CHAPTER VII. CONCLUSION

1. Light was found to be the main factor responsible for the day-night changes in drift during the investigation.

2. Most species in the benthos drifted at some stages of their life history. The size of the drift was affected by the density of the benthos and the flow regime of the stream.

3. Regular application of pesticides and sedimentation of stream from the surrounding agricultural lands appeared to be the most important factors that influenced the macroinvertebrate communities. The first factor was responsible for the elimination of sensitive taxa and the proliferation of the tolerant ones, while the second significantly altered and reduced the diversity of microhabitats needed by the benthos and therefore reducing also the diversity of the benthic organisms. Organic enrichment was not a serious problem although conductivity and alkalinity were generally higher in the disturbed stream.

4. The SPSS computer programs, factor and cluster analyses were found to be effective tools in analyzing the macroinvertebrate data. Factor analysis was able to separate the taxa according to the types of substrates while the cluster analysis successfully segregated the disturbed stations from relatively pristine ones.

5. The number of taxa collected in the two Thai streams was lower than in the neighboring Malaysian river, Sungai Gombak. The duration and the frequency of sampling, the sampling techniques as well as the size of the stream may explain this phenomenon, with the Malayan river sampled intensively for almost two years using different techniques and larger than my Thai streams.

6. The number and diversity of benthic macroinvertebrates were severely reduced in the stream influenced by agricultural activities and the tolerant groups like Diptera dominated the benthic community while the sensitive taxa were either reduced in number or totally eliminated, as in BNH stream. In stream where disturbance from agriculture is very minimal, the number of taxa is very high and so the diversity, and there is more or less equal distribution of each major group in the benthos, as can be seen in DCK stream.

7. Based on the results of this investigation, farmers in the highland should therefore be taught how to practice proper tillage and manage the soil in such a way that erosion and subsequent siltation of the streams will be minimized. Secondly, riparian plants should at least be retained to minimize siltation and contamination of the stream by pesticide spray mists, as dense canopy of the riparian plants can effectively intercept the pesticide spray mists from the neighboring agricultural fields. And finally, farmers, especially the Hmong hilltribe should be educated on the proper use of pesticides, as it was observed during the study that they heavily apply pesticides in their fields the whole year round without following the recommended application rate.