



## CHAPTER 6

### CONCLUSION AND RECOMMENDATION

#### 6.1 Conclusion

The study on the population size, diet, foraging area, nest-size characteristics, breeding biology and the use of artificial nest-sites of White-nest Swiftlets *Aerodramus fuciphagus* were conducted at the sacred building of Suthiwatwararam Temple, Samut Sakhon Province, from August 2000 to October 2001. The nest morphology and nest-sites of White-nest Swiftlets at Si-Ha Islands, Phatthalung Province were also studied and compared to those at the sacred building, Samut Sakhon Province. Based on the results of this study, the following conclusions could be made.

1. The population size of White-nest Swiftlets in the sacred building increased from 2,702 to 3,486 individuals during April 2000 and February 2001. The population growth rate was 29 % per year. The two factors affecting with the population growth rate could be the addition of supporters and the use of artificial nest-sites. Besides, it could be influenced by the adequate food supply, low predation, and low emigration rate. The high rate of increase indicates that this population has potential to be enhanced if it is under favorable conditions.

2. White-nest Swiftlets are insectivores. They feed mainly on air-borne insects with 0.1-10.00 mm in body length. Major insect groups were small dipterans, homopterans and hymenopterans including the small arachnids.

3. All of the green terrians in Samut Sakhon Province are the potential foraging areas for White-nest Swiftlets. They were able to forage at the longest distance of 25 km from their breeding sites.

4. White-nest Swiftlets have continuous breeding pattern. They spent 92-104 days for one breeding cycle from the start of nest building to the end of nestling rearing. Therefore, they can breed approximately 4 times a year. The maximum number of nestlings that one breeding pair could produce was 8 individuals per year with the average of 3.55 nestlings per pair per year.

5. White-nest Swiftlets are monogamous birds. They are faithful to their mates and their first nesting sites. Both sexes share the duty of parental care. The investment of time for incubation and nestling rearing by the female did not differ from the male, leading to the breeding success at fledging of 56.82% (based on tagged pairs). Chicks died from starvation or diseases were not found.

6. The breeding success of White-nest Swiftlets at the sacred building was influenced by the quality of nest-sites. Most nests were found at the sculpture wall in which its uneven surface provided suitable nest-sites for breeders. Nests at these sites normally survived until the chicks fledged and could be reused several times for subsequent broods, leading to the higher breeding success than other nesting areas elsewhere. This area is designated as "good site" while the smooth and flat wall with no supporter as "bad site". Egg, nest and nestling fallings were the major cause of nesting failures and the falling frequently occurred at the bad site. The evidence that the nest is strengthened by the aid of supporter and the dimension of the wall is useful for the design of the interior wall of the cultivated house.

7. Nest-sites of White-nest Swiftlets in the cave were mostly found on the smooth and concave wall with supporters. The position of the nest-site was found mainly on the inward-inclining wall at the completely dark site. All nesting-sites are at the dry areas of the wall. The number of supporters is correlated to the number of nests in the nest-patch, suggesting that the supporter plays an important role in the nest survival. The smooth and concave characteristics with supporters were used as the basis for the construction of the artificial nest-sites.

8. All artificial nest-sites were occupied by new breeders within one year, indicating that the suitable nest-site in the sacred building was limited. Birds nested at artificial nest-sites had higher breeding success than those that nested at the study areas, indicating that artificial nest-sites are appropriate to the birds.

## 6.2 Recommendation

1. Since the considerable confusion on the taxonomy of the Edible-nest Swiftlet still exists, comparative studies on the ecology, morphology and molecular genetics of these birds in different localities of their distribution range are necessary, before the proper taxonomic status can be made.

2. The study on food items of White-nest Swiftlets may lead to the development of food to feed the fallen nestlings as well as the development of supplementary food for adult birds.

3. The knowledge on the breeding biology of White-nest Swiftlets is useful for the arrangement of harvesting times. However, the optimal time for harvesting in different localities may vary due to the climatic conditions. Therefore, the study of breeding biology of swiftlets in each breeding colony should be conducted in order to get the maximum yield from nest harvesting.

4. For the artificial nest-site, the improvement of the paratype is needed. Further studies on the type of materials for the nest-site construction, the inter-nest-site distance, the angle of the patch and the shape of supporter that would be involved with the enhancement of the breeding success should be conducted. The quality improvement of the nest for economic purposes (i.e. in shape, color and weight ) should be of interested as well.

5. Although White-nest Swiftlets contribute to an enormous economic income and every owner would like to increase the population size in the cultivated house, they may spread various diseases to the conspecifics and to the people who live in or nearby area. Thus, the diseases caused by White-nest Swiftlets should be studied in the near future in order to prevent the outbreak and to avoid the collapse of the bird colony as well as the negative effects on human health. Therefore, all the management should incorporate careful consideration of the environmental and social circumstances.

