

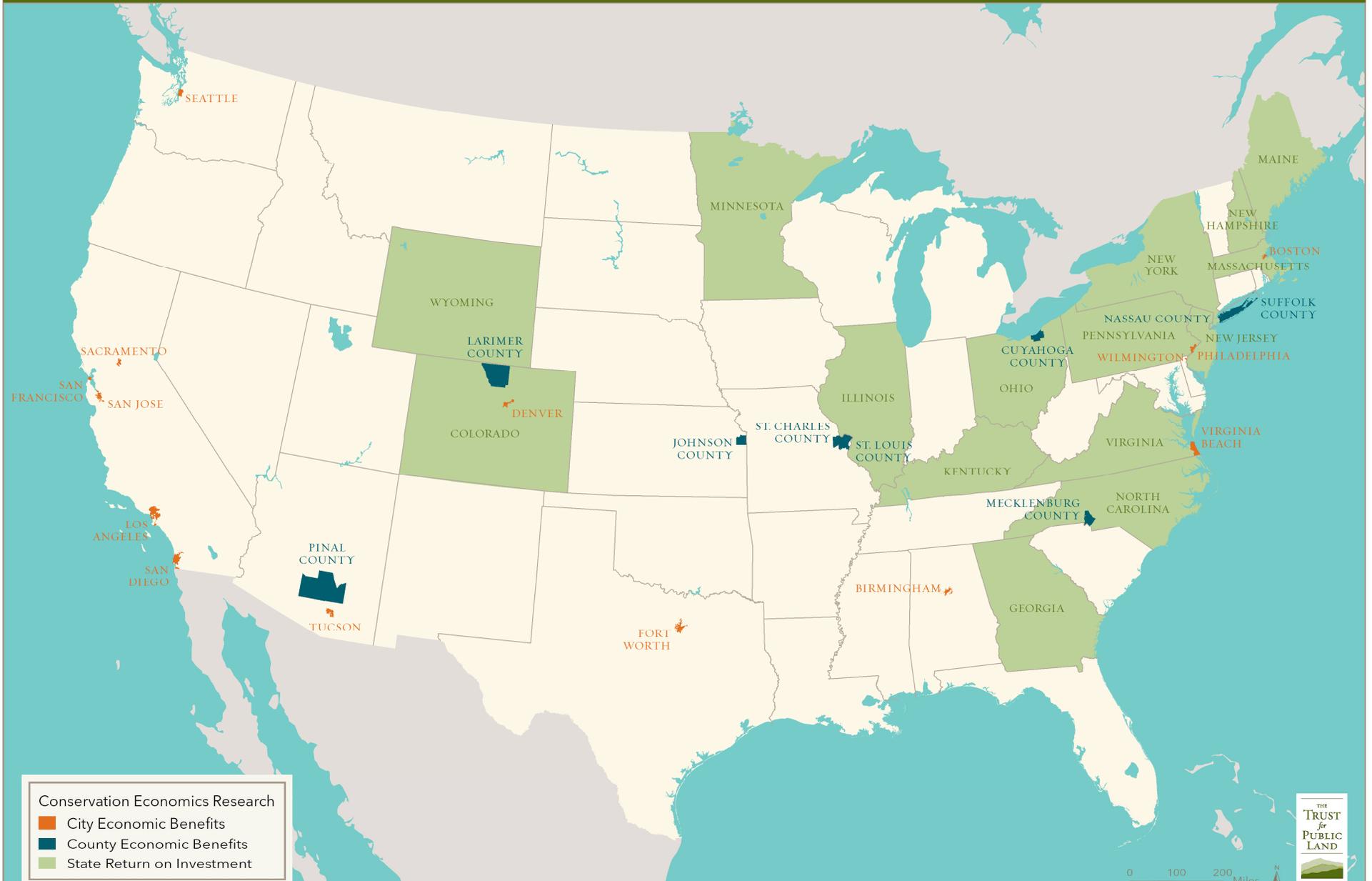
# The Economic Benefits of Land Conservation

Costs & Benefits of Sustaining Conserved Lands  
November 9, 2015



# THE TRUST FOR PUBLIC LAND

CONSERVATION ECONOMICS RESEARCH IN CITIES, COUNTIES, AND STATES (2008-2015)



# Local Economic Benefits

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Archie Rinaldini



- Benefits accrue to
  - Local government(s)
  - Residents
  - Local businesses

# Enhanced Property Value

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JCPRD



- The market values of properties located near a park or trail are frequently higher than those of comparable properties located elsewhere.
- An increase in property values generally results in increased property tax revenues.



# Enhanced Property Value

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Jeff Pierce



Kill Creek Park Native Prairie

- Market Value Premium of Parks: 5%
- Additional Property Value
  - JCPRD Parks: \$24.1 million
  - Municipal Parks: \$490 million
  - All Parks: \$514 million

# Reducing Stormwater

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JCPRD



Antioch Park

- Parks and trails can reduce the costs of stormwater management by capturing precipitation and/or slowing its runoff.
  - Calculate the volume of water retained by parks and trails.
  - Estimate the cost of treating that volume of water.

# Reducing Stormwater

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Mary G. Eads



- Runoff reduction from parks: 206 million cubic feet
- Cost of treatment per cubic foot: \$0.04
- \$8.94 million in management cost savings

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Heritage Park

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# Air Pollution Removal by Vegetation

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Mary G. Eads



Kill Creek Park Trail

- Vegetation on parks and trails improves air quality by removing air pollutants, including:
  - Carbon monoxide, nitrogen dioxide, ozone, coarse dust and fine particles, and sulfur dioxide
- Estimate the cost savings of pollutants not entering the atmosphere using the U.S. Forest Service models of pollution removal for urban trees.

# Air Pollution Removal by Vegetation

JCPRD



- Tons of air pollution removed annually
  - Carbon monoxide: 8,720
  - Nitrogen dioxide: 47,600
  - Ozone: 281,000
  - Coarse dust particles: 126,000
  - Fine particles: 8,590
  - Sulfur dioxide: 45,500
- \$1.33 million in reduced air pollution costs

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Shawnee Mission Park Small Lakes

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# Tourism

Jeff Klepac



Boccia Americas Cup at New Century Fieldhouse

- Parks, trails, and recreational facilities attract non-residents to the area.
- These visitors spend money in local communities.
- Tourism in Johnson County
  - \$1.42 billion in sales
  - \$49.7 million in state tax revenue
  - \$34.8 million in local tax revenue

# Tourism

Mary G. Eads



The Theatre in the Park

- Johnson County
  - 37% of tourists come to visit parks, trails, and recreational facilities
  - \$524 million in visitor spending
  - \$18.4 million in state tax revenue
  - \$12.9 million in local tax revenue
- JCPRD
  - 22,200 out-of-town visitors
  - 53,000 overnight stays
  - \$332 per overnight visitor
  - \$7.37 million in spending

# Recreational Use by Residents

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Mary G. Eads



- Value gained by residents from visiting the parks and trails and engaging in activities.
- Estimate using Oregon State University's Recreation Use Values Database and supported by the U.S. Army Corps of Engineer's Unit Day Value method.
- Average value per visit for park and trail use: \$4.67

# Recreational Use by Residents

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Mary G. Eads



- Most residents visit JCPRD parks and facilities at least once a year
  - 78.8% of children
  - 69.8% of adults
- 8.26 million visits annually
- \$39.5 million in value

Shawnee Mission Park

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# Improved Health of Area Residents

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Mary G. Eads



- When people have access to trails and parks they exercise more. Exercise reduces illness in people of all ages.
  - Estimate the medical cost savings based on CDC guidelines.
  - Annual health care cost savings for adults who exercise regularly: \$1,100 - \$2,210

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Shawnee Mission Park North Trail

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# Improved Health of Area Residents

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Lory Rodak



- Adults active in JCPRD parks, trails, and facilities:
  - 14,600 adults 18 – 64 years old
  - 2,310 adults over 65 years old
- Health care cost savings: \$21.2 million

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Mill Creek Streamway Park Trail

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# Economic Development

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Mary G. Eads



- Parks, trails, and recreational facilities make the area an attractive place to live and work
- Skilled workers are attracted to places with open space, clean air and water, and recreation opportunities
- Businesses are able to recruit the best workers
- Johnson County has been recognized for high quality of life

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Heritage Park Lake

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LAND

# Key Findings

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The Economic Benefits of  
Johnson County Park & Recreation District  
Johnson County, Kansas



THE TRUST *for* PUBLIC LAND  
LAND FOR PEOPLE

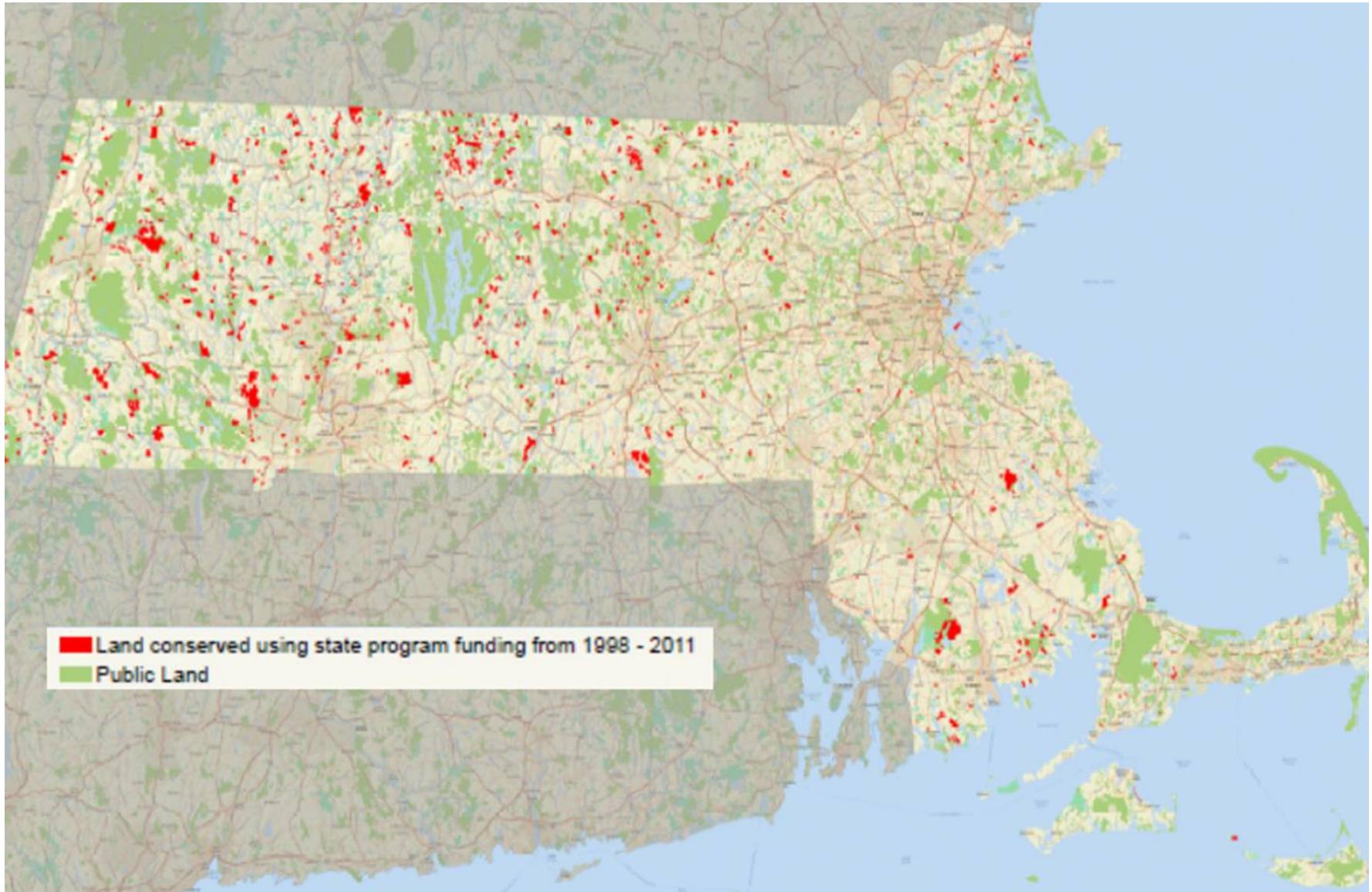
- JCPRD parks, trails, and facilities are vital to the local economy
- Leadership in trail design and development
- Benefits to every resident of Johnson County – clean air and water
- Reduces costs to local governments
- Supports local businesses - improves quality of life and attracts visitors



# Measuring Return on Investment for Public Land Conservation Spending

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1. Identify parcels that have been protected, where they are located and how much they cost
2. Determine the land cover types of protected areas (e.g., wetlands, rivers, forests)
3. Analyze the economic benefits provided by each land cover type (e.g., clean air, clean water, flood control)
4. Tally the benefits provided by each parcel each year and compare total benefits with total costs



## Conserved Lands in Massachusetts

YEAR	ACRES	PERCENT LAND COVER
Deciduous forest	55,600	43 %
Evergreen forest	20,100	16 %
Mixed forest	15,600	12 %
Woody wetland	13,900	11 %
Pasture	9,240	7 %
Cultivated crops	3,710	3 %
Open space	3,240	3 %
Emergent herbaceous wetland	2,000	2 %
Open water	2,000	2 %
Developed	1,530	1 %
Shrub/scrub	1,120	1 %
Grassland	611	< 1 %
Barren	328	< 1 %
<b>Total</b>	<b>129,000</b>	

Source: 2006 National Land Cover Dataset (NLCD 2006).

## Conserved Land Cover Types



LAND COVER*	ECOSYSTEM SERVICES	VALUE PER ACRE**
Deciduous forest	Stormwater management; water quality protection; carbon storage; carbon sequestration; air pollution removal; and soil retention	\$ 1,220
Evergreen forest	Stormwater management; water quality protection; carbon storage; carbon sequestration; air pollution removal; and soil retention	\$ 1,180
Mixed forest	Stormwater management; water quality protection; carbon storage; carbon sequestration; air pollution removal; and soil retention	\$ 1,200
Woody wetland	All	\$ 2,570
Pasture	Wildlife habitat; carbon sequestration; pollination services; erosion control; and production of livestock	\$ 58
Cultivated crops	Agricultural goods; pollination; carbon sequestration; and erosion control	\$ 167
Open space (e.g., parks)	Air pollution removal; carbon sequestration; carbon storage; and stormwater management	\$ 464
Emergent herbaceous wetland	All	\$ 2,570
Open water	All	\$ 239
Developed	Air pollution removal; carbon sequestration; carbon storage; and stormwater management	\$ 464
Shrub/scrub	Stormwater management; water quality protection; carbon storage; carbon sequestration; air pollution removal; and wildlife habitat	\$ 434
Grassland	Pollination; wildlife habitat; carbon sequestration; erosion control; and nitrous oxide reduction	\$ 31

## Annual Value Per Acre

# Return on Investment in Conservation in Massachusetts

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- Environmental bond bill funds exhausted
- ROI of **4 to 1**
  - In over a dozen states across the country, from Maine to Colorado, we found that every \$1 invested by the state returned \$4 to \$11 in natural goods and services.
- Released at State House media event 9/2013
- Used in support of \$2.2 billion Environmental Bond Bill (Signed by Gov. Patrick 2014)

# Return on Investment in the Environmental Protection Fund

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North Shore Land Alliance



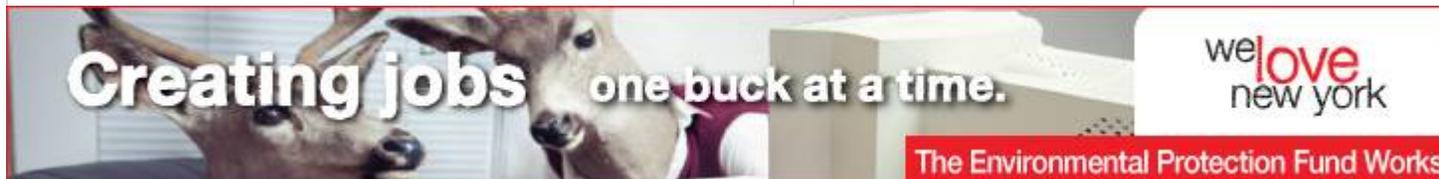
Every \$1 invested by New York in EPF returns \$7 in natural goods and services.

- Water quality protection
- Air pollution removal
- Stormwater management
- Agricultural goods
- Wildlife habitat
- Soil retention
- Erosion control
- Carbon storage and sequestration

# Return on Investment in the Environmental Protection Fund



- ROI released in media event at the state house in February 2012
- Part of larger campaign on the economic benefits of EPF
- EPF maintained at \$134 million



# Thank you!

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