



## General Conservation Measures for Protecting Biodiversity

**Protect large, contiguous, unaltered tracts of land** wherever possible.

Priorities include, but are not limited to:

- large forests
- large meadow and shrubland complexes (larger than 100 acres best for high diversity of grassland breeding birds; smaller meadows, i.e. 25+ acres, adequate for certain grassland-breeding bird species)
- areas containing a high diversity of habitats
- rare or unusual habitats (e.g., cool ravine, fen, kettle shrub pool)
- areas containing habitat types known to support species of conservation concern (e.g., bog turtle in a fen or calcareous wet meadow)
- areas containing complexes of habitat types known to support species of conservation concern (e.g., forest and intermittent woodland pools).

When considering protection for a particular species or group of species, adapt priorities according to the particular needs of the species of concern.

**Protect contiguous “patches” of undeveloped land in large, circular or broadly-shaped configurations** (instead of narrow configurations) to reduce contact between protected habitat and the adjacent environment or human pressures. By having a lower edge-to-interior ratio, circular “patches” minimize edge effects such as invasive species and concentrated mammalian predators, and are generally more favorable for native biodiversity than small or linear patches.

Wherever possible, **preserve links between natural habitats** on adjacent properties via *broad connections*, not narrow corridors. Many animal species need to move between habitats to fulfill their life history needs, and need safe travelways between habitats. Connected habitats also foster genetic exchange, species dispersal, and recolonization, and allow populations to persist in the landscape. Consider over-all distribution of habitats on the landscape and avoid isolation of habitats by sprawling development, road networks, clearing, and other disturbances. When considering protection for a particular species or group of species, design the connections according to the particular needs of the species of concern.

**Restore and maintain broad buffer zones** of natural vegetation along streams, along shores of other water bodies and wetlands, and at the perimeter of other sensitive habitats. For example:

- At least a 100m (~300ft) buffer on each side of perennial streams is recommended for maintaining minimum wildlife habitat function, and will also accomplish significant nutrient and pollutant removal, temperature and microclimate regulation, sediment removal, detrital input, and bank stabilization.
- At least 100m (~300ft) and preferably 300m (~900 ft) radius of buffer around wetland habitats is recommended, and possibly much larger if the wetland is providing habitat for a species of conservation concern with particular large-area habitat needs.
- A 225m (~750ft) radius of buffer around intermittent woodland pools is recommended to protect critical non-breeding habitat and dispersal routes of pool-breeding amphibians.

**Maintain buffer zones between development and land intended for habitat.** Many species are sensitive to disturbance associated with human activities. A buffer of at least 100m (~300 ft) and preferably 300m (~900 ft) from the edge of development, roads, trails, or other disturbance helps to protect the quality of interior habitat areas.

**Restore degraded habitats** wherever possible, but do not use restoration projects as a “license” to destroy existing high-quality habitats. Similarly, **do not consider habitat creation as adequate mitigation** for destruction of existing habitats. Constructed wetlands, for example, rarely if ever create conditions (e.g., hydrology, underlying geology, soils, microbiology, landscape context) comparable to the original wetland which provided for particular biodiversity needs.

**Preserve natural disturbance processes**, such as fires, floods, tidal flushing, seasonal drawdowns, landslides, and wind exposures wherever possible.

**Minimize extent of impervious surfaces** (roofs, roads, parking lots, etc.), and maximize onsite groundwater infiltration. This will help to protect groundwater resources as well as the water quality and quantity of nearby wetlands, streams, and other waterbodies. Design new development such that surface runoff from the site during and after construction does not exceed pre-construction runoff volume.

Encourage and provide incentives for developers to **consider environmental concerns early in the planning process**, and incorporate biodiversity conservation principles into their choice of development sites, their site design, and their construction practices.

In general, **encourage development of altered land** instead of unaltered land wherever possible. Promote redevelopment of brownfields and other previously-altered sites, “infill” development, and “adaptive re-use” of existing structures wherever possible, instead of breaking new ground in unaltered areas.

**Concentrate development along existing roads**; discourage construction of new roads in undeveloped areas. **Promote clustered and pedestrian-centered development** wherever possible, to maximize extent of unaltered land and minimize expanded vehicle use.

**Direct human uses toward the least sensitive areas**, and minimize alteration of natural features, including vegetation, soils, bedrock, and waterways.

**Preserve farmland potential** wherever possible.

**Protect habitats associated with resources of special economic, public health, or aesthetic importance to the town.** These include aquifers or other sources of drinking water, active farms, and scenic views.

Selected References:

- Calhoun, A.J.K. and M.W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY. 57 p.
- Kennedy, C., J. Wilkinson, and J. Balch. 2003. Conservation Thresholds for Land Use Planners. Environmental Law Institute, Washington, DC. 56 p. (*Free download available at: [www.eli.org](http://www.eli.org)*)
- Kiviat, E. and G. Stevens. 2001. Biodiversity assessment manual for the Hudson River estuary corridor. New York State Department of Environmental Conservation, Albany, NY. 508 p.
- Peck, S. 1998. Planning for biodiversity. Island Press, Washington, DC. 221 p.

*For more information, contact Gretchen Stevens, Director, Biodiversity Resources Center,  
Hudsonia Ltd. 845-758-7024 ([stevens@bard.edu](mailto:stevens@bard.edu)).  
[www.hudsonia.org](http://www.hudsonia.org)*