PROTECTING WILDLIFE CONNECTIVITY THROUGH LAND USE PLANNING:
Best Management Practices and the Role of Conservation Development

Wildlife Conservation Society
Adirondack Program Technical Paper No. 4
Zoë P. Smith, Michale J. Glennon, Leslie N. Karasin,
Sarah E. Reed, and Heidi E. Kretser
December 2012

Staying Connected Initiative Final Report

The full technical paper is available at:
www.wcsadirondacks.org
Private lands play a critical role in protecting connectivity for wildlife in the Northeast. However, across the US land is being converted to residential development at twice the rate that it is being protected. Exurban development, characterized as low-density development on large lots (5-40 acres), has disproportionate effects on wildlife due to the amount of land consumed and fragmentation of land. Many rural towns in northern New York, Vermont, New Hampshire, and Maine have high rates of land development due to the influx of retirees, part-time residents, and people seeking to live close to natural amenities.

Local land-use regulations can influence development patterns and mediate the deleterious impacts of residential development on wildlife. A variety of land use planning and conservation tools can achieve these results. Conservation Development (CD) is an alternative approach to the design, construction, and stewardship of a development property that achieves functional protection for wildlife, while also providing social and economic benefits to people. When implementing CD and other tools, it is important to use the best available information to ensure that building and management guidelines result in development patterns that meet local conservation goals.

Chapter One: Review of Conservation Development Ordinances in the Northeast

The Wildlife Conservation Society (WCS) surveyed regulatory documents in municipalities in the Northeast for references to CD, and then comprehensively reviewed the 372 CD ordinances that we located. Key findings include:

- CD ordinances were adopted by fewer than half (48%) of the jurisdictions. The rate of adoption has increased rapidly in the last decade. On average, 42% of the site is left undeveloped under CD.
- Only 18% of the ordinances reviewed require a site analysis for ecological features. Of these, only 11% of the ordinances required this prior to designing the developed area. Minor adjustments to existing regulations, such as requiring an ecological site analysis prior to the development design, may have a large positive benefit for wildlife.
- Ordnances lack a strong standard for expert consultation to guide conservation design. Municipalities would benefit from better mechanisms to access conservation, land use planning and design expertise for the conservation design process; this could take the form of consultative partnerships with agencies, land trusts, or private consultants, or through dedicated staff.
WCS conducted case studies with northeastern towns that have adopted CD ordinances to highlight many examples of conservation protections they have incorporated, and to bring attention to the variety of CD ordinances already in effect in the Northeast. This chapter includes three sections:

1) **Sample CD ordinances**—We summarize ten ordinances that communities have adopted. For example, the town of Elmore, VT has adopted a Planned Residential Development (PRD) ordinance which allows for the creation of smaller-than-otherwise-permitted lots so long as the PRD reserves “no less than 50% of the remaining land as open space.” The ordinance includes detailed guidelines about the preservation, dedication and maintenance of open space.

2) **Factors influencing communities’ ability to adopt and implement CD ordinances** — Community adoption and implementation of CD requires the right mix of motivation, capacity, dialogue, agreement, and legitimacy for action. Using quotes from interviews, our case studies illustrate these factors.

3) **Opportunities to protect biodiversity and ecological connectivity through CD ordinances**—In this final section we identify factors that are significant for biodiversity protection and highlight Northeastern CD ordinances that address these opportunities. For example, CD ordinances help to protect connectivity if they include guidance for arranging the protected lands in a way that will maximize ecological connectivity with adjacent protected lands or open space networks. The Conservation Subdivision standards adopted by Essex, NY, states that “Open space areas shall be integrated wherever possible into a connected open space system within the development as well as outside the development. Open space areas should form a contiguous system with other open space areas in the vicinity of the subdivision development to the maximum extent practicable.”

**Chapter Three: Best management practices for ecologically-sensitive land use planning and the protection of wildlife connectivity**

There is a large toolbox of potential methods for protecting biodiversity in the face of residential land use change, and the greatest likelihood of success will come from employing a variety of techniques. Many best management practices exist for developers, landowners, and community planners to protect wildlife values. We highlight a variety of these opportunities in order to strengthen development projects.

WCS conducted a literature review to provide best management practices related to ecological connectivity. We highlight studies that suggest a variety of ways to achieve better protection of private lands, such as:

- Maintain aquatic connectivity in riparian corridors
- Maintain connectivity where roads cross corridors
- Maintain ecological connectivity in areas of residential development through improved landowner stewardship

- Use connectivity planning and modeling to identify priority corridors and linkages
- Design and map corridors on the landscape
- Maintain ecological connectivity in developed areas of through careful planning
The Wildlife Conservation Society

Since 1996, the Wildlife Conservation Society (WCS) has been working to protect wildlife and wild lands in the northeastern United States through a community-based conservation program based in the Adirondacks. In 2003 WCS was a lead partner in the formation of the conservation collaborative Two Countries One Forest (2C1Forest, www.2c1forest.org). This partnership of NGO’s, researchers, foundations and land trusts aims to protect wildlife habitat, wildlife connectivity and long term health of the Northern Appalachian/Acadian ecoregion. In 2009 WCS became a key partner in the Staying Connected Initiative.

Adirondack Program
7 Brandy Brook Avenue,
Suite 204
Saranac Lake, NY 12983

www.wcsadirondacks.org
accp@wcs.org
(518)891-8872

About the Technical Paper

This document is a report of the Staying Connected Initiative written by the Wildlife Conservation Society.

Protecting Wildlife Connectivity Through Land Use Planning is meant to inform partners in the Staying Connected region and in rural areas across the northeast about Conservation Development and how it can protect wildlife connectivity on private lands. The paper highlights science that can inform and improve the practice of CD and other land use planning tools.

The Staying Connected Initiative

The goal of the Staying Connected Initiative is to conserve, maintain and enhance the priority habitat linkages in the Northern Appalachian/Acadian Ecoregion to ensure landscape scale connectivity across the region from the western edge of the Tug Hill Plateau in New York through Vermont, New Hampshire and Maine and on to Quebec's Gaspe Peninsula and into Nova Scotia.

Priority Landscape Linkages
1. Tug Hill Plateau – Adk Mountains
2. Adk Mountains – Green Mountains
3. Taconic Mountains -- Southern Green Mountains
4. Northern Green Mountains
5. Worcester Range – Northeast Kingdom
6. Northeast Kingdom – Northern NH - Western ME Mountains
7. 3-Borders (ME, QC, NB)
8. Chignecto Isthmus

The Staying Connected Initiative was made possible through support provided by the U.S. Fish and Wildlife Service, New Hampshire Fish and Game Department and The Nature Conservancy, under the terms of Federal Assistance grant U2-4-R from the Department of the Interior, titled “Staying Connected in the Northern Appalachians: Mitigating Fragmentation and Climate Change Impacts on Wildlife through Functional Habitat Linkages.”