

The Implementation Crisis of Conservation Planning

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The fascination of many conservation planners with the incremental improvement of assessment techniques has drawn focus away from their real goal—directing conservation actions—because relatively few assessments published in the peer-reviewed literature actually lead to nature conservation.

Knight et al. (2006)

Conservation assessment



Conservation planning



Conservation planning integrated with
land-use planning



Implementation of plans



Adaptive management



A Community Has the Right to Determine its Future

- Supreme Court decision in 1926 (Village of Euclid, Ohio v. Ambler Realty Co., 272 U.S. 365): “every community has the right to determine its own character and the nature of development within.”
- This right includes a decision of whether or not to grow.
- Yet, “traditional planning is essentially a mechanism for development of land, where development is broadly defined as moving from natural to more human-modified” (Theobald).

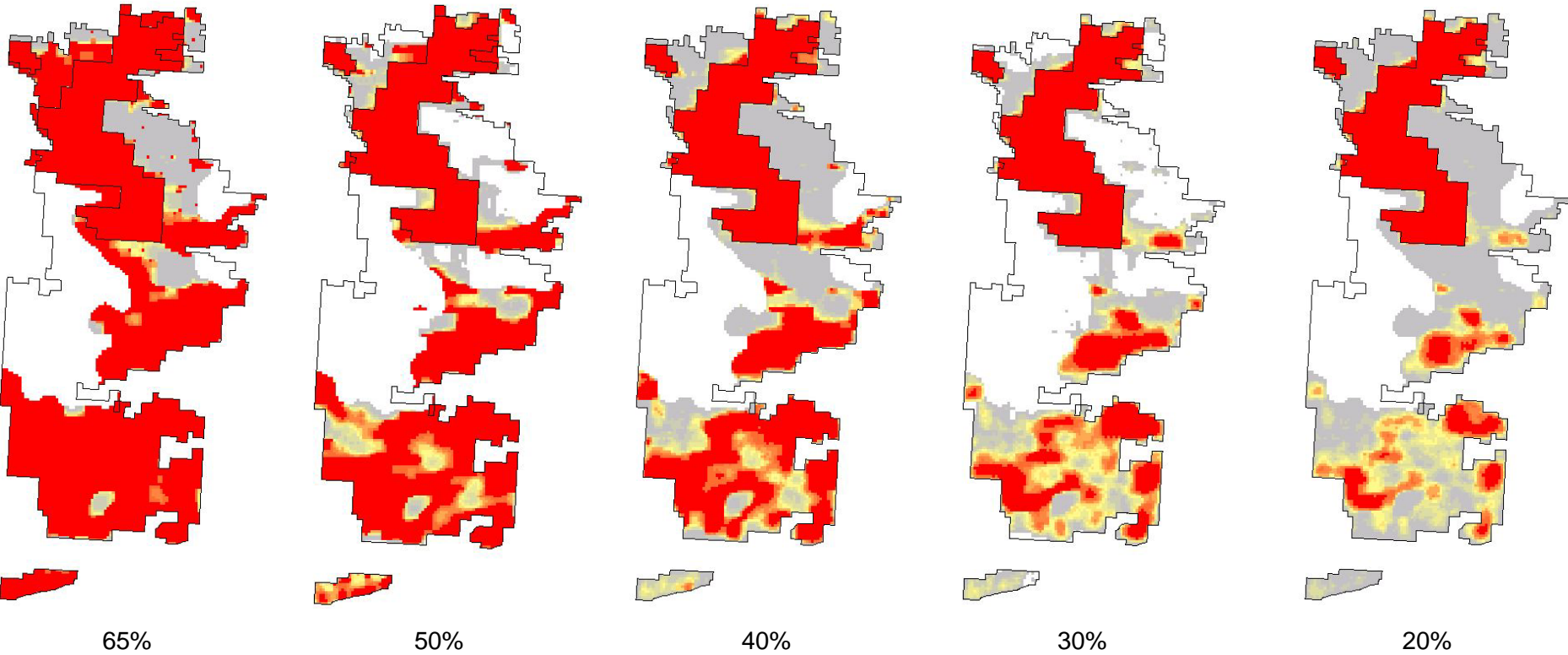
The science of conservation planning is an ongoing, multi-stage, iterative process of:

- identifying real-world problems
- posing questions and hypotheses about mechanisms and possible solutions to these problems
- gathering and analyzing map-based (e.g., GIS) data
- testing preliminary maps against new data
- developing alternative future scenarios
- coming up with a proposed solution, often in the form of a spatially explicit conservation design

Site-Selection Algorithms

- Computerized mathematical algorithms linked to GIS
- Highly efficient in achieving stated goals for each conservation target (feature) at minimal cost for each planning scenario
- Can be used to highlight high-value sites (i.e., “hotspots”) in a landscape and to assemble a reserve network
- Transparent – can be applied interactively in a workshop format

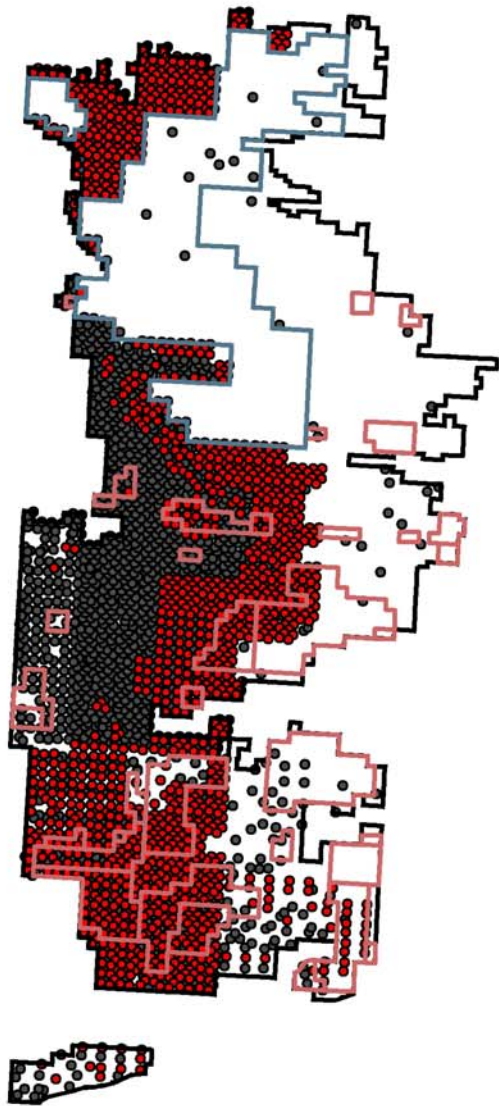
Example of Site Selection in Great Sand Hills of Saskatchewan



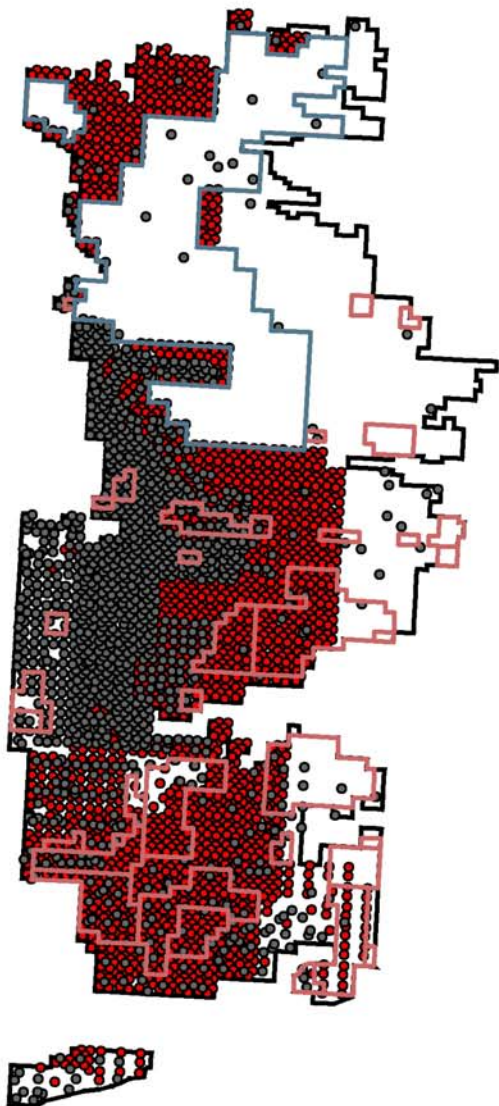
MARXAN sum runs results for final biodiversity features at various average goal levels

Scenario Analysis

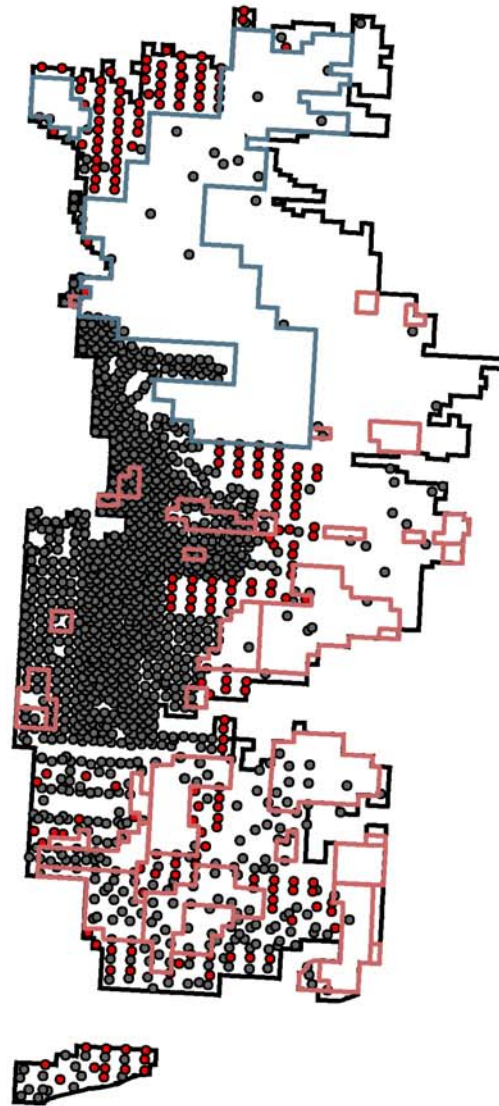
- A scenario is a plausible but unverifiable account of change in a set of conditions over a defined period of time.
- Rather than showing what will be, a scenario shows what could be if particular trends or rates of change take place over time.
- Comparison of multiple, alternative future scenarios using GIS allows scientists, decision-makers, and the general public to obtain a vivid picture of the potential consequences of various policies or courses of action.



a. Scenario 1



b. Scenario 2



c. Scenario 3



A gulf exists between land-use planners and conservation planners/scientists

- Often lacking time or expertise for science-based planning, land-use planners are grasping for rules of thumb
- Bigger is better, connected is better than isolated, etc., are all context-specific
- Ecological concepts and scientific data and tools are incorporated crudely, if at all, in most land-use plans and growth-management measures
- Implementation of plan conservation elements, for example land acquisition to protect biodiversity hotspots or sensitive places from development, is typically poor.

The Need for a Regional View

- There is a spatial mismatch between the scale at which local governments need to plan and manage to effectively protect ecological resources and the scale at which land-use planning and decision making is traditionally done.
- Too much of planning is carried out project-by-project. Although individual projects may have relatively little impact, the cumulative impacts of many projects lead to “death by a thousand cuts.”
- The variable but relevant scale of the “region” is useful for integrating concerns from higher (global, continental) and lower (local) scales.

Some Essential Elements of Conservation and Land-use Planning

- Conserve much more land, as strictly as possible, either through public acquisition (fee simple or conservation easements) or through trading (transfer) of development rights or other incentives.
- Provide functional corridors to connect conservation areas and limit impacts of roads.

- Keep the landscape surrounding conservation areas at low housing density with low-intensity land use to provide buffer zones between conservation areas and higher-density development and to provide a permeable landscape that enables organisms to move among conservation areas.
- Limit high-density development to lands within strictly defined urban growth boundaries. Provide parks and, where possible, connecting corridors throughout this landscape, both to serve the needs of native species and to make nature accessible to people. Clustered developments with retained open space can often serve this end.

Summary of Needs Identified in Lasting Landscapes Papers

- Build human capacity and expertise
- Train individuals with expertise and skills in both conservation science and land-use planning
- Recognize that the role of science is not to impose a particular set of values or to specify a single solution to a planning problem, but rather to identify the range of values at stake, the consequences of various decisions and alternative future scenarios, and those solutions that meet established goals.

- Provide both carrots and sticks to encourage good planning. Strong regulatory requirements are good motivators that bring developers to the table and allow them to support comprehensive planning and mitigation rather than piecemeal project-by-project permitting
- Consider site content and landscape context in planning
- Recognize that rules of thumb are generalizations—experts are needed to interpret such rules to specific cases
- Develop a planning philosophy and strategy that is proactive rather than reactive

- We need to develop and informed and impassioned constituency for conservation; hence, it is imperative that planning provides people easy access to nature, from the urban core to the hinterlands. People will want to save what they know and love through personal contact

Top Down or Bottom Up?

It is locally, on particular sites and involving local people, where conservation is implemented.

However, in each case we should ask: “What can I do on this site that will contribute most meaningfully to the conservation of global biodiversity?”



