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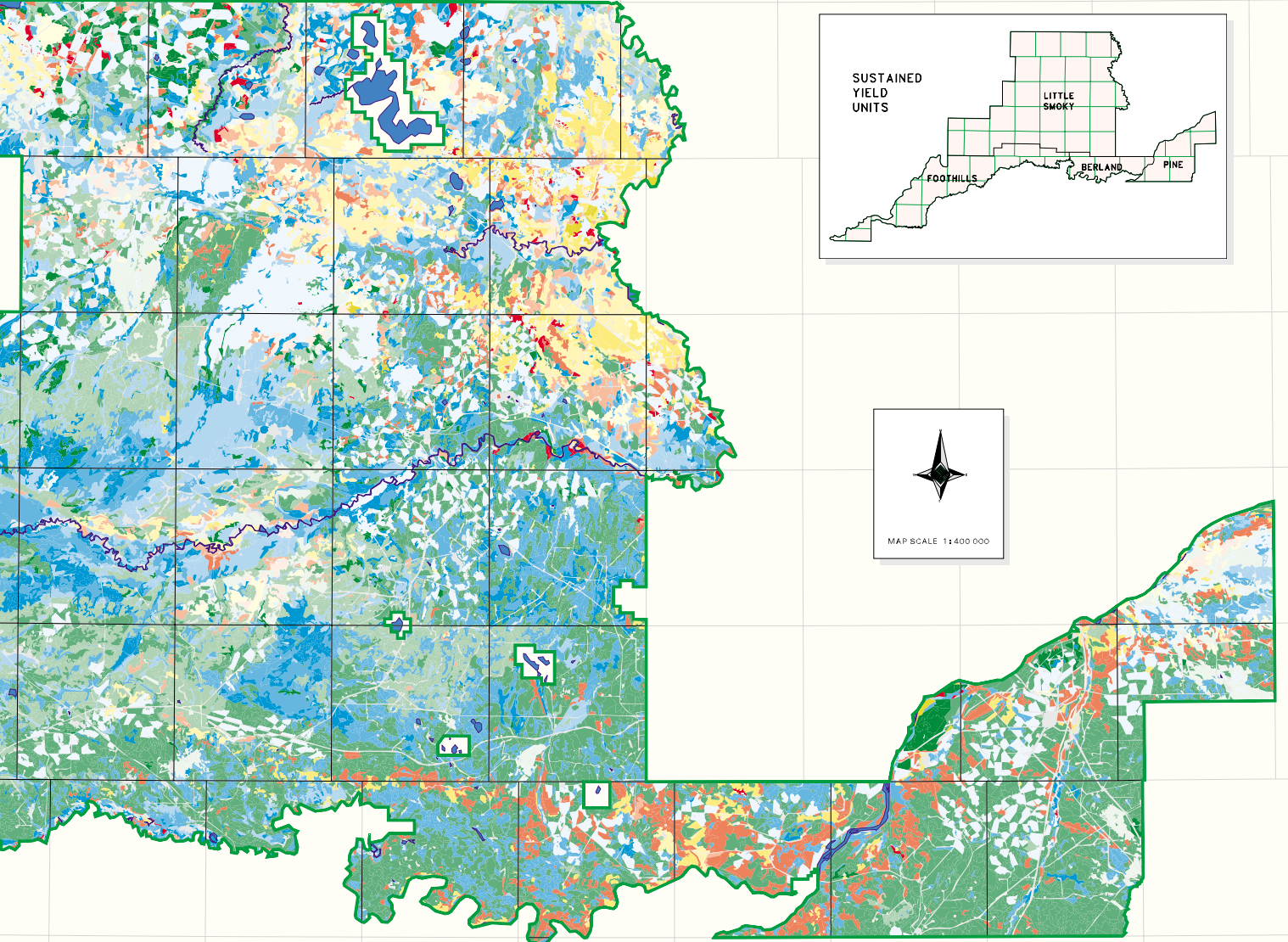
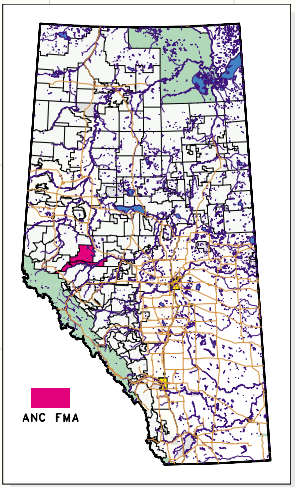
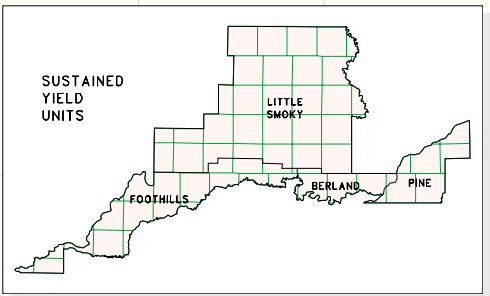
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**ALBERTA NEWSPRINT COMPANY
FOREST MANAGEMENT AREA**

NATURAL DISTURBANCE STRATIFICATION


Figure 2.7



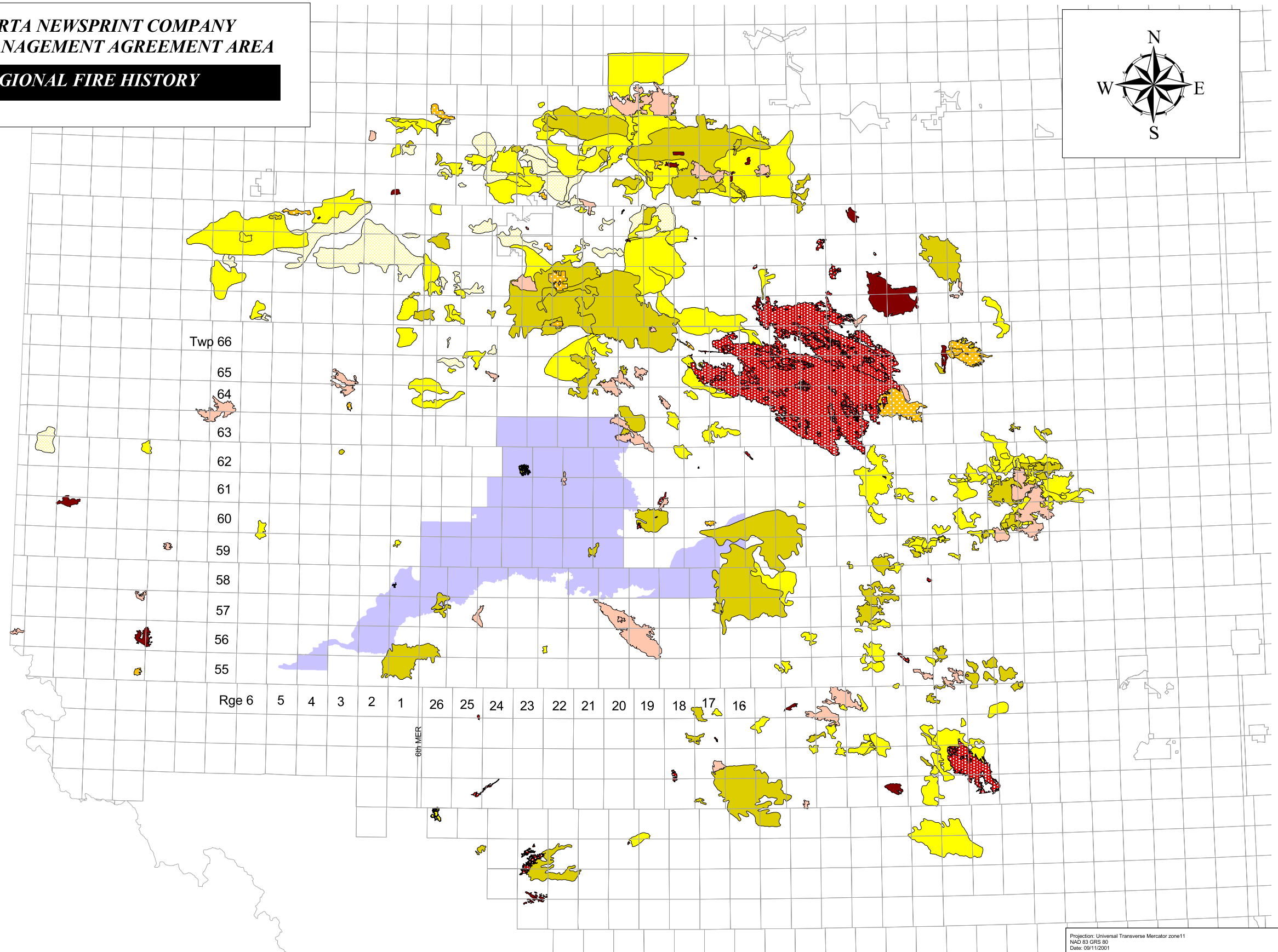
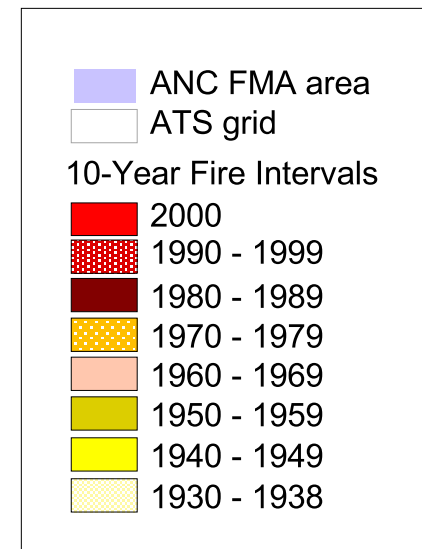
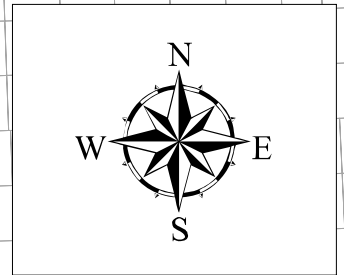
NATURAL DISTURBANCE STRATA

STAND AGE (YEARS)	S1 (Pine)	S2 (Spruce)	S3 (Hardwood)	S4 (Mixedwood)	NON-FORESTED
121 +	Dark Green	Blue	Yellow-Green	Red	Grey
81 - 120	Medium Green	Light Blue	Yellow	Orange	
41 - 80	Light Green	Very Light Blue	Light Yellow	Light Orange	
1 - 40	Very Light Green	Very Light Blue	Very Light Yellow	Very Light Orange	

Map Production: Silvacom Ltd
 Map Date: June 10, 1999
 Map Scale: 1:400000
 Silvacom Ref.: C-049
 Map File:
 .../g-049/maps/report_maps/at_dist1



Rge 5 Rge 4 Rge 3 Rge 2 Rge 1 6th MER Rge 27 Rge 26 Rge 25 Rge 24 Rge 23 Rge 22 Rge 21 Rge 20 Rge 19 Rge 18 Rge 17



The largest fires occurred in 1949, 1956 and 1998. The number of fires per year has generally been quite low (< 10) with some notable exceptions in 1997 and 1998, with 112 and 225 fires, respectively. Prior to this period the highest fire frequency occurred in 1950, with 399 recorded fires.

The fuel type map (Figure 2.9) illustrates the distribution of different fuel types throughout the greater ANC FMA area and provides an indication of the areas that are potentially at risk for future forest fires. Although the past fire history of this area indicates that fires have not been prevalent within the ANC FMA area (a factor most likely related to fire suppression activities) the probability of a major fire occurring at some point in the future is relatively high. This is especially noticeable in the western part of the FMA area where coniferous forests of spruce and pine predominate, fuel types that often contribute to the rapid and extensive expansion of fires. In contrast, northern and eastern portions of the FMA area are dominated by aspen forests, which are less susceptible to fires.

An assessment of lightning strike intensity data (Figure 2.10) indicates that the western part of the FMA area, in particular the Foothills SYU, has the fewest cases of lightning strikes while central and eastern portions of the FMA area have the highest density of lightning strikes. However, it is the combination of the ignition source (lightning or human caused) and the fuel loading conditions that lead to the highest risk for wildfire. Though lightning strikes may be quite prevalent in the eastern part of the FMA area, the fuel types of that area are not as conducive to fires as those in the western part of the FMA area. Thus, any lightning strikes that reach ground in the western part of the FMA area, though fewer in intensity, have a higher probability of resulting in a large catastrophic fire.

Insect and Disease

Figure 2.11 shows the insect and disease risks in the FMA area. It should be noted that the model used to produce Figure 2.11 does not predict specific disease or insect agents but rather predicts the susceptibility of tree stands to insect and disease attack. In Canada, insects and diseases can account for more lost timber than that caused by forest fires (Hall and Moody 1994). To limit the number of occurrences and the amount of area impacted by insect and disease outbreaks, well planned management strategies need to be developed. Currently, the general strategy taken by ANC Timber Ltd. is to ensure that fibre lost to insects and disease is reduced as much as possible while at the same time not reducing the rates of insect and disease occurrence below those rates necessary to ensure other natural processes are not disrupted.

The following insects and diseases should also be noted, as they are known to have a significant impact on forests in Alberta (Alberta Timber Harvest Planning and Operating Ground Rules 1994):

- *Armillaria* (*Armillaria* spp.) can cause significant tree mortality in young regenerated stands. Areas of known infestation will be mapped. Blowdowns and stand openings are often caused by *Armillaria* root rot. The mapped information will be used for reforestation planning and juvenile stand management.
- The following diseases will be noted for each proposed harvest area: blister rust (*Cronartium comandrae*) and western gall rust (*Endocronartium harknessii*).
- The presence of the following insect species will be noted in the AOP for each proposed harvest area: Warren rootcollar weevil (*Hylobius warreni*).

Some important biological issues involved in insect and disease prevention include:

- The vital role that disease and insects play in the balance of forest ecosystems (Mattson and Addy 1975; Simard et al. 1997).
- The dynamics underlying the occurrence of forest insects and diseases.
- Assessments of the role of disease in direct pest-related losses of productive timber (e.g., Brandt (1995) have shown that a variety of disease-causing organisms account for over one third of the pest-caused losses between 1982 and 1987 in Canada.
- The link between pollination and herbivory to insects and disease in the health of plants. (viz., some diseases and insects can serve as indicators of overall forest health and are necessary attributes of boreal forest ecosystems).
- The impact of insects and disease on young forest stands (e.g., Cerezke and Volney 1995), resulting in the delayed maturity and reduced yields and consequently reducing the contributions of managed regeneration stands to the sustainable AAC for the FMA area.
- Confirmation that defoliators and bark beetles are major insect pests of mature forests in the western boreal forest region (Brandt 1995).
- Confirmation of the importance of the mountain pine beetle as a concern on the eastern slopes of the Cordilleran forest, by monitoring for invasions into this area of the province.
- Assessment of climate change on the prevalence of certain types of forest pests, including forest tent caterpillars.

2.3 Biotic Features

The following subsections contain baseline information describing ecological classification, plant species, age class structure, fragmentation/connectedness, wildlife, habitat types, and fish species.

2.3.1 Ecological Land Classification

Ecologically based management and sustainable development have emerged as the new standards in forest planning. The process involves understanding and working with environmental resources in an evolving and adaptive manner. The objective is to utilize current information, ideas and research to achieve environmental, social and economic goals. Furthermore, this approach is aimed at understanding and maintaining the forest structure, ecological integrity, landscape features and biological diversity of an area. It does this by instituting management practices that emulate natural processes. This is a very complex task, as ecosystems are the product of intricate interactions between many components such as climate, topography, soils, vegetation, and wildlife.

Our current understanding of ecosystem function can be improved through ecological classification. The concept of ecological classification is becoming increasingly important in resource management in Alberta, because it provides accurate and reliable information that can be applied to developing sustainable forestry practices (Beckingham et al. 1996).