

Deep Roots  
Greater Heights

## DISTRICT OF MAPLE RIDGE

**TO:** His Worship Mayor Gordon Robson  
and Members of Council  
**DATE:** October 8, 2008

**FROM:** Chief Administrative Officer  
**FILE NO:**  
**ATTN:** C of W

**SUBJECT:** Environmental Sensitive Area Mapping Project

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### EXECUTIVE SUMMARY:

In 2005, an Environmentally Sensitive Area (ESA) study was carried out to determine areas, features, and functions within the District which were considered environmentally sensitive, significant, or potentially vulnerable with respect to risks. A municipal wide inventory was carried out to identify the location and condition of significant features at a municipal and watershed wide scale to establish some baseline information on terrestrial and aquatic areas, features, and functions that were potentially of significance to the District.

By 2007, the District had further developed its Environmental Mapping and Information Management System to include information on environmentally sensitive areas outside of aquatic ecosystems in order to help improve decision making capability of the District and to share this information with the development community.

The ESA information management system and mapping project has been utilized over the past several years to help understand how to protect and develop significant features and landscapes responsibly, equipped with more up to date and comprehensive environmental information. As demonstrated in the Committee of the Whole presentation to Council in February of 2008, the ESA mapping and information management system currently helps the District to recognize the value of environmentally sensitive areas and features that contribute positively to the quality of life in the community, to assisting staff with decision making to ensure sustainable development practices, and to maintain and improve ecosystem health and human safety.

Preparation of a municipal environmental management strategy is the next step to ensure Maple Ridge continues to support responsible management of our community's natural areas and resources; to ensure there is a continuity of biological diversity; to create healthy ecological systems, to provide safe environments for developments, and to work with the natural services the environment has to offer.

### RECOMMENDATION:

That information collected through the Environmentally Sensitive Area mapping project be used as baseline information for the Environmental Management Strategy for Maple Ridge.

## BACKGROUND

In December 2004, the District passed a resolution through its Official Community Plan to (i) identify its environmentally sensitive areas, features, and functions and (ii) establish planning priorities in order to facilitate the development of coordinated strategies to conserve its critical ecological resources and protect its 'green infrastructure' so it could move towards becoming a more sustainable community.

In 2005, the District of Maple Ridge began an ESA study to identify critical ecological areas, features, and functions at a municipal wide level. This ESA framework would help facilitate planning at the municipal or watershed wide scale and to:

- Define the scope, significance, and characteristics of environmentally sensitive areas, features, and functions throughout the District;
- Expand upon the municipal environmental information management system to assist with decision making capability;
- Provide environmental baseline information to help identify where more detailed surveys or studies need to occur at the regional, municipal, watershed, and site levels.

This study incorporates the principles, techniques, and standards from various models that have been endorsed and applied by federal, provincial, regional and municipal governments over the last decade. The ESA review is also tailored to the unique physical characteristics and planning requirements of the municipality.

The new environmental information layers include an updated inventory of floodplain elevation boundaries determined by new provincial agency elevation modelling, new watercourses and wetlands identified by municipal environmental staff using high end GPS, an assessment of steep slopes and significant erosion concerns throughout the District, and an inventory of unique or significant habitats and movement corridors throughout Maple Ridge.

### Project Description

Planning for 'sustainability' and from an 'ecological' perspective, means that before anything is designed or developed, the District is able to help identify, manage, and potentially protect significant environmentally significant features, functions, and areas at the municipal, watershed, and site specific scales. It can help to reduce impacts through appropriate site design and building form. It can help to identify, enhance and restore potential sensitive areas. It can also help to protect those areas, features, and functions that the community values as essential to environmental sustainability. In general, the ESA study can help to make informed decisions about how and where we can work with the environment and landscape to help us achieve a unique and diverse natural community.

The key goals of the ESA study were to (i) formally identify the location and condition of "environmentally sensitive areas", and (ii) to identify and utilize various planning tools to help protect or enhance the integrity and biodiversity of unique or significant terrestrial ecosystems, features, and functions within the municipality.

The specific objectives of the review are to:

1. Provide a biological and ecological framework for land management, particularly the conservation of the most vulnerable and rare species, significant habitats, and important ecological functions in the landscape.

2. Identify and prioritize habitat sensitivity in terms of significant wildlife habitat areas, natural features, ecological functions, and vulnerable areas potentially at risk.
3. Develop an information management system that can be used to protect, manage, or enhance ecologically sensitive areas, functions, and features.
4. Increase awareness and understanding of (i) habitats at risk; (ii) the role of significant ecological functions; (iii) the distribution and abundance of priority habitats and features; and (iv) the impacts of land management activities.
5. Provide a historic record of environmental conditions at a municipal level that can be used as an indicator for monitoring ecosystem response to ongoing municipal management and development practises; and
6. Create a planning and management tool for portraying ecosystem and landscape diversity, uniqueness, and to continue encouraging use of environmental services.

### **A Standardised and Compatible ESA Approach**

The criteria, methods, and standards selected for this study serve an important role in ensuring consistency of data collection and classification to facilitate the exchange of information between the District of Maple Ridge and other agencies or municipalities. The Maple Ridge ESA Review is currently based on the methodologies and standards taken from federal, provincial, regional and local municipal models. The District of Maple Ridge ESA Review methodology has also been reviewed and endorsed by the province including a letter of support from the Ecosystem Section Head from Ministry of Water, Land, and Air Protection.

### **Project Framework**

The Environmental Sensitivity Review project consists of three phases.

Phase I. The initial phase of the ESA Review included developing the conceptual design of the ESA framework and for the environmental mapping and information management system. This first phase included the compilation of a digital information repository for ESA related materials using existing information from various sources. It also included carrying out data collection and field verification of ESA candidate areas, GPS mapping, and GIS analysis for the municipality.

Phase II. In phase two, an evaluation of information requirements, accuracy, and classification was carried out for all of the information layers. The information generated during this second phase helped formed the basis for the expansion of the District's Environmental Mapping and Information Management System which has been utilized for the past several years to help with the development application management process.

Phase III. Phase three will help the District create a framework for dealing with broader environmental programs and specific environmental management recommendations associated with the Environmental Sensitivity Review. The third step in this study is to foster the short and long term management of environmentally sensitive areas within the context of federal, provincial, and municipal environmental objectives, regulations, and best management practises.

### **Types of Environmental Information Collected**

The types of information collected and verified for the District ESA review includes:

- Data on surficial geology, soils, topography, and hydrology
- Data on existing protected areas, natural parks, conservation covenant areas

- Data describing significant ecosystems, vegetative communities, natural features, significant landforms, wildlife movement corridors, and where applicable, their uniqueness, vulnerability, diversity, and regional significance.
- Data on significant ecological functions that are known to occur within the boundaries of the District such as aquifer boundaries, foreshore habitat areas, wetlands, etc.
- Data on the distribution of unique ecosystems and rare species of flora and fauna
- Data on habitat size, condition, and fragmentation
- Data on significant habitat movement corridors and network connectivity
- Data on terrain hazards and slope assessments
- Data on natural landscape heritage items or scientific narrative associated with specific geological features and areas.
- Environmental Development Permit Areas
- ESA photo gallery mapping

#### Maple Ridge ESA Review Information Layers

The seven major information layers in which information was collected, processed, mapped, and evaluated for the Maple Ridge ESA study include:

1. **Protected Areas and Features.** An area that contains sensitive lands, species, or features already protected under municipal, provincial, or national regulations and/or they already exist within designated conservation areas or 'green parks'.
2. **Unique Ecosystems/Habitats.** The ecosystem and/or wildlife habitat communities of the area are designated as 'sensitive' or 'significant' by the federal and provincial agencies Sensitive Ecosystem Inventory strategy including riparian areas, wetlands, lakes, mature or old growth forests, old fields, and tidal foreshore areas.
3. **Significant Ecological Function.** The ecological function of an area or feature is vital to the healthy maintenance of a natural system beyond its boundaries such as watercourses, wetlands, and aquifer boundaries.
4. **Local Landform Significance.** The area has an unusual landform, landscape feature, or vegetative community with limited representation in the municipality, province or country, or there is a high natural heritage value associated with a feature within the municipality usually associated with rock bluffs, canyons, or natural heritage sites.
5. **Habitat Size and Element Occurrence.** An area that is abundant in size, relatively undeveloped, and that has an unusually high diversity of biological communities and associated plants and animals within its boundaries with connectivity to major rivers and major habitat reservoirs.
6. **Significant Movement Corridors.** The area provides an important linkage of suitable or restorable habitat between significant natural biological communities typically along riparian corridors, utility right of ways, and along equestrian trail networks.
7. **Terrestrial Hazards.** The area is already set aside due to the presence of on-site or nearby hazard lands that would suffer degradation if the area were to be further disturbed including floodplains, steep slopes, and areas vulnerable to erosion or slumping

## Project Scope and Limitations

The ESA review was designed to provide a basic level of information upon which the District of Maple Ridge and consultants can build a more detailed assessment. It is designed to provide a guide that can help determine where land uses may or may not be compatible with future development plans. The information collected is designed to support the preliminary evaluation of candidate sites and classification of sensitivity at a landscape level. The following factors must be taken into consideration when using the information.

1. **Timing:** It is important to note that data sources are not designed or intended for final determination of site specific evaluations. Furthermore, some of the biophysical characteristics associated with environmental reports and studies are likely to change over time as we are working in a dynamic system when dealing with ecosystems.
2. **Appropriate Scale:** To ensure the protection of these valued natural features, there will need to be continued collaboration with qualified environmental professionals and other kinds of professionals to identify specific conservation issues and opportunities, risk management concerns, and appropriate mitigation at the site level. The level of detail associated with the site evaluation typically depends on the sensitivity of the specific site as well as the scale and type of development activity that is occurring in the area.
3. **Jurisdictional Constraints.** Due to legal constraints, the management recommendations that are derived from the Environmental Management Strategy may not be applicable to Managed Forest Land subject to the Private Land Forest Practices Regulations or in some cases to "Agricultural Reserve Lands" under the jurisdiction of the Agricultural Land Commission. For the purposes of this study however, a cursory level inventory of these areas was included as part of the Sensitive Ecosystem Review project.
4. **Mitigation.** This study does not take into account whether or not technology or engineering exists to prevent or mitigate the impact of development or ensure safe development design. It is at the application and permit stage for development where there is a greater ability to provide detailed site specific studies on potential impacts, mitigation, protection, and restoration opportunities.

## Consultation and Communication

A peer review of the Maple Ridge Environmental Sensitivity Review report included a steering committee that consisted of members from federal, provincial, and non-government organizations. This included members from the federal Department of Fisheries and Oceans and Canadian Wildlife Service; the provincial ministry of Ministry of Water, Land, and Air Protection; the Greater Vancouver Regional District; and wildlife biology consultants, Doug Ransome (Ph.D) and Ken Williams (B.Sc).

Community groups were contacted and consulted in the study include various environmental stewardship groups operating in the District of Maple Ridge such as the Alouette River Management Society, Kanaka Education and Environmental Partnership Society, the Alouette Field Naturalists, Pitt Polder Preservation Society, and the Haney Horsemen. Informal encounters with landowners and public stakeholder also occurred frequently while


working in the field and this created opportunities to discuss the project as well as collect valuable information.


### Conclusions

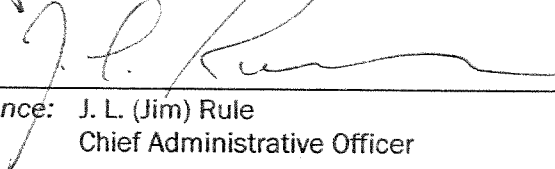
Maple Ridge has a wide variety of topographic features, ecosystems, and species within its boundaries which contribute towards a unique, diverse, and valued natural community. The citizens for the District of Maple Ridge along with the Official Community Plan recognizes the importance of having a comprehensive strategy for dealing with these features and functions before, during, and after development takes place to balance growth with environmental sustainability.

By continuing to incorporate the existing environmentally sensitive areas, features, and functions into a comprehensive planning and decision making framework, there is continuous investment in smart development practices and sustainable management of the natural environment for ourselves and for future generations. This includes continuity of investment in biological diversity, healthy ecological systems, the provision of safe environments, and the enjoyment of the natural economic, social, and ecological services the environment has to offer the community.

  
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