals out of the United States.

# Non-regulatory Risk Management

- MOU focuses on aquatic, nonnative species not yet in trade in the U.S.
  - Will not affect the current economic status of the trade industry
- FWS will provide technical assistance to partners characterizing imported aquatic animals with high and low risk potential as invasive species

# Regulatory & Non-regulatory Risk Management

- Voluntary agreement helpful
  - Reduces, but does not eliminate risk
    - Non-signatories can still import species not being imported by signatories
- Therefore, FWS could develop rulemaking packages, for high risk species
  - For species covered under MOU, and those not covered

# Lake Superior



# Wildest Dream?

- 0 additional invasive species, as the result of trade

