Environmentally Significant Areas

Provincial Update 2009

FIERA
Biological Consulting

Executive Summary

The purpose of this report is to provide an overview for the update of ESAs in the province of Alberta. ESAs represent places in Alberta that are vital to the long-term maintenance of biological diversity, soil, water, or other natural processes, at multiple spatial scales. They are identified as areas containing rare or unique elements in the province, or areas that include elements that may require special management consideration due to their conservation needs. As applied to resource management systems in Alberta, ESA mapping is a strategic conservation tool that is useful to the development of land-use planning and policy. Identifying these areas using scientifically rigourous, defendable, and relevant methodology is the first step toward the successful integration of ecological values into provincial land-use planning and management. It enables decision makers to rapidly progress through the planning process where informed trade-offs can be discussed, priorities set and clear policy direction achieved with regards to environmental values. Within this context, mapped ESAs provide a critical tool for developing spatially explicit, scientifically defendable regional and provincial land-use plans.

Rationale for update of Alberta's ESAs

The original ESA map for the province of Alberta (Sweetgrass Consultants 1997, in combination with Timoney 1998) was a compilation of a large number of reports from different counties and municipalities across the province. Between these reports, no consistent set of criteria were used to identify ESAs at the local scale, and it was often unclear how some criterion were applied resulting in a relatively subjective identification process in this first iteration. The limitations of this approach are the lack of repeatability and transparency, both of which are considered crucial for any given conservation tool to be successfully incorporated into land-use planning and to maintain its relevancy over the longterm. Further, ESAs were not directly comparable because different criteria were used to identify them making it difficult to prioritize areas for management consideration.

Advances in Geographic Information Systems (GIS) technology and systematic conservation planning tools now allow the application of rigorous, objective and repeatable methods to identify and prioritize ESAs that fulfill a list of a priori well-defined criteria. Identifying these areas using a scientifically defendable methodology is the first step towards the successful integration of environmental values into provincial planning and management.

The updated ESA criteria

The following seven criteria were selected to identify and define ESAs in the province of Alberta:

CRITERION 1: Areas that contain elements of conservation concern.

CRITERION 2: Areas that contain rare or unique landforms.

CRITERION 3: Areas that contain habitat for focal species.

CRITERION 4: Areas that contain important wildlife habitat.

CRITERION 5: Riparian areas.

CRITERION 6: Large natural areas.

CRITERION 7: Sites of recognized significance.

These criteria, applied in a systematic fashion, provided the basis for identifying ESAs with the scientific rigor, defensibility, and repeatability that should characterize any conservation planning process.

Methods and Results

Using the quarter section as the unit of analysis, several GIS data layers which mapped the occurrence/spatial distribution of the seven criteria were analyzed using systematic rules to identify ESAs in the province of Alberta. Each ESA was assigned a significance rating according to the elements present (in order of precedence): (1) International, (2) National, and (3) Provincial.

A total of 754 ESAs were identified using the seven predefined criteria. The total provincial ESA network increased modestly compared to the 1998 ESA compilation. In general, the spatial distribution of ESAs is similar between the two products but with additional areas also identified in this latest iteration. The main factors that accounts for differences in ESA area, number and boundaries between the 1998 and 2009 analysis was the selection and application of well-defined criteria to delineate ESAs as well as the use of updated information to identify ESAs. Overall, the vast majority of ESAs contain multiple environmental values representing outstanding examples of biological and physical resources provincially.

Application of ESA's to provincial management systems

The application of systematic conservation area design principles using seven well defined criteria resulted in a scientifically defensible portfolio of ESAs in the province of Alberta. Further, the methodology for delineating ESAs was transparent and repeatable, resulting in an ESA network which can be easily updated as new information becomes available for existing criteria (e.g. updates on listings of elements of conservation concern) and as new criteria are added (e.g. human disturbance). The consistent application of this methodology ensures the relevancy of ESAs as a decision support tool for land-use planning and implementation in the province of Alberta over the longterm. While further analysis may be required at the regional scales to refine ESA boundaries, prioritize ESAs for management, and develop ESA-specific management strategies, this analysis highlights areas that should be given closer scrutiny by land managers and stakeholders during the land-use planning process.