

LAND USE AND PLANNING REFERENCES FOR NORTHEASTERN AMPHIBIANS AND REPTILES



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Introduction

Habitat conversion (whether for agriculture, resource extraction, or settlement) is a primary threat to our amphibian and reptile populations. Although the percentage of land protected as parks or natural areas varies from state to state, most land in the Northeast is privately owned and managed. For this reason, the actions of private landowners and local governments are vital to the successful conservation of amphibians and reptiles, indeed of all biodiversity.

While all development affects biodiversity, carefully planned, compact development can minimize the impacts. There are many ways that municipalities can plan for development or manage land that are less harmful to the natural world and its ecological processes while also encouraging protection of prime agricultural lands and sustained use of productive forest lands. We have compiled the information on this website as a resource for those involved in land use decision making and/or land management and who are interested in better conserving nature in their communities. Please let us know if there is additional information you would find useful, or whether you have other suggestions for resources that we might include in future updates.

Land Use Planning and Biodiversity References

The following is a list of references designed to better incorporate biodiversity into land use planning. Several references offer guidance on planning for biodiversity as a whole, which will often directly benefit amphibians and reptiles. In addition, we've included some references that provide land management guidelines specifically designed to address the complex habitat and movement requirements of amphibians and reptiles.

References on Planning and Biodiversity

Audubon New York. [Wildlife and Forestry in New York Northern Hardwoods: A Guide for Forest Owners and Managers](#). Albany, NY.

Beier, P., D. Majka, S. Newell, E. Garding. 2008. [Best Management Practices for Wildlife Corridors](#). Arizona State University, Flagstaff.

Brittingham, M.C. and C.A. DeLong. 1998. [Management Practices for Enhancing Wildlife Habitat](#). The Pennsylvania State University, University Park.

[Defenders of Wildlife, Habitat and Highways Campaign](#) - This website provide links and resources related to better incorporating wildlife conservation into transportation planning and maintenance activities.

Forman, R.T.T., D. Sperling, J.A. Bissonette, A.P. Clevenger, C.D. Cutshall, V.H. Dale, L. Fahrig, R. France, C.R. Goldman, K. Heanue, J.A. Jones, F. J. Swanson, T. Turrentine, and T. C. Winter. 2003. *Road Ecology: Science and Solutions*. Island Press, Washington, DC.

[Green Growth Toolbox: Nature-Friendly Planning](#). This website offers “green” planning recommendations for North Carolina but the general information is relevant to the Northeastern U.S.

Honachefsky, W. 2000. *Ecologically-Based Municipal Land Use Planning*. Lewis Publishers, Boca Raton.

[LandScope America](#) - This is a new online resource for the land protection community developed in collaboration with NatureServe, the National Geographic Society and others.

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Klemens, M. W., M. F. Shansky, H. J. Gruner. 2006. *From Planning to Action: Biodiversity Conservation in Connecticut Towns*. MCA Technical Paper: No. 10, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY.

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Duerksen, C. and C. Snyder. 2005. *Nature Friendly Communities: Habitat Protection and Land Use Planning*. Island Press, Washington, DC.

Peck, Sheila. 1998. *Planning for Biodiversity*. Island Press, Washington, DC.

Perlman, D. L. and J. C. Midler. 2005. *Practical Ecology for Planners, Developers, and Citizens*. Island Press, Washington, DC.

Strong, K. 2008. [Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York’s Hudson River Valley](#). New York Cooperative Fish and Wildlife Research Unit, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary. NY.

Thigpen, J. 2006. [Stream processes: A Guide to Living in Harmony with Streams](#). Chemung County Soil & Water Conservation District, NY.

[Wildlife Crossings Toolkit](#). This website provides information for terrestrial biologists, engineers, and transportation professionals to assist in maintaining or restoring habitat connectivity across transportation infrastructure on public lands.

Williams, K. S. 2003. [Growing with Green Infrastructure](#). Heritage Conservancy. Doylestown, PA (see under resources-publications).

U.S. Environmental Protection Agency. 1997. [Community-Based Environmental Protection: a Resource Book for Protecting Ecosystems and Communities](#). EPA 230-B-96-003) Washington, DC.

References on Planning and Amphibians and Reptiles

Aresco, M.J. 2005. Mitigation measures to reduce highway mortality of turtles and other herpetofauna at a north Florida lake. *J. Wildl. Mgmt.* 69: 549–560.

British Columbia Ministry of Water, Land and Air Protection Ecosystem Standards and Planning Biodiversity Branch. 2004. [Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia](#). Nanaimo, BC.

Calhoun, A. J. K. and M.W. Klemens. 2002. Best Development Practices: Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY.

Calhoun, A. J. K. and P. G. deMaynadier. 2004. Forestry Habitat Management Guidelines for Vernal Pool Wildlife. MCA Technical Paper No. 6, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY.

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Klemens, M.W. (editor). 2000. Turtle Conservation. Smithsonian Institution Press, Washington, DC.

Litvaitis, J. A. and J. P. Tash. 2008. An approach toward understanding wildlife-vehicle collisions. *Environmental Management* 42:688-697.

[Maine Vernal Pool Project](#), University of Maine. This website provide links to information related to vernal pools, conservation, and management.

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Examples of Statewide Biodiversity Planning Initiatives

A. Maine's [Beginning With Habitat Program](#)

Beginning with Habitat provides a landscape approach to assessing wildlife and plant conservation needs and opportunities. The goal of the program is to maintain sufficient habitat to support all native plant and animal species currently breeding in Maine by providing towns and land trusts a collection of maps and interpretive materials depicting and describing various habitats of statewide and national significance found in their jurisdiction.

B. [Maine Association of Conservation Commissions](#)

“A conservation commission is a municipal advisory board that educates community members about local environmental issues, advises elected officials regarding environmental policies and practices, and organizes and implements initiatives that address community environmental concerns.”

C. State Wildlife Grants Program

In the fall of 2001, federal legislation established a new State Wildlife Grants (SWG) program that provided funds to state and tribal wildlife agencies for fish and wildlife species in greatest need of conservation. The State Wildlife Grants program provides funds for conservation efforts

aimed at preventing fish and wildlife populations from declining, reducing the probability that these species will be listed as endangered. In order to access these grant funds, each state was required to develop a Comprehensive Wildlife Conservation Strategy (CWCS) that focuses on the "species of greatest conservation need." This includes species that are deemed rare or imperiled and those for which a conservation status has not yet been established. Check individual state strategies for information about amphibian and reptile species.

Examples of State Regulations That Benefit Amphibians and Reptiles

Note: "Buffer areas" adjacent to a protected natural resource (such as wetlands, stream corridors, etc.) are referred to via terms that vary from state to state or agency to agency. Examples might include "conservation zones", "wetland buffers", "no-build zones", "transition areas", etc. While reference should always be made to each state or regulatory program to ensure proper terminology and requirements are understood, these buffers typically function as regulated areas in which development or disturbance is also prohibited or may be somewhat restricted, as might be found necessary to protect the adjacent natural resource.

A. New Jersey

1. [New Jersey Freshwater Wetlands Protection Act](#)

In New Jersey, any wetland meeting the 1989 "Federal Manual for Identifying and Delineating Jurisdictional Wetlands" is protected by the Act, and most activities occurring within or around wetlands are regulated by the state. A transition area (buffer) of 50 feet is required adjacent to most New Jersey wetlands. However, wetlands valued for a state or federally-listed endangered or threatened species require a transition area of 150 feet.

2. [New Jersey Flood Hazard Area Control Act](#)

All stream corridors receive a 50-foot riparian zone (buffer). In addition, any watercourse supporting trout, or habitats of threatened or endangered species deemed to be "critically dependent on the watercourse to survive", or watercourses that flow through areas containing acid-producing soil deposits, receive a 150-foot riparian zone. Any endangered and threatened species habitat is protected.

3. [New Jersey Vernal Habitats](#)

"Certified" vernal habitats receive additional protection under the New Jersey Freshwater Wetlands Protection Act rules via prohibitions or increased restrictions on permitting. Typically vernal habitats require a 50-foot transition area (buffer), unless a 150-foot transition area is warranted due to the occurrence of endangered or threatened species.

4. [New Jersey Category One Waters](#)

“The rules provide protections preventing any measurable deterioration in the existing water quality.” This protection is typically realized through restrictions implemented via other jurisdictions.

5. [New Jersey Pinelands Comprehensive Management Plan](#)

A municipal master plan or land use ordinance must include a standard for the protection of Pinelands fish and wildlife (Part III – Fish and Wildlife 7:50 – 6.32, page 161).

6. [New Jersey Highlands Comprehensive Master Plan](#)

On November 30, 2007, the Highlands Water Protection and Planning Council (Highlands Council) officially released the Highlands Regional Master Plan - Final Draft November 2007 (Final Draft RMP) and the supporting technical information contained in the Draft Technical Report Addenda – November 2007 (Draft Technical Report Addenda).

The “Highlands Water Protection and Planning Act” (N.J.A.C. 7:38) establishes restrictions for applicability in the “Highlands Preservation Zone” which require 300-foot buffers on all “highlands waters,” which includes wetlands and vernal pools and all watercourses.

7. [New Jersey GeoWeb](#) for landscape mapping

Via GeoWeb, members of the public may access a host of GIS based data concerning endangered and threatened species and habitats, vernal pools, wetlands, land use, and more.

B. Maine

1. [Maine’s Vernal Pool Habitat Program](#)

Maine recently enacted new protections for this resource by establishing biological criteria for the designation of Significant Vernal Pools (SVPs), a subset of high value vernal pools now eligible for protection from development activity that could degrade the pool depression or 250 feet of the surrounding critical terrestrial habitat.

2. [Maine's Natural Resources Protection Act](#)

“Protected natural resources were declared by the Legislature to be of State significance. Protected natural resources include coastal sand dune systems, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds and rivers, streams or brooks. Permitting is required for altering a protected natural resource, or for any construction,

repair or alteration of any permanent structure within or adjacent to a protected natural resource. Certain exemptions apply.”

Examples of Municipal Regulations that Benefit Amphibians and Reptiles

1. Vernal Pool Protection in Massachusetts

For more information, links to many town bylaws, and a sample bylaw see [Massachusetts Association of Conservation Commissions](#).

Many towns in Massachusetts (194) have Wetlands Protection Bylaws. The vast majority of towns with such bylaws are in eastern Massachusetts, where development pressure is greatest. The content of the bylaws varies considerably, but these generally provide some level of enhanced protection (beyond state requirements) to vernal pools, 100-foot buffer zone around wetlands, and state-non-jurisdictional wetlands. Sometimes, there is a 50 or 100 foot “no build” zone around vernal pools, and one or two towns may extend jurisdiction beyond 100 feet.

2. “Open Space Development” (Cluster) Bylaws in Massachusetts

For more information on such bylaws in Massachusetts, see [MA Citizen Planner Training Collaborative](#).

Some towns in Massachusetts have Cluster Development Bylaws (also called Flexible Development or Open Space Development). This allows a developer to build on a portion of a site at a higher density than otherwise allowable by local zoning, in exchange for protecting the rest of a site as open space. This has significant potential to protect amphibian and reptile (and rare species) habitat. However, many towns don’t have this option, clustering is sometimes not dense enough, clustering is generally optional where it is available, clustering might be a less attractive option in more rural towns (where it is perhaps most needed and less likely to be available), and towns don’t always have the technical expertise or interest to see that the open space is configured so as to maximize habitat protection. Despite these drawbacks, cluster development used in combination with MA Endangered Species Act Regulations can achieve good conservation outcomes.

3. Resource Protection Overlay Zone for Bog Turtle Protection in Maryland

[Town of Hampstead, MD](#) - Ordinance No. 376
(Select "code" on the left list then enter 135-151.)

“The purpose of the Resource Protection Overlay Zone is to provide for the protection and conservation of endangered and threatened animal species and wildlife and fisheries habitat by preventing development that would disrupt significant species and/or habitat and ensuring the

design of nearby development is done in such a manner as not to degrade significant species and/or habitat.”

4. [Special Protection Area \(SPA\) Program](#) in Montgomery County, Maryland

These protection areas have stringent restrictions to development to protect water resources. Enhanced sediment and stormwater best management practices, phasing of development, limitations on development density and impervious levels, protection of streams and wetlands, and enhanced buffers and open space are examples of measures that ultimately aim to protect aquatic life. Development applications undergo an intensive review process by the Maryland-National Capital Park and Planning Commission (MNCPPC), MC Dept. of Permitting Services (MCDPS), and MC Dept. of Environmental Protection (MC DEP). Developments are expected to meet a series of performance goals, and site-specific and watershed monitoring is used to assess achievement of the performance goals.

5. [Mandatory Shoreland Zoning in Maine](#)

“The law, resulting in local shoreland zoning ordinances, applies to areas near great ponds, rivers and larger streams, coastal areas, and larger wetlands. Ordinances address building size and setbacks, and the establishment of zones providing for what types of activities can occur in certain areas.”