for which the foliage is valued. Other potential impacts include: (1) damage to protective surface structures such a cuticle; (2) interference with normal functions of guard cells; (3) poisoning of plant cells after diffusion of acidic substances throug stomata or cuticle; (4) disturbance of normal metabolism or growth processes without necrosis of plant cells; (5) alteration of leaf an root-exudation processes; (6) interference with reproduction processes, and (7) synergistic interaction with other environmental stress factors.

An increase in soil acidity can be detrimental to the chemical availability of several essential macro nutrients and over decades we can expect a net loss of cations (Ca^{2+} and Mg^{2+}), important for plant growth, from poorly buffered sites. Areas with soils of low pH are characterized as having low base exchange conditions. In this situation, any further loss of cations is considered significant, however small that loss may be. Much of eastern Canada's forest industry is founded on these low pH soils. The general restriction of commercial forest production to "less productive" sites, coupled with new harvesting technology (where more of the tree is removed from the site, thus reducing the availability of nutrients for recycling), and the tradition of not applying lime may increase the vulnerability of long term forest growth to acid precipitation.

An increase in soil acidity can also lead to mobilization of other elements (Al, Mn, Fe) sometimes in quantities toxic to terrestrial plants and to aquatic ecosystems. In fact, some studies have indicated that mass mortalities of fish, observed during transient episodes of acidification in the spring, are most likely a result of elevated levels of inorganic aluminum mobilized from the soils by strong acids present in snowmelt water.

The terrestrial systems influence on the acid component of precipitation also has important implications for the aquatic ecosystem. The results presented in this report on the mobility of nitrate and ammonium ions have shown that most of the nitrogen added to the watershed is retained by growing plants where it can be beneficial if it is in limited supply. In cases where sulphate is limiting for plant growth atmospheric deposition can be beneficial, however, following a period of sulphate saturation in soils, most of the sulphur passes through to the aquatic system. Thus, it appears that control of sulphur deposition would be more effective in reducing the rate of acidification of surface waters than control of nitrogen inputs.

Aquatic Effects

The impact of acid deposition on water quality and the aquatic ecosystem is better quantified and understood than that on terrestrial ecosystems. There are a number of examples where dramatic changes in water quality believed to be directly attributable to acid precipitation, have occurred. In Nova Scotia, comparisons of recent data with