SAVE SPECIES, SAVE THE PLANET, SAVE OURSELVES

Nature Based Solutions & How They Can Fix Practically Everything!

Native Plant Conservation Campaign

A National Native Plant Society for the United States

PLANTSOCIETIES.ORG

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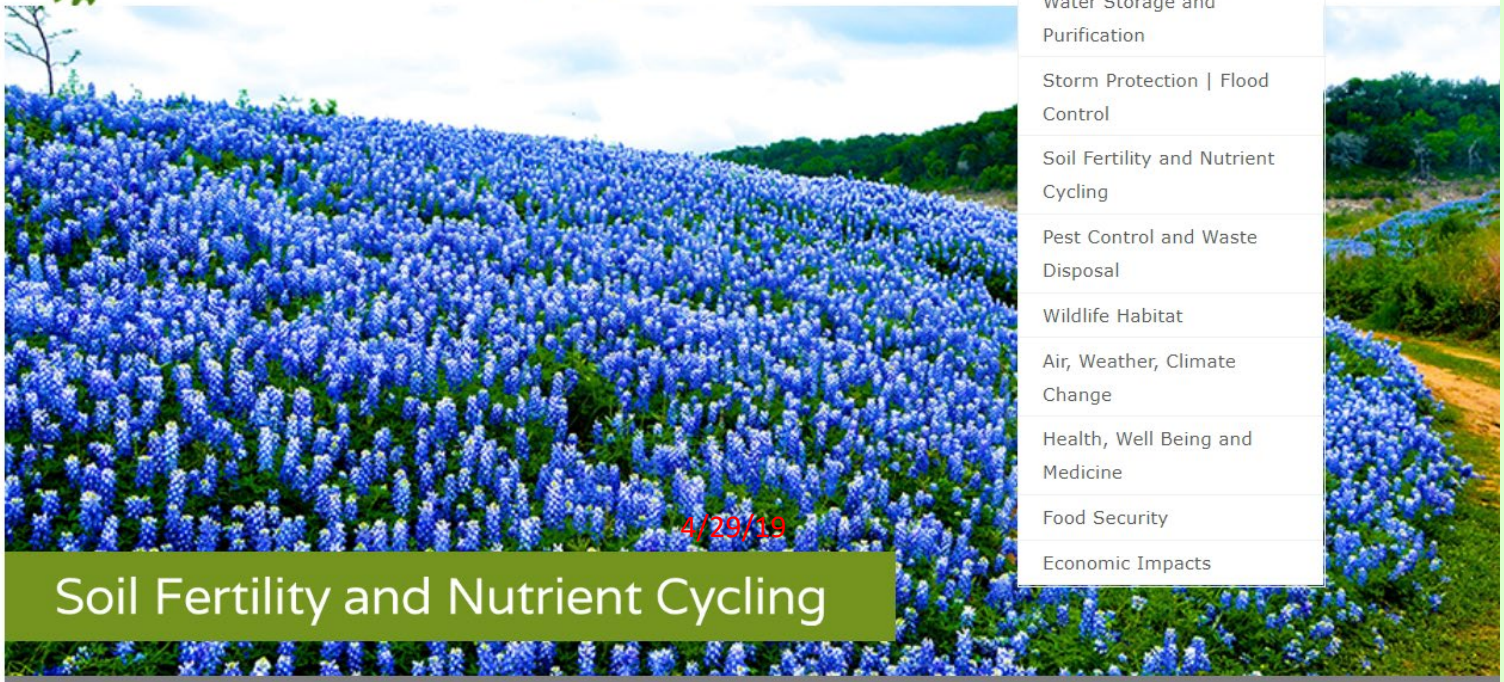
Native Plant Conservation Campaign

NPCC HOME PAGE

Ecosystem Services Resources Sections

- Ecosystem Resources Overview
- Water Storage and Purification
- Storm Protection | Flood Control
- Soil Fertility and Nutrient Cycling
- Pest Control and Waste Disposal
- Wildlife Habitat
- Air, Weather, Climate Change
- Health, Well Being and Medicine
- Food Security
- Economic Impacts



Soil Fertility and Nutrient Cycling

Nitrogen fixation, which is performed by specialized microorganisms and plants, such as these Texas Bluebonnets, converts atmospheric nitrogen and soil minerals into nutrients that are essential
all life on earth.

Home / Ecosystem Services Overview / Soil Fertility and Nutrient Cycling

WATER STORAGE AND PURIFICATION

STORM PROTECTION | FLOOD CONTROL

SOIL FERTILITY AND NUTRIENT CYCLING

PEST CONTROL AND WASTE

Life
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organic matter, recycling nutrients back into the ecosystem. Plants and symbiotic bacteria and fungi also partner to make atmospheric nitrogen, mineral phosphorous and other essential

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Click Ecosystem Services

Native Plant Conservation Campaign Affiliate Organizations

ECOSYSTEM SERVICES

- Habitat for pollinators & other species
- Water storage & purification
- Generate oxygen, absorb pollutants
- Buffer storms, heat, drought, floods
- Food security & public health

Global Value Ecosystem Services
>$145 Trillion/yr

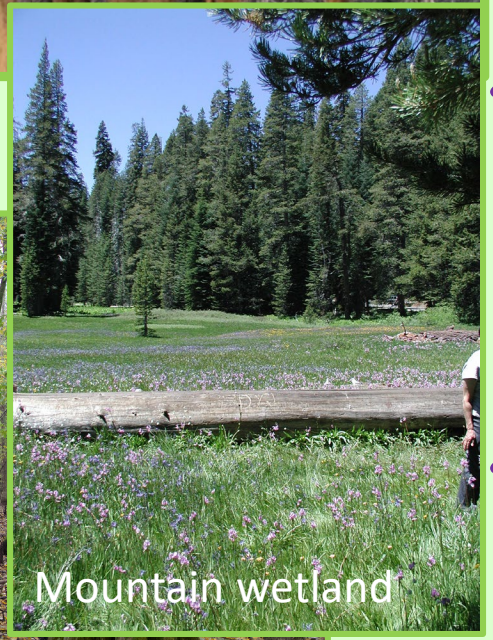
© Chris Benda, Illinois NPS

Nature Based Solutions to

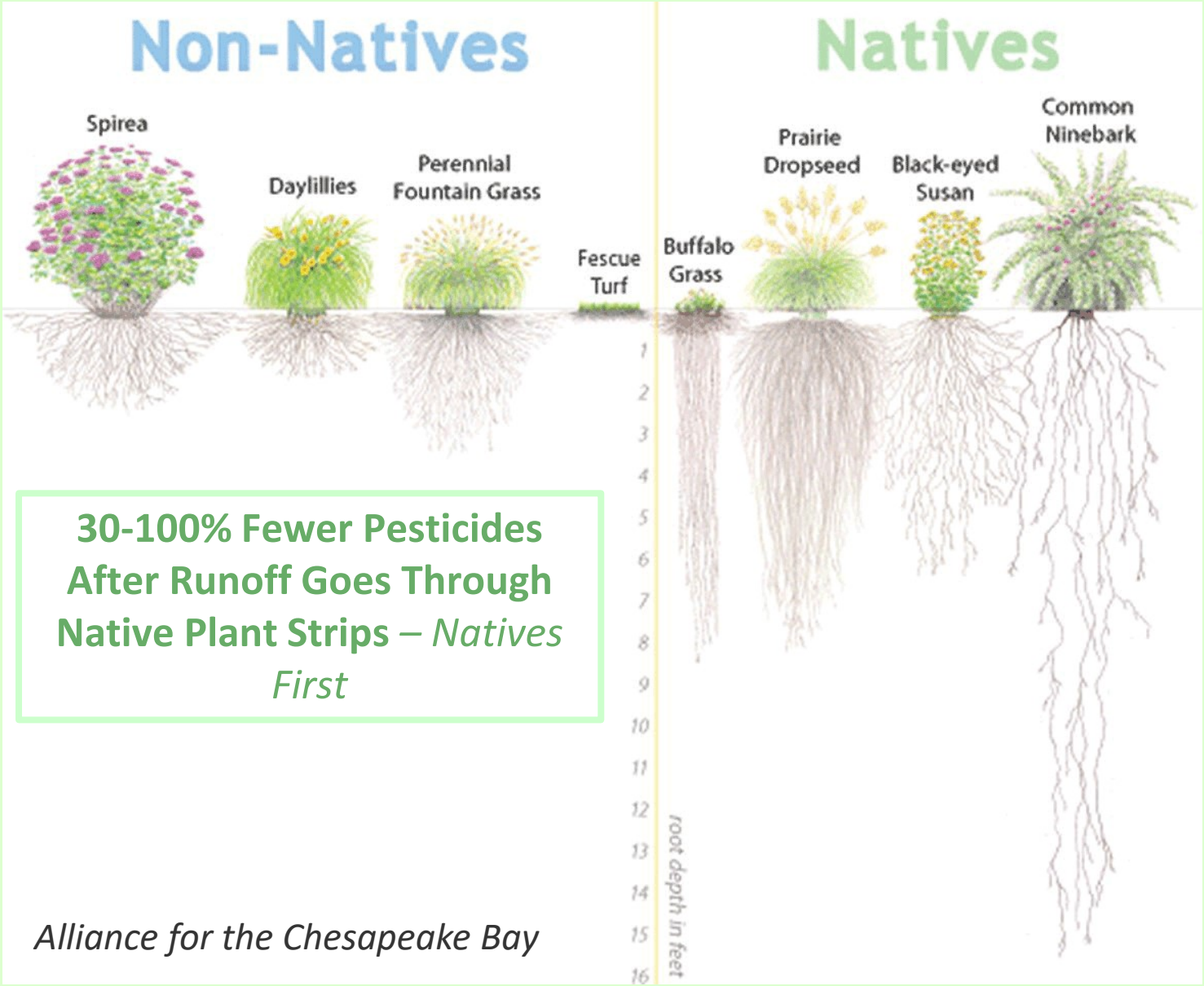
- Loss of species & habitat
- Declines in stability & quality of water supplies
- Declines in air quality
- Climate change & extreme weather
- Famine & disease

Climate, Water, & Food Security!

Water Storage & Purification



- Filter Particulates
- Absorb Pollutants
- Slow water flow (Groundwater Recharge, Flood Control)
- Store Flood Waters - Wetlands & Floodplains



30-100% Fewer Pesticides After Runoff Goes Through Native Plant Strips – *Natives First*

Alliance for the Chesapeake Bay

Native Plants Do it Better!

New York City

- "Champagne of tap waters"!
- Protected Catskills watersheds purify & deliver 1.4 bn gallons water/day to >9 million people
- Watershed conservation & restoration vs. treatment plant - *saved ~ $ 10 billion!*

Nature Based Solutions are Cheaper & Better

Air, Weather & Climate

- Climate Moderation
- Absorb Air Pollutants - Including CO_2 & Greenhouse Gasses
- Flood & erosion protection

Transpiration, Water Recycling

- The water that a tree transpires per day has cooling effect = *two air conditioners!*
- Green areas *more than 20°F cooler* than pavement or lawns
- Produce oxygen

Climate Change Mitigation, Pollution Reduction

Forest Service estimates U.S. forests capture ~ 27 million tons of C/year.

UN environment

Explore Topics | News & Stories | Get Involved | Environment & Y

Restoration of 350 mn ha of degraded land by 2030 ->$ 9 trillion in ecosystem services and remove up to 26 gtn of greenhouse gases.

Flood & Erosion Protection

- Absorb, slow water
- Absorb energy of wind/water
- Hold soil
- *2-5x less $$ vs. concrete stormwalls!*

Concrete Floodwalls Do Not

- Regrow themselves
- Provide habitat for fish and wildlife
- Absorb CO_2

Costal Protection

>$625 million in property damages prevented during Hurricane Sandy by native plant communities along Northeast U.S. coast

-UC Santa Cruz et al., 2016

COASTAL WETLANDS AND FLOOD DAMAGE REDUCTION

Using Risk Industry-based Models
to Assess Natural Defenses in the Northeastern USA

October 2016

UNIVERSITY OF CALIFORNIA SANTA CRUZ
The Nature Conservancy
Wildlife Conservation Society
LLOYD'S TERCENTENARY RESEARCH FOUNDATION

Nature Based Solutions Protect Lives & Property!

Urban Stormwater

Nature Based Solutions are Cheaper and Better!

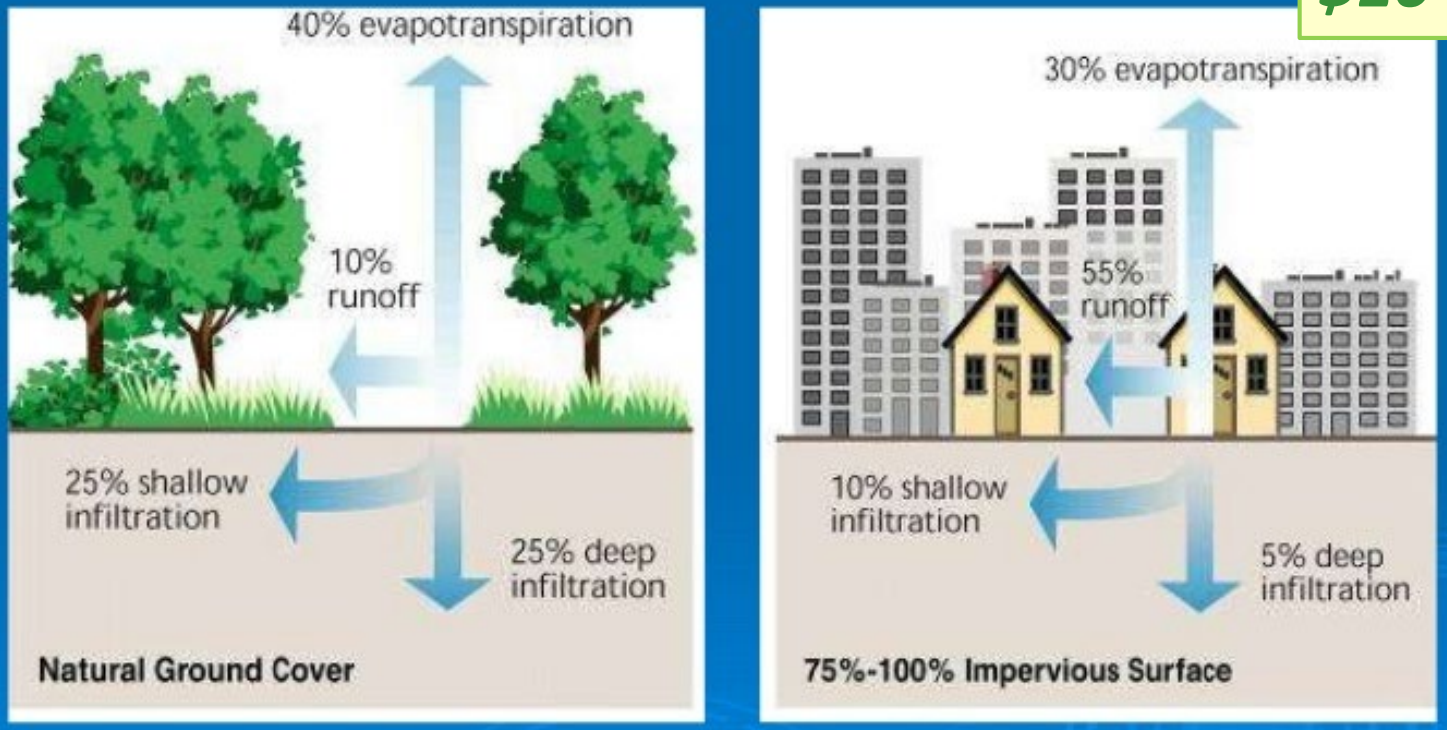
Philadelphia

With a Green Makeover, Philadelphia Is Tackling Its Stormwater Problem

tensive network of rain re to capture stormwater. ewers and polluting h-largest city.

18

Natural vs. Urbanized Water Cycle



Images courtesy of Philadelphia Water Department

~$3 billion vs. $10 billion!

Nature Based Solutions & Food Security

- Pollinator Diversity
- Agricultural Pest Control
- Wild Relatives Diversity
- Genetic Diversity
- Soil Fertility, Productivity
- Pollution Control

NBS Do it Better!

Also Fish!

Clean water, food, hiding & thermal cover

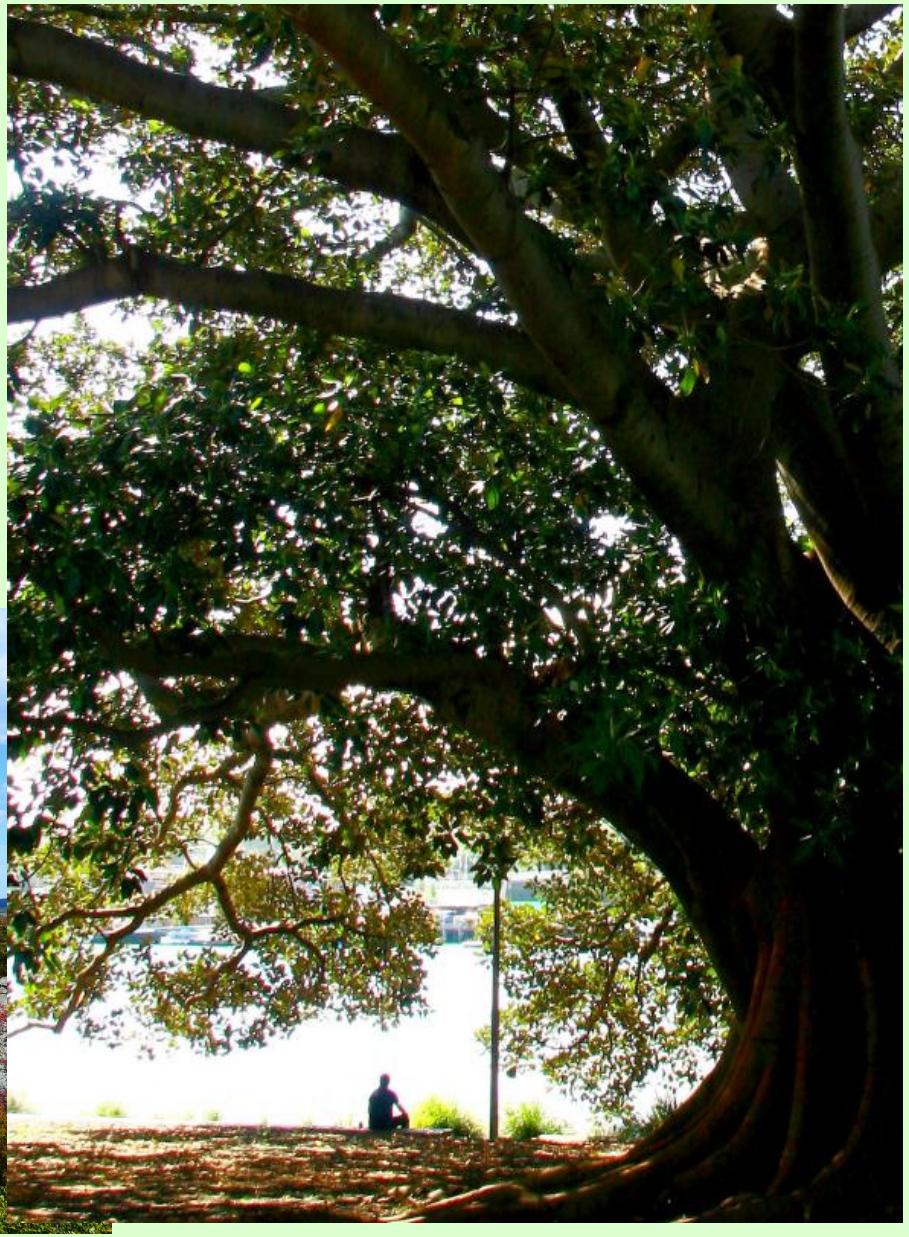
- Mangroves are fish factories for 210 million people globally
- California salmon support up to 23,000 jobs and economic value of $1.4 billion/year
- Recreational fishing adds $1 billion to Florida economy

Biodiversity Supports Food Security

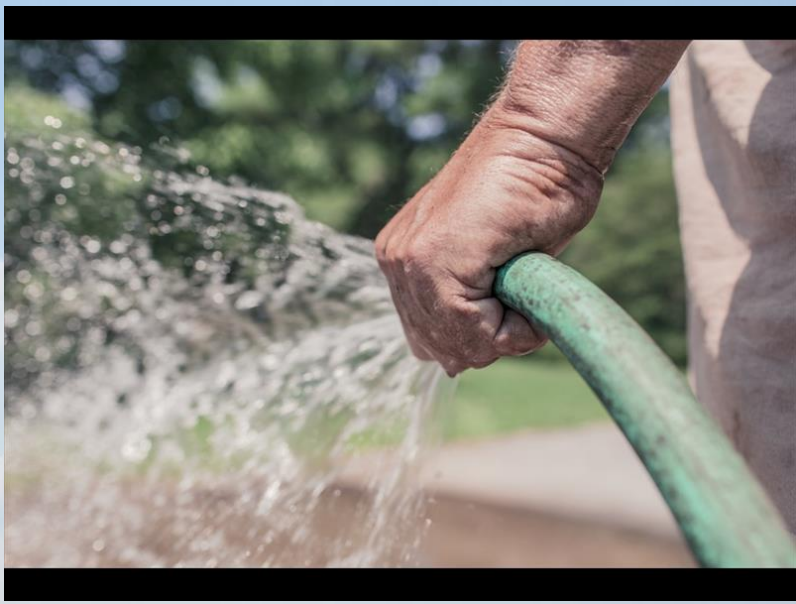
2/2019

Health & Well Being

- Medicinal plants
- Better immune systems/less childhood asthma
- Mental health



NBS Do It With Less Water, Chemicals, Labor, $$$!



L. de Lapeyre de Bellaire, CIRAD

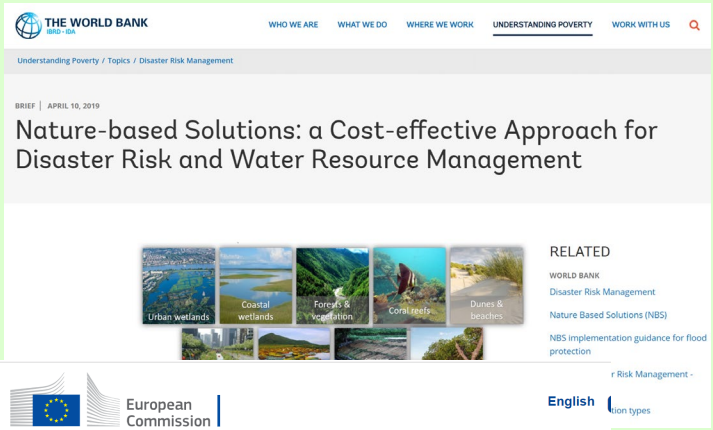
But What Does This Have To Do With The ESA?

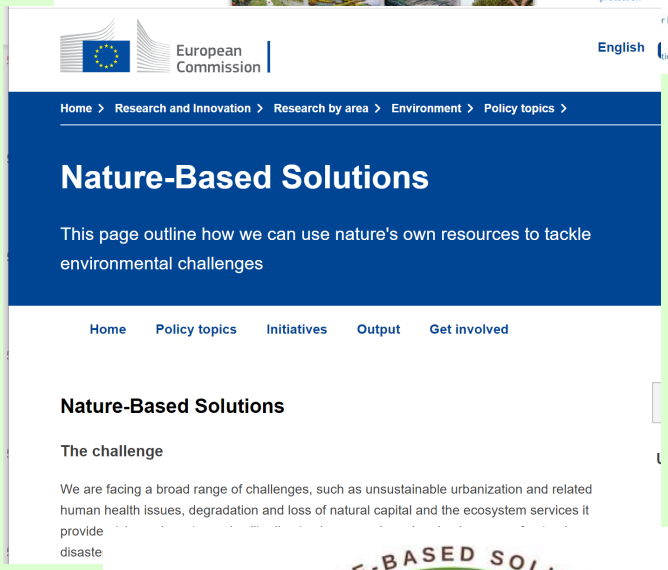
When we protect habitat for endangered species we protect Ecosystem Services & support Nature Based Solutions

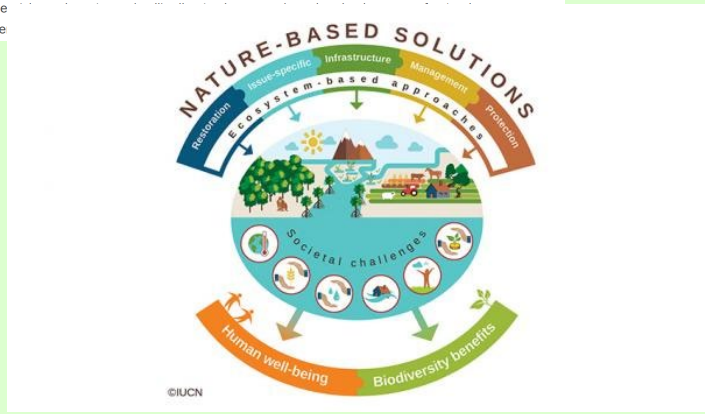
Progress!

Nature Based Solutions Initiatives

- Philadelphia/NYC/Detroit
- Hurricanes – East Coast
- International Union for the Conservation of Nature (IUCN)
- United Nations
- European Union
- Word Bank



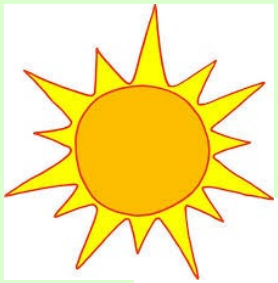




Food, Water & Climate Security

Kenya's Greenbelt Movement has planted > 50 million trees to control erosion, provide food & fuel, sequester C, empower women, & buffer local climate.

Global Ecosystem Services Valued >$145 trillion/yr



Climate Moderation

Buffer Storms

Pest & Disease Control

Food, Fiber, Health & Medicine

Carbon Capture
Pollution Control
Oxygen Generation
(photosynthesis!)

Pollinator Habitat

Recreation

Wildlife Habitat

Soil Fertility
Erosion Control
Carbon Storage

Surface Water Capture
Water Purification
Flood Control
Groundwater Recharge

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Nature Based Solutions Do It Better!!!

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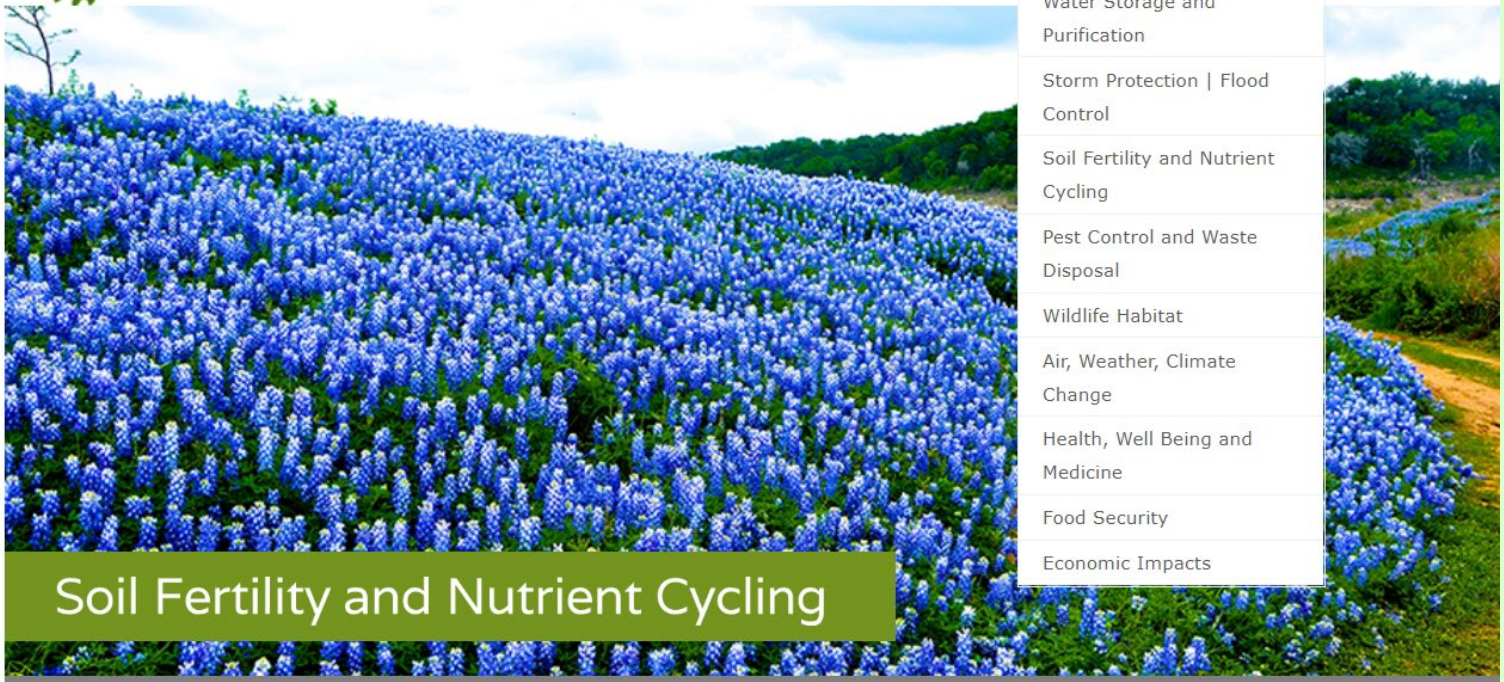

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PEST CONTROL AND WASTE

Life on earth depends on the continuous cycling of about 30–40 of the 90 chemical elements that occur in nature. Native vegetation's extensive root systems and associated microorganisms digest plant and animal waste and other dead organic matter, recycling nutrients back into the ecosystem. Plants and symbiotic bacteria and fungi also partner to make atmospheric nitrogen, mineral phosphorous and other essential

© Native Plant Conservation Campaign, 2019

So - How Can I Help?

Tell All that Native Plants Do It Better!
& with Less Labor, Water, Chemicals, $$

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Exclusive
Suppliers Of
Oxygen To Life
On Earth!™