

Related Tools: Conservation Subdivision, Transfer of Density Rights, Village Plan Alternative Development.

Habitat Protection

Background and Purpose

Wildlife and wildlife habitat provide many benefits and serve important ecological functions. Important ecological services are often provided by particular wildlife habitats, which may serve as buffers to streams, flood retention areas, areas of carbon sequestration, and filters of environmental contaminants. Diversity of plant and animal life contribute to the versatility and long-term health of the food supply and the ecosystem as a whole.

Protecting wildlife and habitat also contributes to the rural character of New Hampshire, as hunting, fishing, and wildlife watching are long-standing features of the culture and attract tourism to a rural area.

Habitat protection can occur at three levels: regional, town master-planning, and site planning, and as regulatory, market-based or voluntary measures. This chapter deals with regulatory measures.

Appropriate Circumstances and Context for Use

Ideally, protection of wildlife and habitat begins at the largest scale appropriate. This scale is determined through study of the range of the particular animal and the extent of its habitat across a multi-state and multi-regional area. Due to difficulties in coordinating across political boundaries and biological boundaries, most government entities must settle for either a coordinated approach with neighboring regions, or a regional-level approach that acknowledges that the range may extend beyond political boundaries.

At the State level, New Hampshire is guided by the 2006 Wildlife Action Plan. The New Hampshire Wildlife Action Plan, which was mandated and funded by the federal government, identifies specific strategies for identifying, restoring and maintaining critical habitats and populations of wildlife species of conservation and management concern. It is a pro-active effort to define and implement a strategy that will help keep species off of rare species lists.

At the Town level, for which this handbook is designed, protection occurs in reference to larger-level plans, but is refined by local level wildlife habitat mapping and inventories. Town level protection starts in the Master Planning Process, when areas are identified for protection through the use of natural resource inventories and maps. These areas can then be protected through zoning ordinances and regulatory measures.

The tool presented here can be used in three ways: as voluntary guidelines for developers, as a set of design principles adopted by a town or Board, and finally, as a set

of standards that could be incorporated into Site Plan and Subdivision Ordinances as performance standards.

Legal Basis and Considerations

Protection of wildlife is referenced and or supported in the following RSA sections:

- **Environmental Characteristics Zoning. RSA 674:21:** Although not specifically defined, this provision gives planning boards the authority to adopt an innovative land use control based upon the environmental characteristics as shown in a local or regional level natural resources mapping and inventory project. Examples of environmental characteristics could include aquifers, wetlands, unfragmented forest blocks, or specific habitat types such as grasslands or forest types.
- **Village Plan Alternative Subdivision. RSA 674:21:** This section defines ‘village plan alternative’ as “an optional land use control and subdivision regulation to provide a means of promoting a more efficient and cost effective method of land development. The village plan alternative’s purpose is to encourage the preservation of open space
- **Master Plan; Purpose and Description RSA 674:2:** This section states that a master plan may include the following section: (subpart (d) “A natural resources section which identifies and inventories any critical or sensitive areas or resources, not only those in the local community, but also those shared with abutting communities. This section provides a factual basis for any land development regulations that may be enacted to protect natural areas.”
- **Subdivision Regulations. RSA 674:36(l) and (m):** This section gives the planning board the authority to adopt a subdivision regulation which “ Provide for efficient and compact subdivision development which promotes retention and public usage of open space and wildlife habitat, by allowing for village plan alternative subdivision” and “require innovative land use controls on lands when supported by the master plan”
- **Comprehensive Shoreland Protection Act. RSA 483-B:2:** This section states that the standards set forth in the chapter shall serve to “Protect fish spawning grounds, aquatic life, and bird and other wildlife habitats” and “Promote wildlife habitat, scenic beauty, and scientific study”
- **Rivers Management and Protection Program. RSA 483:6:** This section provides a process for any New Hampshire organization or resident to nominate a river or segment of a river for protection by submitting a description of the river and its values and characteristics, including “an assessment of fisheries...vegetation, and ...wildlife. And provides standards for classification and management of rivers.”

Examples and outcome of where technique has been applied

Many New Hampshire towns have completed wildlife habitat inventories to guide the work of Town Boards. Other towns, such as Belmont, have adopted statements of purpose in their master plan language to guide the creation of ordinances and regulations to carry out a purpose of protection of wildlife. Many towns, such as Rye, NH include discussions of wildlife and habitat and the need to protect such resources in their natural resources chapter.

In addition to comprehensive regulations, as presented here, a town may wish to focus on a particular wildlife species and habitat that may be found locally or may be identified in New Hampshire's Wildlife Action Plan. A town may also wish to deal with particular impacts of development and put in place strategies to address those impacts, such as regulations to limit allowable tree clearing for new development or require vegetated buffers of streams to protect riparian area habitat.

Model language, illustrations and guidance for implementation

Habitat Sensitive Site Design and Development Practices

These practices may be used in three ways:

- 1) As an educational tool for citizens and developers to encourage voluntary practices for habitat-sensitive site design;
- 2) As a checklist for Conservation Commissions and Planning Boards in reviewing applications and suggesting voluntary alternative site designs and development practices at the planning stage; or
- 3) As elements of a performance zoning ordinance that awards density bonuses or requires compliance with the checklist items as a condition of subdivision approval.

A pre-application review meeting between the developer and town planner to discuss the checklist elements is strongly encouraged.

Model Subdivision and Site Plan Review Checklist/ Regulation

- I. **Purpose.** The purposes of this section are:
 - a) To protect and maintain the natural environment
 - b) To provide for green spaces of adequate proportions
 - c) To provide a habitat for wildlife
 - d) To minimize soil erosion, lessen air pollution, conserve energy, and protect the quality of groundwater
 - e) To provide for the harmonious and aesthetically pleasing development of the municipality and its environs
 - f) To protect the public benefits of habitat protection, including flood control, water recharge, carbon sequestration, food web integrity, and nutrient cycling

II. Applicability. This regulation applies to all applications for new development requiring site plan review and applications for the subdivision of land.

[Sidebar: Option: A municipality might choose to limit the applicability of these requirements to certain areas of the community (e.g., an overlay zone consisting of those areas identified as important as habitat within a natural resource inventory or assessment or open space plan) or to parcels of a certain size (e.g., any parcel greater than 10 acres). An overlay zone would be established through a separate zoning action.]

III. Authority.

- a) **RSA 674:16 II. Subdivision Regulations.** The power to adopt a zoning ordinance under this subdivision expressly includes the power to adopt innovative land use controls which may include, but which are not limited to, the methods contained in RSA 674:21.
- b) **RSA 674: 21 (j). Innovative Land Use Controls/ Environmental Characteristics.** An innovative land use control to protect specific natural resources or features based on scientific evidence and community input may be adopted under RSA 674:21 when supported by the master plan and contains within it the standards that shall guide the person or board which administers the ordinance.
- c) **RSA 674: 21(h) Innovative Land Use Controls/ Performance Standards.** An innovative land use control to control the physical characteristics and operations of a proposed use may be adopted under RSA 674:21 when supported by the master plan and contains within it the standards and criteria against which the development will be evaluated.
- d) **RSA 674: 17 (h) and (i) Purposes of Zoning Ordinances.** To assure proper use of natural resources and other public requirements and to encourage the preservation of agricultural lands and buildings.

IV. Findings and Principles. It is the finding of this Board that, in order to achieve the purposes above, the following principles will significantly enhance the protection of wildlife habitat at the site level and contribute to the protection of habitat at the watershed and regional level by:

- Maintaining the ability of ecological systems to provide ecosystem functions necessary to maintain wildlife habitat and the multiple benefits to wildlife and humans provided by such habitat;
- Maintaining unfragmented habitat blocks;
- Connecting habitat patches, facilitating wildlife movement through the area;

- Protecting wildlife from the negative impacts of development, including not only negative impacts to the habitat itself, but also to animal behavior and life cycle activities; and
- Requiring site-specific habitat assessment and other practices described more fully below to protect wildlife from the negative impacts of development

V. Definitions

Deer Wintering Area – An area used by deer during winter for shelter. Also called a deer yard. Deer wintering areas are typically comprised of dense softwood cover with a crown closure greater than 60%.

Habitat – an organism’s home, including the area used in all parts of its life-cycle, such as feeding, breeding, egg laying, or bearing young.

Mast Stand – an area of woody plants, such as oak, hickory, beech, maple, and various pines, that produce dry fruit (mast), which is a food source for a variety of mast-dependent wildlife such as deer, turkey, and squirrels.

Openness Ratio - calculated by dividing a culvert's cross-sectional area by its length (OR = x-sec area ÷ length)

Riparian – related to or adjacent to a stream or watercourse, or having a high water table because of proximity to an aquatic ecosystem or subsurface water. Although originally associated with rivers and streams, this term is now also sometimes used to describe wetland areas not necessarily associated with rivers or streams.

Vernal Pool – a confined basin depression that is covered by shallow water usually for at least two months in the late winter, spring, and summer, but may be dry during much of the year.

Wetland - an area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs and similar areas.

VI. Habitat-Protection Site Plan and Subdivision Review Checklist

The following checklist shall be utilized in the review of all site plan and subdivision applications. The Board shall determine, on a case-by-case basis, and as applicable, whether the applicant’s proposed development is consistent with these principles:

a) **Does the applicant conserve rare and outstanding landscape features, including unique or critical habitats, by directing development to other areas?**

YES _____ NO _____

Required action:

- Conduct a site assessment of existing resources, identify areas for protection and associated buffers, and demonstrate methods that will be utilized for protection in the construction sequence section of the plan set.
- Development is directed away from habitat types that are rare statewide or to a particular geographic region.
- Development should be directed away from salt marshes, riparian areas, vernal pools, emergent wetlands, large wetland complexes (i.e., wetlands greater than 5 acres or clusters of wetlands), south-facing slopes, open fields, agricultural lands, and mast stands.
- Building envelopes are specified to control the location of future development.
- Avoid locating roads within or near important habitat or forage areas such as mast stands, deer wintering areas, or vernal pools.

b) **Does the applicant maintain significant buffers of undeveloped land between important habitat areas and developed area?**

YES _____ NO _____

Required actions: Applicant must maintain appropriate buffers for the protection of habitat areas on the parcel as follows:

- Maintain vegetated buffers for wetlands and surface waters including riparian buffer areas. The most effective buffer strips will consist of a series of vegetation of different heights beginning with a grassy strip graduating to a strip of shrubs, and ending with a forested strip along the stream bank. The multiple series approach provides multiple benefits including stream bank stabilization. A generally accepted width for a buffer for wildlife habitat is 300 feet; for water quality, a buffer of 50 to 100 feet is recommended for most situations. Where high sediment loads or steep slopes exist, the water quality buffer should be expanded about 5 feet for every 1 percent increase in slope. (Connecticut River Joint Commission, 2000; J.C. Klapproth, 2000; Wenger, 1999; Hodgman, 2006).
- Maintain at least 200 feet of buffer from the perimeter of core areas of identified deer wintering areas.
- Maintain a minimum 300 feet of buffer from other significant habitat areas identified by the municipality, local or regional open space or habitat protection plan, or during site plan or subdivision plan review.

- Maintain a buffer of 400 feet around existing vernal pools and maintain a mostly closed canopy of trees within 100 feet of any vernal pool.
- Avoid construction of houses within 300 feet of important mast stands and avoid construction of paved roads within 200 feet of important mast stands.
- Avoid fragmentation of connecting areas between habitat areas and buffer areas.
- Mark areas of vegetated buffers and soft (graduated) edges of conservation areas with permanent monuments or signage indicating that the area is A NO CUT/ NO DISTURB VEGETATED BUFFER.

c) Does the applicant identify and conserve wildlife corridors of a minimum width of 300 feet through the property to facilitate wildlife movement within and across developed areas?

YES _____ NO _____

Required action:

- Conduct a site-specific wildlife assessment to identify appropriate corridors through a property or reference the town's Natural Resource Inventory or other local or regional assessment identifying appropriate corridors.
- Construct adequately sized underpasses or tunnels across roadways at known reptile and amphibian crossing sites and overpasses or underpasses across roadways along wildlife corridors.

d) Does the applicant maintain the structure and function of aquatic systems?

YES _____ NO _____

Required actions:

- Layout of development eliminates or minimizes stream and wetland crossings by roadways and driveways.
- Use a bridge span to cross river, streams or wetlands whenever possible.
- Bridge spans and culverts must have the following attributes:
 - Natural stream bottoms,
 - Sized for 1.2 x bank-full stream width (i.e., the width of the stream during the 1 and one-half year flow event) to reduce potential future erosion near bridge and culvert openings and allow for wildlife passage along the channel during most times of the year.
 - Bridges and culverts must have an openness ratio of ≥ 0.25 (calculated in meters) for perennial streams.
 - Passageways under roads should be designed to maintain water velocity at a variety of flows that is comparable to flows upstream and downstream segments of the natural stream.

- Culverts should have a trough or narrow channel in the bottom running the full length of the culvert to maintain sufficient water depth during low-flow periods to support fish passage.

- Round culverts must be imbedded at least 25%.

- Maintain a 300 foot vegetated buffer on either side of a stream crossing.
- Stormwater management practices are used to prevent the direct discharge of stormwater to aquatic systems, including wetlands and small streams.

e) **Does the applicant minimize the clearing, grading, and compaction of soil during construction activities?**

YES _____ NO _____

Required actions:

- Cut and fill is minimized, with the maximum height of any fill or depth of any cut area, as measured from the natural grade, not greater than 10 feet, and is preferably limited to 4-6 feet.
- Development follows the natural contours of the landscape to the maximum extent possible to minimize grading.
- The smallest feasible equipment is used during construction and every effort is made to minimize travel over the area.
- Soils are re-aerated after construction is complete and prior to seeding and landscaping.
- Provide for 6-10 inches of top soil post-construction to any areas previously disturbed prior to seeding and landscaping these areas.

f) **Does the applicant provide for the protection of vegetated buffers, stands of mature trees, and other vegetation to be preserved during and after construction?**

YES _____ NO _____

Required actions:

- Important mast stands and other vegetation to be protected during construction are clearly marked, including area out to the drip line of the tree.
- Not allow construction materials to be stored over the root zone of trees.
- Mark areas of vegetated buffers and soft edges of conservation areas with permanent monuments or signage indicating that the area is a no cut/no disturb vegetated buffer.
- Submit a tree clearing plan, indicating areas of trees to be cleared, and areas to be protected, and retain, at the applicant's expense, a qualified natural resources professional to review the applicant's plan.

g) **Does the applicant attempt to mimic features of the local natural landscape in developed areas?**

YES _____ NO _____

Required actions:

- Maintain existing foliage height diversity, to provide a range of habitat through layers of vegetation, such as ground covers, shrubs, and trees.
- Minimize edge effects by creating soft edges between developed areas and conservation areas using a graduation of smaller shrubs to larger shrubs to small trees to larger trees.
- Utilize native, non-invasive species in landscaping.
- Minimize the amount of area per lot converted from existing vegetation to lawn.
- Provide a stormwater management approach that maintains the natural peak flow and total volume of flow off-site pre- and post-development by providing for Best Management Practices that capture, treat, and infiltrate stormwater in smaller-scale management areas throughout the development.

- h) Does the applicant minimize the negative effects of development on wildlife and discourage human-wildlife conflicts by using such methods including but not limited to: directing light away from stands of trees, fencing gardens, pet food areas, and covering and fencing trash disposal areas?**

YES _____ NO _____

Required actions:

- The homeowner's association documents should include the specific measures that will be used to ensure that the development will minimize potential negative effects on wildlife and habitat, and that human-wildlife conflicts such as predation or nuisance animal incidents will be discouraged by ensuring that garbage, pet food areas, and small pets do not serve as a food source to area wildlife. The documents should also address landscaping and discourage the introduction of invasive species and excessive use of nitrates and phosphates.
- Some areas of the development near homes may require fencing or other measures to deter wildlife from gardens and yards.
- Lighting must be fully shielded and directed away from stands of trees or other habitat areas so as not to disrupt animal behavior.

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