

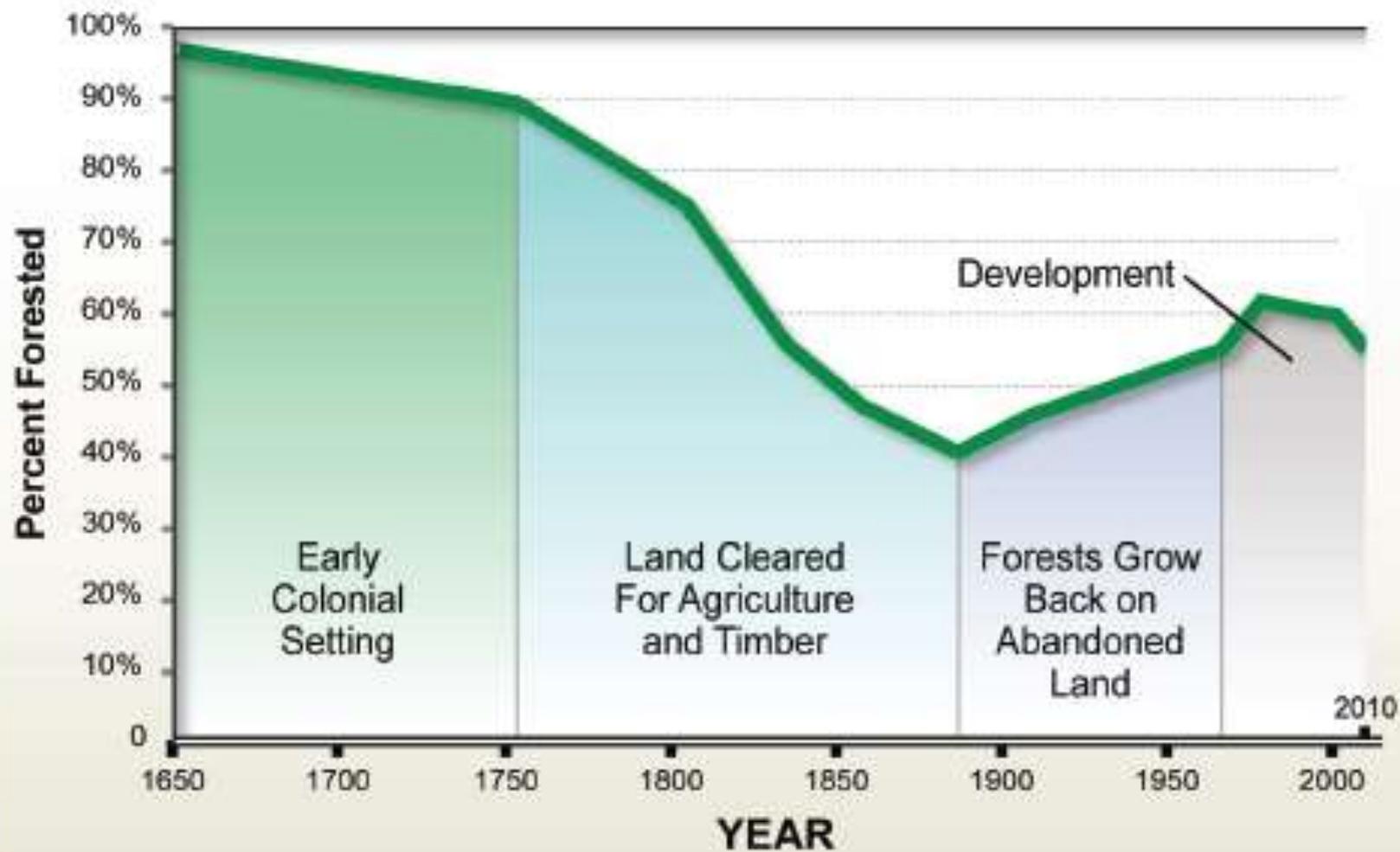
## Goal: Recover Habitat

*“By 2012, USDA will work with Dept. of Interior and other entities to develop a Chesapeake Bay watershed strategy to maximize forest restoration in priority areas...”*

Priority areas =

Urban, green infrastructure, wildlife habitat, mine lands, brownfields, agroforestry

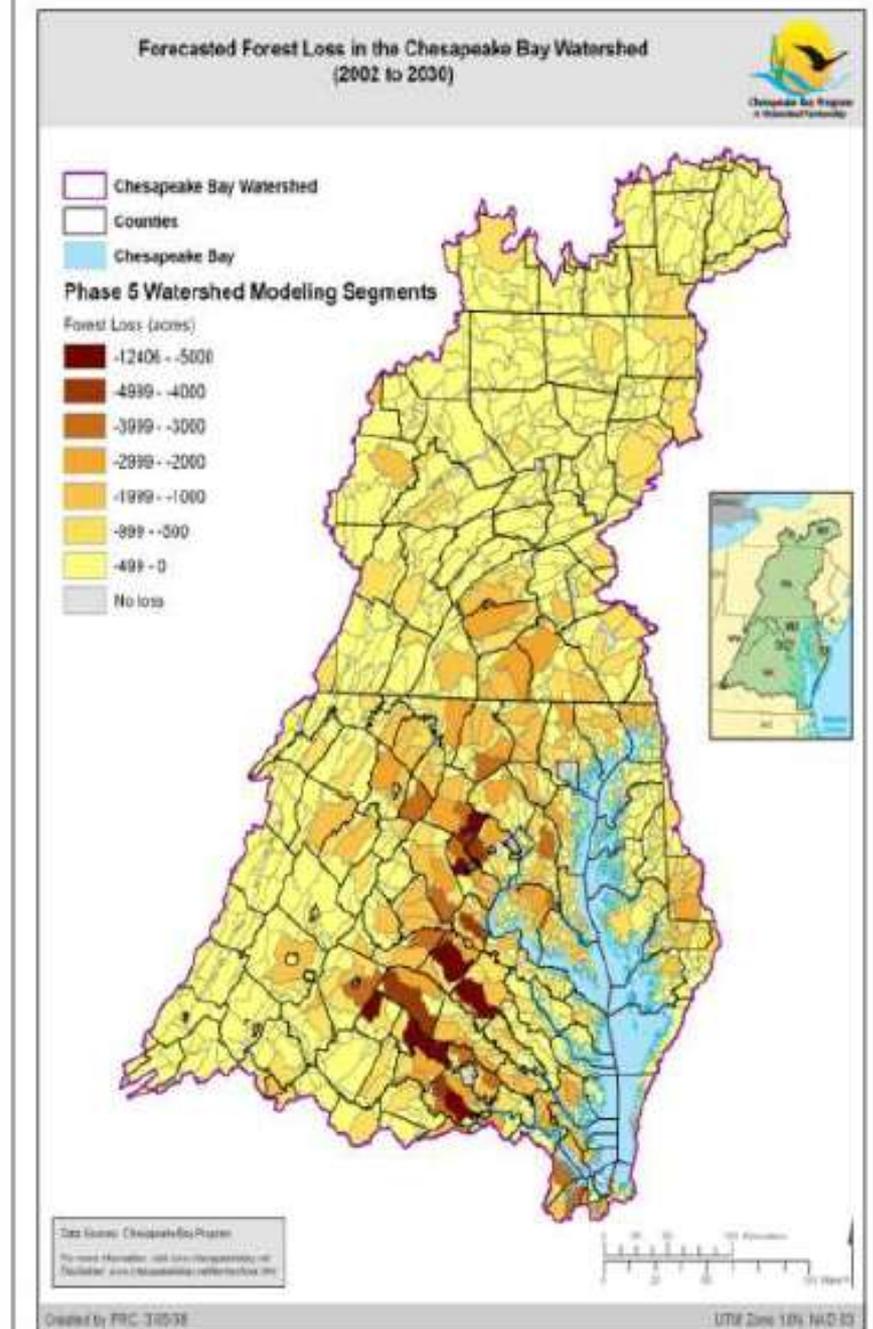
# Forest Cover in the Chesapeake Bay Watershed: 1650 - 2010



Source: Chesapeake Bay Program

# Strategy – Introduction Section

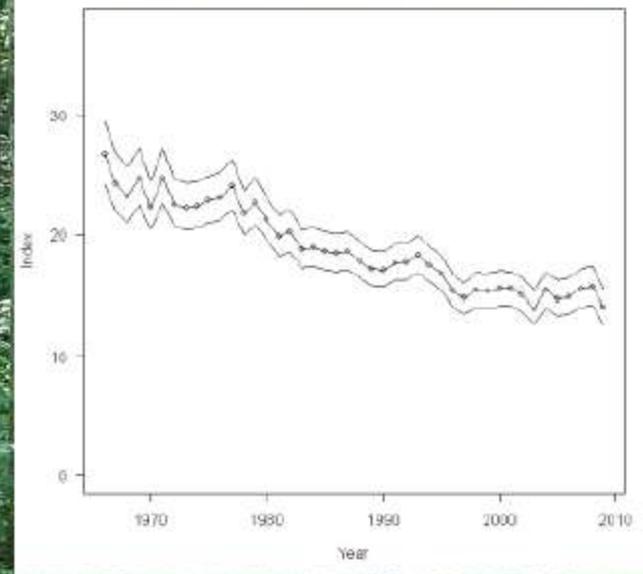
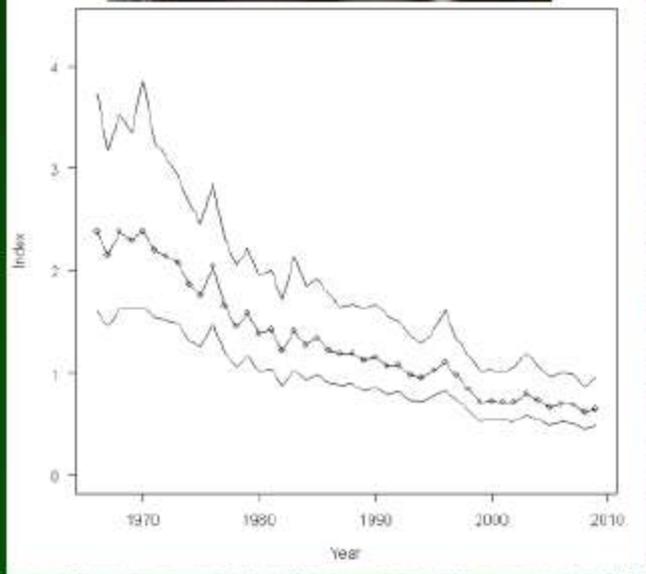
- Value of forests for the Bay - air, water, habitat, etc
- Loss of forest cover - need to conserve AND restore
- Past progress – riparian buffer restoration and urban tree canopy programs; expand on these efforts through Strategy



# WILDLIFE HABITAT - WHY

- Loss and fragmentation of forest habitat for host of species
- Amount of forest cover important, but so is forest type, age, and connectivity
- Importance of large forest blocks (**hubs**) for interior dependent species (eg cerulean warbler) and forested **corridors** connecting patches
- Forested **riparian** habitat is critical (target of 70% of riparian areas in forest), especially for aquatic species like brook trout

# Noted Declines in Forest Songbirds

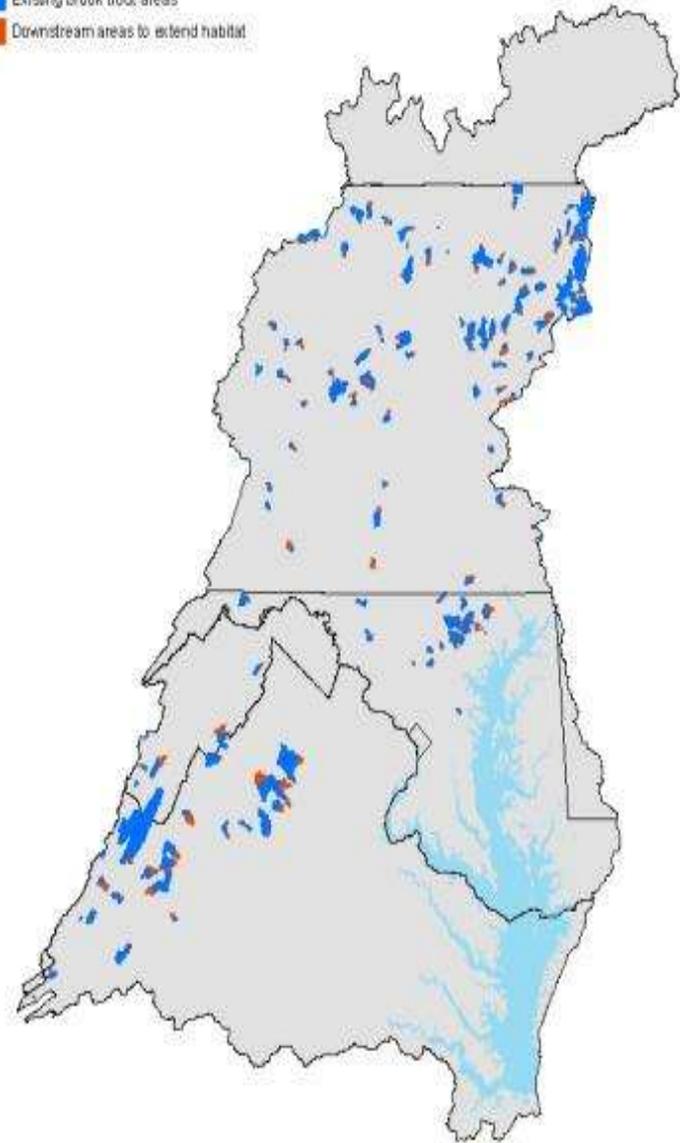


# Brook Trout Priority Catchments

This updated map shows a detailed analysis of where stream restoration, especially forest buffer restoration, will sustain and expand brook trout populations.

Areas to Target Reforestation for Brook Trout (<70% riparian forest cover)

- Existing brook trout areas
- Downstream areas to extend habitat



## WILDLIFE HABITAT - HOW

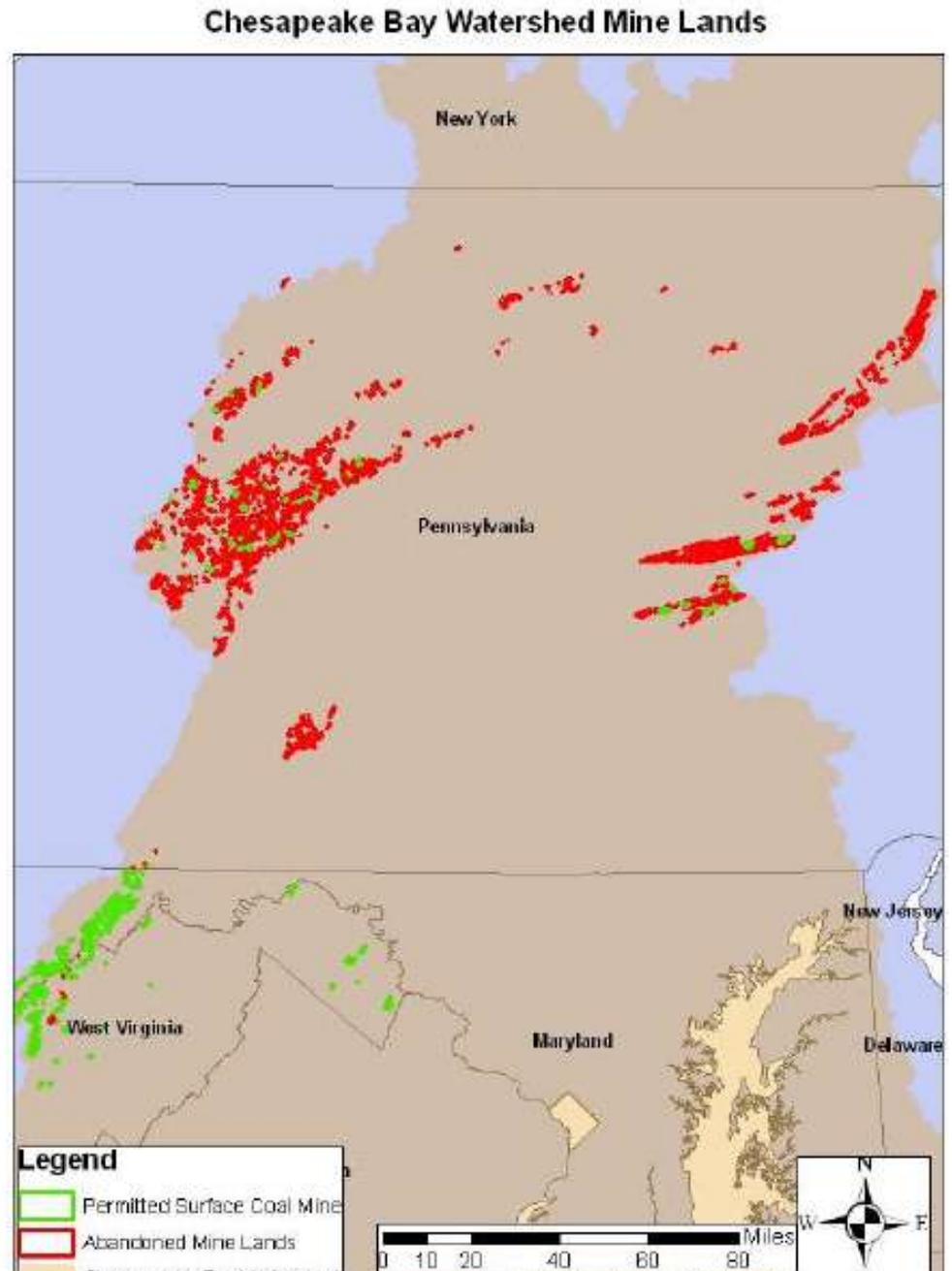
- Cost-share programs – USDA CREP, EQIP, WHIP, WRP, USFWS Partners program; state incentive programs
- Need for more effective marketing and targeted landowner outreach/technical assistance in priority areas
- Importance of partnerships with Fish and Wildlife agencies, NRCS, forestry, watershed organizations, etc.
- Tools available: LandServer website, brook trout assessment/partnerships, buffer targeting tools

# MINE LANDS - WHY

- Coal mine lands exist in high value Appalachian forest habitat, headwaters of Chesapeake Bay – great restoration potential for water quality, habitat
- Post SMCRA reclamation has been predominantly grass, with high soil compaction and limited regeneration of trees
- Opportunities for reforestation on different types of sites: Abandoned Mine Lands, historic permitted/post SMCRA, active mining sites
- Economic/community benefits for impacted communities (green jobs)
- Note: Not recommending reforestation of ALL mine lands – some provide important grassland habitat, or ag production

# MINE LANDS

- Overlaps with priority Cerulean Warbler, Golden-winged Warbler habitat
- Some areas needed by grassland birds



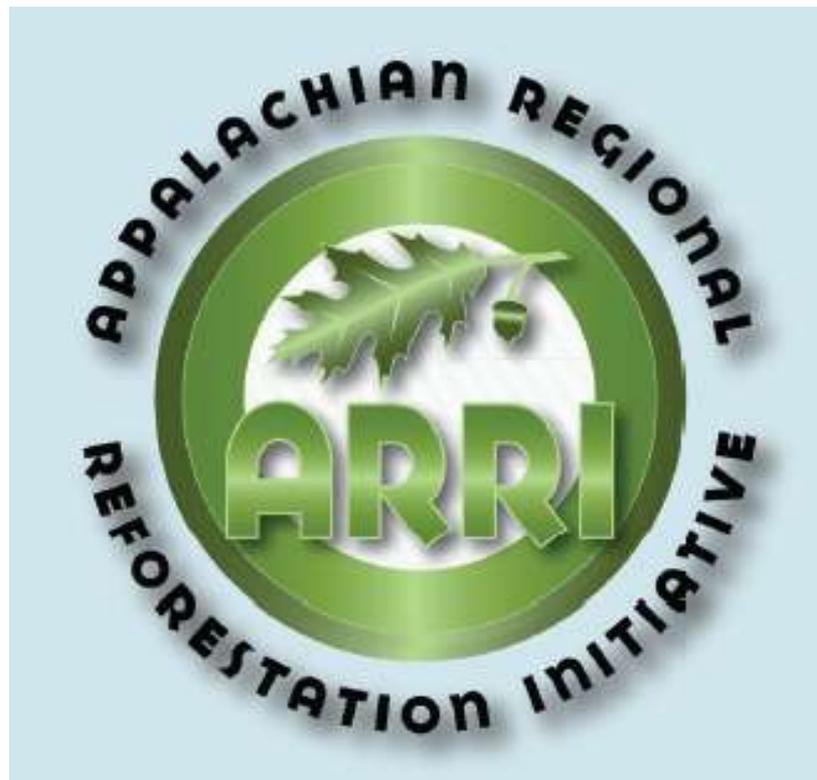
	Mine Land Acres	Non-Forested Acres	% Non-Forested
MD	12,910	6,811	53%
PA	43,273	10,900	25%
WV	13,943	7,374	53%
Total	70,126	25,084	36%

Counties with highest non-forested mine land acres		Mine Land Acres	Non-Forested Acres	% Non-Forested
Garrett	MD	7,539	4,302	57%
Clearfield	PA	15,326	3,995	26%
Grant	WV	8,240	3,954	48%
Allegany	MD	5,372	2,509	47%
Jefferson	WV	2,316	1,874	81%
Schulkyill	PA	7,572	1,516	20%
Luzerne	PA	2,283	915	40%
Mineral	WV	2,119	910	43%
Dauphin	PA	992	853	86%

Source: Analysis by Tim Culbreth (MD-DNR). See appendix #.

## MINE LANDS - HOW

- Appalachian Regional Reforestation Initiative (ARRI) – provides strong science, technical guidance, and partnership strategies for reforesting mine lands
- Possible Funding Sources –
  - Fed/state cost share (EQIP, WHIP, etc)
  - EPA Brownfields, 319 grants, Abandoned Mine Lands programs
  - Private – foundations, utility companies seeking carbon credits
- Critical role of watershed/community groups to identify reforestation sites, seek grants, and plant trees (e.g. OSM Vista Appalachian Coal Country Teams)



### **5 Basic Steps of the Forestry Reclamation Approach developed by the Appalachian Regional Reforestation Initiative**

- 1) Create a suitable rooting medium for good tree growth that is no less than 4 feet deep and comprised of topsoil, weathered sandstone, and/or the best available material.
- 2) Loosely grade the topsoil or topsoil substitutes established in Step 1 to create a noncompacted growth medium.
- 3) Use ground covers that are compatible with growing trees.
- 4) Plant two types of trees—early successional species for wildlife and soil stability, and commercially valuable crop trees.
- 5) Use proper tree planting techniques.

## CASE STUDY

American Chestnut Foundation will establish 12 reforestation plantings of mixed hardwood/American chestnut forest on reclaimed mine lands

Each planting will be ~30 acres and composed of high-value hardwoods including chestnuts at a density of 20/acre

The plantings will include a fenced-in 1 acre planting of 15/16 blight resistant American chestnuts (Restoration Chestnuts)

Will use ARRI guidance for locating, ripping, herbicide application as needed

Currently looking for EQIP-eligible sites because some of the funding comes from a CIG grant



# AGROFORESTRY - WHY?

- Lots of agriculture in the Bay – strategic use of trees/forestry on these lands has environmental benefit and economic returns too
- Benefits of trees – water quality, habitat, mitigating air pollutants; high credit towards TMDL/Watershed Implementation Plan - load reduction rates
- Executive Order Outcome for Brook Trout --riparian forest restoration on ag lands are critical to species survival
- Economic benefits of trees – diversified income, herd health/productivity, new woody crops for food/fiber/biomass



## AGROFORESTRY - WHAT IS IT?

\*\*Integrative land use systems and practices in which woody perennials are deliberately integrated with crops and/or animals.

### TYPES

Riparian Forest Buffers

Windbreaks/ Shelterbelts

Alley Cropping

Silvopasture

Forest Farming

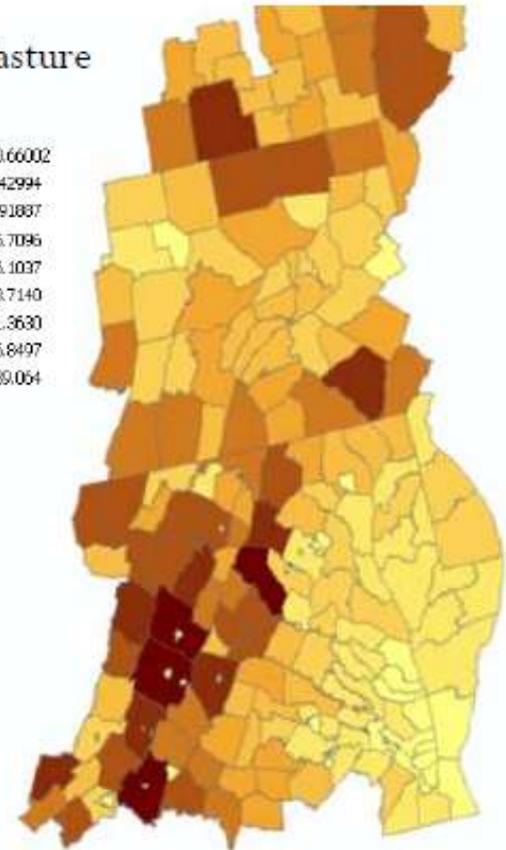
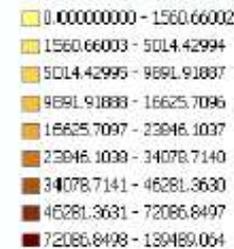
# AGROFORESTRY

## Silvopasture--

- Bringing tree benefits onto pasture land
- Can reduce cost and increase viability of grass-based livestock
- Steep slopes



Pasture





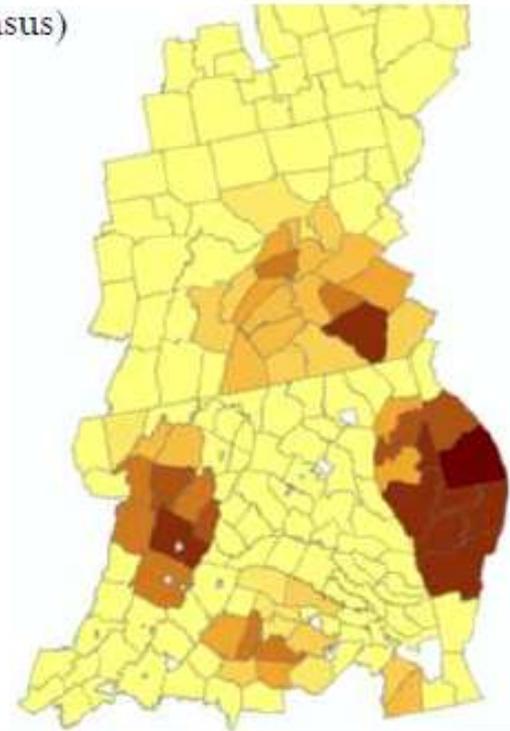
# AGROFORESTRY

## Windbreaks

Trees, shrubs, grasses managed to shield from wind, snow, or, from outside (bad air, visuals)

- Windbreaks capture airborne pollutants from farm
- Eg “Vegetative Environmental Buffers”—used around poultry houses

Concentrations of Broiler Chickens  
(Ag Census)



# URBAN AND COMMUNITY - WHY

- Maximize tree benefits where people are concentrated
  - Reduce pollution and flooding from stormwater
  - Mitigate air quality problems and related public health concerns
  - Shade reduces urban heat island effect and energy costs
  - Improve aesthetics, recreation, property values, etc.
- Trees are most cost-effective means to meet multiple community goals and regulations (MS4, TMDL, etc)



# WHERE

## Urban Tree Canopy Assessments

- 57 cities and 7 counties have completed assessments
- More in process
- 25 cities/counties have set draft or final UTC % goals



Air Quality – Non-Attainment Areas, 8 Hour Ozone



## URBAN AND COMMUNITY - HOW

- UTC assessment/goal setting/implementation process (can be simple or complex)
- Local measures to maintain/preserve existing canopy and to expand canopy through well-designed tree planting programs
- Tie to MS4/TMDL/Air SIP and local goals
- Importance of local partnerships and volunteer groups to plant and maintain trees
- Tools/programs available to help: examples federal (iTree), state programs (PA Treevitalize), ngo (CB Trust), refer to list of program resources

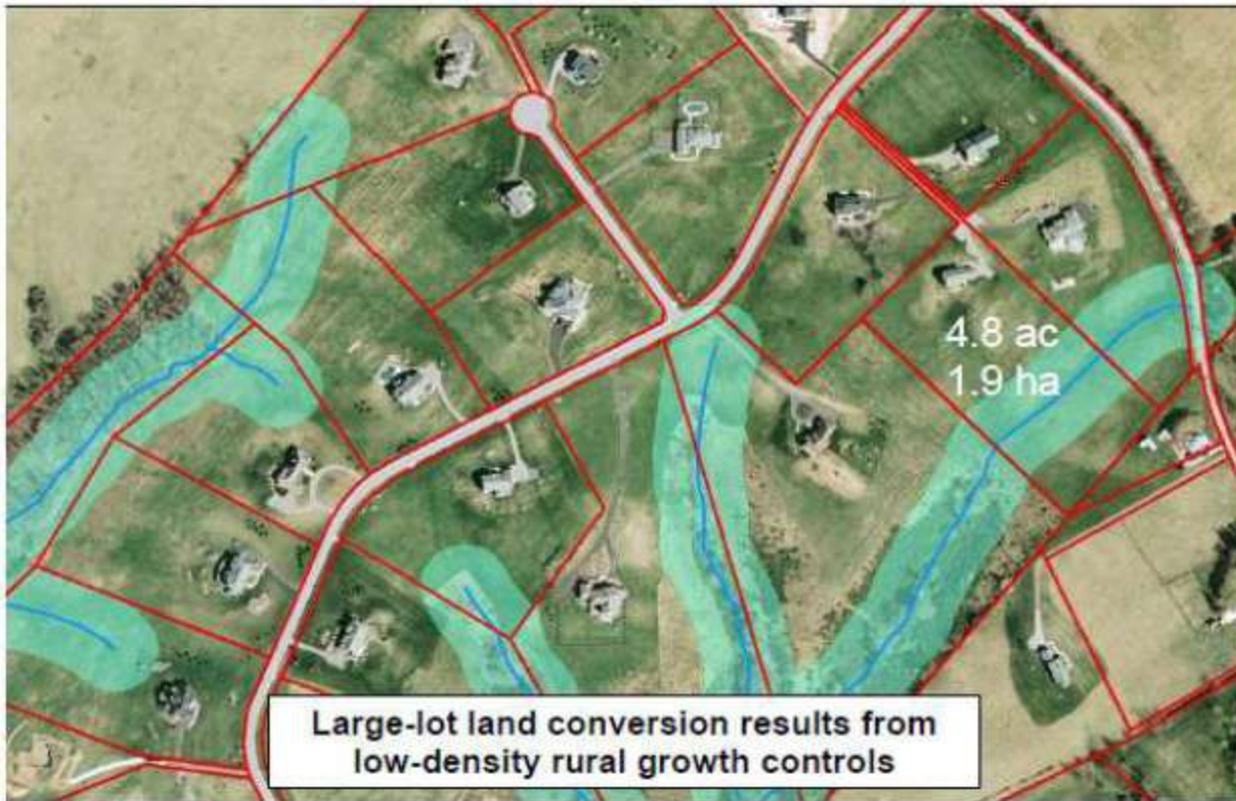
# Turf to Trees

## Rural Residential Reforestation in Baltimore County

### CASE STUDY - SIDEBAR

- County offers tree planting on large lots in exchange for landowner commitment

“I didn’t want all of this land, it just came with the house.”



# Environmental Outcomes

## Rural Residential Stewardship Initiative

- planted 3,109 trees on 22.24 acres (17.44 net)
- 222 lbs. N, 19 lbs P, 7 tons sediment (net acres)



Borden property - planted  
2009

## Valleys Reforestation Initiative

- planted 4,880 trees on 26.3 acres
- 293 lbs N, 25 lbs P, 10 tons sediment reduced
- used 2002 MD loads (#/ac/yr) from Bay Model



Shaper property - planted  
2009

	<u>TN</u>	<u>TP</u>	<u>Sediment</u> (tons)
agriculture	14.105	1.083	0.449
forest	1.378	0.018	0.035

- farm loads are 12, 60, and 13 times greater
- annual benefits, assumed at maturity

other ecosystem/energy benefits (reduced mowing)

# Finding Overlapping Priorities: USGS COAST Forest Mapper Tool

The screenshot displays the USGS COAST Forest Mapper Tool interface within a Windows Internet Explorer browser window. The browser title is "Chesapeake Forested Land Management System - Windows Internet Explorer provided by USDA Forest Service". The address bar shows the URL "http://forest.usgs.gov/coast/mapper/". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The address bar also shows "Google" as the search engine.

The main content area features the USGS logo and the text "science for a changing world" on the left, and "USGS Home", "Contact USGS", and "Search USGS" on the right. Below this is the "Chesapeake Forested Land Management System" header. The interface includes a map of the Chesapeake region with various data layers overlaid. The map shows the Chesapeake Bay, surrounding land, and various colored overlays representing different land management priorities. The map is centered on the Chesapeake Bay area, showing the coastline and surrounding land.

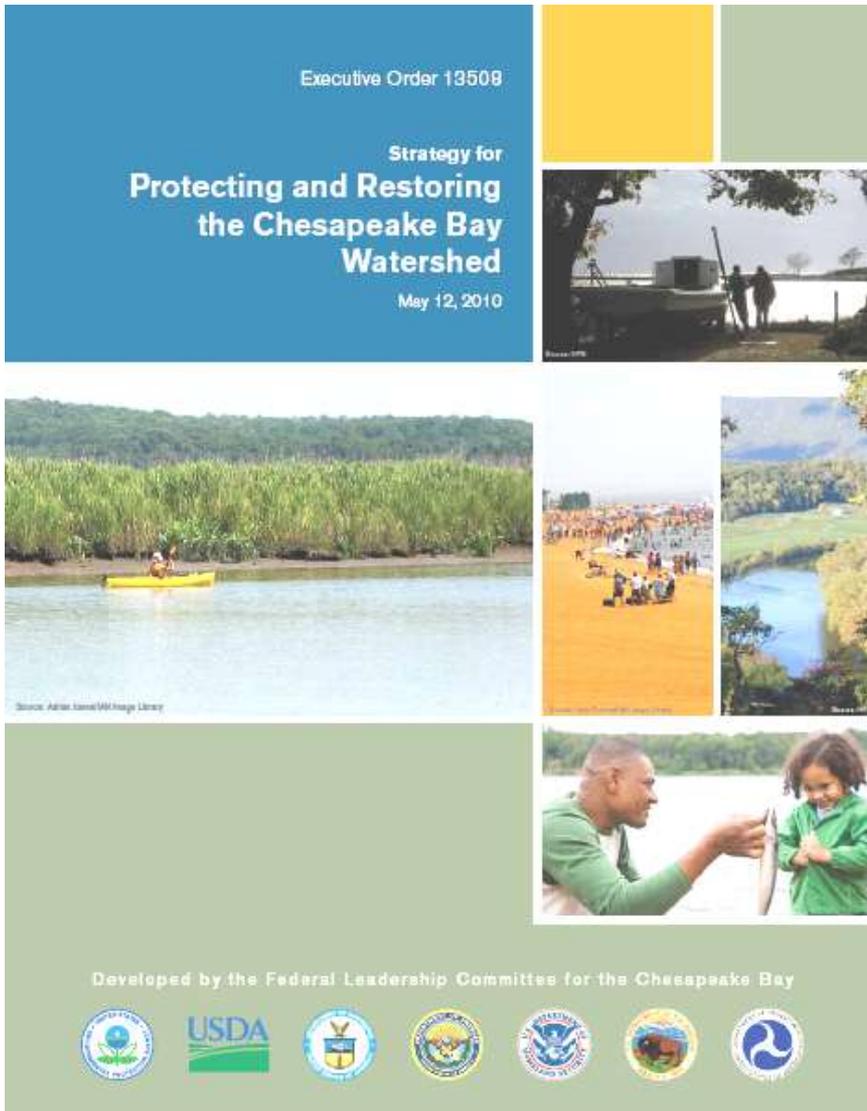
On the right side of the map, there is a "Layers" panel with the following sections and options:

- Base Maps**
- Physiographic**
- Chesapeake Bay Land Cover**
- Watersheds**
- Hydrology**
- Federal Conservation Data**
  - US Protected Areas Database
  - NPS Trails
  - John Smith Voyage 1
  - John Smith Voyage 2
  - NPS Stewardship Lands (National Heri...
  - FWS and NPS Protected Land
  - FWS Refuge Lands
  - Public Access Points
  - John Smith Trail Visible Vegetation
  - Chesapeake High Value Lands
  - RLA Vulnerability
  - RLA Agricultural Model
  - RLA Water Quality Model
  - RLA Forest Economic Model
  - RLA Ecological Network Model
- Pennsylvania Conservation Data**
  - PA Forest Directive
- Maryland Conservation Data**
  - MD Forest Directive
  - DNR Lands
  - County Parks
  - Heritage Areas
  - ...

The map also includes a search bar at the top right with the text "Type address or place of interest...", a scale of "1:30", and a date of "2006-08-29". The bottom of the browser window shows the Windows taskbar with the "start" button, several open applications (Microsoft Outlook, Microsoft PowerPoint, etc.), and the system tray showing the time as "12:56 PM" and battery level at "97%".

# Plant





Goal: Land Conservation

*“By 2012, the Administration, in collaboration with the Bay States, will develop a strategy that considers incentives for agricultural land, forestland and open space conservation.”*

# Why Strategize?

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- 2 Million Acre Goal--demand >>supply
- Show how working land conservation is necessary to meet water quality goals (involves local government and private sector in TMDL)
- Successful Strategy: not just how many acres conserved, but how managed, targeted, and viable are eased working lands in the long run?

# Purpose of Strategy

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## 1) Information gathering and awareness

### ■ Federal Programs:

- Forest Legacy, FRPP, WRP,\* GRP, etc (other related programs)

### ■ State Programs

## 2) Identify opportunities and actions for improved conservation with these programs

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\* What constitutes “Working Land?”

# Farms

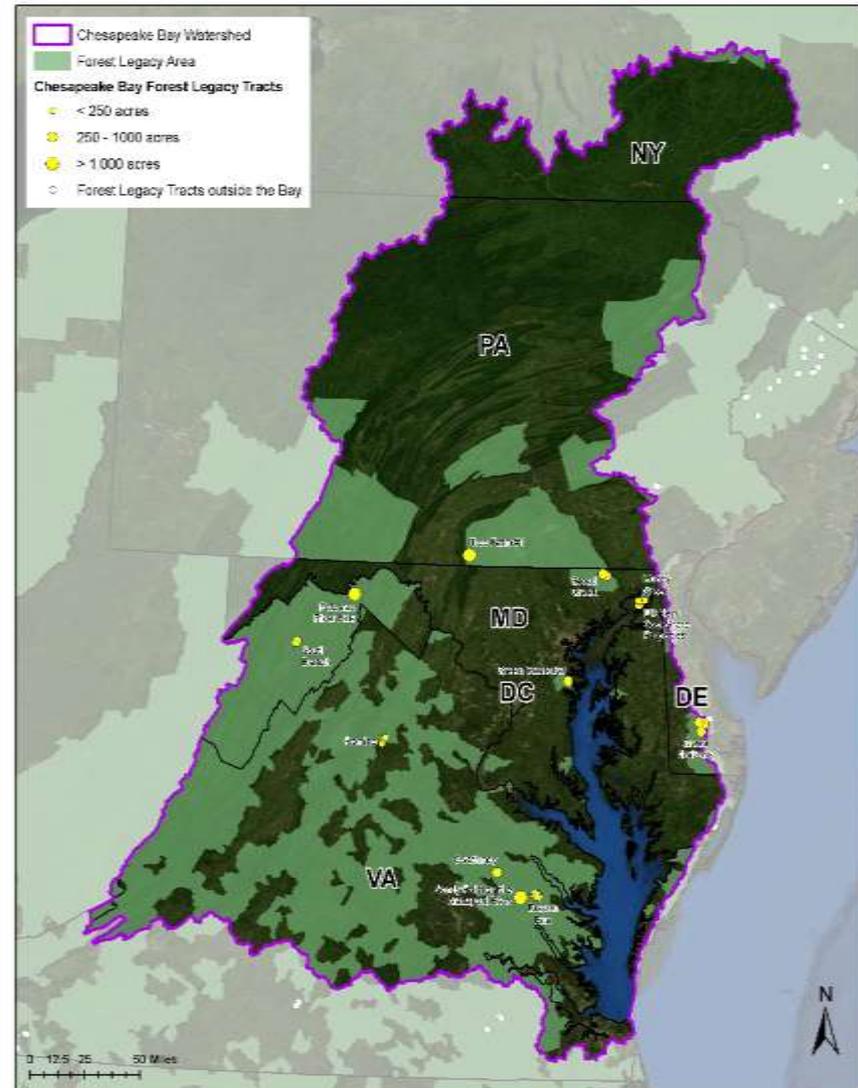
- Most opportunity is on farms (40% of forests are part of farms)
- Conservation history in Bay: for every 3 acres of farms: 1 acre of forest conserved
- Known opportunities:
  - restoration programs should be prioritized to conserved farms
  - whole farm approach; combine programs that work for conservation
  - Work with local government



# Forests

- Goal to have 695,000 acres by 2025
- Forest Legacy Program
- Chesapeake Forest Conservation Directive and Implementation Plans
- State Forest Action Plans
- The Sustaining Family Forest Initiative
- Held state meetings in Spring 2012 to hone Forest Strategy

Forest Legacy Projects in the Chesapeake Bay Watershed



# Issues for Both Farm and Forest Land Conservation in Chesapeake Region

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- Intergenerational transfer of lands
- Loss of working land to development
- Economic viability
- Need for better targeting for environmental benefits
- Need to be more strategic



# More on Scope of WLCS

- Build upon recent, related strategic efforts (Forest Action Plans, FRPP plans, CBC report, etc.)
- Focus on federal programs, and state-federal program interactions
- Expanded funds, not the focus but *more efficient use of existing funds*
- More holistic program delivery--connecting people to the land and to each other; and connecting programs
- New federal roles to incentivize conservation? More outreach and TA responsibility, enforcement, etc.
- New engagement of partners (e.g., private for-profit) and new tools (e.g., growth offsets, PDR, zoning)

**Conserve**

