

THE SEBERANG PERAI PROJECT - PEMERKASAAN KOMUNITI TEMPATAN UNTUK PEMBANGUNAN
EKO-PELANCONGAN YANG MAMPAN DI SEBERANG PERAI UTARA, PULAU PINANG UNDER THE
SEBERANG PERAI SMALL TOWNS GRANTS PROGRAMME

Grant Award No: SPG/179

Final Report

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Herpetofauna (reptiles and amphibians) survey at Teluk Air Tawar-Kuala Muda

Introduction

Reptiles and amphibians or collectively known as herpetofauna, is an important element in an ecosystems. They play crucial roles in keeping the ecosystem balanced. Reptiles such as snakes and lizards will keep the pest such as rats in controlled while the amphibians will helps to controls pests such as insects and mosquitoes. Amphibians also plays important roles as the energy transfer medium towards the higher-level predators from the primary producers in the energy trophic pyramid (Ibrahim et. al., 2013). Without the amphibians, this system will collapse.

Malaysia is one of the megadiverse country in the world. According to Das and Norsham (2007), we harboured more than 600 herpetofauna species (203 amphibian species and 397 species of reptiles). Later in 2024, Ramli et al., 2024 cited the increment of at least 70 new species. With the progress of research done in recent years, this number should have exceeded as for the discovery of many new species (Hong et al., 2026, Trofimets et al., 2024. , Arkhipov et al., 2025)

Although they plays significant role, herpetofauna remains as one of the least studied taxa. One of the reason might be the sceptical perspective that they are dangerous and this is obvious when it comes to snakes. These as for other taxa, threatened by the rapid habitat conversion and climate change.

In Penang, herpetofauna research are mainly concentrated on the island part of the state. Area such as Penang Hill and Penang National Park are well studied in terms of herpetofauna (Sheridan et. al. 2017; Quah et al., 2011; Hong et al., 2026;). The Seberang Perai (mainland) area however, is lacking except for Bukit Panchor which has a few surveys done before (Ibrahim et. al., ; Quah et al., 2013). The data obtained from iNaturalist app show only a few reports of herpetofauna in the area by citizen scientist.

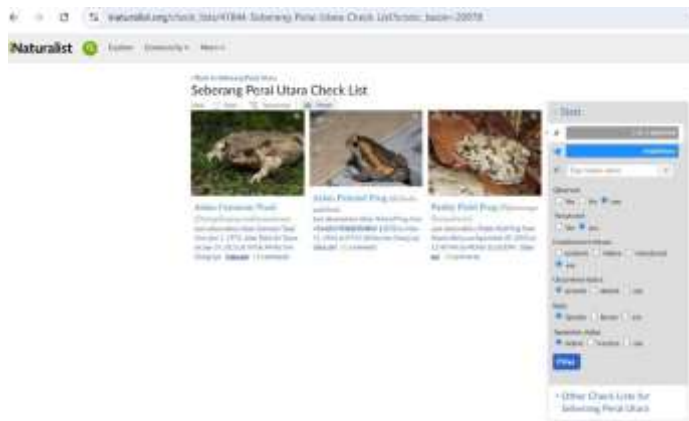


Figure 1: Data obtained from iNaturalist on the record of amphibians in Seberang Perai Utara

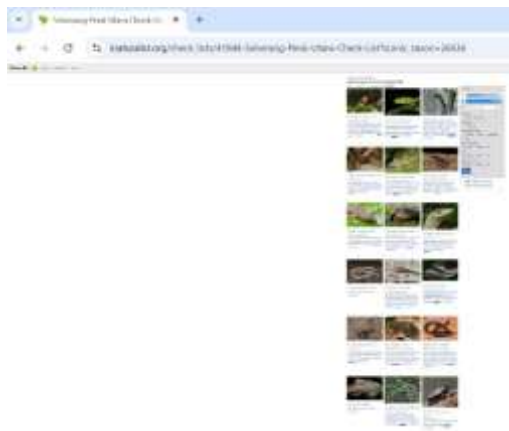


Figure 2: Data obtained from iNaturalist on the record of reptiles in Seberang Perai Utara

Methodology

Visual Encounter survey (VES) done at spots between these main sites. VES were performed during the day and night with emphasis at rivermouth and along the river, mangroves and nearby paddyfields. Because this was a rapid biodiversity survey, collections were done opportunistically as opposed to employing fixed transects or quadrats.

Other than VES, sampling was also done by acoustic survey. This is done by listening and recording the calls of herpetofauna especially amphibians. Calls were then compared to database at www.ecologyasia.com, www.frogsofborneo.org and www.soundcloud.com (Herpetological Society of Singapore and Frog Voices of Borneo).

Data were also obtain from camera traps deployed for mammals survey. Cameras were deployed at 3 locations within the study sites namely Pasir Gebu, Kuala Bekah and Lahar Endin (Figure 3). Older records from previous survey or incidental records such as roadkills, were also taken as data for as long as there is photo as proof. We also interviewed some of the locals to gain informations on the animals they have seen in the area.

For taxonomic consistency, amphibian nomenclature follows the Amphibian Species of the World database (Frost, 2026), while reptile nomenclature follows The Reptile Database (Uetz et al.,2026). Identification were done by referring to Das (2010), Grismer (2011), Berry (1975), Inger et. al (2017) and Stuebing et. al. (2014).

Sampling sites and dates of samplings:

5 main survey sites were choosen based on habitat available at TAT-KM. All of these area were covered during all survey dates.

Sampling sites	Habitats
Kuala Sungai Abdul	River, rivermouth and mudflat with small mangrove area
Lahar Endin	River and paddyfields
Kuala Bekah	River and paddyfields
Sungai Tembus	River, paddyfields and mangroves
Pasir Gebu/Bakau Tua	Mangroves and paddyfields

Survey dates are as follows:

Date	Type of survey
17 th August 2025	Day and night survey
16 th September 2025	Day and night survey
30 th Disember 2025	Day survey
1 st February 2025	Night Survey
17 th February 2026	Night survey

Historical data (Incidental record)

Date	Species observed	Location
7 th March 2023	<i>Xenopeltis unicolor</i> , <i>Cerberus schneiderii</i> ,	Sungai Tembus
28 th December 2024	<i>Fordonia leucobalia</i> , <i>Cerberus scheneiderii</i>	Pasir Gebu/Bakau Tua
4 th Disember 2025	<i>Naja kaouthia</i>	Sungai Abdul

Camera trap record

Date	Species observed	Location
22 nd September 2025	<i>Cerberus schneiderii</i> ,	Lahar Endin
Multiple occasion	<i>Eutropis multifasciata</i> , <i>Varanus salvator</i> , <i>Varanus nebulosus</i>	Kuala Bekah, Lahar Endin, Pasir Gebu



Figure 3: Showing the locations of camera traps

Results

We recorded 15 species of amphibians from the families Bufonidae, Dicroglossidae, Microhylidae, Ranidae, and Rhacophoridae and 41 species of reptiles from the families Agamidae, Gekkonidae, Scincidae, Typhlopidae, Colubridae, Preatidae, Xenopeltidae, Viperidae, and Testudinidae. Below, we provide a collated checklist for TAT-KM.

Reptiles of TAT-KM				
No	Order	Family	Species name	IUCN Status
	Snakes			
1	Serpentes	Colubridae	<i>Acrochordus granulatus</i>	LC
2	Serpentes	Colubridae	<i>Ahaetulla prasina</i>	LC
3	Serpentes	Colubridae	<i>Boiga melanota</i>	Not evaluated
4	Serpentes	Colubridae	<i>Cerberus schneiderii</i>	LC
5	Serpentes	Colubridae	<i>Chrysopelea ornata</i>	LC
6	Serpentes	Colubridae	<i>Coelognathus radiatus</i>	LC
7	Serpentes	Colubridae	<i>Dendrelaphis pictus</i>	LC
8	Serpentes	Colubridae	<i>Dryophiops rubescens</i>	LC
10	Serpentes	Colubridae	<i>Fowlea flavipunctatus</i>	LC
12	Serpentes	Colubridae	<i>Lycodon capucinus</i>	LC
14	Serpentes	Colubridae	<i>Ptyas korros</i>	LC
15	Serpentes	Cylindrophidae	<i>Cylindrophis ruffus</i>	LC
16	Serpentes	Elapidae	<i>Bungarus fasciatus</i>	LC
17	Serpentes	Elapidae	<i>Naja kaouthia</i>	LC
18	Serpentes	Elapidae	<i>Ophiophagus bungarus</i>	VU
19	Serpentes	Homalopsidae	<i>Enhydryn enhydryn</i>	LC
20	Serpentes	Homalopsidae	<i>Homalopsis buccata</i>	LC
21	Serpentes	Homalopsidae	<i>Hypsiscopus plumbea</i>	LC
22	Serpentes	Preatidae	<i>Pareas margaritophorus</i>	LC
23	Serpentes	Pythonidae	<i>Malayopython reticulatus</i>	LC
24	Serpentes	Typhlopidae	<i>Indotyphlops braminus</i>	LC
25	Serpentes	Viperidae	<i>Trimeresurus purpureomaculatus</i>	LC
26	Serpentes	Xenopeltidae	<i>Xenopeltis unicolor</i>	LC
Lizard				
1	Squamata	Agamidae	<i>Bronchocela cristatella</i>	LC

2	Squamata	Agamidae	<i>Calotes versicolor</i>	LC
3	Squamata	Agamidae	<i>Draco sumatranus</i>	LC
4	Squamata	Gekkonidae	<i>Gehyra mutilata</i>	LC
5	Squamata	Gekkonidae	<i>Gekko monarchus</i>	LC
6	Squamata	Gekkonidae	<i>Hemidactylus frenatus</i>	LC
7	Squamata	Gekkonidae	<i>Hemidactylus murrayi</i>	LC
8	Squamata	Scincidae	<i>Dasia olivacea</i>	LC
9	Squamata	Scincidae	<i>Emoia atrocostata</i>	LC
10	Squamata	Scincidae	<i>Eutropis multifasciata</i>	LC
11	Squamata	Scincidae	<i>Subdoluseps bowringii</i>	LC
12	Squamata	Varanidae	<i>Varanus nebulosus</i>	LC
13	Squamata	Varanidae	<i>Varanus salvator</i>	LC
Turtles and Tortoises				
1	Testudines	Geoemydidae	<i>Cuora couro</i>	EN
2	Testudines	Geoemydidae	<i>Siebenrockiella crassicollis</i>	VU

Amphibians of TAT-KM				
No.	Order	Family	Species	IUCN Status
1	Anura	Bufonidae	<i>Duttaphrynus melanostictus</i>	LC
2	Anura	Dicroglossidae	<i>Fejervarya cancrivora</i>	LC
3	Anura	Dicroglossidae	<i>Fejervarya limnocharis</i>	LC
4	Anura	Dicroglossidae	<i>Occidozyga martensii</i>	LC
5	Anura	Microhylidae	<i>Kaloula pulchra</i>	LC
6	Anura	Microhylidae	<i>Microhyla butleri</i>	LC
7	Anura	Microhylidae	<i>Microhyla heymonsi</i>	LC
8	Anura	Microhylidae	<i>Microhyla mukhlesuri</i>	Not Evaluated
9	Anura	Microhylidae	<i>Micryletta cf. subaraji</i>	Not Evaluated
10	Anura	Ranidae	<i>Hylarana nicobariensis</i>	LC
11	Anura	Ranidae	<i>Hylarana labialis</i>	Not Evaluated
12	Anura	Ranidae	<i>Hylarana erythraea</i>	LC
13	Anura	Ranidae	<i>Hylarana glandulosa</i>	LC
14	Anura	Rhacophoridae	<i>Polypedates discantus</i>	Not Evaluated
15	Anura	Rhacophoridae	<i>Polypedates leucomystax</i>	LC



Discussions and conclusion

This study is the first attempt to document the diversity of herpetofauna at Teluk Air Tawar-Kuala Muda area. With 15 amphibians and 41 reptiles, the diversity is quite high. Perhaps the variety of habitat which consist of disturbed habitat, agricultural and mangroves contributes to the high number of species recorded. Most of the species recorded are common species in human associated landscape. The notable species are Deli Frog, *Micryletta* cf. *subaraji* that was not recorded on Penang mainland before.

Two species assessed as Vulnerable under the IUCN Redlist, namely the Sunda King Cobra, *Ophiophagus bungarus* and Black Marsh Turtle, *Siebenrockiella crassicollis*. The presence of these two species mark the importance of preserving the area.

With the data from this study, we hope it will help the state to better formulate the state development plan for the area by considering the richness of herpetofauna here.

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