CHAPTER 6

Conclusion

6.1 Conclusion

Traditional medicinal plants still play an important role in the medicinal practice of the Karen people. Most of them use medicinal plants for the treatment of common ailments, especially to treat muscular pain, coughs, fevers, wounds, diarrhea and flatulence. The CI index was used to determine the important medicinal plants of the Karen culture. It was shown that most of the medicinal plants have different CI values in the different Karen villages. However, there were certain other medicinal plants that had high CI values and that were used as remedy the same illnesses in most Karen villages. This may indicate that the Karen people still share some medicinal plant knowledge within their culture and this can be viewed as a core record of their traditional knowledge.

The potential effects of the impending climatic changes on medicinal plants used by the Karen people by the years 2050 and 2080 were investigated using SDM. It was shown that the model evaluated the average high levels of performance and that a combination of climatic and non-climatic predictors controlled the distribution of the most plant species. It was predicted that more than 60% of the plants would suffer substantial losses of their suitable ranges by the years 2050 and 2080. Moreover, increased turnover rates of plant species were indicated, as well. In an extreme case, one (*Lycopodium cernuum*) and four (*Lilium primulinum*, *Lycopodium cernuum*, *Schima wallichii* and *Vitex trifolia*) species were predicted to become extinct due to climate change in Chiang Mai by the years 2050 and 2080, respectively. Moreover, it was predicted that a total 171 plant species would loss their suitable ranges and were categorized as being critically endangered (51 species), endangered (44 species), vulnerable (25 species) and near threatened (51 species), respectively, whereas 73 species were predicted to gain more ranges or to see no changes to their areas. This

situation may reduce the availability of medicinal plants in study area in the near future and would likely have negative effects on Karen livelihoods, particularly in terms of traditional remedies for common health problems.

Raising climate change awareness, disseminating the vulnerabilities of medicinal plants under future climatic changes and supporting the sustainable use of plants of the Karen people will be crucial to engage their attention and to inspire individual and community action regarding these medicinal plants. It is also recommended that scientists and government authorities must help in the conservation of these plants by establishing natural protected areas with proper management and control plans. Moreover, *ex-situ* conservation strategies, such as raising these species in botanical gardens or in the home-gardens of the Karen people might also be needed to reduce the negative impacts of climate change on these medicinal plant species.

6.2 Recommendations

There are some recommendations for further invastigation in order to make more accuracy on SDM study as following:

- 6.2.1 Modeler should check the scientific name of all plant species carefully in order to make sure that SDM was investigated on correct species.
- 6.2.2 The update land use changes, infrastructure developments, human density and biotic interactions should be included as model predictors.
- 6.2.3 Modeler should find more plant occurrence data from other data sources such as the Royal Forest Herbarium and the University Herbarium.
- 6.2.4 Modeler should check all occurrence records before input them to the model. There were some incorrect data points from GBIF (<u>www.gbif.org</u>) such as the occurrence points on the Ocean or outside country.
- 6.2.5 The occurrence data from island areas should be excluded due to migration limitation from geographical barrier.

6.2.6 Some plant species should be excluded from SDM such as epiphyte species which might be influenced by other factors usually not included as model predictors.



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