

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

This study is based on five stratigraphic sections of the Phu Wiang molluscan localities in the Sao Khua Formation of the Phu Wiang area. The present study is a preliminary attempt to analyze and report the occurrences of molluscan fossils including shell orientation, articulation, size sorting, molluscan assemblage, dominant species, and population structure. Sedimentological analysis such as lithology and sedimentary structure are combined with palaeoecological analysis in order to interpret the palaeo-depositional environment of these freshwater bivalve fossils.

The Sao Khua Formation in the Phu Wiang area is exposed in the inner mountain range, comprising six lithologies including mudstone, siltstone, laminated fine-grained sandstone, medium-grained cross-bedded sandstone, lime-nodule conglomerate, and mud-nodule conglomeratic sandstone.

Occurrences and orientation of bivalves and trace fossils lead to two subdivision of depositional environments that are channel and floodplain deposits.

Seven shell beds from five localities were reported. Locality 1 (PW-M-1) comprise 3 shell beds. The lower shell bed (PW-M-1/1) occurs in cross-bedded sandstone. The middle shell bed (PW-M-1/2) occurs in conglomeratic sandstone while the upper shell bed (PW-M-1/3) occurs in mud-nodule conglomeratic sandstone. Locality 2 (PW-M-2) and 3 (PW-M-3) shell beds are located in conglomeratic sandstone. Location 4 (PW-M-4) shell bed situates in mudstone. Whereas location 5 (PW-M-5), shell bed situates in mud-nodule conglomeratic sandstone.

Three kinds of occurrences were notified i.e. disarticulated valves, disarticulated together with articulated valves, and articulated valves. These types of occurrences are located in PW-M-1/1, PW-M-1/3, and PW-M-5; PW-M-1/2, PW-M-2, and PW-M-3; and PW-M-4, respectively.

Fifteen morphotypes of bivalve fossils were found. Two identified species include *Unio* sp. cf. *U. samplanoides* Kobayashi, 1968, and *Nippononaia mekongensis* Kobayashi, 1963. Six taxa are indeterminate genera, more materials are needed in order to identify the new taxon but the study time is limited. In addition, seven taxa are uncertain affinity because their hinge teeth were covered by thick matrix.

According to shell shape, the shells that the former researcher reported as *Exogyra* sp. could well belong to Family Mytilidae, which *Mytilinae gen. et sp. indet.* is currently used for the time being.

Unio sp. cf. *U. samplanoides* was used for an elongate internal mould which is closely related to *Unio samplanoides* Kobayashi, 1968, from the Khok Kruat Formation of Nam Phung Dam site, Changwat Sakon Nakhon. The present materials are slightly shorter in length, and were found only one locality at PW-M-4.

Nippononaia mekongensis Kobayashi, 1963 may have stratigraphical range from the Sao Khua Formation (Basal Cretaceous to Ante-Aptain) to the Khok Kruat Formation (Aptain-Albian).

7.2 Recommendations

Based on above information, the following recommendations are made.

1. More numbers of block sample sized 25x25x20 cm should be collected from each locality.
2. Stratigraphic correlation with in the Phu Wiang area and the others, particularly type section should be thoroughly studied.
3. Ecology of the recent freshwater bivalve should be study.