

# Control of Invasives in Forests

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# Organization of Presentation

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**Current Situation**



**Pathway analysis**



**Prevention approaches**



**Impediments**



**EDRR for forest pests**



# Current Situation



**Forest ecosystems face threats from MANY taxa**

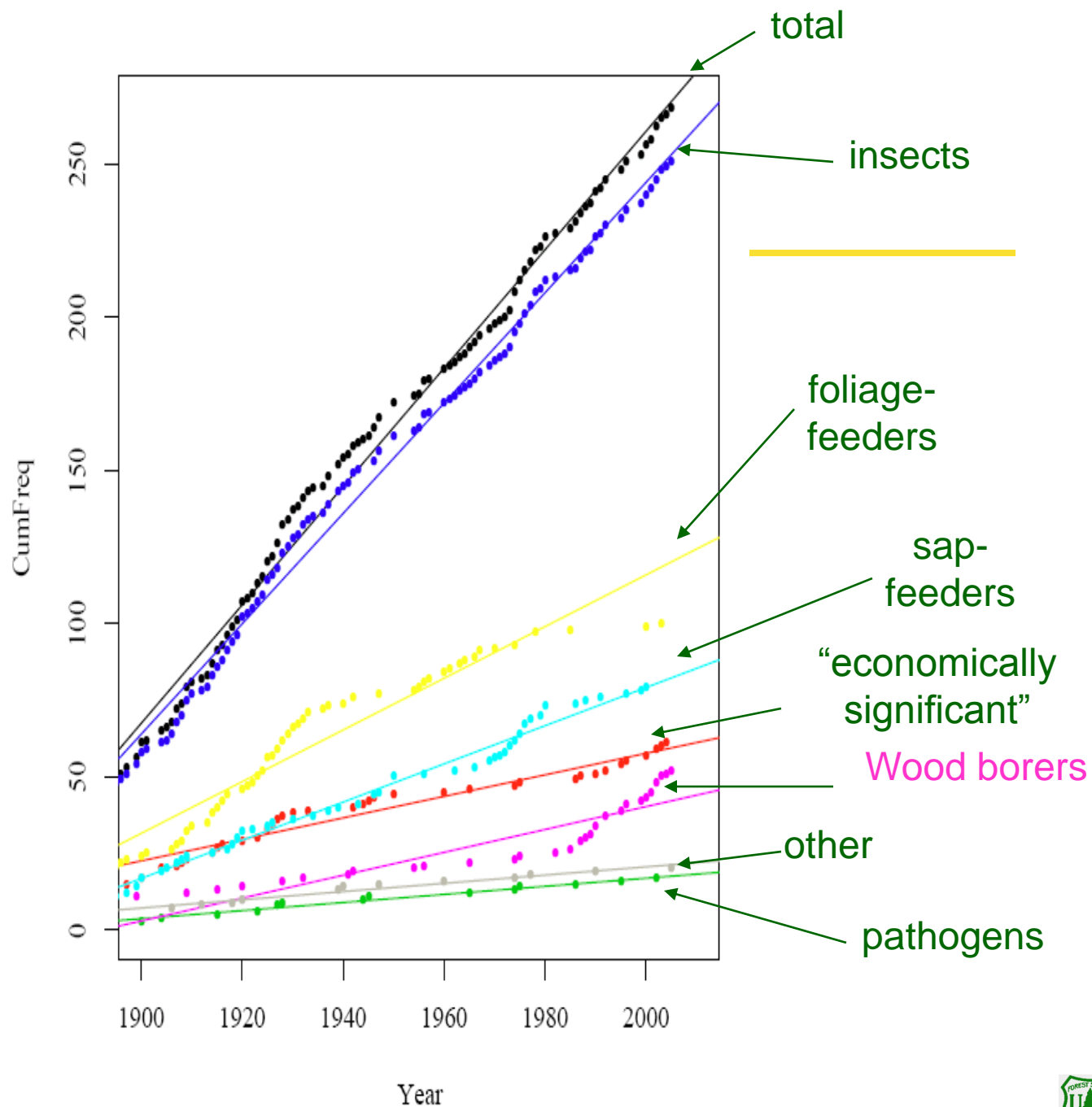


**Prevention and EDRR are better investments than control & management after invasion**



**Research moving more toward Prevention & EDRR, but clients want Control and Restoration, too**









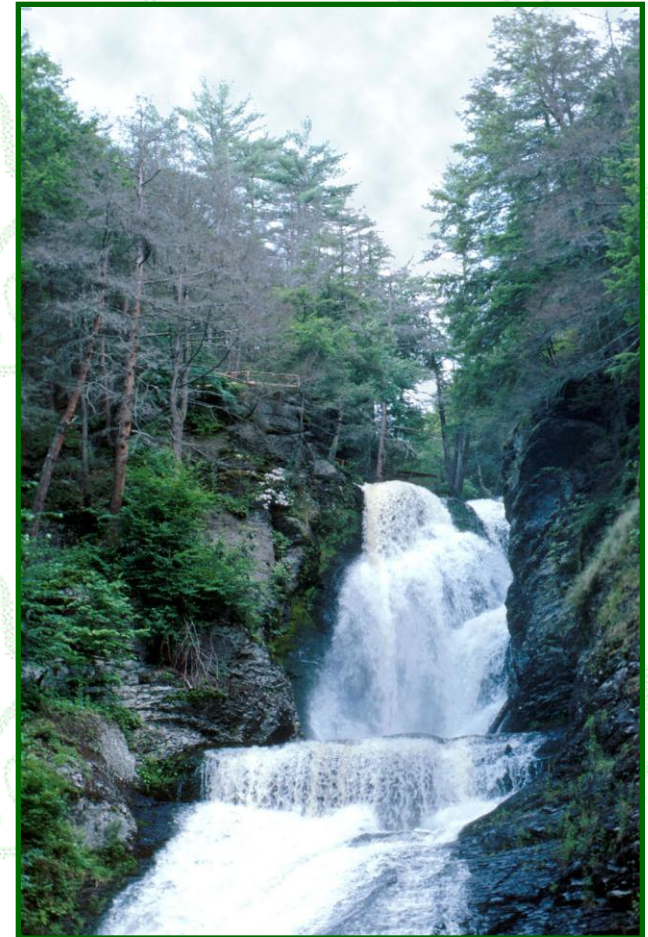
# Pathway Analysis



## Accidental Introductions:

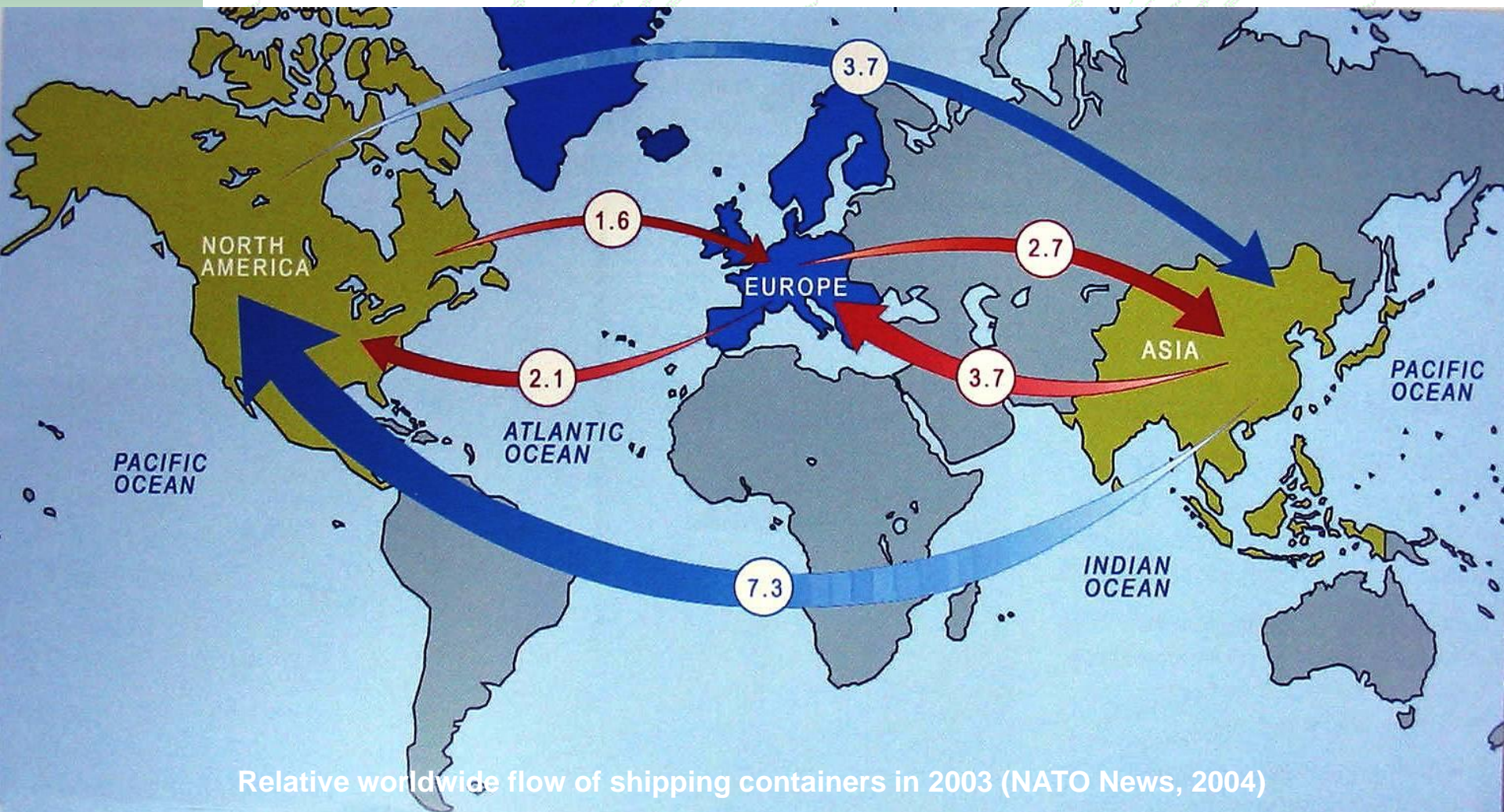
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- ❖ **Logs**
- ❖ **Wood Packing Material**
- ❖ **Ballast Water**
- ❖ **Fodder**
- ❖ **Recreational Vehicles**
- ❖ **Nursery Stock**





# Globalization





# Accidental introductions call for broad spectrum mitigations:

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- ↔ Logs – HT or fumigate (imports)
- ☑ Wood Packing Material – HT & fumigation
- ↔ Ballast Water – exchange → treat
- ↔ Recreational Vehicles –  
washing stations
- ↔ Fodder – weed-free hay
- ☒ Nursery Stock – ?







# Pathway Analysis



## Intentional Introductions:

-  Pet Trade
-  Aquaculture
-  Horticulture







# Intentional introductions

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**require science for accurate  
risk assessment & management**

- ↔ **Pet Trade**
- ↔ **Aquaculture**
- ↔ **Horticulture**





# Social Dynamics of Resource Use







# Recognize:

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There is usually someone or groups who want to import, without restriction.



Regulations must be technically justified and the least restrictive, effective measure.



AND they must be applied domestically as well as on imports





# Globalization: Safe Trade

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- **Port of Entry/ Exit**
- **Trade protocols**
- **Early Detection/Eradication Methods**
- **Efficient and Effective Monitoring Systems**
- **Technical Assistance to Developing World**





# Successful EDRR Systems

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- 🍃 Agile organizations
- 🍃 Readily available funding
- 🍃 Cadre of volunteers and partners
- 🍃 Effective detection, identification and control technology
- 🍃 Technology developed before arrive
- 🍃 Asian gypsy moth is example of successful EDRR





# Beyond Prevention & EDDR



Monitoring



Decision Support



Integrated systems

- ✿ “Slow the spread” – Gypsy moth

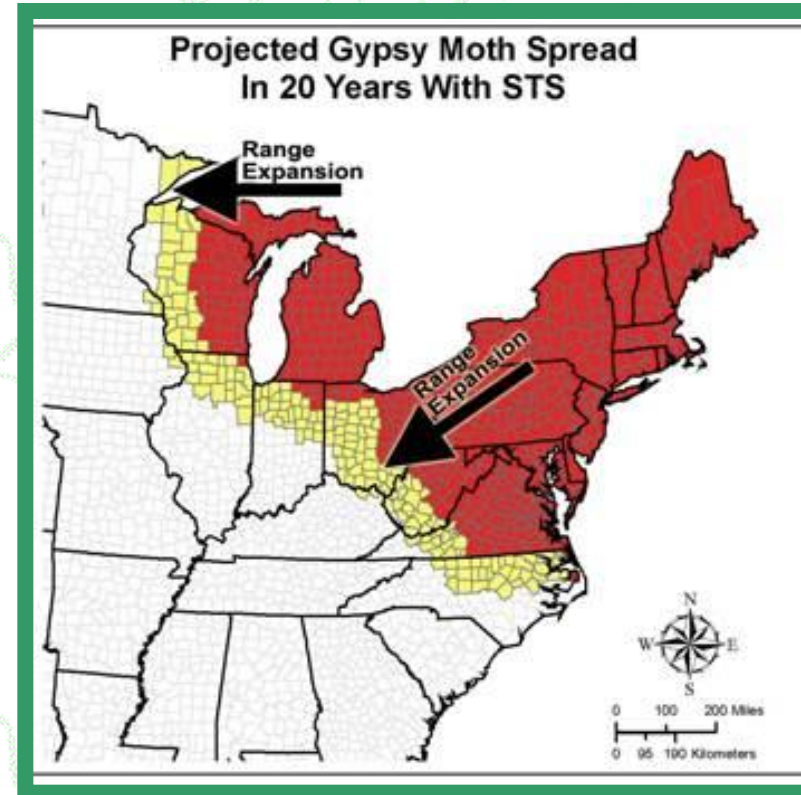
- ✿ “Slam” – Slowing ash mortality



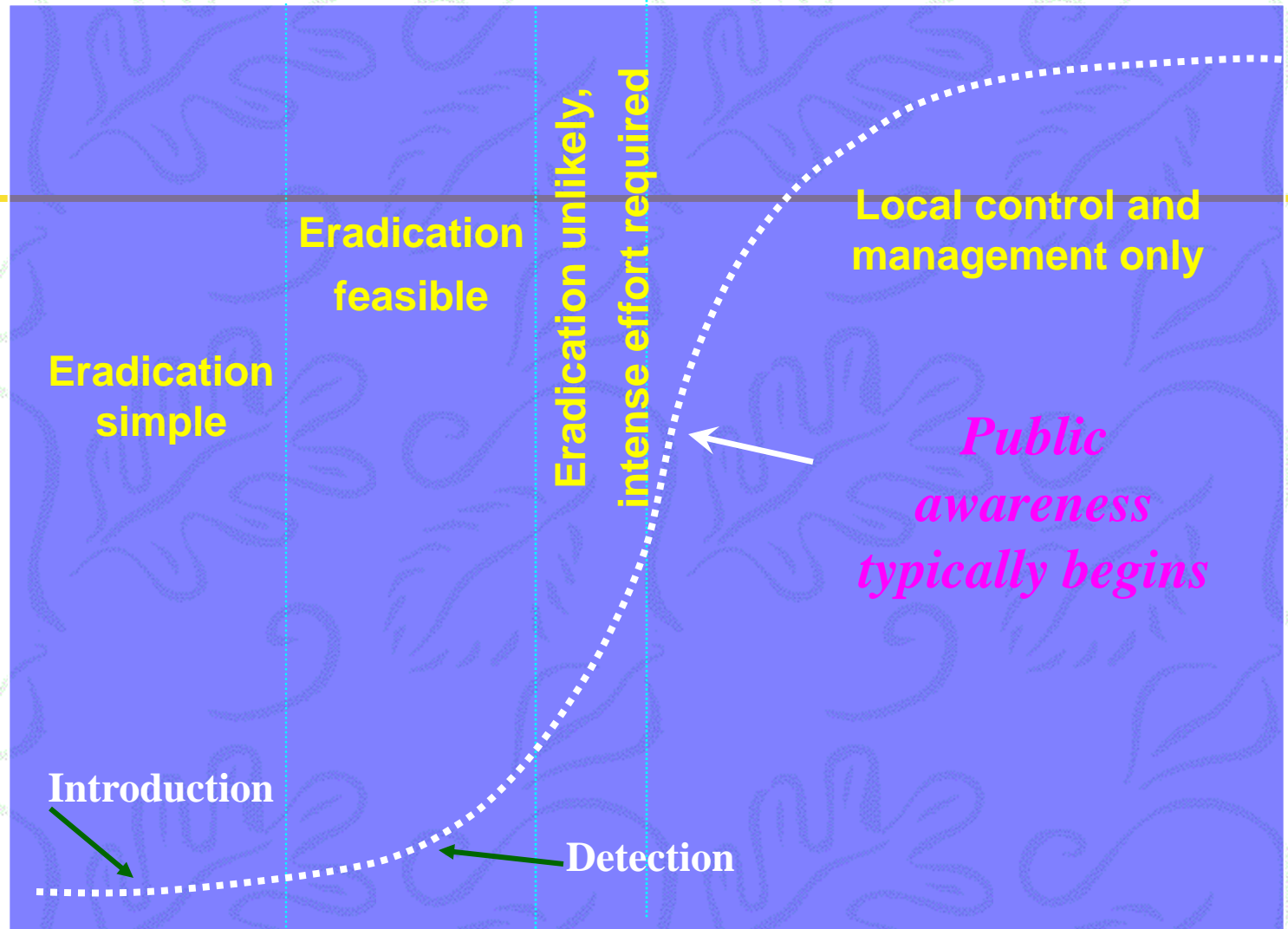
Adaptive Management

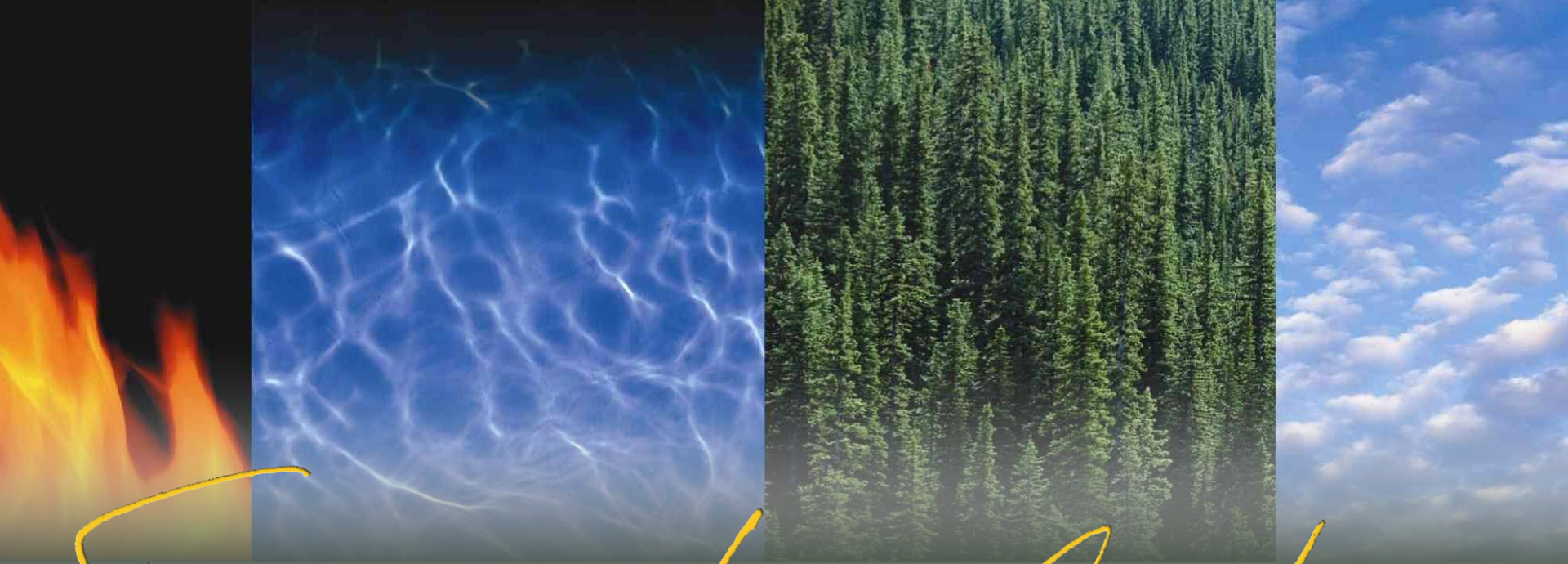
- ✿ Restoring/ maintaining ecosystem function

- ✿ Restoring ecosystems









# Science You Can Use



USDA Forest Service Research & Development

