



## MARYLAND

*“Thanks for all your help, you’ve made a huge difference on this property,”* said Mr. Frietag about

the 15-acre wetland restoration project on his farm in Talbot County, Maryland. The wetland restoration project is located on the Choptank River, a major tributary of the Chesapeake Bay.

### Introduction and General Description

Mr. Frietag is one of the 300 landowners that have joined with the U.S. Fish and Wildlife Service in Maryland to restore fish and wildlife habitat on their land. The Service, through the Partners for Fish and Wildlife Program, works with other Federal and State agencies, and non-government entities to provide technical assistance, financial support and construction supervision to private landowners who have a desire to improve their lands for fish and wildlife. In many cases landowners have a strong desire to leave a legacy of good land stewardship for their children.

The Partners for Fish and Wildlife Program in Maryland is handled by the Chesapeake Bay Field Office in Annapolis, Maryland. The program began in 1993, primarily focusing on wetland restoration. Since 1993, the program’s focus has broadened to a holistic, ecosystem-based restoration approach. By partnering with other Federal, State and non-government entities, the Partners Program in Maryland plans, designs and implements wetland, forest, riparian (streamside) buffers and warm season grassland restoration projects throughout Maryland. Habitat improvements that benefit a diverse number of fish and

wildlife species are being accomplished within the watersheds of one of the world’s largest estuaries, the Chesapeake Bay. The Partners Program also provides technical training to other Federal, State and county agency personnel through the Maryland Interagency Training Team. To date, over 300 students have taken this specialized training.

### Maryland Restoration Activities

- Wetland restoration
- Riparian forest buffer restoration
- Warm season grass/forb restoration
- Reforestation of agricultural lands
- Fish passage
- Technical assistance and training

### Habitats of Special Concern

#### *Wetlands*

Wetland restoration remains a high priority for the Partners Program in Maryland. Maryland’s Eastern Shore is extremely important to migrating waterfowl and shorebirds that depend on wetlands found along the coast.



**Wetland restoration 1 year after restoration on the Frietag property.**

#### *Riparian Forest Buffers*

Riparian (streamside) forest buffer restoration and reforestation of agricultural lands is also a high priority due to historical and continued losses of these critical habitats for migratory birds.

#### *Endangered Species Habitat*

Restoring endangered species habitats has become a focus for the Partners Program especially in Maryland. Many landowners have removed or fenced cattle from streams and bogs, thus improving streamside vegetation buffers and water quality. However, woody vegetation encroachment into some northern bog turtle habitat has reduced the value of these wetlands for this federally threatened species. The Partners Program is working with private landowners to improve bog turtle habitat by removing undesirable vegetation.

#### *Warm-season Grasslands*

Warm-season grasslands act as stream buffers and provide important habitat for grassland bird

species that are declining due to habitat loss primarily from agricultural practices. Restoration of these habitats also benefits aquatic species and their habitats by reducing sediment and nutrient loads from agricultural operations.

## Threats

Five physiographic provinces are located in Maryland ranging from the Outer Coastal Plain to the Appalachian Plateau in western Maryland. Maryland has lost more than 50 percent of its wetlands since European settlement.

Maryland has lost a substantial amount of its forests in the Chesapeake Bay watershed primarily due to agriculture and development in the past 300 years. Urban sprawl represents a new threat to the remaining forests and wetlands because of the proximity of three major urban centers (Washington DC, Baltimore and Philadelphia).

Invasive plant and animal species, such as nutria (a large rodent) and purple loosestrife (plant), are having a negative effect on native fish and wildlife and their habitats.

Much of the riparian habitats in rural Maryland have been lost. This has contributed to the decline in aquatic habitat quality in the Chesapeake Bay as well as the coastal inland bays.

Endangered species such as the Delmarva fox squirrel continue to lose habitat due to commercial

forestry practices that convert native hardwood forests to more commercially viable pine plantations.

## Conservation Strategies

### *Wetland Restoration*

Early wetland restoration efforts focused on restoring hydrology. Cost effective methods, such as crushing drainage tiles, constructing ditch plugs, and installing small berms and water control structures were used with much success. Since 1998, the Partners Program in Maryland has developed a more holistic way to restore wetlands that includes: the recreation of microtopography (small ridges and swales on the land surface) to create a more diverse soil moisture regime; transplanting trees and saplings using conventional excavating equipment; additions of coarse woody debris to provide long term carbon sources and habitat structure. Straw or hay have been incorporated extensively into restoration projects over the past 3 years to stimulate the denitrification process and to provide optimum substrates for aquatic invertebrates.

Wetland restoration projects have been focused in impaired watersheds in Maryland with a special emphasis on the proximity to State and Federal wildlife management areas and refuges. Wetland restoration projects cost approximately \$1,500 per acre.



**Wetland being restored on an agricultural field - note the microtopography restoration.**



**One year after wetland restoration using similar techniques.**

### *Restoring Riparian Forest Buffers*

Thousands of miles of riparian buffers have been lost in Maryland in the past 100 years.



**Newly planted riparian forest buffer.**

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In 1998, the Partners Program began making tree seedlings available to interested private landowners who wished to restore riparian forest buffers on their lands. Since 1998 over 50 miles of riparian forest buffers have been restored with over 300,000 seedlings provided by the Partners Program. The costs for riparian forest buffers averages \$500 per acre.

### ***Grassland Restoration***

Grasslands provide habitat for a variety of migratory birds. Elimination of many native grasslands in the Northeast has contributed to the steady decline of grassland dependent birds such as the eastern meadowlark and grasshopper sparrow. The Partners Program, working with other Federal, State and



**Warm-season grass/forb planting 2 weeks after planting, Queen Anne's County.**



**Warm-season grassland 1 year after planting, Queen Anne's County.**

non-government organizations, has developed a strategy to reverse the loss of grassland habitat in Maryland, by planting warm-season grasses and forbs (i.e., small, non-woody broadleaf plants) as buffers around wetland restoration projects. Warm-season grassland habitat restoration costs \$400 per acre.

### ***Reforestation of Agricultural Fields***

Maryland has lost over 50 percent of its forest lands since European settlement in the 1600s. The Partners Program initiated a forest buffer initiative in 2001 to reverse this trend. In partnership with the Natural Resources Conservation Service and the Maryland Forest Service, the Partners Program has provided 200,000 tree seedlings and technical assistance to private landowners to restore over 300 acres of agricultural lands to native hardwood forest. The cost for forest restoration is \$400 per acre.

### ***Endangered Species***

The Partners Program is identifying potential habitat restoration opportunities and implementing restoration projects that directly benefit threatened and endangered species such as the Delmarva fox squirrel and bog turtle. To date, 28 potential bog turtle sites have been identified and evaluated for the need for woody vegetation control. The forest restoration and riparian forest buffer initiatives in Delaware will ultimately benefit the endangered Delmarva fox squirrel. Bog turtle habitat restoration costs \$1,000 per acre.

### ***Fish Passage***

Fish passage is a recent priority for the Partners Program in Maryland. The Partners Program has been successful in identifying potential sites for the installation of fish ladders or other less expensive restoration alternatives. Two miles of historic spawning grounds were reopened in the spring of 2001 on Chino Farms in Kent County, Maryland. The Partners Program designed and installed an innovative tide structure. The structure and installation cost approximately one-third that of a conventional fish ladder. Anadromous (i.e., migratory) fish have returned in impressive numbers to this tributary of the Chesapeake Bay. Fish passage costs \$10,000-\$40,000 per structure.

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### ***Invasive Plant Species Control***

Invasive plant species, such as purple loosestrife, are detrimental to the health of native fish and wildlife habitats. The Partners Program is beginning to focus on the challenges of invasive plant control. These projects cost \$100-600 per acre.

### **Farming for Wildlife and Profit**

The Partners Program is actively involved in Maryland providing technical assistance to the USDA for their conservation programs, especially for the Conservation Reserve Program and Conservation Reserve Enhancement Program. As members of the USDA-State Technical Committee, the Partners Program helps guide the development and implementation of habitat technical standards. The relationship with USDA combines funding with biological expertise to provide maximum benefits to the private landowner and to fish and wildlife resources. Partners Program biologists work with landowners in the agricultural community to discuss conservation practices that meet their financial needs and benefit fish and wildlife resources.

### **Partners**

Natural Resources Conservation Service  
Farm Services Agency  
U.S. Army Corps of Engineers ( Baltimore District)  
Maryland Department of Natural Resources  
Division of Fish and Wildlife  
Maryland Department of Natural Resources Forest Service  
Maryland Department of Agriculture  
Soil and Water Conservation Districts (15 in MD)  
Anne Arundel County, MD Department of Public Works  
Queen Anne's County, MD Department of Parks and Recreation  
The Nature Conservancy  
Ducks Unlimited, Inc.  
Chesapeake Bay Foundation  
The Potomac River Conservancy  
The Eastern Shore Land Conservancy  
National Fish and Wildlife Foundation  
Chesapeake Bay Trust  
The Nanticoke River Conservancy

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### **Accomplishments**

- Over 200 projects have been completed.
- 300 acres of forests have been reestablished.
- 80 miles of riparian buffers have been restored.
- 500 acres of warm season grassland have been restored.
- 2 miles of spawning grounds have been reopened.
- 300 students in Maryland have been trained by Partners Program biologists.
- NRCS technical practices in Maryland have been revised to reflect specific recommendation from the Partners Program.

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### **Future Needs**

- Restore or enhance 20,000 acres of wetlands.
- Restore 1,000 acres of forest.
- Restore 1,000 acres of grasslands.
- Restore 500 miles of riparian forest buffers .
- Open 10 miles of streams to anadromous fish.
- Expand the Partners Program into western Maryland to address endangered species issues.
- Restore 50 acres of bog turtle habitat.
- Eliminate 100 acres of purple loosestrife.

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### **CONTACT**

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