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Conservation Thresholds for Land Use Planners

**Survey and Analysis
2006**

Conservation Thresholds for Land Use Planners Survey & Analysis

Survey Summary

In 2003, the Environmental Law Institute (ELI) published *Conservation Thresholds for Land Use Planners*. The report reviews and synthesizes information from the conservation biodiversity literature. It lays out straightforward and accessible “conservation thresholds,” or concrete targets that can be used by land use planners when making decisions about how much land to protect, the adequate size and location of habitat corridors, riparian buffer widths, and the maximum distance between isolated patches. The thresholds were designed to provide planners with information to ensure that traditional land use tools are science-based and reflect conservation principles. The principles outlined in *Conservation Thresholds* are already being put into practice, and have influenced statewide and local land use, open space, and smart growth policy across the country.

In July 2003, ELI surveyed 131 individuals who had either downloaded *Conservation Thresholds* from ELI’s website or who were associated with the numerous plans and projects that had cited the publication, as identified by a Google search. The survey was sent to 131 people via email. Of the 131 people, 44 replied to ELI and 23 provided responses to the questionnaire, for a response rate of 18 percent. Survey recipients were asked to identify the major barriers to and opportunities for the integration of conservation biology principles in land use planning (see Appendix A for survey).

Analysis of the survey results (see Appendix B for survey results) revealed five common themes for supporting and advancing conservation planning.

#1 Improve access to quality conservation science

A lack of local, site-specific conservation thresholds and limited access to local conservation biologists are major barriers to conservation planning. Respondents stated that updating and tailoring ELI’s 2003 *Conservation Thresholds* report and establishing the opportunity for in-house or rotating local conservation experts to communicate the benefits of conservation planning to local decision-makers would improve the application of conservation principles to land use planning.

#2 Develop strategic conservation communications tools

Public apathy and a lack of political will are significant barriers to updating existing land use plans and zoning ordinances in support of biodiversity conservation. Developing effective communication tools, such as strategic talking points and effective diagrams/illustrations, will help conservation biologists and land use planners interpret the benefits of habitat conservation and the consequences of not protecting biodiversity to both decision-makers and the public.

Survey Results

#3 Catalog current regulatory mechanisms

Local decision-makers' fear of insufficient legal authority to alter existing comprehensive plans and/or zoning ordinances impedes the incorporation of biodiversity conservation in land use planning. An analysis of state and local regulatory mechanisms would identify existing tools that decision-makers can use to facilitate biodiversity conservation through local planning efforts.

#4 Develop case studies or models of creative regulatory or planning programs

A growing number of local governments and organizations have developed innovative planning programs that incorporate conservation principles. Developing case studies of these innovative programs could help planners and conservation biologists illustrate how successful conservation planning can accommodate growth and economic prosperity while protecting biodiversity.

#5 Analyze and disseminate the economic benefits of habitat conservation

Developers, private landowners, and local governments often fear the negative impacts on the local economy of implementing conservation biology principles in land use planning. Analyzing and communicating the economic benefits of conservation, and the economic consequences of not protecting biodiversity, could provide local governments incentive to conserve biodiversity.



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Survey and Assessment June 2006

Thank you in advance for your time and contribution to this effort to assess how our research on *Conservation Thresholds* has been applied, as well as its limitations. Your feedback will be valuable to our future work in this area. Please feel free to pass a copy of this survey on to any colleagues with whom you have shared the *Conservation Thresholds* report that might be willing to assist us with this effort.

1. **Have you applied the *Conservation Thresholds* outlined in the report in your work [or called it to the attention of someone who has applied it in theirs]?**
 - Yes
 - No
 - a. **If yes, please describe how and, where appropriate, provide a citation or link to publications, ordinances, plans, or syllabi in which the *Conservation Thresholds* have been included or cited:**
 - b. **If it has been applied in a land use planning context, how would you characterize the town/region where the *Conservation Thresholds* have been applied?**
 - Urban
 - Suburban
 - Exurban (on the suburban/rural fringe)
 - Rural
 - Other:
2. **Did you find that the specific *Conservation Thresholds* provided (minimum habitat patch size, percent of land cover “protected” in a landscape, distance to edge, riparian buffer width) were adequate for your needs?**
 - Yes
 - No
 - b. **If no, what additional thresholds would you find useful?**

3. **Did you experience any limitations in your ability to apply the Conservation Thresholds?**

- Yes
- No

a. **If yes, please indicate the limitations you encountered in applying the Conservation Thresholds. Please check all that apply and circle the option(s) that apply:**

- Conservation Thresholds were too technical/not technical enough
- Conservation Thresholds were too specific/too general
- Conservation Thresholds were not tailored to the specific species/ecosystems in which I work (need to be “scaled down”)
- Conservation Thresholds were too focused on terrestrial/aquatic systems
- Encountered difficulties communicating the values of biodiversity conservation to the public/planning board/other
- Limitations/obstacles inherent to traditions in the planning profession
- Other:

Please describe further:

4. **Generally, what barriers do you encounter when applying conservation biology principles to land use planning? Please check all that apply:**

- Lack of access to applicable conservation science
- Need the technical information translated into more simplified terms
- Need conservation biologists with local expertise to help scale down the principles to meet local needs
- Need tools to communicate the benefits of protecting biodiversity/wildlife habitat/open space
- Need tools to communicate the consequences of *not* protecting biodiversity/wildlife habitat/open space
- Lack of political will on behalf of _____ to make changes to existing comprehensive plans and/or zoning ordinances for biodiversity conservation
- Fears on behalf of _____ that there is insufficient legal authority to make changes to existing comprehensive plans and/or zoning ordinances for biodiversity conservation
- Other:

Please describe further:

5. **Generally, what contributes to the successful application of conservation biology principles to land use planning? Please check all that apply:**

- Access to local conservation biologists
- Access to simplified conservation science

Appendix A: Survey

- Access to tools for communicating the benefits of and consequences of *not* protecting biodiversity/wildlife habitat/open space. What audience(s) are the most critical to reach (i.e., general public, elected officials at the local/state/federal level; planning boards; land use planning professionals; land use attorneys):
- Strong political will on behalf of local leaders. Please specify the category of local leader(s):
- Confidence on behalf of local leaders that there is sufficient legal authority to use existing planning and regulatory authorities to protect biodiversity. Please specify the category of local leader(s):
- Other:

Please describe further:

- 6. What additional tools (i.e., communications tools, legal analysis, policy analysis, further translation of biodiversity information, scaling down of *Conservation Thresholds*) would help support efforts to incorporate biodiversity conservation principles into land use planning?**

- 7. How did you hear about *Conservation Thresholds for Land Use Planners*? Have you recommended this report to others?**

- 8. Additional comments:**

Please return to: Rebecca Kihslinger, Environmental Law Institute, 2000 L Street, NW, Washington, DC 20036; kihslinger@eli.org; PH: 202-939-3812; FAX: 202-939-3868.

Conservation Thresholds for Land Use Planners Survey Responses

The survey was sent to 131 people via email. Of the 131 people, 44 replied to ELI and 23 provided responses to the questionnaire, for a response rate of 18 percent. The 23 responses are summarized below.

Question 1: Out of 23 people who responded, 12 replied that they had applied *Conservation Thresholds* to their work (or called it to the attention of someone who applied it to theirs).

- Of the people who did apply *Conservation Thresholds*:
 - Five respondents stated they had used the report in an attempt to formulate plans and ordinances for conservation-oriented development in their towns and/or parks.
 - Seven respondents cited *Conservation Thresholds* in academic/research studies (papers, presentations, seminars, etc.) dealing with a variety of land use planning related topics.
 - One respondent used *Conservation Thresholds* to help develop the new LEED for Neighborhood Developments certification to develop “green” standards for community development (specifically the buffer minimum patch size thresholds).
 - One respondent used *Conservation Thresholds* to inform personal thinking about application of thresholds in the United Kingdom.

- Of the 12 people that applied *Conservation Thresholds* in a land-use planning context, 4 applied it to their work in rural areas, 3 in suburban neighborhoods, 2 in exurban contexts, and 1 in an urban setting. One person used *Conservation Thresholds* to evaluate cumulative effects and how to factor them into land use planning decisions.

Question 2: Out of 14 responses, 9 found that the specific thresholds provided in the report (i.e., minimum habitat patch, percent of land cover protected in the landscape, distance to the edge, and riparian buffer width) were adequate to support their needs.

- Of those that indicated that the *Conservation Thresholds* provided in the report were *not* adequate to support their needs, the following additional thresholds were identified as those that they would find useful:
 - Farmland-specific protection objectives.
 - A more inclusive list of animals featured in the reference on minimum patch area (i.e., Appendix B).
 - Minimum landscape-scale density of wetlands to maintain populations of migratory waterfowl.
 - Thresholds for freshwater aquatic animals in habitats that naturally fluctuate in size over time, as well as animals with mountain habitats limited by elevation-related factors.
 - Site-specific information.
 - Thresholds that can be translated for other countries where there is less available research on which to develop equivalent thresholds other than for a few selected species.

Appendix B: Survey Responses

Question 3: Out of 17 people who responded, 14 stated they had experienced limitations in their ability to apply *Conservation Thresholds*.

- Limitations included the following:
 - Technical/not technical enough
 - Two people found the thresholds too technical.
 - Two people found the thresholds too specific.
 - Two others found the thresholds to be either too specific/ too general, but did not specify which.
 - One person found the Thresholds to be too focused on terrestrial systems
 - One respondent found that the thresholds were not tailored to the specific species/ ecosystem in which he/she works and were not at the appropriate scale.
 - One person needed specific information relevant to farmland protection objectives.
 - One person blamed the general lack of U.K. specific data on species tolerances to disturbance/ responses to development-led pressures in the context of a highly developed landscape with fragmentary semi-natural habitat patches.
 - One response claimed that while there will always be limitations when applying generalized knowledge to specific places/ situations, the thresholds are very useful as part of an adaptive approach – “learning by doing” using best available knowledge.
 - Three people encountered difficulties communicating the values of biodiversity conservation to the public/planning board/other decision-makers.
 - One respondent pointed out the difficulties faced by planning professionals in “interpreting” biological information for local government officials and staff – an intrinsic challenge of community development trying to merge science and public opinion.
 - One respondent stated that the biggest limitation is inherent differences in developing public policy and conducting research science. Developing public policy is consensus driven, while research is conflict driven, that is, research science operates by testing mutually exclusive hypotheses and rejecting those not supported by the data.
 - Two people felt limitations/obstacles were inherent to traditions in the planning profession.
 - Two people felt a lack of opportunity and power to use the threshold in their work.
 - One response identified property rights activists as a barrier to fruitful public discussion at the local level.
 - One responder pointed out that although the riparian buffer threshold for water quality was clear-cut, other buffers, such as those used for wildlife conservation were confusing, and in many cases much larger than is practical.
 - There is an inherent limitation in designating buffers for different species in different situations.

Question 4: Common barriers encountered when applying conservation biology principles to land use planning include the following:

- Six people cited a lack of access to applicable conservation science.
- Five people faced a lack of technical information translated into more simplified terms.
- Eight people felt a lack of conservation biologists with local expertise to help scale down the principles to meet local needs hindered conservation efforts.
 - Lack of appreciation and value of hiring and retaining research scientists in governmental/regulatory agencies; lack of recognition by governmental/regulatory

Appendix B: Survey Responses

agency supervisors of the importance of time spent on reading and reviewing recent scientific literature; lack of basic knowledge of science

- Eight people lacked better tools to communicate the benefits of protecting biodiversity/wildlife habitat/ open space.
- Eight people were frustrated by a lack of tools to communicate the consequences of *not* protecting the biodiversity/wildlife habitat/ open space.
- Eleven people noted the lack of political will to make changes to existing comprehensive plans and/or zoning ordinances for biodiversity conservation.
 - Seven people specifically noted the lack of political will on behalf of local decision-makers such as municipal politicians, supervisors, and planning and zoning commissions.
 - One person cited failure at the state level.
 - Three people pointed to apathetic developers, voters, and citizens.
- Other
 - One person cited the implicit risk of failure of pursuing an adaptive approach.
 - Two people mentioned the scientific uncertainty of the standards, depending on the source of information, resource to be protected, and measuring tools.
 - E.g., Center for Watershed Protection recommends 100-foot buffers for water quality protection, while ELI recommends 100-meter buffer for biodiversity protection.
 - Confusion arises because of biological and habitat assessment measures used to gauge chemical and physical attributes of stream health (which are different than aquatic and riparian biodiversity protection objectives).
 - Four people were hindered by local decision-makers'/ planning and zoning commissions' fear of insufficient legal authority to alter existing comprehensive plans and/or zoning ordinances for biodiversity conservation.
 - In some locales, actual lack of regulatory power on the part of local conservation commissions makes it rare for the Planning and Zoning Commission to incorporate protective suggestions.
 - For five people, economic cost barriers were a major concern.
 - Developers' concerns over high costs of dedicating otherwise developable land to biodiversity conservation, coupled with a lack of sophistication on the part of smaller municipalities (staff, politicians, and community members).
 - Private land owner unwillingness to bear the cost of applying a principle at levels specified in this report when scientific uncertainty is so high. They want to know if they can accomplish a slightly lower level of biodiversity benefit at a much lower level of application and lower cost.
 - Local governments fear the negative impacts on the local economy of implementing conservation biology principles.
 - A lack of clear information on the many economic benefits of ecological services, as well as the costs of failing to protect them confuses debate.
 - Conservation goals in community plans and regulations are perceived as inhibiting development and prosperity.
 - The debate is framed as pitting growth against conservation; this has led to a failure to reach effective compromises regarding private property owner rights and the municipal need for commercial and industrial tax base.

Appendix B: Survey Responses

- One respondent pointed out the obstacles faced when developers come before the planning board with the financial resources to hire consultants, who tend to present one-sided (i.e., watered down) versions of conservation planning principles that undermine efforts of local planning boards.
 - Small towns that lack a paid planning staff are especially challenged and prone to infiltration by contingents of developer with financial conflicts of interest.
 - Example: a well-educated public in a specific town that is inclined to vote for conservation-minded regulation amendments is unduly influenced by misinformation offered by a vocal minority.
- One person pointed to legal analyses, especially takings claims, that greatly blunt the efficacy of the conservation threshold recommendations, since they would give local officials another reason – besides pressure from landowners and the development community –not to protect critical habitats.

Question 5: Respondent noted that the successful application of conservation biology principles to land use planning was aided by a variety of factors:

- Eleven noted the importance of access to local conservation biologists.
- Nine pointed to access to simplified conservation science.
- Nine indicated the access to tools for communicating the benefits of and consequences of *not* protecting biodiversity/wildlife habitat/open space.
- Eleven emphasized the importance of strong political will on behalf of local leaders.
 - Six specified local politicians and planning commissions as the most critical for support.
 - Two identified the business community.
 - One identified the need for developers to accept the process (and its benefits).
 - One stated that it is necessary to support the government policy framework.
 - One stressed the importance of getting local leaders to disregard political boundaries in applying conservation biology principles.
- Eight respondents felt that success was due to the confidence of local leaders (municipal officials, planning and zoning commissions) that there is sufficient legal authority to use existing planning and regulatory authorities to protect biodiversity.
- Other
 - One person cited the importance of local community input.

Question 6: Respondents indicated the following types of additional tools that could prove helpful to incorporating conservation biology principles into land-use planning:

- State-specific legal analyses
- Creating a position for a floating local expert that could come before communities and the local boards to discuss the benefits of conservation planning
- Some secondary assistance with community education and outreach to reach the voting public
- Case studies of successful applications of conservation thresholds
- Continued additions to the database, including more species, habitats, and ecosystems
- Distribution of free hard copies and continued updates of the conservation land use principles
- A video on the subject for meetings or the classroom
- Simple diagrams to help to explain complex issues to a lay audience

Appendix B: Survey Responses

- For example, summary tables portraying the benefits of various buffer widths
- Simplified “rules of thumb” for planners
- A compendium cataloguing the (often creative) mechanisms that local governments utilize to include the conservation elements
- A marketing program detailing the benefits and application of the thresholds, including solid support for local economies
 - Illustrating the success of conservation biology principles to accommodate growth will allow others to plan for the future with a more hands-on approach.
- Firmer basis for the reality of environmental thresholds/limits
- Guidance about the location and pattern of wildlife habitat in and outside urban areas would be helpful.
 - In the smart growth world, there is recognition that developed areas need to be re-developed and need to have increased density, and that areas outside metropolitan areas need to be conserved. There is also recognition that some preservation within urban areas is important, especially for aquatic and riparian species.
 - Research on the impacts of increased density in urban areas versus the spread of new development to the outskirts or exurban parts of metropolitan areas would help conservation efforts. Identifying what types of species need conservation within urban areas, and which can be preserved in the rural areas between cities can also help planners.
- Basic education about the local species and habitats in conjunction with basic science. By the time most of the land use planners are working at regulatory levels, they have largely forgotten the science they learned in high school and college.

Question 7: Out of 18 people responding, ten found *Conservation Thresholds* through an internet search. Among the others:

- Four had it referred to them by other people (professor, colleague, conservation biologist, etc.).
- Two people found it referenced in another report/through other research.
- One person heard through email notification.
- One person partnered with ELI in CBLU and heard of it then.

- Six respondents indicated that they had recommended *Conservation Thresholds* to others. For example, the local regional director of The Nature Conservancy, a former city planner, students, as a model to neighboring towns.

Additional Comments:

- Praise:
 - “Great publication!”
 - “Great project/product – please continue to update – I see no need to make it substantively different – a great resource for professional planners.”
 - “The information contained in *Conservation Thresholds* was very informative and well done.”
 - “*Conservation Thresholds* is the best item I have read on the subject and I recommend it often. Has it been sent to the American Planning Association and/or its local chapters?”
 - “I truly believe the *Conservation Thresholds for Land Use Planners* document is well done and has applicability to local municipalities.”

Appendix B: Survey Responses

- “I’m actively engaged in Chicago Wilderness conservation organization, focused on the Chicago metro area (covering SE Wisconsin, NE Illinois and NW Indiana). The voluntary organization has university and other scientists affiliated with it who provide technical assistance to its member governmental and non-profit organizations. ELI’s *Conservation Thresholds* report is an important resource for such citizen-based conservation initiatives.”
- Criticism:
 - Addressing problems with one-size-fits all solutions no longer works on the many remaining complex environmental problems and the thresholds have a high level of scientific uncertainty. The standards are also too costly for local landowners and the community, too uncertain in benefit, and not scalable.
- Comments on how respondents hope to apply *Conservation Thresholds* in the future:
 - Two respondents replied that the town of New Durham, New Hampshire is currently working on a riparian buffer ordinance with some professional assistance and the document should provide some supporting documentation. The ordinance should be put to the voters for consideration at the March 2007 town meeting.
 - The New Durham master plan has been conveyed to other member towns. As a result, *Conservation Thresholds* may be getting use in other nearby towns.
 - An updated Outdoors Plan is looking at *Conservation Thresholds* as a comprehensive planning tool for constituents.
 - The Natural Heritage Division is currently setting priorities for biological needs and may be using something like this.
 - University of Illinois at Chicago has also just received an NSF grant for an interdisciplinary integrative graduate educational and research training program in urban restoration ecology. Resources like *Conservation Thresholds* will be invaluable for the training of this new generation of urban ecologists.
 - Researchers in the UK are also interested in how to convert concepts of environmental limits and the assessment of cumulative effects into practical mechanisms for influencing land-use planning decisions and may draw upon *Conservation Thresholds* for background.
 - Other uses of Conservation Thresholds include use in draft forms of plans and ordinances, a manuscript in preparation, and potentially, as part of a regional biodiversity strategy in the near future.
 - The document will also be used to teach students about the thresholds and be included in future publications on ecological landscape planning.