

Chapter 5

Conclusions and Recommendations

5.1 Conclusions

5.1.1 Sexual dimorphism

Amyda cartilaginea is sexually dimorphic showing significantly different in various parameters of morphological characters between sexes. The sexually dimorphic traits of the softshell turtle which are related to reproductive performance included higher degree of tail length, tail width and relative posterior position of cloacal opening in the males, and higher degree of female size in relative to carapace length.

Other sexually dimorphic traits which are related to difference in head size might play important roles in decreasing intersexual competition for resource. This offer support to the competition avoidance hypothesis.

5.1.2 Annual reproductive cycle

Temporal changes in fertility in terms of plasma steroids profile of males and females indicated a seasonal reproductive cycle of the softshell turtle. The males exhibited high levels of testosterone in the prenesting period. While the females showed prenesting peak of estradiol and high levels of progesterone during the prenesting and perinesting period.

The results suggest that *Amyda cartilaginea* might exhibit prenuptial reproductive cycle resulted in rising of plasma sex steroids prior to mating season and stable low levels in other period of the year as have been found in sea turtles of family Cheloniidae and family Dermochelyidae. The findings suggest that associated reproductive pattern is also evident in softshell turtles.

Detectable levels of heterologous sex steroids i.e. androgens in females and estrogens in males were evident in both sexes. Male estradiol and progesterone showed well correlation with testosterone levels. While female

testosterone displayed insignificant difference among months. The results indicate evidence for functions of heterologous sex steroids in reptiles.

Estradiol levels of both sexes, and progesterone levels of the males showed significant correlation with temperature of Bangkok area. This confirms that temperature serve as proximate cues for gonadal maturation and reproductive cycles. The insignificant correlation of sunshine duration and steroids levels suggest priority of endogenous over exogenous factors which might contribute to different control mechanisms of tropical organisms that are exposed to relative constant environment year-round.

5.2 Recommendations

1. To properly identify sex, various sexually dimorphic traits should be accounted for consideration. Multivariate analysis methods could provide powerful tools for the identification and should be further investigated.
2. In order to assure prenuptial reproductive cycle of the softshell turtle, it is suggested to detect annual changes in other reproductive parameters such as levels of vitellogenin, plasma gonadotropins as well as gonadal development including spermatogenesis and follicular development.
3. Levels of heterologous sex steroids were evident in both male and female softshell turtle. The roles of heterologous sex steroids in both sexes of softshell turtle should be studied in more details.
4. According to climatic data of this study, sunshine duration was used in stead of photoperiod and resulted in invidid influence on reproductive cycles. To ascertain the roles of photoperiod as well as other climatic factors, weather station should be set up to record the exact weather conditions of the study area.