and non-tidal wetland hydrology; remove obsolete dams and other structures; conduct controlled burning or mowing on early successional habitats; identify and buffer vernal pools and freshwater wetlands; reduce livestock use of riparian areas; and restore native plant communities); and
- Develop site-specific strategies for significant habitats and biodiversity areas.

- **Pollution Control:**

  Sources of pollutants include permitted or illegal point sources, such as failing municipal and industrial wastewater systems, toxic dumps, and leaking landfills; and nonpoint sources such as petrochemicals, pathogens, and lawn chemicals transported with urban and suburban runoff, agricultural runoff, construction-site runoff, and acid or nitrogen-enriched precipitation.

  Strategies for pollution control:

  - Support continued reduction in air and water pollution in the region;
  - Develop and promote farming and forestry Best Management Practices (BMPs); and
  - Educate homeowners, landowners, and the agricultural community about the impacts of pesticides, herbicides, and fertilizers on wildlife species.

Program Area: Education

Education strategies address a variety of threats to biodiversity and can be implemented at a variety of levels. Many education strategies address the desire to raise public awareness and understanding about biodiversity issues and the need for conservation. A general educational goal is to increase understanding of biodiversity conservation in the Hudson River Estuary corridor and promote the utilization of conservation tools in local land-use planning and land stewardship by property owners, communities, local governments, and land trusts.

Many local governments (county, town, city, and village), land trusts, and communities desire more information and assistance with biodiversity conservation. The Hudson River Estuary Biodiversity Program has partnered with other organizations to develop several tools for biodiversity conservation, including a NY Natural Heritage Program database, maps, and conservation guides for biodiversity element occurrences in the Hudson River Estuary corridor, Hudson River Valley Gap Analysis land cover and species distribution maps, GIS trainings, and a Biodiversity Assessment Manual for the Hudson River Estuary Corridor (Kiviat and Stevens 2001) and related training programs. These tools can be useful to local governments and land trusts for biodiversity conservation planning.

As part of the educational process we should promote the interaction between state conservation agencies, their partners, and the public. A positive relationship fosters coopera-

tion and the coordination of conservation actions. These efforts could involve working with:

- Local government (village, town, county) decision makers to incorporate biodiversity conservation considerations in open space planning, comprehensive planning, and SEQR reviews;
- Land trusts and land conservation organizations to incorporate biodiversity conservation considerations into land acquisition and land management planning;
- Hudson River Valley citizens and communities to value biodiversity and support local efforts to conserve biodiversity during open space planning, master planning, and SEQR reviews;
- Cornell Cooperative Extension and other outreach specialists to increase participation in biodiversity outreach efforts; and
- Agricultural and forestry operation managers, owners, and workers to implement Best Management Practices (BMPs) that promote biodiversity conservation.

Educational programs can improve understanding of biodiversity and its importance, provide training on the use of conservation tools, assist in the identification of priority sites for conservation, provide educational opportunities on public lands, increase the availability of biodiversity information, improve understanding of how cooperative land agreements can be used to benefit wildlife and wildlife habitat, and promote individual and community involvement in biodiversity conservation.

Strategies for biodiversity education:

- Educate the public on biodiversity issues and the need for conservation;
- Encourage and facilitate community involvement in biodiversity conservation, inventory, and monitoring;
- Make biodiversity information available to citizens, local officials, and county and town planning boards;
- Encourage biodiversity sensitivity in land-use decision making;
- Partner with schools to raise awareness and understanding;
- Provide training on and assistance with conservation tools to communities, local governments, and land trusts;
- Promote opportunities for children to experience the outdoors and explore the region's natural resources.

- **Biodiversity Outreach and Technical Assistance Program:**

  The Hudson River Estuary Biodiversity Outreach and Technical Assistance Program was established to increase understanding of biodiversity conservation in the Hudson River Estuary corridor and the utilization of conservation tools in local land-use planning and land stewardship. The program provides a critical link between NYSDEC staff and its partners and local governments and land trusts. The early successes of this program have illustrated the importance of working on an individual basis with partnering communities.

Initial outreach efforts have been with towns that are updating their comprehensive planning process, land trusts, and county agencies that are involved in land management (e.g., parks departments) and working on open space plans. Towns are best able to integrate biodiversity considerations during the land use planning process because it lays the groundwork for zoning and local law changes. Assistance to towns and counties includes biodiversity seminars, information and data gathering, assistance with grant applications, and promoting effective land use tools to protect natural resources. As the Outreach and Technical Assistance Program expands, efforts will likely include audiences such as businesses, educators, and special interest groups (e.g., environmental organizations, farm and forestry associations, and sportsmen's federations).

Objectives of a biodiversity outreach and technical assistance program include:

1. Define information and technical assistance needs of land trusts, communities, landowners, and local governments engaged in open space and comprehensive planning;
2. Assist local governments, land trusts, and landowners with incorporating biodiversity conservation considerations into decision making;
3. Assist and train local governments, land trusts, and landowners in the use and application of available data, information, and tools for biodiversity conservation;
4. Provide biodiversity information for communities and local decision-makers; and
5. Work with other outreach specialists to promote Best Management Practices (BMPs) for biodiversity.

Outreach to local governments in the Hudson Valley began in 2001 as a partnership between DEC, Cornell University, Hudsonia, Ltd., and the Metropolitan Conservation Alliance (a program of the Wildlife Conservation Society). These entities coordinate closely with each other to provide integrated outreach and technical assistance to intended audiences. By working collaboratively, the partners are able to increase the breadth and depth of the outreach program.

Hudsonia's outreach efforts promote use of the Biodiversity Assessment Manual for the Hudson River Estuary Corridor (Kiviat and Stevens 2001). Community groups (including town planning board and conservation advisory council members) are trained to use the Biodiversity Assessment Manual to identify and map habitats in their area of jurisdiction. Each group develops new information on ecologically significant habitats that can help municipal governments with land use planning and SEQR reviews.

A project by the Metropolitan Conservation Alliance includes biological surveys for indicator species, as well as developing and promoting the use of land-use tools to

conserve functioning ecological systems. Initial efforts are focusing on 18 towns in Westchester, Putnam, Orange and Ulster Counties. Outreach to towns includes slide presentations; presentation and interpretation of field survey data; and assistance with planning tools such as master plans, open space studies, ordinances, overlay districts, and zoning changes. Outreach also includes interaction with landowners who have granted permission to access their property for biological surveys.

The Biodiversity Program is also partnering with Cornell Extension in development of a community-based Biodiversity Program Work Team for the Hudson River Valley. An Extension biodiversity workshop and mini-grants program supports local biodiversity conservation efforts in collaboration with County Cooperative Extension offices.

More information on current outreach and technical assistance efforts can be obtained by contacting the Hudson River Estuary Biodiversity Outreach Coordinator at the Hudson River Estuary Program office address provided in the Overview of this document.