

# NATURAL SPACES MANAGEMENT PLAN

## 2.0 Project Methods

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### 2.1 NATURAL AREA ASSESSMENT METHODS

#### 2.1.1 Public Consultation

The Town of Lacombe initiated the process by notifying all private landowners within the Subject Area. A letter outlining the study objectives, environmental consultant and field personnel was provided. Field personnel contacted the relevant landowners in order to gain access to the various natural areas. As part of the field program, residents and landowners were interviewed, where appropriate, with respect to their respective experiences on the landscape. Specifically, information provided by the public regarding seasonal use of the natural areas would be incorporated into the field surveys.

#### 2.1.2 Review of Site Information

All available site information was reviewed to generate an accurate description of the landscape prior to and during the field program. Emphasis was placed on the current and historical air photo review. Soils, geology and hydrogeology maps were reviewed from a landscape ecology perspective. In-house documents and information and previous environmental reports were provided by the Town of Lacombe.

#### 2.1.3 Vegetation Survey

The vegetation survey was conducted over a ten day period, spanning 5 to 15 June, 2001. An additional survey was completed on 6 July 2001.

A baseline level survey of terrestrial and aquatic vegetation was conducted in all natural areas within the Subject Area. Two sampling techniques were employed to complete an appropriate assessment of all vegetation. Firstly, the general plant communities within the natural areas were described using a series of randomly selected vegetation plots. The plot sizes were determined based on the size of the natural area in question and averaged 10 x 10 m. All plant species within the vegetation plots were identified and the percent cover of the dominant plant species was estimated. Secondly, a plotless technique was used for detailed surveys of rare flora. A meandering stratified survey technique allows the observer to freely investigate microhabitats potentially containing rare species that may be missed through plot-based techniques. Potentially significant habitats are targeted for the survey. A known starting point is selected and a straight line transect is walked to a

# NATURAL SPACES MANAGEMENT PLAN

## PROJECT METHODS

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predetermined point. Plants within 3 m of either side of the transect were surveyed, and if an interesting microsite occurred within visual range, it was investigated for rare plants.

All plants encountered were listed. Field identification was conducted with the aid of pocket field guides. Due to the seasonal timing of the field program, only those plants with identifiable features were classified to species level.

### 2.1.4 Wildlife Survey

The wildlife survey was conducted over a ten day span from 5 to 15 June, 2001. An additional survey was completed on 6 July 2001.

Concurrently to the plotless transect vegetation survey, a wildlife survey was also conducted. Any animal species observed was noted, as was any marking, footprint, feeding or bedding/nesting sign. Avian surveys were conducted between 7:00 am and 11:00 am during the field program. The field person proceeded through or adjacent to natural areas, observing birds visually and detecting birds by song.

## 2.2 NATURAL AREA EVALUATION CRITERIA

Specific procedures and criteria are required to effectively evaluate and classify sites as natural areas, significant natural areas or environmentally sensitive areas. The following evaluation criteria have been developed and applied consistently throughout Canada;

**Natural Areas** – defined by the presence of vegetation, water or natural features. Natural areas may be partially disturbed.

**Significant Natural Areas** – defined as natural sites that have the potential to remain sustainable within an urban environment and are significant (from an environmental perspective) to the community because of their size or features on the site. They generally contain a diverse assemblage of common species or habitat and function as a linkage between other significant natural areas or environmentally sensitive areas. Significant natural areas can withstand various degrees of human use and disturbance.

**Environmentally Sensitive Areas** – defined as undisturbed or relatively undisturbed sites with natural features being of value to society and ecosystems worth protecting. Environmentally sensitive areas are susceptible to further disturbance.

**2.3 GLOSSARY OF TERMS**

Due to the ecological basis for this study, a number of terms have been used throughout to appropriately describe the ecology of the Subject Area. Table 2.1 provides a brief glossary of terms that occur throughout this report. Many of these definitions are adapted from Mitsch and Gosselink (1993), Cambridge Dictionary of Biology (1989), Forman and Godron (1986) and McGraw-Hill Dictionary of Biology (1984).

**Table 2.1 Glossary of Ecological Terms**

<b>Term</b>	<b>Definition</b>
<b>Community</b>	An assemblage of species at a particular time and place.
<b>Connectivity</b>	A measure of how connected or spatially continuous a corridor or matrix is.
<b>Corridor</b>	A narrow strip of land that differs from the matrix on either side.
<b>Disturbance</b>	An event that causes significant changes from the normal pattern in an ecosystem.
<b>Dominance</b>	The degree to which one or a few species predominate in a community in terms of numbers, biomass or dynamics.
<b>Ecology</b>	The scientific study of the relationships between organisms and their environment.
<b>Ecosystem</b>	All of the organisms in a given place in interaction with their nonliving environment.
<b>Ecotone</b>	A transitional or overlap zone between two habitats or communities.
<b>Edge</b>	An outer band of a community that has an environment significantly different from the interior of the community.
<b>Endangered Species</b>	Wildlife species that are threatened with immediate extirpation. Species that are no longer found in the wild in Canada, although they exist elsewhere (COSEWIC).
<b>Freshwater Marsh</b>	A frequently or continually inundated wetland characterized by emergent herbaceous vegetation adapted to saturated soil conditions.
<b>Habitat</b>	A type of biotic community, or set of biotic communities, in which an animal, plant or population lives. A suitable habitat provides year round requirements for a species.
<b>Habitat Diversity</b>	A measure of the number of differing habitats with a particular ecosystem.
<b>Isolated Ecosystem</b>	One that has no exchange of energy or matter with its surrounding environment.
<b>Landscape</b>	A heterogeneous land area composed of a cluster of interacting ecosystems that are repeated in similar form throughout. Landscapes vary in size, down to a few kilometers in diameter.
<b>Landscape Ecology</b>	A study of the structure, function, and change in a heterogeneous land area composed of interacting ecosystems.
<b>Landscape Element</b>	A basic, relatively homogeneous ecological unit, on land at the scale of the landscape.
<b>Matrix</b>	The most extensive and connected landscape element type which plays a dominant role in landscape functioning.
<b>Natural Landscape</b>	A landscape where human effects, if present, are not ecologically

# NATURAL SPACES MANAGEMENT PLAN

## PROJECT METHODS

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	significant to or on the landscape as a whole.
<b>Naturalization</b>	Refers to the range of revegetation methods with the common goal of establishing and maintaining native plant species on previously disturbed areas.
<b>Node</b>	A patch attached to a corridor, both of the same landscape element type. Also, an intersection of corridors and a source or sink of flows of objects.
<b>Patch</b>	A nonlinear surface area differing in appearance from its surroundings.
<b>Plant Species</b>	Includes any member of the Plant Kingdom, including algae, fungi, mosses, liverworts, ferns and seed plants identified to the specific level of taxonomy.
<b>Rank 1</b>	Areas determined by the NSMP Steering Committee to be appropriate for development. No ecological profiling required.
<b>Rank 2</b>	Areas determined by the NSMP Steering Committee that required further ecological profiling. Upon completion of the ecological profiling, considered to have: <ul style="list-style-type: none"> <li>✓ Low to moderate connectivity to ecosystems across the landscape</li> <li>✓ Some ecosystem fragmentation</li> <li>✓ Low to moderate probability of rare species</li> <li>✓ Moderate biodiversity (species and habitat diversity)</li> <li>✓ Low to moderate recreational potential</li> <li>✓ Low to moderate potential for natural sustainability</li> </ul>
<b>Rank 3</b>	Areas selected for preservation by the NSMP Steering Committee that are biologically diverse. Upon completion of the ecological profiling, considered to have: <ul style="list-style-type: none"> <li>✓ High connectivity to ecosystems across the landscape</li> <li>✓ No ecosystem fragmentation</li> <li>✓ High probability of rare species</li> <li>✓ High biodiversity (species and habitat diversity)</li> <li>✓ High moderate recreational potential</li> <li>✓ High potential for natural sustainability</li> </ul>
<b>Rare Plant Species</b>	One that has a small population within Alberta. It may be restricted to a small geographical area or occur sparsely over a wide area.
<b>Remnant Patch</b>	An area remaining from a former large landscape element and now surrounded by a disturbed area.
<b>Resistance</b>	The ability of a system, when subjected to an environmental change or potential disturbance, to withstand or resist variation.
<b>Riparian</b>	Refers to the vegetation typically found associated with a creek or river. The riparian zone is the land adjacent to a moving body of water that is periodically influenced by flooding.
<b>Species Composition</b>	The particular species present in a community.
<b>Species Diversity</b>	A measure of the number of species of living organisms in a particular ecosystem. Measures of diversity are considered indicators of the health of ecosystems.  <b>Low to moderate – number of plant species less than 50, number of</b>

# NATURAL SPACES MANAGEMENT PLAN

## PROJECT METHODS

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Term	Definition
	<b>animal or bird species less than 20</b> <b>High – number of plant species greater than 50, number of animal or bird species greater than 20</b>
<b>Buffer</b>	A band of vegetation bordering a stream or river.
<b>Succession</b>	A directional species replacement process, often leading through a series of recognizable stages to a climax community.
<b>Threatened Species</b>	Wildlife species that are likely to be come endangered if the pressures from human or natural causes making them vulnerable are not reversed (COSEWIC).
<b>Top of Slope</b>	The most obvious topographic discontinuity in slope between the upper plateau and valley wall.
<b>Urban Landscape</b>	A landscape with a densely built up matrix of human development (may include residential, commercial or industrial).
<b>Vulnerable Species</b>	Wildlife species that are at risk because of low numbers or restricted range and therefore, although not in immediate danger, could be at any time (COSEWIC).
<b>Wet Meadow</b>	A wetland characterized by grasses and sedges with waterlogged soil near the surface but without standing water for most of the year.
<b>Wetland</b>	A wetland is land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation and various biological activities which are adapted to a wet environment. Wetland include bogs, fens, marshes, swamps and shallow water (< 2 m deep) (The Canadian Wetland Classification System, 1987).