

DISTRIBUTION OF *PILA POLITA* IN A SOUTHERN PROVINCE OF THAILAND

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Abstract. This field study investigated the distribution of the freshwater snails of the family Ampullariidae in 18 provinces of Thailand. The introduced *Pomacea canaliculata* has wide distribution in the studied provinces. *Pila angelica*, *P. ampullacea* and *P. pesmei* still have limited distribution. *Pila polita*, which is absent in the south, now can be found in Phangnga, a southern province of Thailand. Moreover, *P. polita* is currently used as a traditional medicine of the local people for the treatment of a skin disease.

INTRODUCTION

Species of the gastropod family Ampullariidae are found in tropical freshwaters of Thailand. The family is represented by the single genus *Pila* (Brandt, 1974), commonly known as “apple snails”, and has five species, *P. angelica*, *P. ampullacea*, *P. pesmei*, *P. polita* and *P. gracilis* (Keawjam, 1987). However, the genus *Pomacea* or “golden apple snail” which had been imported from Japan, Taiwan and the Philippines during the years 1982 to 1983 for cultivation, for export to Japan, and to be sold locally as a decorative snail in fish aquaria (Chanyapate and Archavakom, 1999), is a new introduction of this family.

Each species of native apple snails has its own distribution characteristics (Brandt, 1974; Keawjam, 1986). *Pila angelica* has been found only in the southern provinces, from Chumphon southward to the southernmost part of Thailand. *P. ampullacea* is common in the central part of the country, rare in the northern and northeastern provinces, and absent in the south. *P. pesmei* distributes widely in the central and northeastern parts of the country, is rare in the north, and has never been found in the south. *P. polita* is common in the central, northeastern and northern provinces, and is absent in the south. *P. gracilis* has been found only in the southern part of Thailand, but is rare in the provinces above Phangnga.

Currently, information on freshwater snails of the family Ampullariidae in Thailand is rather scanty,

although such information is of considerable interest as snail species of this family have medical, agricultural and economic importance (Brandt, 1974; Burch and Lohachit, 1982; TROPMED Technical Group, 1986). In addition, numerous land and water resources have been developed during the past decade of economic explosion. Thus the distribution of the apple snails may have changed according to intensive terrestrial and aquatic development. We, therefore, presented our investigation on apple snails which also increases knowledge of the current distribution of the *Pila* and *Pomacea* snails.

MATERIALS AND METHODS

Mollusks of the genera *Pila* and *Pomacea* were collected in 18 provinces of Thailand during late July 2000 to April 2001. Those provinces were Ayutthaya, Bangkok, Nakhon Nayok, Nakhon Pathom, Pathum Thani, Suphan Buri and Uthai Thani in the central part of the country, Chiang Mai and Phrae in the northern part; Nakhon Si Thammarat, Phangnga, Songkhla and Surat Thani in the south, and Khon Kaen, Kalasin, Roi Et, Sakhon Nakhon and Yasothorn in the northeast.

All snails were hand-collected, wiped dry, wrapped in newspaper, placed in paper bags, and sent for identification at the Museum of Mollusks, Center of Applied Malacology, Faculty of Tropical Medicine, Mahidol University, Bangkok. The water resources explored were irrigation canals, rice fields, roadside ditches, ponds, and small or large reservoirs. Snail identification was based on Brandt (1974), Keawjam (1987), Lohachit (unpublished), and Burch (personal communication). Voucher specimens of *Pila* and *Pomacea* snails from 18 provinces have been lodged in the collections of the Museum of Mollusks, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand.

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RESULTS

A total of 375 live snails were collected from the water resources of the 18 studied provinces (Fig 1). Among these snails, 182 specimens were golden apple snails (*Pomacea canaliculata*). The remaining 193 specimens were four species of native apple snails, 34 *Pila angelica*, 74 *P. ampullacea*, 58 *P. pesmei*, and 27 *P. polita*.

Pomacea canaliculata is very common in the central, northern, northeastern and southern provinces of Thailand. The central provinces, from which *P. canaliculata* has been frequently collected, are Ayutthaya, Bangkok, Nakhon Nayok, Nakhon Pathom, Pathum Thani, Suphan Buri and Uthai Thani. The northern provinces where *P. canaliculata* has been found are Chiang Mai and Phrae. Phangnga and Songkhla in the south, and Khon Kaen and Sakhon



Fig 1- Map of Thailand showing the 18 surveyed provinces.

Nakhon in the northeast are provinces where *P. canaliculata* could be found. *P. canaliculata* inhabits irrigation canals of rice fields and plantations, rice fields, roadside ditches, ponds and large reservoirs.

Pila angelica was found only in the southern provinces of Nakhon Si Thammarat, Phangnga, Songkhla and Surat Thani. It has never been found in the central, northern or northeastern parts of the country. *P. angelica* presents in irrigation canals, rice fields, and dry flood areas under houses.

Pila ampullacea can be found only in the central provinces of Bangkok, Nakhon Nayok and Nakhon Pathom. It has not been seen in the north, northeast and south. *P. ampullacea* lives in irrigation canals of plantations, rice fields, and small and large ponds.

Pila pesmei is very common in the northeastern provinces of Khon Kaen, Kalasin, Roi Et, Sakhon Nakhon and Yasothon. In the central part of the country, it is only found in Ayutthaya. *P. pesmei* inhabits rice fields.

Pila polita is found in the northern province of Phrae, the northeastern province of Sakhon Nakhon, and the southern province of Phangnga. The snail is not present in the central provinces. *P. polita* was found living in a rice field, the pond of an old mine, and in a large reservoir.

Pila polita inhabits the clear and clean water of ponds in the former mining area of Phangnga, and is currently used as a traditional medicine for the treatment of a skin disease locally called "sedge". The apical part of *P. polita* is ground with coconut milk prior to applying it to the skin and wrapping with thin white cloth. Skin application of *P. polita* mixture and wrapping with new cloth is done daily for 3 days. Over ten patients treated with *P. polita* traditional medicine recovered from the skin disease. The treatment is free of charge, both for preparation and treatment, but each patient has to bring live *P. polita*. *P. polita* traditional medicine preparation and treatment is not done on Buddhist days.

DISCUSSION

The golden apple snail, *Pomacea canaliculata*, was found in 13 of the 18 provinces investigated. The total number of the genus *Pomacea* was almost equal to that of the genus *Pila*, 182 *P. canaliculata* (48.5%) and 193 *Pila* spp (51.5%). Our results on the wide distribution of *P. canaliculata* agree well with Chanyapate and Archavakom (1999) who reported that *P. canaliculata* had been introduced into 65 provinces of Thailand, and

the snail showed high fecundity in the field.

All Thai native apple snails of the genus *Pila* had limited distribution, as described by Brandt (1974) and Keawjam (1986), except for *P. polita*. *P. polita* was found in Phangnga, a southern province of Thailand. Until now, this species had been recorded as common in the central, northern and northeastern provinces, and absent in the south (Brandt, 1974; Keawjam, 1987). It is not clear how it was introduced into this particular water body in the south. However, as far as we know, this is the first report of *P. polita* in the south.

This investigation also found that *Pila polita* is used as a traditional medicine for skin treatment in the south. This is new information about this snail. In Malaysia, the *Pila* snails are well-cooked before being eaten. The Malays eat the muscular portions of the snail and discard the alimentary tract, while the Chinese and Indians eat the whole snail after removing the shell. The snails are considered to have medicinal value to both Chinese and Indians (TROPMED Technical Group, 1985). However, this is the first report of *P. polita* being used as traditional medicine in Thailand.

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