The present study was carried out in two adjacent areas of forest and jhumland ecosystems in Mopongchuket village and Chuchuyimpang village under Mokokchung district, Nagaland which lies at 26°11'36'' North latitude and in between 94°17'44'' to 94°45'42'' (E) longitude. The forest site comprised of rich vegetation which had not been disturbed for more than twenty years while the jhumland had almost no vegetation due to frequent human activities and interference.

Soil microarthropods (principally mites and collembolans) are among the unseen faunal diversity in nearly all agricultural soils. They participate in the complex food webs of soils, but their importance is seldom appreciated. Laboratory and field results show that microarthropods have impacts on organic debris, microbial decomposers, nematodes, roots and pathogenic fungi. However, their impact on primary production is only indirect. Soil microarthropods are attributed with regulating many soil processes, including decomposition, mineralization, influencing populations of other soil organisms, energy flow, and nutrient cycling in ecosystems (Petersen and Luxton 1982; Seastedt 1984; Wallwork 1983; Wardle and Giller 1996). Disturbance of soil microarthropod communities has the potential to alter or disrupt these processes. But, opportunities for managing soil microarthropods in agricultural soils have been ignored.

In both the study sites, total soil microarthropods population was seen to be more in the rainy season. In the dry winter season microarthropods were still found to be thriving, and this can be attributed to post monsoon effect. In the summer physical factors such as air and soil temperature were found to be higher than the other seasons which may in turn increase the soil evaporation and less leaching of organic matter to the soil.

Different factors both physical and edaphic, at deeper soil layer may be unsuitable which may result for the lesser concentration of soil microarthropods. But the abundance of microarthropods in the upper layer may be due to constant deposit of decaying materials. This may be one of the
concerning factors for the abundance of young and immature stages as well as adults in this soil layer.

Lavelle et al. (1993) speculated that in the humid tropics, biological systems of regulation, i.e., the mutualistic interactions of fauna and microbes, are the paramount determinants of decomposition dynamics for any one leaf type. Here. It is relevant to note that the determining factors of litter decomposition rates viz. climate, edaphic structure, resource quality, fauna, and microbes, come into play in all terrestrial systems, though their relative importance may vary along a latitudinal gradient. Although, in temperate regions, modifications of microarthropod assemblages can influence the availability of N (Seastedt and Crossley, 1983; Heneghan and Bolger 1996), differences in assemblage structure have not been shown to influence mass loss of decomposing litter (Andren et al. 1995; Hoover and Crossley, 1995). This can be interpreted on the basis of climatic variability, which is greatly reduced in the humid tropics that it represents a constant, and no longer acts as a constraint on biotic activity. This is in marked contrast to temperate forests, where seasonal climatic patterns strongly constrain the biota.

The results of the present investigation showed close similarities and striking differences with the observations made by earlier workers. According to Wallwork (1970) these differences might be attributed to the local microclimatic factors which vary from plots to plots.

Community analysis was carried out with two major groups of soil microarthropods i.e. Acarina and Collembolan in the present study similar to the approach used in Canada by Behan & Pelletier (2003) as their contribution are maximum in term of species, abundance and distribution. A total of thirty (30) different species with fifteen (15) species in each group. The species diversity and similarities of the communities were analysed using the following indices of Margalefs index (Da) (1968), Shannon-Wiener index (H') (1949), Sorensen's index (Q/S) of similarity (1948), Average faunal resemblance and evenness or equitability index (Pielou, 1969).
In community analysis of Acarina, higher diversity indices in both the study sites have been recorded higher during rainy and summer seasons in the entire soil layer. The result show that the two study sites vary in its community and distinction. Overall the number of individuals, species and the value of diversity were found to be higher and more consistent in the forest than that of jhumland ecosystem. Among the soil microarthropods, Acarina and Collembola were the most dominant group. It was also seen that some of the species of Acarina and Collembola that were found in forest were totally absent in jhumland. It is concluded that the changes in number of taxa and density are directly correlated with temperature and rainfall, which is in consonance with the findings of Santos and Whitford (1983). Moreover, natural disturbances and anthropogenic alteration of the landscape affect soil microarthropod communities. Fire drastically reduces the numbers of microarthropods (Huhta et al., 1967).

Distributions of microarthropods fluctuated seasonally, tending to reach peak density during rainy and summer months, and the lowest densities occurring during winter, but this result is markedly different from that obtained by Wallwork (1970), Fujikawa (1970) and Anderson (1988), who obtained data showing peak densities during the rainy and winter seasons. The difference in the findings with earlier works may be explained on the basis of site specificity i.e, difference in altitude, zone and other soil biota in a particular area. Thus the present findings, along with the reports from other workers, stresses that no single factor but a combination of factors are responsible for the distribution patterns of various soil microarthropods in both the study sites.

Soil microarthropod populations in agricultural systems are known to be less diverse and less abundant because of intensive disruption of the soil or applications of biocides (Anderson 1988; Hendrix and Parmelee 1985; Wallwork 1970). Organic farming and no-tillage agricultural systems, in comparison to conventional tillage, which retains less surface organic matter, have been shown to increase numbers of 7 microarthropods in agroecosystems (House et al., 1984; Usher, 1985). Fertilizers have been shown to have little or
no effect upon soil microarthropod populations in forest ecosystems (Huhta et al., 1967, 1969; Marshall 1974). Compaction of soil because of harvesting or trampling reduces microarthropod densities (Usher, 1985; Vtorov, 1993). Forest harvesting, like the other anthropogenic practices discussed above, directly and indirectly affects microarthropod communities. The effects of intermediate disturbances, such as the silvicultural practice of thinning, can be difficult to discern due to the resilience of organisms or stands, the histories of individual sites, or geologic, geographic and/or environmental heterogeneity that overwhelm management effects (Usher, 1985; Bailey, et al., 1998; Madson, 1997). To detect the effect of thinning upon soil microarthropod community composition, it is therefore necessary to establish strong indicators of the natural heterogeneity and variability within the systems being measured.

Jhum cultivation which is wide-spread in Nagaland use the ‘slash - and - burn’ technique. This is a major problem area, because the jhum cycle is becoming reduced drastically with increase in population. Effects of this, as well as harvesting disturbances have been extensively studied by various workers like Abbott et al. (1980), Seastedt and Crossley (1981), Marra and Edmonds (1998) etc. In the present study, the jhumland ecosystem showed lower soil microarthropod population density, and thus, their activity will be proportionately decreased.

Microarthropod densities are related to food availability and therefore, any alterations to these food sources will have repercussions on the microarthropod communities. This has been borne out by the work of Lindo and Visser (2003), who reported that the total Acarina and Collembola abundances are correlated positively with microbial and fine root biomass. Other good works are attributed to Norton (1990), who reported that Acarina are considered k-selected organisms with low fecundity, slow metabolism, and slow generation turnover rates and thus are expected to show impacts of disturbance for longer periods. Similarly, Marshall (2000) observed that Collembolans are considered r-selected organisms with high fecundity, rapid development, and fast generation turnover rates, which allow Collembola populations to recover quickly from disturbance.
Because the responses of microarthropods to environmental factors are often non-linear and can fluctuate across seasons, it is difficult to extrapolate the net effect of fluctuating environmental controls on microarthropods. Thus, insight to their impacts on soils requires a detailed assessment of temporal patterns of microarthropod responses to changing environmental conditions.