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# Hurricane Katrina: The Perfect Storm

Climate Change

Rising Ocean Levels

Increased Water Temperatures

Storm Violence

Moving Ecological Zones

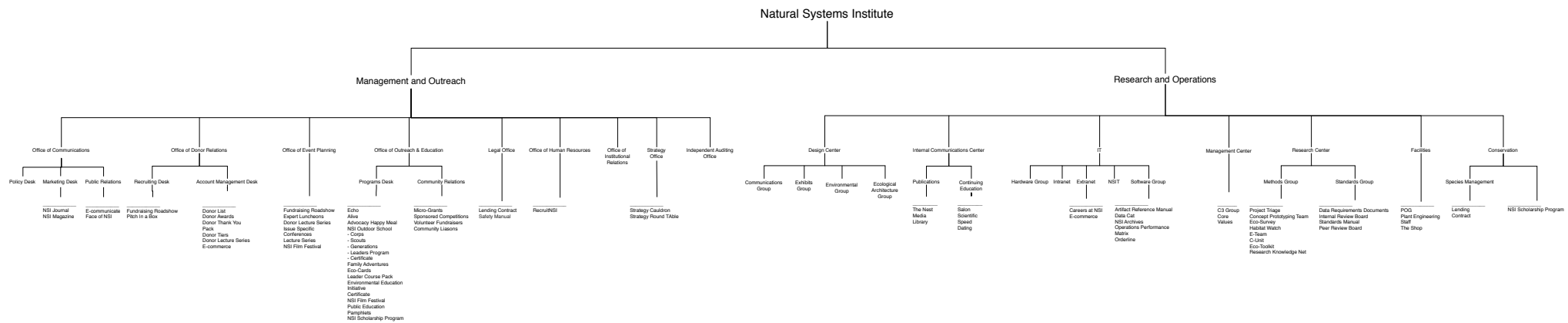
Population Density

- Systems are complex and not as the simple sum of their parts
- Interdisciplinary research requires significantly greater investment, support mechanisms, and strengthened collaboration
- Environmental research needs to understand biocomplexity, including the biological/ecological and social sciences and environmental technology
- We can increasingly expect serviceable forecasts of the range of likely behaviors and the probabilities of various outcomes

# Goals

1. **Integrate formerly separated fields into an ecologically based, whole-systems approach to the study, exposition and preservation of nature.**
2. **Extend mandates for public education, community involvement, and active participation in the monitoring and maintenance of the environment.**
3. **Network institutes into national, regional and global systems responding to the natural ranges of plants and animals.**

# Organizational Structure

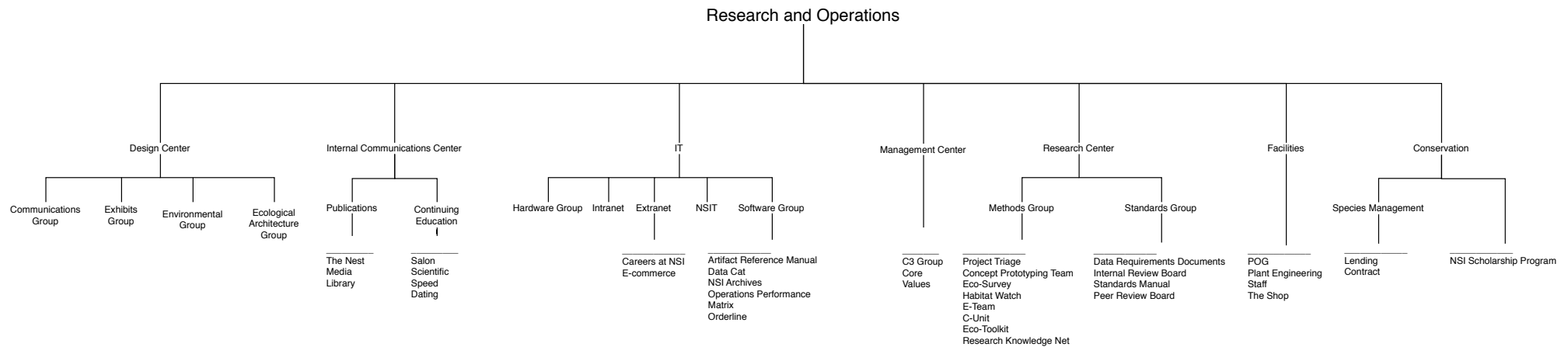


## Properties

- A preliminary framework for organizing the various departments within the NSI
- Description of how the NSI will work

## Features

- Aids comprehension of System Element relationships, including Subset and Superset Elements
- Clusters System Elements by originating departments

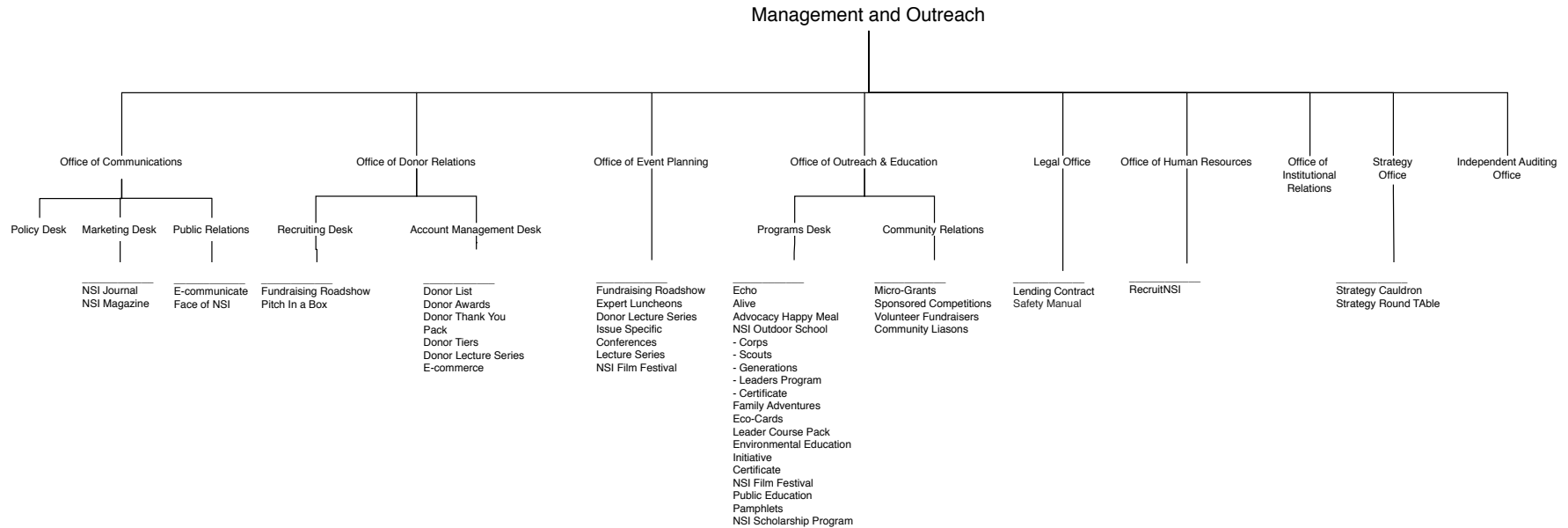


## Properties

- *Organizational structure for the internally-oriented half of the NSI*

## Features

- *Oversees all of the scientific research that the NSI conducts*
- *Ensures that the practical aspects of NSI operation are taken care of on a day-to-day basis*



## Properties

- Organization structure for the externally-oriented half of the NSI

## Features

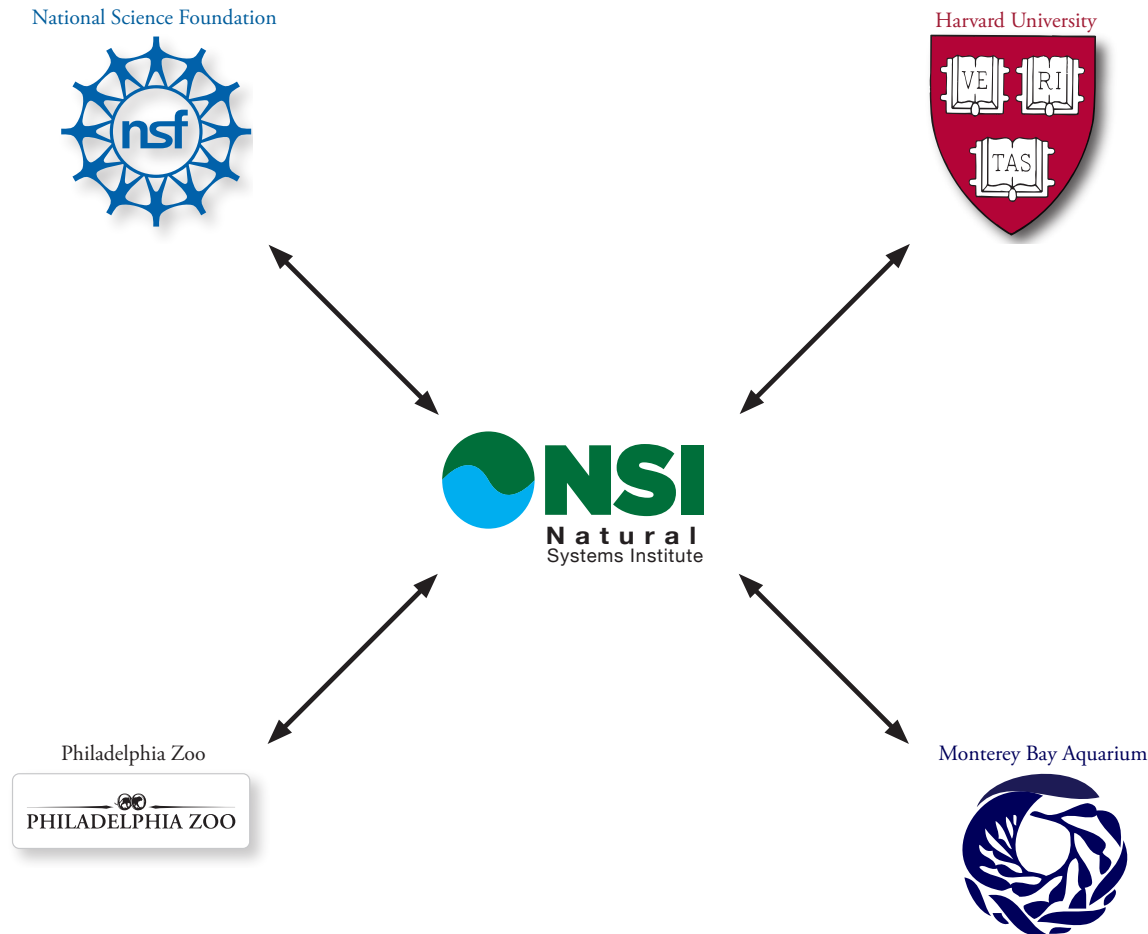
- Oversees various outreach projects and events
- Manages all NSI operations and groups

# Research & Operations

## Issues:

- Interdisciplinary scientific research is resource intensive
- Competition for funding is intense among projects
- Organizational knowledge is difficult to capture
- Interdisciplinary cooperation is difficult to foster





## Properties

- *A network of institutions and organizations*
- *A tool to help a person or organization get to know other people, organizations, and their projects*
- *An informal contract between participating organizations*

## Features

- *Enables institutions and organizations with common interests and goals to work together on projects*
- *Enables institutions and organizations to share information with each other*
- *Helps facilitate cooperation, knowledge-sharing, and effective policy campaigns*

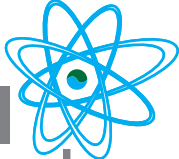
Environmental   
**P**ractice

NSI   
**S**tore

Collaborative   
**W**orkplace

Space   
**D**esign

Strategy   
**S**pace

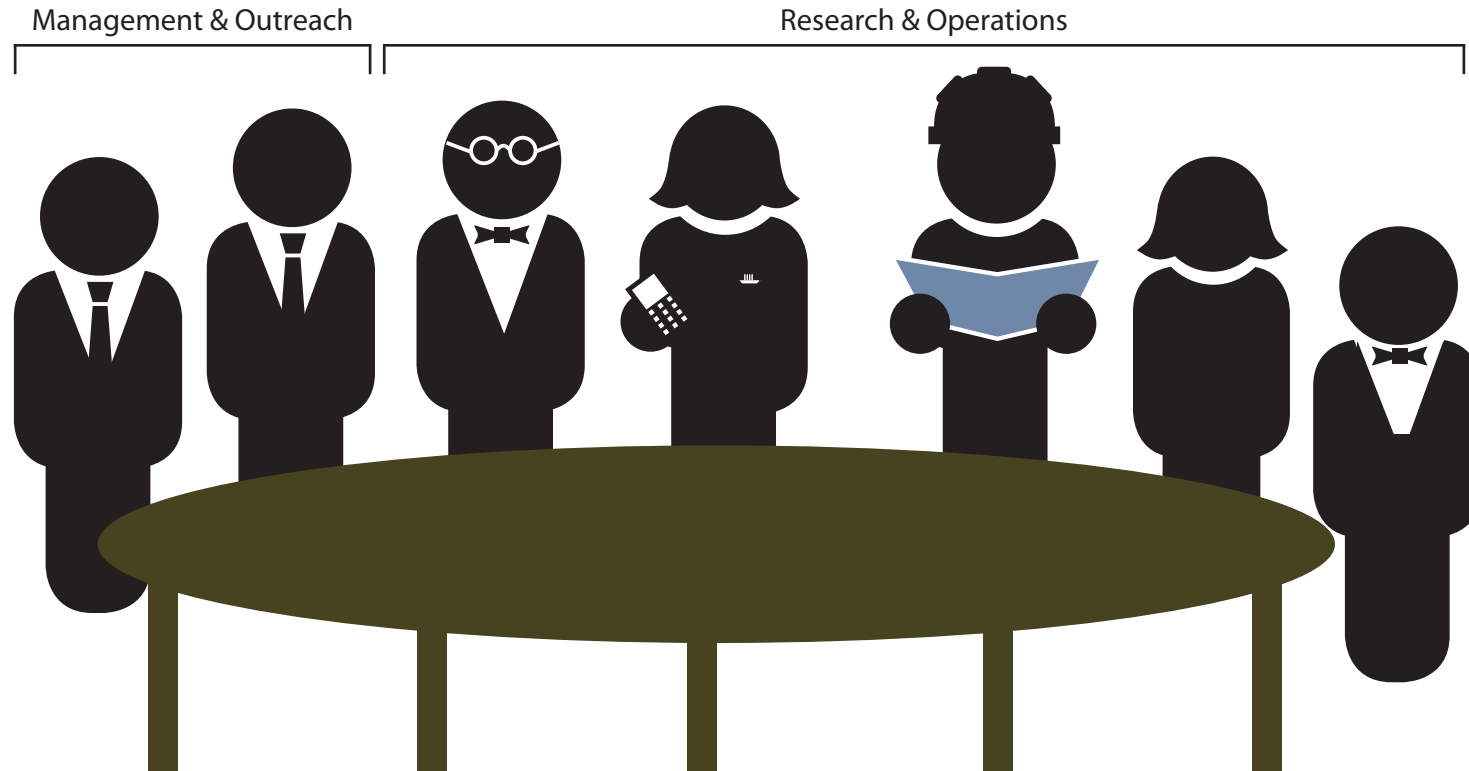
  
**NSI**  
Headquarters

## Properties

- *Environmental practices*
- *Environment & space design*
- *Store*
- *Strategy space*
- *The Fishbowl, a collaborative workspace*

## Features

- *Ensures that all NSI branches work in unison*
- *Functions that all NSI branches will adhere to, no matter the size or funding of the particular space*



## Properties

- *Seven member board with 5 scientists each representing one of NSI's areas of scientific research and 2 members of executive management*
- *NSI Research Roundtable Charter*

## Features

- *Sets science strategy for NSI*
- *Plans execution of science strategy for NSI*
- *Allocates funding for NSI science operations*
- *Analyzes fund expenditures for scientific operations*
- *Allocates capital resources of NSI science operations*
- *Identifies areas for collaboration*
- *Sets standards and goals for integrated research projects.*
- *Analyzes integration to improve efficiency.*

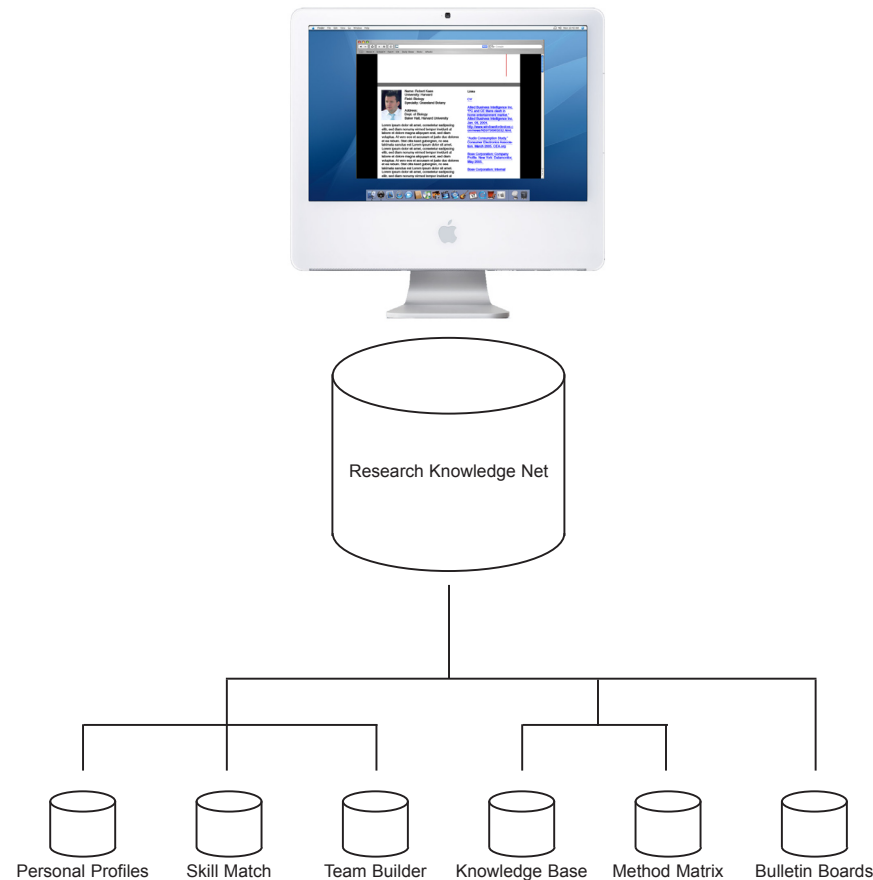


## Properties

- *Group of scientists and experts commissioned/employed by the NSI*
- *A way of surveying and triaging ecosystems in distress*
- *Helps NSI to know where it should concentrate its efforts*
- *Project long-term effects on local and global ecosystem*

## Features

- *Assess ecosystem & factors causing stress on ecosystem*
- *Survey areas and local communities*
- *Project long-term effects on local and global ecosystem*
- *Work with local governments*
- *Make recommendations to NSI about how it should proceed*



## Properties

- Database driven repository of research information, methods, human capital within NSI and its partner institutions.

## Features

- Personal Profiles
- Skill Match
- Team Builder
- Knowledge Base
- Method Matrix
- Bulletin Boards

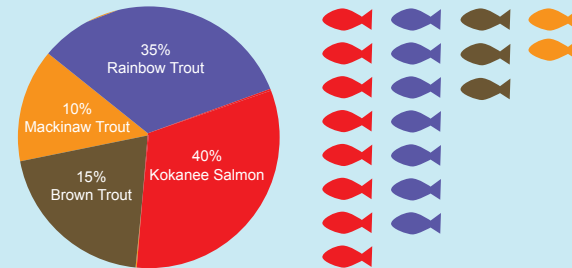


## NSI METHODS

### Stratified Sampling

Goal: Get a statistically representative sample from a population

Example: Sampling fish in Lake Tahoe, California



1. Group members of population into strata, or mostly homogeneous subgroups  
e.g. group by fish species
2. Apply random sampling within each stratum  
e.g. sample randomly from within each species group to obtain representative sample of Lake Tahoe fish population

#### ADVANTAGES

1. Focuses on important subpopulations but ignores irrelevant ones
2. Improves the accuracy of estimation
3. Efficient
4. Sampling equal numbers from strata varying widely in size may be used to equate the statistical power of tests of differences between strata.

#### DISADVANTAGES

1. Can be difficult to select relevant stratification variables
2. Not useful when there are no homogeneous subgroups
3. Can be expensive
4. Requires accurate information about the population

Eco Cards © 2006 Natural Systems Institute

## Properties

- A collection of proven research processes and methods
- A physical and virtual repository of information
- A searchable database

## Features

- Enables researchers and scientists to find frameworks that will help them interpret their data
- Facilitates learning
- Codifies the NSI's research techniques



## Properties

- A series of professional get-togethers
- A program to foster internal communication within the NSI

## Features

- Enables experts across different fields to share ideas with one another
- Facilitates peer-to-peer education
- Brings in external speakers



Express  
Information



NSI  
Salon

## Properties

- Regular meetings and/or workshops at the NSI
- Experts in biology, ecology, anthropology, etc. are invited to attend
- Different meetings for experts and communities

## Features

- Central location for experts/community members from diverse fields to meet and discuss issues
- Discussions help NSI gain deeper understanding of issues and how they might be remedied



# Research & Operations

## Issues:

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## Features:

NSI Alliance Network

Research Roundtable

Research Knowledge Net,  
Toolkit, Environmental  
Assessment

Formal and Informal  
Expert Discussions

# Outreach & Management

## Issues:

- Lack of public awareness of ecosystems approaches to environmental study
- Financial viability of scientific organizations
- Community outreach is often not enough
- Environmental organizations must operate in the public policy sphere
- New approaches require substantial education



## *Properties*

- *A character and personality*
- *An educator*
- *A friendly interface between the NSI and the public*

## *Features*

- *Travels throughout the world giving guest lectures/shows*
- *Engages audiences to get them interested in ecology and the earth sciences*
- *Fields questions and provides straightforward answers*
- *Is featured on a weekly show*



## Properties

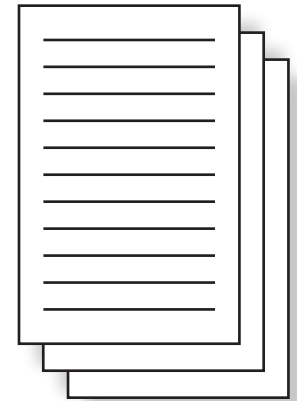
- *Regularly meeting group*
- *NSI Charter governs the procedures and operations of the Strategy Roundtable*
- *Composed of the Office and Department heads from throughout the organization*

## Features

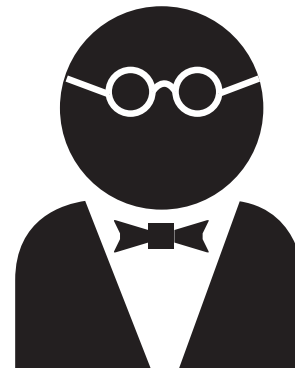
- *Sets overall strategy for NSI across all departments*
- *Plans execution of NSI organizational strategy*
- *Allocates funding & capital for NSI operations*
- *Sets standards and goals for projects.*



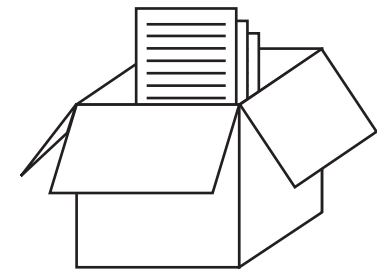
NSI Awards Gala



Donor  
Integration  
Plan



Lecture Series



Pitch in a Box

## Properties

- Full-time staff of donor relations professionals
- Independent department within NSI

## Features

- Organizes events to recruit new donors
- Individually recruits donors
- Arrange events for current donors

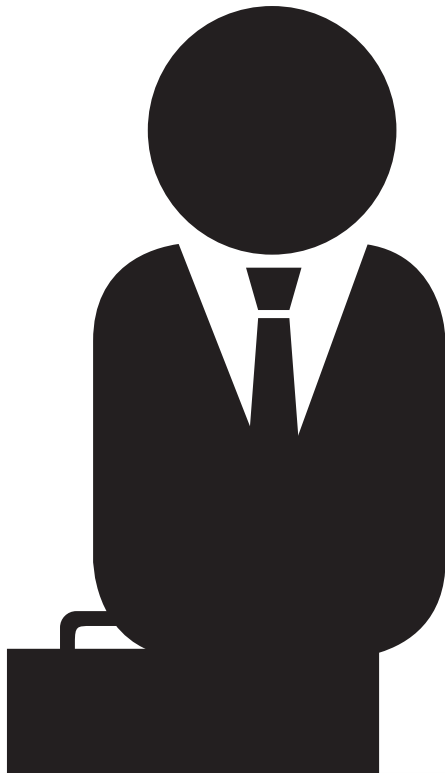


## *Properties*

- *Full-time staff of lobbying, marketing and public relations professionals*

## *Features*

- *Engages in policy tracking, advising and engagement on behalf of the NSI and its Alliance partners*
- *Manages the NSI's "product", the NSI brand and how it relates to different user groups' end goals*
- *Supervises all official communications of the NSI*



## Properties

- Full time research and lobbying staff
- Washington D.C. office, K street
- Interdisciplinary staff of policy makers, scientists and lobbyists

## Features

- *Policy Tracking: Monitors the state of current and proposed governmental regulations*
- *Policy Advising: Delivers pertinent scientific, policy and public opinion research to stakeholders.*
- *Policy Engagement: Interacting with the significant participants in the policy planning process*

The NSI is  
synonymous with an  
ecosystems approach



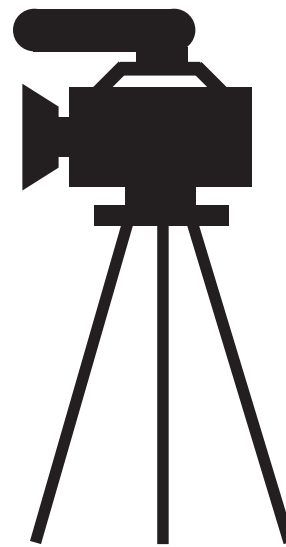
## Properties

- Full time marketing staff

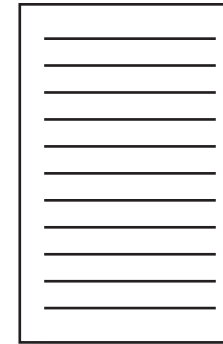
## Features

- Manages the NSI's "product", the NSI brand and how it relates to different user groups' end goals
- Develops and aligns expectations surrounding the brand experience
- Through brand management, promotes brand recognition





Video News Releases



Press Releases



Press Conferences

## Properties

- *Organizational unit within the NSI that is dedicated to public relations*

## Features

- *Identifies relevant audiences and tailors messages to them*
- *Plans and holds press conferences and other media events*
- *Creates press releases, video news releases and audio news releases*
- *Trains NSI staff in media relations techniques*

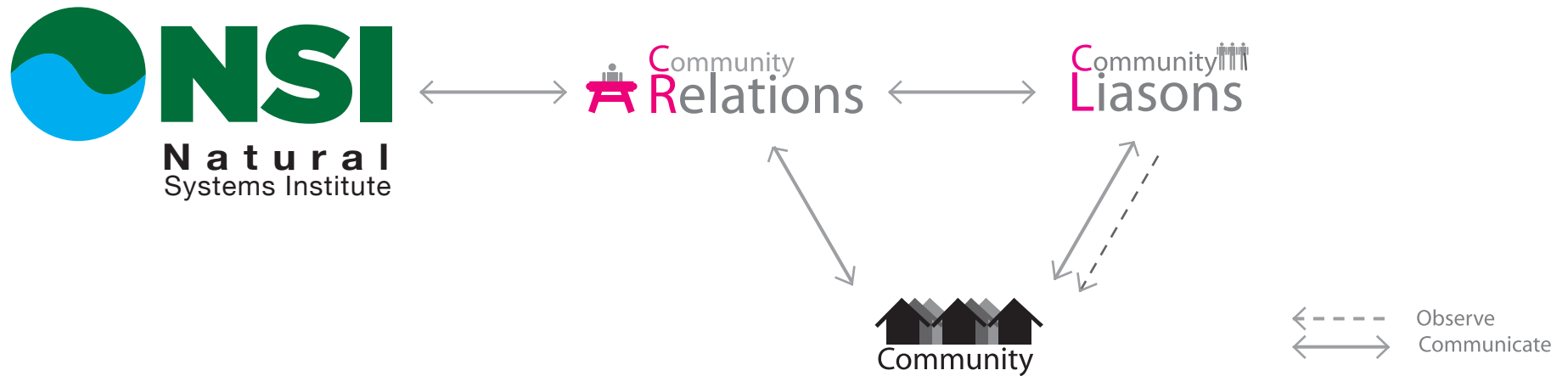


## Properties

- A department within the NSI
- A group of enthusiastic, creative, proactive and organized individuals
- A collection of sub-committees

## Features

- Plans major environment-related events
- Organizes and oversees the annual International Film Festival
- Encompasses the NSI Street Team, which runs community environmental competitions
- Works with the Office of Donor Relations to raise money to fund events

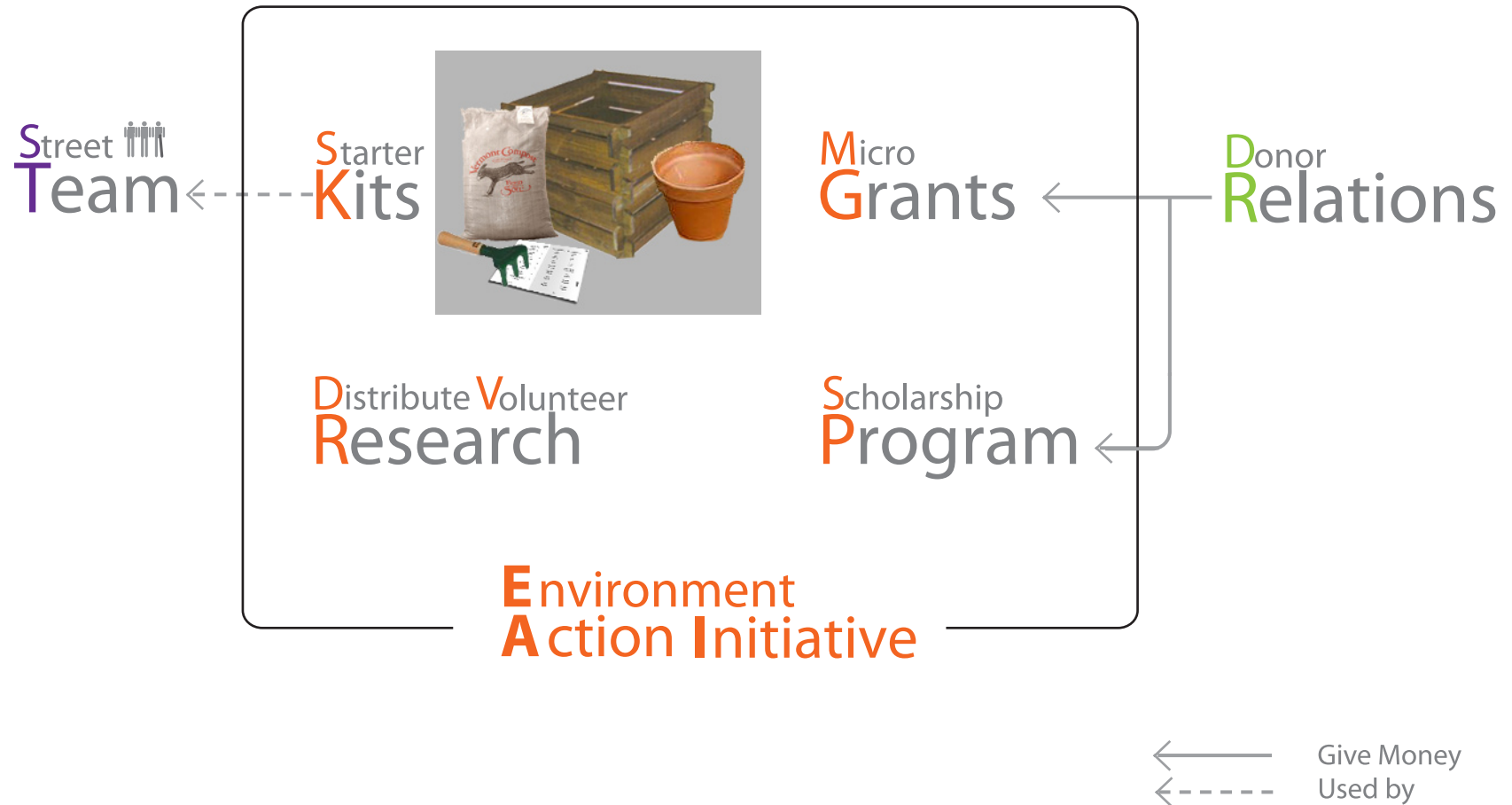


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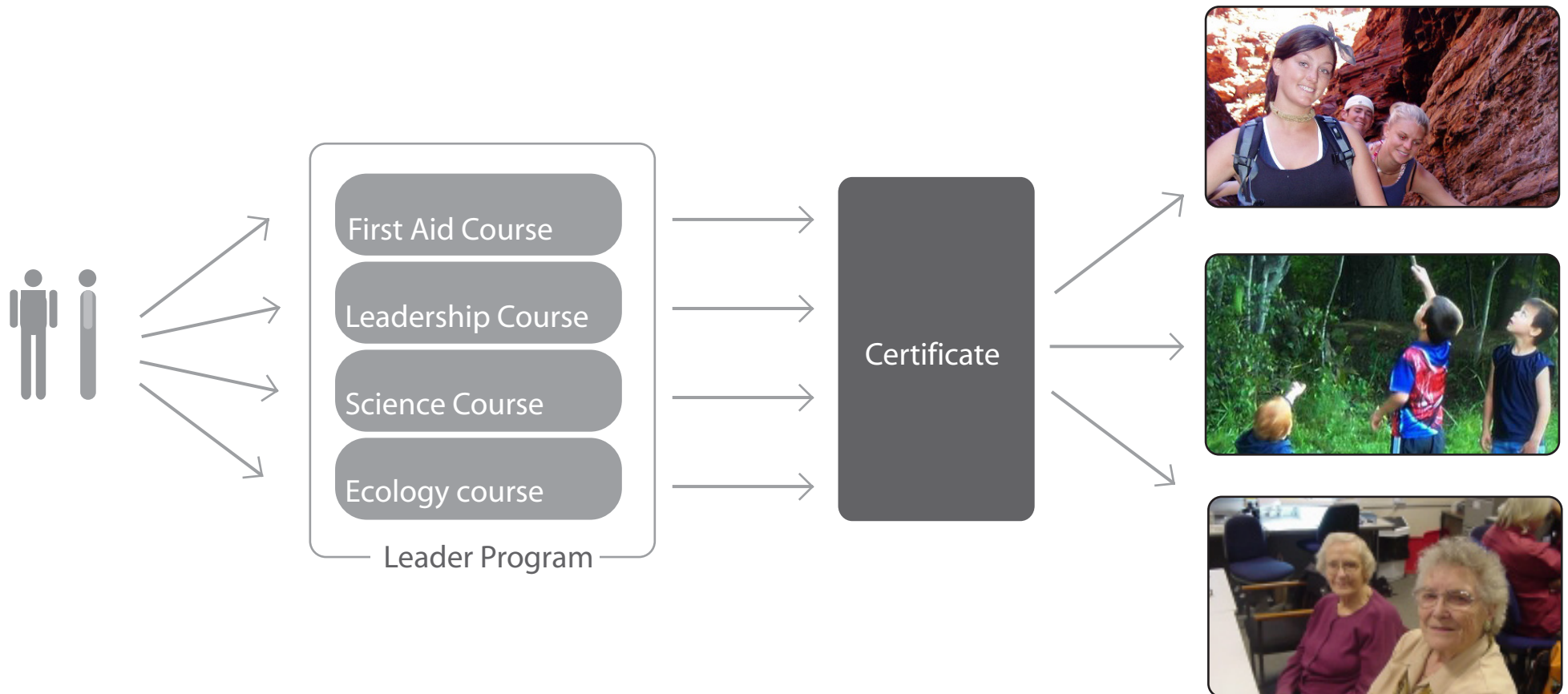


## Properties

- Cluster of educational initiatives for the community
- A commitment to outreach

## Features

- Provides members in the community with resources to pursue their interests in environmental work
- Empowers the public to get involved with environmental action

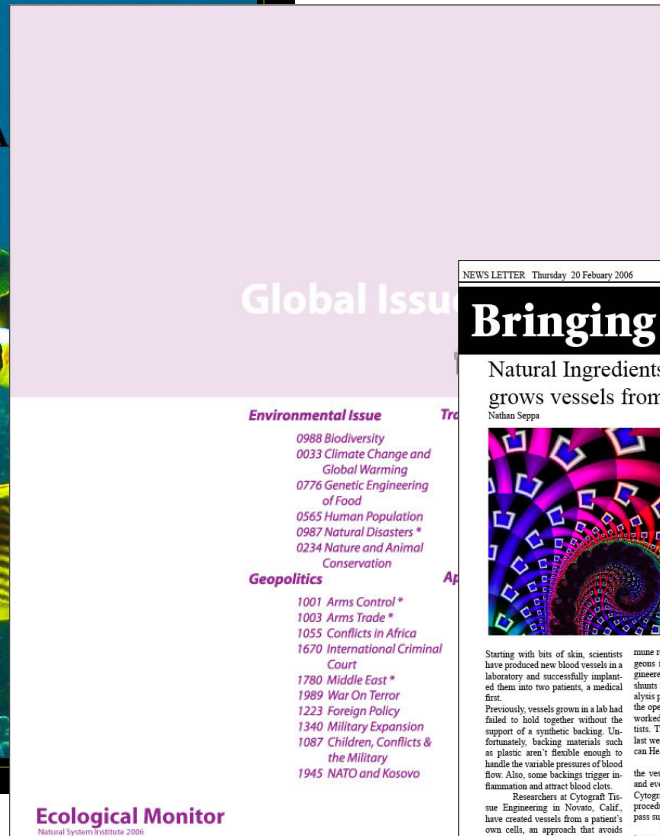


## Properties

- *Training program for leaders of NSI Corps, NSI Scouts, and NSI Generations*
- *Volunteers and full-time NSI employees*
- *Led by NSI employees in Office of Outreach (Programs Desk)*
- *Required to lead NSI outreach groups*

## Features

- *Prepares volunteers and NSI employees to lead groups of kids and adults in a number of environmentally oriented outdoor activities, including camping and hiking*
- *Teaches team-building*
- *Teaches wilderness first aid along with methods for teaching safety*



## Properties

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# Outreach and Management

## Issues:

- Lack of public awareness of ecosystems approaches to environmental study
- Financial viability of scientific organizations
- Community outreach is often not enough
- Environmental organizations must operate in the public policy sphere
- New approaches require substantial education



## Features:

- Face of NSI, Publications,
- Donor Relations
- Community Liasons, Leader Programs, Enviromental Action Initiative
- Policy Desk
- Office of Communicaitons