

Appendix 4: Ecological Impact Assessment Report



**Section 16 Planning Application for the Proposed
Tai Po Kau Nature Academy at Tai Po Kau D.D.33
Lot No. 1, 2, 4, 5, 6, 7, 8 and Adjoining Government Land**

Ecological Impact Assessment Report

Job Ref.: 21/2039/580 SPCL-TPK_S16



Date: 4th July 2022

**Section 16 Planning Application for the Proposed
Tai Po Kau Nature Academy at Tai Po Kau D.D.33
Lot No. 1, 2, 4, 5, 6, 7, 8 and Adjoining Government Land**

Ecological Impact Assessment Report

(Issue 3)

July 2022

	Name	Signature
Prepared by:	Tommy HUI	
Reviewed by:	Paul LEADER	
Date:	4th July 2022	

CONTENTS

1	Introduction	1
1.1	Background	1
2	Relevant Legislation, Standards and Guidelines	2
2.1	Local Legislation, Standards and Guidelines	2
2.2	International Conventions and Guidelines	2
3	Methodology.....	3
3.1	Location and Area	3
3.2	General.....	3
3.3	Literature Review.....	3
3.4	Ecological Field Surveys	3
3.5	Ecological Impact Assessment	5
4	Ecological Baseline Condition.....	1
4.1	Description of Physical Environment	1
4.2	Recognised Sites of Conservation Importance	1
4.3	Habitats and Vegetation	1
4.4	Mammal.....	4
4.5	Avifauna	5
4.6	Herpetofauna.....	7
4.7	Butterflies.....	8
4.8	Odonates.....	11
4.9	Fireflies.....	12
4.10	Aquatic Fauna	13
5	Evaluations for Habitats and Species	15
5.1	Evaluation of Habitats.....	15
5.2	Evaluation of Species	16
6	Identification and Evaluation of Impacts	22
6.1	Assessment Methodology.....	22
6.2	Proposed Development of Tai Po Kau Nature Academy	22
6.3	Construction Phase Impacts	23
6.4	Operation Phase Impacts.....	25
7	Mitigation Measures.....	27
7.1	General Approach	28
7.2	Habitat Loss.....	28
7.3	Loss of Floral Species of Conservation Importance	28
7.4	Loss of Faunal Species of Conservation Importance.....	28
7.5	Mitigation for Indirect Disturbance Impacts during Construction Phase	28
7.6	Mitigation for Indirect Disturbance Impacts during Operation Phase	30
8	Conclusion	31
9	References.....	32

List of Tables

- Table 1.** Survey Programme
- Table 2.** Habitats within the Application Site and the 500m Study Area
- Table 3.** Mammal species of conservation importance recorded from literature and present surveys
- Table 4.** Bird species of conservation importance recorded from literature and present surveys
- Table 5.** Herpetofauna species of conservation importance recorded from literature and present surveys
- Table 6.** Butterfly species of conservation importance recorded from literature and present surveys
- Table 7.** Odonate species of conservation importance recorded from literature and present surveys
- Table 8.** Firefly species of conservation importance recorded from literature and present surveys
- Table 9.** Aquatic fauna species of conservation importance recorded from literature and present surveys
- Table 10.** Habitat evaluation for woodland
- Table 11.** Habitat evaluation for watercourse
- Table 12.** Habitat evaluation for village / developed area
- Table 13.** Habitat evaluation for pond
- Table 14.** Ecological evaluation for floral species of conservation importance reported from literature and/or recorded from the present surveys
- Table 15.** Ecological evaluation for fauna species of conservation importance reported from literature and/or recorded from the present surveys
- Table 16.** Proposed Development Parameters
- Table 17.** Evaluation of direct impacts on secondary woodland in the absence of mitigation measures
- Table 18.** Evaluation of direct impacts on species of conservation importance without mitigation
- Table 19.** Evaluation of indirect disturbance impacts to other habitats and species of conservation importance during construction phase
- Table 20.** Evaluation of direct impacts of bird collision during operation phase
- Table 21.** Evaluation of indirect disturbance impacts to other habitats and species of conservation importance during operation phase

LIST OF APPENDICES

- Appendix 1.** List of Floral Species Recorded in the Surveys
- Appendix 2.** List of Faunal Species Recorded in the Surveys
- Appendix 2.** Photographic Record

LIST OF FIGURES

- Figure 1.** Recognised Sites of Conservation Importance
- Figure 2.** Habitat Map with Indicative Locations of Floral Species of Conservation Importance Recorded
- Figure 3.** Habitat Map with Indicative Locations of Faunal Species of Conservation Importance Recorded
- Figure 4.** Habitat Map (zoom-in) with MLP and with Indicative Locations of Floral Species of Conservation Importance Recorded
- Figure 5.** Habitat Map (zoom-in) with MLP and with Indicative Locations of Faunal Species of Conservation Importance Recorded

1 INTRODUCTION

1.1 Background

- 1.1.1 A proposed development of a nature academy at Lots No. 1, 2, 4 – 8 in D.D. 33 and adjoining government land in Tai Po Kau, Tai Po (hereafter as the Proposed Development) has been proposed by the Applicant.
- 1.1.2 The Application Site (see **Figure 1**) is primarily in an area of rural character, and it borders the Tai Po Kau Nature Reserve. It is currently unoccupied, with some vegetation cover. There are a number of existing vacant, single-storey structures. In the Proposed Development, two of the existing structures would be demolished while three would be redeveloped into a visitor centre, an activity centre and a plant nursery with supporting facilities. The proposal will provide facilities for agricultural/field study and a camping ground for environmental education activities.
- 1.1.3 The Application Site is located within a “Green Belt” (“GB”) zone on the draft Tai Po Outline Zoning Plan (OZP) No. S/TP/29. According to the Schedule of Uses of the Plan, the Proposed Development falls under the Column 2 Uses, where an application under the Section 16 of the Town Planning Ordinance has to be submitted to the Town Planning Board.
- 1.1.4 aec Ltd. has been commissioned by the Applicant to conduct this Ecological Impact Assessment in support of the Section 16 planning application. A literature review exercise and a 12-month ecological survey have been carried out to understand the ecological baseline condition of the Application Site and its surroundings. Impact assessment has also been conducted, with appropriate mitigation measures proposed to demonstrate that the Proposed Development will not result in unacceptable adverse ecological impacts.

2 RELEVANT LEGISLATION, STANDARDS AND GUIDELINES

2.1 Local Legislation, Standards and Guidelines

2.1.1 The relevant local legislation, standards and guidelines applicable to the present study for the assessment of ecological impact include:

- Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislation, the Forestry Regulations (Cap. 96A)
- Wild Animals Protection Ordinance (Cap. 170)
- Country Parks Ordinance (Cap. 208) and its subsidiary legislation
- Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) and relevant annexes 8, 9, 11, 16, 17, 20 and 21 of the associated Technical Memorandum (EIAO-TM)
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) and its subsidiary legislation
- EIAO Guidance Note No. 6/2010 – Some Observations on Ecological Assessment from the Environmental Impact Assessment Ordinance Perspective
- EIAO Guidance Note No. 7/2010 – Ecological Baseline Survey for Ecological Assessment
- EIAO Guidance Note No. 10/2010 – Methodologies for Terrestrial and Freshwater Ecological Baseline Surveys
- HK Planning Standards and Guidelines
- Planning, Environment & Lands Branch Technical Circular (PELBTC) No. 1/97/Works Branch Technical Circular (WBTC) No. 4/97 – Guidelines for Implementing the Policy on Off-site Ecological Mitigation Measures.
- Drainage Services Department Practice Note No. 1/2015 – Guidelines on Environmental and Ecological Considerations for River Channel Design.
- Environment, Transport and Works Bureau Technical Circular (Works) (ETWB TCW) No. 5/2005 – Protection of Natural Streams/Rivers from Adverse Impact Arising from Construction Works.
- HK Biodiversity Strategy and Action Plan (2016-21).
- List of Wild Animals under State Protection.
- List of Wild Plants under State Protection.

2.2 International Conventions and Guidelines

2.2.1 International conventions and guidelines potentially relevant include:

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (“CITES”)
- United Nations Convention on Biological Diversity

3 METHODOLOGY

3.1 Location and Area

3.1.1 The Study Area for this ecological impact assessment covered the Application Site and all area within 500m from the Application Site boundary, any associated works. The boundary of the 500m Study Area is illustrated in **Figure 1**.

3.2 General

3.2.1 The ecological surveys followed the requirements of Annexes 8 and 16 of the Technical Memorandum as well as Environmental Impact Assessment Ordinance Guidance Note No. 7/2010 “Ecological Baseline Survey for Ecological Assessment”, No. 10/2010 “Methodologies for Terrestrial and Freshwater Ecological Baseline Survey”.

3.3 Literature Review

3.3.1 A desktop literature review on the existing ecological and fisheries baseline condition was undertaken upon commencement of the study. Findings of relevant studies or surveys, including but not limited to relevant Environmental Impact Assessment reports, newsletters related to local ecology and conservation (such as HK Biodiversity by Agriculture, Fisheries, and Conservation Department (AFCD) and Connections by Kadoorie Farm and Botanic Garden (KFBG)), scientific papers, as well as the Biodiversity Database and other publications on the conservation status and distribution of local flora and fauna etc.

3.4 Ecological Field Surveys

3.4.1 Ecological field surveys were conducted monthly over a 12-month period from January to December 2021, covering both the wet and dry seasons. Survey transects are shown in Figures 2 and 3.

3.4.2 A programme of the Study showing the survey frequency is presented below in **Table 1** below:

Table 1. Survey Programme

Ecological Field Surveys	2021											
	Dry Season			Wet Season						Dry Season		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Habitat and Vegetation Surveys	✓			✓								
Mammal Surveys	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Avifauna Surveys	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Herpetofauna Surveys	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Butterfly and Odonate Surveys	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Freshwater Community Surveys	✓			✓			✓			✓		

Habitats and Vegetation Surveys

3.4.3 A habitat map was prepared to reflect current site conditions of the Study Area. The habitat map was first prepared by desktop review of recent aerial photographs and the government base map, followed by on-site verification during ground-truthing surveys (see Figure 2). Habitat value was assessed based on the condition, vegetation type and faunal use, particularly species of conservation concern. A photographic record of each habitat type within the Study Area is provided in Appendix 3.

3.4.4 Vegetation surveys were conducted once in both the wet and dry seasons. Transects were set across representative patches of each habitat type present in the Study Area. Relative abundance and dominant plant species in each habitat was recorded. Locations of floral species of conservation importance were marked onto the habitat map.

Mammal Survey

- 3.4.5 Surveys for terrestrial mammals were conducted monthly along transects. Since most mammal species in Hong Kong occur at low densities, surveys for mammals included direct observation and active searching for signs of mammal occurrence (including potential roosts, footprints, and droppings). Night-time surveys were conducted to supplement the findings from day-time surveys. In addition, three Reconyx infra-red auto-triggered trail cameras were installed in the Application Site to investigate mammals there.
- 3.4.6 Nomenclature of species follows AFCD HK Biodiversity Database. The commonness and conservation status (including status from Red List of China's Vertebrates, the latest IUCN red list and other scientific research study e.g., Fellowes *et al.* (2002)) for each species are presented.

Avifauna Survey

- 3.4.7 Surveys for birds were conducted monthly by transect count with the aid of a pair of binoculars at a suitable time (in early morning) when birds are most active and at night (for nocturnal species). Species were detected either by direct sighting or from vocalisation. Species were identified and quantified, and behaviour such as feeding, roosting, and breeding were recorded.
- 3.4.8 A list of species recorded from the Study Area was prepared, with wetland-dependence, conservation and/or protection status indicated. Nomenclature follows the updated List of Hong Kong Birds published by the Hong Kong Bird Watching Society.

Herpetofauna Survey

- 3.4.9 Herpetofauna transect surveys were conducted monthly. Potential habitats for amphibians and reptiles were searched. Microhabitats were examined (e.g., larger stones, crevices or rotten logs) or deliberately uncovered to investigate the presence of amphibians and reptiles. Active searching for eggs and tadpoles of amphibians in aquatic habitats was conducted to investigate breeding activities. All life forms of amphibians (adult, tadpole, juvenile and egg) were recorded to investigate any breeding activity. Owing to the nocturnal behaviour of most herpetofauna species, night-time surveys were also conducted.
- 3.4.10 Nomenclature follows AFCD HK Biodiversity Database. The commonness and conservation status (including status from Red List of China's Vertebrates, the latest IUCN red list and other scientific research study e.g., Fellowes *et al.* (2002)) for each species are presented.

Butterfly and Odonate Survey

- 3.4.11 Monthly transect surveys for butterflies and odonates were conducted, with detections mainly from direct observation. For butterflies, active searching for larvae and pupae within 5m of the transects was also conducted. For odonates, special attention was paid to aquatic habitats such as watercourses. Individuals were identified to species level and quantified. Species occurring outside 5m of the transects but within the Study Area were also recorded. Surveys were conducted during suitable weather conditions, avoiding overcast or rainy conditions weather when butterflies and odonates are less active.
- 3.4.12 Nomenclature follows AFCD HK Biodiversity Database. The commonness and conservation status (including status from China Red Data Book, the latest IUCN red list and other scientific research study e.g. Fellowes *et al.* (2002)) for each species were provided.

Freshwater Community Survey

- 3.4.13 Freshwater community surveys were conducted twice per season. Aquatic fauna, including freshwater macro-invertebrates and fishes, were identified and studied by direct observation and active searching by nets, cages and standard field sampling techniques as appropriate.
- 3.4.14 Nomenclature follows AFCD HK Biodiversity Database. The commonness and conservation status (including status from Red List of China's Vertebrates, the latest IUCN red list and other scientific research study e.g. Fellowes *et al.* (2002)) for each species are presented.

3.5 Ecological Impact Assessment

- 3.5.1 The ecological baseline profile of the Study Area is presented in the following sections of this Report.
- 3.5.2 The condition of existing habitats and potential ecological impacts resulting from the proposed development are assessed and evaluated following the criteria and evaluation methodologies of Annexes 8 and 16 of EIAO-TM, with recommendations to avoid or minimise impacts on any recognised sites of conservation importance and other ecologically sensitive receivers, and to protect, maintain or rehabilitate the natural environment.

4 ECOLOGICAL BASELINE CONDITION

4.1 Description of Physical Environment

- 4.1.1 The Application Site is located at D.D.33 Lot No. 1, 2, 4, 5, 6, 7, 8, Tai Po Kau, Tai Po. The total site area and is approximately 0.80 ha. Under the Draft Tai Po Outline Zoning Plan (OZP) No. S/TP/29, the Site is zoned as “Green Belt” with the planning intention primarily for defining the limits of urban and sub-urban development areas by natural features, and to contain urban sprawl as well as to provide passive recreational outlets. Under the OZP, “Field Study/ Education/ Visitor Centre” is under Column 2 which requires planning permission from the Town Planning Board (TPB).
- 4.1.2 Immediately to the south and north of the Site are Tai Po Kau Nature Reserve and the semi-natural Tai Po Kau Forest Stream, respectively. There is an existing vehicular access road between the Nature Reserve and the Site, but ecological linkages are maintained by the surrounding dense woodland and natural watercourses. The Application Site contains several abandoned village houses and patches of abandoned farmland. Extensive mature, biodiversity rich woodland surrounds the Application Site in the form of the Tai Po Kau Nature Reserve.

4.2 Recognised Sites of Conservation Importance

- 4.2.1 The Tai Po Kau Nature Reserve was the first Nature Reserve and Special Area in Hong Kong. It was formally gazetted as a reserve in 1977. Prior to gazettal, it was managed as an experimental forestry station, to protect native vegetation and provide recreation opportunities. The Tai Po Kau Nature Reserve covers 460 ha from the eastern slopes of Grassy Hill to Tai Po Road. Much of the Nature Reserve is covered by mature, closed canopy secondary woodland, and includes the Tai Po Kau Forest Stream, supporting a rich diversity of plants (e.g., over a hundred tree species) and fauna species.
- 4.2.2 A Conservation Area (CA) zone, which is located to the east of Tsung Tsai Yuen, marginally falls within the Study Area. It is a wooded area immediately to the northeast of Tai Po Kau Nature Reserve. The planning intention of this zone is to protect and retain the existing natural landscape, ecological or topographical features of the area for conservation, educational and research purposes and to separate sensitive natural environment such as Site of Special Scientific Interest or Country Park from the adverse effects of development. There is a general presumption against development within this zone. In general, if the developments are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest, such works may be permitted. No part of the Application Site falls within this zone.
- 4.2.3 The extent and coverage of the Tai Po Kau Nature Reserve and the Conservation Area are shown in **Figure 1**.

4.3 Habitats and Vegetation

Literature Review

- 4.3.1 There is no information available regarding the habitat and vegetation within the Application Site.
- 4.3.2 According to AFCD’s introductory website for Tai Po Kau Nature Reserve, the Reserve covers long-established forestry plantations extending from the eastern slopes of Grassy Hill down to Tai Po Road; the area is heavily wooded with more than 100 different species of trees. According to the website, planting started in 1926 when the Government began afforestation in the New Territories, with *Pinus massoniana* as the dominant tree species. More recently, small areas of *Acacia confusa*, *Cinnamomum camphora*, *Cunninghamia lanceolata*, and *Melaleuca cajuputi* subsp. *cumingiana* have also been

planted. There are also native species, including *Castanopsis fissa*, *Entada phaseoloides*, *Litsea cubeba* and *Liquidambar formosana*.

Field Survey Results

- 4.3.3 Four habitat types were identified: Woodland, Watercourse, Pond, and Village / Developed Area. A habitat map of the Study Area is provided in **Figures 2** and **3**. The areas of these are listed in **Table 2** below.

Table 2. Habitats within the Study Area

Habitats	Habitat Area (ha)		
	Within Application Site	500m Study Area (Excluding Application Site)	Total
Woodland	-	91.23	91.223
Watercourse	-	1.67 (4603.9m)	1.67 (4603.9m)
Pond	0.02	0.07	0.09
Village / Developed Area	0.78	10.64	11.42
Total	0.80	103.60	104.40

Notes:

1. The figure(s) above are rounded to the nearest two decimal place. Hence, figures may not add to the total value.
2. The lengths (m) of the watercourses are presented in brackets.

- 4.3.4 A comprehensive list of floral species recorded and the relative abundance of each species within each habitat is provided in **Appendix 1**. The locations of floral species of conservation importance are provided in **Figure 2**.

Woodland

- 4.3.5 Woodland is the dominant habitat in the 500m Study Area, mostly notably in the Tai Po Kau Nature Reserve, which comprises relatively mature and dense secondary woodland with semi-closed and closed canopies. This woodland consists of long-established forestry plantations and woodland under natural succession, supporting a rich diversity of species.
- 4.3.6 The overstorey is dominated by *Bridelia insulana*, *Litsea monopetala*, *Machilus chekiangensis*, *Machilus pauhoi*, *Schima superba* and *Sterculia lanceolata*, forming an upper canopy. Other mature trees, such as *Artocarpus styracifolius*, *Choerospondias axillaris*, *Endospermum chinense* and *Pygeum topengii* were noted, singly or in small groups. The middle-storey is occupied by a rich diversity of trees, such as *Acronychia pedunculata*, *Aporosa dioica*, *Canthium dicoccum*, *Garcinia oblongifolia* and *Schefflera heptaphylla*, and groups of climbers (mainly *Bauhinia championii*, *Byttneria grandifolia*, *Gnetum luofuense*, *Rourea microphylla*, *Thunbergia grandiflora*). Common ferns (*Blechnum orientale*, *Cibotium barometz*), herbs (such as *Alpinia hainanensis*, *Dianella ensifolia*) and shrubs (*Ardisia crenata*, *Dichroa febrifuga*, *Litsea rotundifolia* var. *oblongifolia*, *Psychotria asiatica*) dominate in the understorey. Patches of older plantation comprising *Acacia confusa*, *Lophostemon confertus* and *Casuarina equisetifolia* were present.
- 4.3.7 A total of 14 floral species of conservation importance were recorded, including four climbers (*Aristolochia tagala*, *Entada phaseoloides*, *Gnetum luofuense*, and *Illigera celebica*), two ferns (*Alsophila spinulosa* and *Cibotium barometz*), one orchid (*Ania hongkongensis*), one shrub (*Pavetta hongkongensis*), and six trees (*Aquilaria sinensis*, *Artocarpus hypargyreus*, *Camellia crapnelliana*, *Canthium dicoccum*, *Ormosia pachycarpa*, and *Rhodoleia championii*).
- 4.3.8 The tree fern *Alsophila spinulosa*, climbers (*Aristolochia tagala*, *Illigera celebica*), and trees (*Camellia crapnelliana* and *Rhodoleia championii*) are planted for their conservation value (e.g., both the climbers are larval food plants for protected butterfly species).

Watercourse

- 4.3.9 The Tai Po Kau Forest Stream is a natural watercourse running through the Tai Po Kau Nature Reserve from south to north. It has a natural bed covered by a mixture of undifferentiated colluvium comprising boulders and interstitial materials. Common herbs such as *Acorus gramineus*, *Alocasia macrorrhizos*, *Kyllinga polyphylla*, grasses *Brachiaria mutica* and *Panicum brevifolium* were recorded. The stream is completely shaded by the dense closed-canopy riparian woodland. Trees *Adina pilulifera*, *Aporosa dioica*, *Cleistocalyx nervosum*, *Ficus subpisocarpa*, *Sterculia lanceolata* and *Syzygium jambos* form the upper and middle-storeys, while common shrubs *Boehmeria nivea* and *Psychotria asiatica* and fern *Blechnum orientale* form the understory. Climbers *Bauhinia championii*, *Byttneria grandifolia*, *Gnetum luofuense* and *Rourea microphylla* were commonly found.
- 4.3.10 Six floral species of conservation importance were recorded including woody climber *Gnetum luofuense*, ferns *Cibotium barometz*, *Neottopteris nidus*, orchid *Cleisostoma simondii* var. *guangdongense*, herb *Impatiens hongkongensis* and tree *Canthium dicoccum*. Fern *Neottopteris nidus* and orchid *Cleisostoma simondii* var. *guangdongense* were recorded on trees along this stream.

Pond

- 4.3.11 Within the Application Site, there is a small pond. is located between the village houses close to the centre. This pond is seasonal, receiving rainwater and surface run-off in the wet season and gradually drying up in the dry season. It has been planted with exotic emergent plants (*Echinodorus cordifolius* and *Sagittaria platyphylla*). Common self-seeded ruderal herbs such as *Ageratum conyzoides*, *Bidens alba*, *Mikania micrantha*, native wetland herbs such as *Alternanthera sessilis*, *Commelina diffusa* and grass *Microstegium ciliatum* grow in the pond margins.
- 4.3.12 There are two ponds within Tai Po Kau Outdoor Study Centre. These ponds are managed for wildlife and have been planted with wetland herbs such as *Nymphaea lotus*, *Phragmites australis*, *Sagittaria sagittifolia* subsp. *Leucopetala*, and vegetated by naturally established herbs such as *Acorus gramineus*, *Alocasia macrorrhizos*, *Commelina diffusa* and *Spilanthes paniculata*.

Village / Developed Area

- 4.3.13 The Application Site comprises largely of this habitat, including several abandoned village houses or structures, and a terrace of abandoned farmland. The abandoned farmland is heavily overgrown with weedy and ruderal vegetation, including grasses *Imperata cylindrical* var. *major*, *Microstegium ciliatum*, *Panicum maximum*, exotic herbs *Ageratum conyzoides*, *Bidens alba*, *Kyllinga polyphylla* and invasive climber *Mikania micrantha*. Fruit trees (such as *Artocarpus heterophyllus*, *Averrhoa carambola*, *Dimocarpus longan*) ornamental plants (*Aglaia odorata* var. *microphyllina*, *Coleus scutellarioides*), individual, self-sown trees (such as *Celtis sinensis*, *Cleistocalyx nervosum*, *Ficus hispida*, *Ficus variegata*, *Litsea monopetala*, *Sterculia lanceolata*) are present. The protected fern *Neottopteris nidus* was found on tree trunks or rocks, singly or in groups.
- 4.3.14 Within the Study Area, village/developed area comprises access roads, AFCD Tai Po Kau Special Area Tai Po Kau Management Centre and village houses within the Nature Reserve, as well as the villages in Lai Chi Hang and Tai Po Kau Garden. This anthropogenic habitat is heavily managed, and vegetation is largely ornamental. For example, common ornamental shrubs (*Duranta erecta*, *Hibiscus rosa-sinensis*, *Ixora chinensis*) and trees (*Casuarina equisetifolia*, *Lagerstroemia speciosa*) are planted in Tai Po Kau Garden. No floral species of conservation importance were recorded.

4.4 Mammal

Literature Review

- 4.4.1 There is no specific information regarding mammals within the Application Site.
- 4.4.2 A total of 14 mammal species have been recorded in the general Tai Po Kau area (although no exact location and habitat were provided) (AFCD 2022; Shek 2006); among these species, 11 are of conservation importance (see **Table 3**).

Field Survey Results

- 4.4.3 A total of 13 mammal species were recorded: seven within the Application Site and twelve in the Study Area. Of the 13 species, seven are of conservation importance. These species are widespread in Hong Kong and are mostly common.
- 4.4.4 Within the Application Site, five species of conservation importance were detected by auto-triggered trail cameras (Rhesus Macaque, East Asian Porcupine, Small Indian Civet, Leopard Cat, and Red Muntjac). Both the abundance and frequency of their occurrence within the Application Site was low. It is considered that these species only enter the Application Site occasionally and are not dependent on the Site given the lack of suitable habitat therein.
- 4.4.5 The findings relating to the mammalian fauna accord with the findings from the literature review.
- 4.4.6 The survey results are summarised in **Table 3**, detailed results are provided in **Appendix 2**, and locations of species of conservation importance are provided in **Figure 3**.

Table 3. Mammal species of conservation importance recorded from literature and present surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Short-nosed Fruit Bat <i>Cynopterus sphinx</i>	RLCV(NT); Cap.170	Very Common	✓	-	-
Himalayan Leaf-nosed Bat <i>Hipposideros armiger</i>	(LC); Cap.170	Very Common	✓	-	-
Chinese Noctule <i>Nyctalus plancyi</i>	PRC (RC); Cap.170	Common	✓	-	-
Chinese Pangolin <i>Manis pentadactyla</i>	RC; RLCV(CR); IUCN(CR); CSMPS(II); CITES(II); Cap.170; Cap.586	Rare; Species of Conservation Concern	✓	-	-
Rhesus Macaque <i>Macaca mulatta</i>	CSMPS(II); CITES(II); Cap.170; Cap.586	Common	✓	VDA	WC; WL
Pallas's Squirrel <i>Callosciurus erythraeus</i>	Cap.170	Common	✓	-	-
East Asian Porcupine <i>Hystrix brachyura</i>	PGC; Cap.170	Very Common	✓	VDA	WC; WL
Small-toothed Ferret Badger <i>Melogale moschata</i>	RLCV(NT); Cap.170	Common	✓	-	WC
Masked Palm Civet <i>Paguma larvata</i>	PRC; RLCV(NT); CITES(III); Cap.170; Cap.586	Common	✓	-	WL
Small Indian Civet <i>Viverricula indica</i>	RLCV(VU); CSMPS(II); CITES(III); Cap.170; Cap.586	Very Common	✓	VDA	-
Leopard Cat <i>Prionailurus bengalensis</i>	RLCV(VU); CITES(II); Cap.170; Cap.586	Uncommon	✓	VDA	WC
Red Muntjac <i>Muntiacus muntjak</i>	PRC	Very Common	-	VDA	WL; WC
Total no. of species of conservation importance recorded			11	5	6

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.

- b. Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - c. Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - d. Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - e. Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - f. Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - g. Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
2. Status in Hong Kong follows Hong Kong Biodiversity Database (AFCD 2022).
 3. Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

4.5 Avifauna

Literature Review

4.5.1 There is no specific information regarding avifauna within the Application Site.

4.5.2 In the general Tai Po Kau area, a total of 99 bird species have been recorded in previous studies (although no exact location and habitat were provided) (AFCD 2022b, HKBWS 2017); among these species 30 are of conservation importance (see below in **Table 4**).

Field Survey Results

4.5.3 A total of 80 bird species were recorded: 22 species within the Application Site and 78 in the Study Area. Of the 80 species, 24 are of conservation importance.

4.5.4 Within the Application Site, four species of conservation importance were recorded: Little Egret, Greater Coucal, Brown Fish Owl and Tristram's bunting. Both the abundance and frequency of their occurrence within the Application Site are low. It is believed that these species only enter the Application Site occasionally, probably for foraging. Other birds recorded from the Application Site are common and widespread species.

4.5.5 In the 500m Study Area, the species recorded were mostly common and/or typical woodland bird species, in line with the literature review. A total of 23 species of conservation importance were recorded from the 500m Study Area.

4.5.6 The survey results are summarised in **Table 4** and detailed in **Appendix 2**. Locations of bird species of conservation importance are not presented on the habitat map due to their highly mobile nature.

Table 4. Bird species of conservation importance recorded from literature and present surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Striated Heron <i>Butorides striata</i>	(LC)	Locally common summer visitor to the Deep Bay area but more widespread on migration and in winter at scattered coastal and inland sites	-	-	WC
Little Egret <i>Egretta garzetta</i>	PRC (RC)	Abundant, present all year in wetland areas throughout HK, mostly in the Deep Bay area	✓	VDA	WC; WL; VDA
Crested Serpent Eagle <i>Spilornis cheela</i>	(LC); RLCV(NT); CITES(II); CSMPS(II); Cap.586	Locally common, present all year and probably the largest resident, in woodland	✓	-	IF
Crested Goshawk <i>Accipiter trivirgatus</i>	RLCV(NT); CITES(II); CSMPS(II); Cap.586	Common resident in woodland throughout HK	✓	-	IF; WL
Black Kite <i>Milvus migrans</i>	(RC); CITES(II); CSMPS(II); Cap.586	Abundant, present all year and widespread, with increased numbers in winter between October and March	✓	-	WL

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Greater Coucal <i>Centropus sinensis</i>	CSMPS(II)	Widespread and common resident in lowland shrubland areas	✓	VDA	-
Lesser Coucal <i>Centropus bengalensis</i>	CSMPS(II)	Widespread but uncommon resident in areas of grassland or grassland/shrubland	✓	-	-
Collared Scops Owl <i>Otus lettia</i>	CITES(II); CSMPS(II); Cap.586	Common and widespread resident in lowland areas of closed-canopy shrubland and woodland	✓	-	WL
Brown Fish Owl <i>Ketupa zeylonensis</i>	RC; RLCV(EN); CITES(II); CSMPS(II); Cap.586	Scarce and locally-distributed resident mostly in large freshwater streams near mature shrubland or woodland	-	VDA	WL
Brown Wood Owl <i>Strix leptogrammica</i>	RLCV(NT); CITES(II); CSMPS(II); Cap.586	Scarce and localised resident of mature secondary forest in the NT	✓	-	WL
Asian Barred Owlet <i>Glaucidium cuculoides</i>	CITES(II); CSMPS(II); Cap.586	Common though locally-distributed resident with most records from forest and open-country areas in the north and central NT	✓	-	-
Bay Woodpecker <i>Blythipicus pyrrhotis</i>	LC	Rare but increasing resident of mature broadleaf secondary forest with most records from Tai Po Kau	✓	-	WL
Grey-chinned Minivet <i>Pericrocotus solaris</i>	LC	Locally common resident, possibly with winter visitors, in mature closed-canopy woodland	✓	-	WL; VDA
White-bellied Erpornis <i>Erpornis zantholeuca</i>	LC	Uncommon resident in closed-canopy shrubland and woodland	✓	-	WL
Ashy Drongo <i>Dicrurus leucophaeus</i>	LC	Uncommon winter visitor to woodland areas	✓	-	WL
Amur Paradise Flycatcher <i>Terpsiphone incei</i>	LC; RLCV(NT)	Passage migrant, uncommon in autumn, scarce in spring, and rare winter visitor to woodland areas	✓	-	WL
Japanese Paradise Flycatcher <i>Terpsiphone atrocaudata</i>	LC; RLCV(NT); IUCN(NT)	Uncommon passage migrant to woodland areas	✓	-	-
Collared Crow <i>Corvus torquatus</i>	LC; RLCV(NT); IUCN(VU)	Locally common resident, mainly in coastal areas	-	-	WL
Grey-headed Canary-flycatcher <i>Culicicapa ceylonensis</i>	LC	Uncommon winter visitor to woodland areas	✓	-	WL
Yellow-bellied Tit <i>Pardaliparus venustulus</i>	LC	Irregular and rare irruptive winter visitor	✓	-	-
Pygmy Wren-babbler <i>Pnoepyga pusilla</i>	LC	Locally common resident in closed-canopy shrubland and woodland, mostly in central and northeast NT but expanding southeast and east	✓	-	WC; WL
Hartert's Leaf Warbler <i>Phylloscopus goodsoni</i>	LC	Locally common winter visitor to shrubland and woodland	✓	-	-
Rufous-capped Babbler <i>Stachyridopsis ruficeps</i>	LC	Common resident in closed-canopy shrubland and woodland, mainly in the central NT	✓	-	WC; WL; VDA
Red-billed Leiothrix <i>Leiothrix lutea</i>	CITES(II); Cap.586	Uncommon, localised resident in shrubland and woodland in central NT	✓	-	WL
Silver-eared Mesia <i>Leiothrix argenteauris</i>	RLCV(NT); CITES(II); Cap.586	Locally common resident in closed-canopy shrubland and woodland in NT and HK Island	✓	-	WC; WL; VDA
Chinese Hwamei <i>Garrulax canorus</i>	RLCV(NT); CITES(II); Cap.586	Common and widespread resident in shrubland	✓	-	-
Indochinese Yuhina <i>Yuhina torqueola</i>	(LC)	Irruptive, otherwise uncommon but increasing, winter visitor to wooded areas, with occasional summer records	✓	-	-
Orange-headed Thrush <i>Geokichla citrina</i>	LC	Scarce breeding resident, with winter visitors and passage migrants, in forest and closed-canopy shrubland	✓	-	-
Brown-chested Jungle Flycatcher <i>Cyornis brunneatus</i>	RLCV(VU); IUCN(VU)	Rare autumn migrant	✓	-	-
Lesser shortwing <i>Brachypteryx leucophris</i>	LC	Locally common resident and winter visitor to closed-canopy shrubland and woodland, a recent colonist	✓	-	WL
Slaty-backed Forktail <i>Enicurus schistaceus</i>	LC	Occasional visitor to streams in closed-canopy woodland and shrubland	✓	-	WC

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Orange-bellied Leafbird <i>Chloropsis hardwickii</i>	LC	Uncommon resident and winter visitor in closed-canopy woodland	✓	-	WL
Tristram's Bunting <i>Emberiza tristrami</i>	RLCV(NT)	Uncommon winter visitor to woodland and shrubland areas	✓	VDA	WL
Total no. of species of conservation importance recorded			30	4	23

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong follows the latest Hong Kong Bird Report published by the HKBWS.
- Habitat: IF = In Flight; VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

4.6 Herpetofauna

Literature Review

- There is no specific information regarding herpetofauna within the Application Site.
- A rich diversity of herpetofauna has been recorded in the general Tai Po Kau Area, with a total of 12 amphibian species and 28 reptile species (although no exact location and habitat were provided) (AFCD 2022b); among these species, 6 amphibians and 13 reptiles are of conservation importance (see below in **Table 5**).
- Most of these species prefer forested streams or dense woodlands and are therefore unlikely to occur regularly within the Application Site which is an open habitat dominated by ruderal vegetation.

Field Survey Results

- A total of 14 amphibian and 12 reptile species were recorded: 6 amphibians and 4 reptiles were recorded within the Application Site while 12 amphibians and 12 reptiles were recorded in the Study Area. 12 of these herpetofauna species are of conservation importance.
- Within the Application Site, one amphibian species of conservation importance, Brown Wood Frog, was recorded at the Site boundary close to the stream. No breeding activities of the species were noted in the Application Site. However, the seasonal pond in the Application Site provided breeding ground for other common amphibian species.
- Indian Forest Skink was also recorded from the Application Site. Nevertheless, only a single individual was recorded once during the 12-month study. Given the low abundance, and that the species is known to prefer shaded forest habitats, this species is not considered dependent on the Application Site.
- In the Study Area, the herpetofauna results accord with the findings from the literature review. A total of 12 species of conservation importance were recorded from the Study Area.

4.6.8 The results are summarised in **Table 5** and are detailed in **Appendix 2**, and locations of species of conservation importance are provided in **Figure 3**.

Table 5. Herpetofauna species of conservation importance recorded from literature and present surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Amphibians					
Hong Kong Newt <i>Paramesotriton hongkongensis</i>	PGC; RLCV(NT); IUCN(NT); Cap.170	Widely distributed in mountain streams throughout NT, Lantau Island and HK Island.	✓	-	PO; WC; WL
Hong Kong Cascade Frog <i>Amolops hongkongensis</i>	PGC; RLCV(EN); IUCN(EN); Cap.170	Widely distributed in mountain streams in HK.	✓	-	WC
Big-headed Frog <i>Limnonectes fujianensis</i>	LC; RLCV(NT)	Distributed in mountain streams in Tai Po Kau Nature Reserve, Kam Shan Country Park, Lam Tsuen Country Park and Plover Cove Country Park.	✓	-	PO; WC; WL
Lesser Spiny Frog <i>Quasipaa exilispinosa</i>	PGC; RLCV(VU); IUCN(VU)	Occurs throughout the territory.	✓	-	PO; WC; WL
Brown Wood Frog <i>Hylarana latouchii</i>	LC	Distributed in woodlands in Tai Po Kau Nature Reserve, Shing Mun Country Park, Tai Mo Shan Country Park, Sai Kung West Country Park and Clear Water Bay Peninsula.	✓	VDA	PO; WC; WL
Romer's Tree Frog <i>Liuixalus romeri</i>	PGC; RLCV(VU); IUCN(EN); Cap.170	Distributed in woodlands on Lantau Island, Po Toi Island, Lamma Island, HK Island and NT.	✓	-	WL
Reptiles					
Brown Forest Skink <i>Sphenomorphus incognitus</i>	RLCV(NT)	Distributed in streams in central and eastern NT.	✓	-	WC; WL
Indian Forest Skink <i>Sphenomorphus indicus</i>	LC	Distributed in woodlands in eastern and central NT.	✓	VDA	WL
Mountain Wolf Snake <i>Lycodon futsingensis</i>	LC; RLCV(NT)	Distributed in woodlands in Tai Po Kau Nature Reserve, Tai Mo Shan Country Park and Tai Lam Country Park.	✓	-	-
Taiwan Kukri Snake <i>Oligodon formosanus</i>	RLCV(NT)	Widely distributed throughout HK.	✓	-	WL
Red Mountain Racer <i>Oreocryptophis porphyraceus</i>	LC	Distributed in woodlands in Tai Lam Country Park, Tai Mo Shan Country Park, Ma On Shan Country Park and Tai Po Kau Nature Reserve.	✓	-	-
Common Rat Snake <i>Ptyas mucosus</i>	PRC; RLCV(EN); CITES(II); Cap.586	Widely distributed throughout HK.	-	-	WC
Chinese Mountain Snake <i>Sibynophis chinensis</i>	LC	Distributed in eastern and central NT, on HK Island and Lantau Island.	✓	-	-
Many-banded Krait <i>Bungarus multicinctus</i>	PRC; RLCV(EN)	Widely distributed in NT, HK Island and Lantau Island.	✓	-	WL
Anderson's Stream Snake <i>Opisthotropis andersonii</i>	PGC; RLCV(NT); IUCN(NT)	Widespread in the NT, Lantau Islands and HK Island.	✓	-	-
Striped Stream Snake <i>Opisthotropis kuatunensis</i>	LC	Distributed in streams in central NT and Lantau Island.	✓	-	-
Mountain Water Snake <i>Trimerodytes percarinata</i>	LC; RLCV(VU)	Distributed in streams in central NT (Shing Mun Country Park, Tai Po Kau Nature Reserve, Tai Lam Country Park).	✓	-	-
Chinese Slug Snake <i>Pareas chinensis</i>	LC	Distributed in Tai Mo Shan and Shek Kong.	✓	-	-
White-spotted Slug Snake <i>Pareas margaritophorus</i>	RLCV(NT)	Distributed in woodland or shrubland throughout HK.	✓	-	WL
Burmese Python <i>Python bivittatus</i>	PRC; RLCV(CR); IUCN(VU); CITES(II); CSMPS(I); Cap.170; Cap.586	Widely distributed throughout HK.	✓	-	-
Total no. of species of conservation importance recorded			19	2	12

Notes:

1. Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.

- a. Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - b. Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - c. Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - d. Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - e. Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - f. Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - g. Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
2. Status in Hong Kong follows Hong Kong Biodiversity Database (AFCD 2022).
 3. Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

4.7 Butterflies

Literature Review

- 4.7.1 There is no specific information regarding butterfly fauna within the Application Site.
- 4.7.2 A total of 122 butterfly species have been recorded in the general Tai Po Kau Area (although no exact location and habitat were provided) (AFCD, 2022b); of which 38 are of conservation importance (see **Table 6**).

Field Survey Results

- 4.7.3 A total of 84 butterfly species were recorded: 46 in the Application Site and 69 in the 500m Study Area. Of the 84 species, 14 are species of conservation importance.
- 4.7.4 Within the Application Site, seven species of conservation importance were recorded (Grey Scrub Hopper, Dark Palm Dart, Metallic Cerulean, Powdered Oak Blue, White Dragontail, Common Rose, and Common Birdwing). All are recorded once and only as singles. Their larvae host plants are also absent from the Application Site, and it is considered that Application Site is not of significance to these species.
- 4.7.5 The butterfly community in the 500m Study Area accords with the results of the literature review.
- 4.7.6 The results are summarised in **Table 6**, and detailed in **Appendix 2**, the locations of species of conservation importance are provided in **Figure 3**.

Table 6. Butterfly species of conservation importance recorded from literature and present surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Orange Red Skirt <i>Choaspes hemixanthus</i>	LC	Very Rare	-	-	WL
Grey Scrub Hopper <i>Aeromachus jhora</i>	-	Rare	-	VDA	-
Oriental Straight Swift <i>Parnara bada</i>	-	Rare	✓	-	-
Yellow Band Dart <i>Potanthus pava</i>	-	Very Rare; Species of Conservation Concern	✓	-	-
Hainan Palm Dart <i>Telicota besta</i>	LC	Very Rare	✓	-	-
Pale Palm Dart <i>Telicota colon</i>	LC	Rare	✓	-	-
Dark Palm Dart <i>Telicota ohara</i>	-	Rare	-	VDA	-
Purple and Gold Flitter <i>Zographetus satwa</i>	RC	Rare	✓	-	-

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Magpie Flat <i>Abrahamia davidii</i>	-	Rare	✓	-	-
White-banded Flat <i>Gerosia phisara</i>	-	Rare	✓	-	-
Banded Royal <i>Eliotia jalindra</i>	-	Very Rare; Species of Conservation Concern	✓	-	-
Plain Hedge Blue <i>Celastrina lavendularis</i>	LC	Very Rare; Species of Conservation Concern	✓	-	-
Metallic Cerulean <i>Jamides alecto</i>	-	Very Rare	✓	VDA	WL
Pale Hedge Blue <i>Udara dilecta</i>	LC	Very Rare; Species of Conservation Concern	-	-	WL
Bi-spot Royal <i>Ancema ctesia</i>	LC	Very Rare; Species of Conservation Concern	✓	-	-
Powdered Oak Blue <i>Arhopala bazalus</i>	-	Rare	-	VDA	-
Broad Spark <i>Sinthusa chandrana</i>	-	Rare	✓	-	-
Peacock Royal <i>Tajuria cippus</i>	LC	Rare	✓	-	-
Spotted Royal <i>Tajuria maculata</i>	LC	Very Rare	✓	-	-
Orange Punch <i>Dodona egeon</i>	RC	Rare	✓	-	WL
Yellow Rajah <i>Charaxes marmax</i>	LC	Uncommon	✓	-	WL
Chestnut Tiger <i>Parantica sita</i>	-	Rare	✓	-	-
Swinhoe's Chocolate Tiger <i>Parantica swinhoei</i>	LC	Very Rare; Species of Conservation Concern	✓	-	-
Orange Staff Sergeant <i>Athyma cama</i>	LC	Very Rare; Species of Conservation Concern	✓	-	-
Blackvein Sergeant <i>Athyma ranga</i>	LC	Uncommon	✓	-	-
Constable <i>Dichorragia nesimachus</i>	LC	Rare	✓	-	-
Baron <i>Euthalia aconthea</i>	LC	Uncommon	✓	-	WL
Danaid Egg-fly <i>Hypolimnas misippus</i>	LC	Uncommon	✓	-	-
Orange Oakleaf <i>Kallima inachus</i>	LC	Very Rare; Species of Conservation Concern	✓	-	-
Sullied Sailer <i>Neptis soma</i>	LC	Very Rare; Species of Conservation Concern	✓	-	-
Eastern Courtier <i>Sephisia chandra</i>	LC	Very Rare; Species of Conservation Concern	✓	-	-
Painted Lady <i>Vanessa cardui</i>	LC	Rare	✓	-	-
Tawny Mime <i>Chilasa agestor</i>	-	Very Rare; Species of Conservation Concern	✓	-	-
Glassy Bluebottle <i>Graphium cloanthus</i>	LC	Uncommon	✓	-	-
White Dragontail <i>Lamproptera curius</i>	LC	Rare	✓	VDA	WL
Common Rose <i>Pachliopta aristolochiae</i>	-	Rare	✓	VDA	WL
Swallowtail <i>Papilio xuthus</i>	-	Rare	✓	-	-
Golden Birdwing <i>Troides aeacus</i>	LC; CITES(II); Cap.586	Rare; Species of Conservation Concern	✓	-	WL
Common Birdwing <i>Troides helena</i>	CITES(II); Cap.170; Cap.586	Uncommon; Species of Conservation Concern	✓	VDA	WL
Tailed Sulphur <i>Dercas verhuelli</i>	-	Rare	✓	-	-
Red-breast Jezebel <i>Delias acalis</i>	LC	Rare	✓	-	-
Small Cabbage White <i>Pieris rapae</i>	-	Rare	✓	-	WL

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Spotted Sawtooth <i>Prioneris thestylis</i>	LC	Rare	✓	-	-
Total no. of species of conservation importance recorded			38	7	11

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong follows Hong Kong Biodiversity Database (AFCD 2022).
- Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

4.8 Odonates

Literature Review

- 4.8.1 There is no specific information regarding odonates within the Application Site.
- 4.8.2 A total of 36 odonate species have been recorded in the general Tai Po Kau Area (although no exact location and habitat were provided) (AFCD, 2022b); of which 12 are of conservation importance (see **Table 7**). These species mostly prefer wooded hillstreams.

Field Survey Results

- 4.8.3 A total of 25 odonate species were recorded; 12 within the Application Site and 24 in the Study Area. Of these six are of conservation importance.
- 4.8.4 Within the Application Site, odonates were found to be abundant in the abandoned pond during the wet season, including Sapphire Flutterer, a species of conservation importance. Emerald Cascader was also recorded soaring above the Application Site, however, no breeding activities of these two species were noted.
- 4.8.5 In the 500m Study Area, the odonate community recorded accorded with the findings of the literature review.
- 4.8.6 The results are summarised in **Table 7** and detailed in **Appendix 2**, the locations of species of conservation importance are provided in **Figure 3**.

Table 7. Odonate species of conservation importance recorded from literature and present surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Ochre Titan <i>Philoganga vetusta</i>	LC	Common	✓	-	-
Indochinese Copperwing <i>Mnais mneme</i>	LC	Common	✓	-	WC
Chinese Yellowface <i>Agriomorpha fusca</i>	LC	Abundant	✓	-	WL
Blue-tailed Shadowdamsel <i>Drepanosticta hongkongensis</i>	GC	Common	✓	-	-
White-banded Shadowdamsel <i>Protosticta taipokauensis</i>	GC	Common	✓	-	WC

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Tiger Hawker <i>Polycanthagyna erythromelas</i>	LC	Common	✓	-	WC*
South China Grappletail <i>Heliogomphus scorio</i>	LC	Common	✓	-	-
Hong Kong Clubtail <i>Leptogomphus hongkongensis</i>	LC	Common; Endemic to HK	✓	-	-
Guangdong Hooktail <i>Melligomphus guangdongensis</i>	GC	Common	✓	-	-
Dancing Shadow-emerald <i>Idionyx victor</i>	LC	Common	✓	-	-
Sapphire Flutterer <i>Rhyothemis triangularis</i>	LC	Common	✓	PO	WL
Emerald Cascader <i>Zygonyx iris</i>	PGC	Abundant	✓	VDA	WL
Total no. of species of conservation importance recorded			12	2	6

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by IUCN Red List (IUCN 2022): NT = Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong follows Hong Kong Biodiversity Database (AFCD 2022).
- Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland. (* indicates only nymph was recorded).

4.9 Fireflies

Literature Review

- The most up-to-date literature on the ecology and distribution of fireflies in Hong Kong, i.e., Yiu (2017), describe 29 firefly species occurring in Hong Kong. This was reviewed along with the associated website (Yiu 2022) with updated or supplementary information by the same author.
- According to Yiu (2017 & 2022), 15 species of fireflies have been recorded from Tai Po Kau (although exact location and habitat were not provided). Most of the species recorded are fairly widespread in a Hong Kong context. These species mostly prefer dense forest habitats (Yiu 2017 & 2022) and are therefore less likely to occur within the Application Site and the nearby woodland edges.
- Of the 15 species recorded, four are considered endemic to Hong Kong (Yiu 2017 & 2022) (see below in **Table 8**). Nevertheless, given their widespread distribution in the New Territories, it is likely that they occur in other suitable sites in the Pearl River Delta outside of Hong Kong (such as in Shenzhen), but have not been formally recorded or reported elsewhere in Hong Kong due to the paucity of relevant surveys and research in the region.

Field Survey Results

- A total of eight firefly species were recorded, with three found within the Application Site, namely Lunate Window Firefly, Woodland Glider Firefly and *Luciola* nr. *nicollieri*.
- Larvae of Lunate Window Firefly were found foraging in patches of grass while a maximum of three adults were spotted flying above grass patches in the Application Site. Woodland Glider Firefly was recorded from the southern site boundary, moving between the Application Site and the woodland across the access road. No breeding activities were noted for this species. A maximum of 8 adult

individuals of *Luciola* nr. *nicollieri* adults were at the pond edge and grass patches in the Application Site, with no breeding activities noted.

4.9.6 In the 500m Study Area, the firefly community is generally in accord with the findings from the literature review.

Table 8. Firefly species of conservation importance recorded from literature and present surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Motschulsky's Starworm <i>Rhagophthalmus motschulskyi</i>	Endemic to HK	Recorded from Tai Po Kau, Kam Tin, Tin Shui Wai, Ma Shi Po, Tin Sam Tsuen, Lam Tsuen, Wu Kau Tang, Diamond Hill, Tai Tong and Mui Wo	✓	-	-
Black-winged Starworm <i>Diplocladon atripennis</i>	Endemic to HK	Recorded from Wo Tin, Tai Po Kau and Ng Tung Chai	✓	-	-
Lunate Window Firefly <i>Pyrocoelia lunata</i>	Endemic to HK	Recorded from more than 10 locations of lowland and upland natural woodlands as well as upland grasslands, including Mui Tsz Lam, Yuen Tun Ha, Deep Water Bay valley, Tai Po Kau, Yung She O, Tai Mo Shan and Lantau Peak	✓	VDA	WC; WL
Woodland Glider Firefly <i>Vesta sinuata</i>	Endemic to HK	Recorded from Wu Kau Tang, Ma On Shan, Sha Lo Tung, Ho Chung and Tai Po Kau	✓	VDA	WL
Total no. of species recorded			4	2	2

Notes:

1. Conservation and Protection Status refers to Yiu (2017 & 2022), Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170, Cap. 586.
2. Status in Hong Kong follows Yiu (2017 & 2022).
3. Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

4.10 Aquatic Fauna

Literature Review

4.10.1 There is no specific information regarding aquatic fauna within the Application Site.

4.10.2 A total of 17 freshwater fish species have been recorded in the general Tai Po Kau Area (although exact location and habitat were not provided) (AFCD, 2022b); of these two are of conservation importance (see **Table 9**).

Field Survey Results

4.10.3 No freshwater fish were recorded within the Application Site. Within the pond in the Application Site, a low diversity of aquatic invertebrates was recorded reflecting the man-made and seasonal nature of the pond.

4.10.4 A higher diversity of freshwater fishes and aquatic invertebrates were recorded in the Study Area. The community is dominated by typical hill stream species, although some exotic invasive species were also recorded.

Table 9. Aquatic fauna species of conservation importance recorded from literature and present surveys

Species	Conservation and Protection Status ¹	Status in Hon Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Freshwater Fish					
Taiwan Lesser Bream <i>Metzia formosae</i>	GC; RLCV(VU)	Species of Conservation Concern	✓	-	-
HK Paradise Fish <i>Macropodus hongkongensis</i>	GC	Species of Conservation Concern	✓	-	WC
Small Snakehead <i>Channa asiatica</i>	LC	Uncommon	-	-	WC

Species	Conservation and Protection Status ¹	Status in Hon Kong ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Aquatic Invertebrates					
Freshwater Crab <i>Nanhaipotamon hongkongense</i>	PGC	-	-	-	WC

Notes:

1. Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - a. Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - b. Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - c. Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - d. Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - e. Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - f. Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - g. Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
2. Status in Hong Kong follows Hong Kong Biodiversity Database (AFCD 2022).
3. Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

5 EVALUATIONS FOR HABITATS AND SPECIES

5.1 Evaluation of Habitats

5.1.1 The ecological importance of these habitats within the Application Site and the 500m Study Area is evaluated in accordance with Annex 8 of EIAO-TM and presented below in **Tables 10 to 14**.

Table 10. Habitat evaluation for Woodland

Criteria	Woodland (in 500m Study Area only)
Naturalness	Semi-natural secondary forest with high structural complexity
Size	Large
Diversity	High diversity for both flora and fauna
Rarity	Forest habitats with large size and high maturity and complexity is rare in a Hong Kong's context. Various floral and faunal species of conservation importance have been recorded from previous studies and the current surveys.
Re-creatability	Impossible to re-create given the current maturity and complexity
Fragmentation	Not fragmented
Ecological Linkage	Functionally linked with adjacent watercourses; also linked with woodland habitats outside of the 500m Study Area
Potential Value	There is scope for the woodland to further mature towards climax under natural succession.
Nursery/ breeding Ground	Presumably the nursery and breeding ground for various resident/breeding species
Age	Old; well over 50 years
Abundance/ Richness of wildlife	Moderate to high
Ecological Value	Very High

Table 11. Habitat evaluation for Watercourse

Criteria	Watercourse (in 500m Study Area only)
Naturalness	Semi-natural hill stream with very low level of human disturbance
Size	Moderate
Diversity	Moderate diversity for both flora and fauna
Rarity	Semi-natural hill stream is not uncommon in Hong Kong. Various floral and faunal species of conservation importance have been recorded from previous studies and the current surveys.
Re-creatability	Impossible to re-create given the current naturalness
Fragmentation	No major fragmentation
Ecological Linkage	Functionally linked with adjacent woodland habitats
Potential Value	Little scope for further increase in value
Nursery/ breeding Ground	Presumably the nursery and breeding ground for various resident/breeding species
Age	Old
Abundance/ Richness of wildlife	Moderate
Ecological Value	Moderate to High

Table 12. Habitat evaluation for Village / Developed Area

Criteria	Village / Developed Area	
	Within Application Site	In 500m Study Area
Naturalness	Man-made habitat; an abandoned farmland area overgrown with weedy and ruderal vegetation	Man-made habitat mainly comprised of residential area, road and infrastructures
Size	Small	
Diversity	Low to moderate	Low
Rarity	A common habitat. One floral species and 21 fauna species of conservation importance were recorded (although the fauna species are considered to occur transiently only).	A common habitat. Four faunal species of conservation importance were recorded (although the fauna species are considered to occur transiently in this habitat).
Re-creatability	Readily re-creatable	
Fragmentation	Fragmented	
Ecological Linkage	Some limited linkages with adjacent habitats	
Potential Value	Limited given the man-made nature	
Nursery/ breeding Ground	Not known to be significant	
Age	Not applicable for this habitat	
Abundance/ Richness of wildlife	Low to moderate	
Ecological Value	Low to Moderate	Low

Table 13. Habitat evaluation for Pond

Criteria	Pond	
	Within Application Site	In 500m Study Area
Naturalness	Man-made habitat	
Size	Small	
Diversity	Low to moderate	
Rarity	Common habitat in Hong Kong. Sapphire Flutterer was recorded.	Common habitat in Hong Kong. Big-headed Frog, Lesser Spiny Frog and Brown Wood Frog were recorded.
Re-creatability	Can be re-created	
Fragmentation	Fragmented	
Ecological Linkage	Some linkages with adjacent woodland	
Potential Value	Low to moderate potential value depending on management measures	
Nursery/ breeding Ground	Presumably breeding ground for wetland-dependent species	
Age	Relatively young	
Abundance/ Richness of wildlife	Low	
Ecological Value	Low	Low to Moderate

5.2 Evaluation of Species

5.2.1 The ecological importance of the species of conservation importance is evaluated in accordance with Annex 8 of EIAO-TM and presented below in **Tables 14** and **15** below.

Table 14. Ecological evaluation for floral species of conservation importance reported from literature and/or recorded from the present surveys

Species	Conservation and Protection Status ¹	Distribution ¹	Rarity ¹	Recorded from:	
				Application Site	500m Study Area
Climber					
<i>Aristolochia tagala</i>	Cap. 96A	Found in thickets	Restricted, also cultivated	-	✓
<i>Entada phaseoloides</i>	Least Concern ^(a) ; Endangered ^(l)	Found in forest	Restricted	-	✓
<i>Gnetum luofuense</i>	Near Threatened ^(g)	Commonly found in forest	Very Common	-	✓
<i>Illigera celebica</i>	Cap. 96A; Least Concern ^(a)	Thin forest and thicket	Restricted	-	✓
Fern					
<i>Alsophila spinulosa</i>	Cap. 96A; Cap. 586; Vulnerable ^(a) ; Wild Plant under State Protection (Category II) ^(a) ; Recorded in China Plant Red Data Book and illustrations of Rare & Endangered Plants in Guangdong Province ^(a) ;	Found in forest	Restricted	-	✓
<i>Cibotium barometz</i>	Cap. 586; Vulnerable ^(a) ; Wild Plant under State Protection (Category II) ^(a)	Found in forest and shrubland	Very Common	-	✓
<i>Neottopteris nidus</i>	Cap. 96A	On rock or tree trunk in forest	Restricted	✓	✓
Orchid					
<i>Cleisostoma simondii</i> var. <i>guangdongense</i>	Cap. 96A; Cap. 586	Found on tree trunk in forest	Very Scarce; Restricted ^(f)	-	✓
<i>Ania hongkongensis</i>	Cap. 96A; Cap. 586	Under trees or among rocks in forest	Abundant; Widespread ^(f) ; Restricted	-	✓
Herb					
<i>Impatiens hongkongensis</i>	Cap. 96A; Endangered ^(a)	Streamside in forest	Restricted	-	✓
Shrub					
<i>Pavetta hongkongensis</i>	Cap. 96A	Commonly found in thickets and forests	Common	-	✓
Tree					
<i>Aquilaria sinensis</i>	Cap. 586; Near Threatened ^(a) ; Wild plant under State Protection (Category II) ^(a) ; Vulnerable ^{(g)(h)(l)}	Lowland forest and <i>fung shui</i> wood	Common	-	✓
<i>Artocarpus hypargyreus</i>	Near Threatened ^(a) ; Vulnerable ^(g) ; Endangered ^(l)	Commonly found in lowland forest	Common	-	✓
<i>Camellia crapnelliana</i>	Cap. 96A; Vulnerable ^{(a)(g)} ; recorded in China Red Data Book ^(a)	Found in forest	Restricted	-	✓

Species	Conservation and Protection Status ¹	Distribution ¹	Rarity ¹	Recorded from:	
				Application Site	500m Study Area
<i>Canthium dicoccum</i>	Vulnerable ^(a)	Commonly found in lowland forest, thickets and ravines	Common	-	✓
<i>Ormosia pachycarpa</i>	Endangered ^(a)	Found in forest	Restricted	-	✓
<i>Rhodoieia championii</i>	Cap. 96A; Vulnerable ^(a)	Found in forest	Restricted but also planted	-	✓

Notes:

1. Conservation and Protection Status, and Status in HK refer to the following:
 - a. AFCD (2003, 2007, 2008, 2009, 2011)
 - b. Barretto *et al.* (2011)
 - c. IUCN (2022)
 - d. Pang *et al.* (2011)
 - e. Qin *et al.* (2017).

Table 15. Ecological evaluation for fauna species of conservation importance reported from literature and/or recorded from the present surveys

Species	Conservation and Protection Status ¹	Distribution and Rarity ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Mammal					
Short-nosed Fruit Bat <i>Cynopterus sphinx</i>	RLCV(NT); Cap.170	Widespread; very common	✓	-	-
Himalayan Leaf-nosed Bat <i>Hipposideros armiger</i>	(LC); Cap.170	Widespread; very common	✓	-	-
Chinese Noctule <i>Nyctalus plancyi</i>	PRC (RC); Cap.170	Widespread; common	✓	-	-
Chinese Pangolin <i>Manis pentadactyla</i>	RC; RLCV(CR); IUCN(CR); CSMPS(II); CITES(II); Cap.170; Cap.586	Rare and restricted	✓	-	-
Rhesus Macaque <i>Macaca mulatta</i>	CSMPS(II); CITES(II); Cap.170; Cap.586	Widespread; common	✓	✓	✓
Pallas's Squirrel <i>Callosciurus erythraeus</i>	Cap.170	Widespread; common	✓	-	-
East Asian Porcupine <i>Hystrix brachyura</i>	PGC; Cap.170	Widespread; very common	✓	✓	✓
Small-toothed Ferret Badger <i>Melogale moschata</i>	RLCV(NT); Cap.170	Widespread; common	✓	-	✓
Masked Palm Civet <i>Paguma larvata</i>	PRC; RLCV(NT); CITES(III); Cap.170; Cap.586	Widespread; common	✓	-	✓
Small Indian Civet <i>Viverricula indica</i>	RLCV(VU); CSMPS(II); CITES(III); Cap.170; Cap.586	Widespread; very common	✓	✓	-
Leopard Cat <i>Prionailurus bengalensis</i>	RLCV(VU); CITES(II); Cap.170; Cap.586	Widespread; uncommon	✓	✓	✓
Red Muntjac <i>Muntiacus muntjak</i>	PRC	Widespread; very common	-	✓	✓
Birds					
Striated Heron <i>Butorides striata</i>	(LC)	Widespread; locally common	-	-	✓
Little Egret <i>Egretta garzetta</i>	PRC (RC)	Widespread; abundant	✓	✓	✓
Crested Serpent Eagle <i>Spilornis cheela</i>	(LC); RLCV(NT); CITES(II); CSMPS(II); Cap.586	Widespread; locally common	✓	-	✓
Crested Goshawk <i>Accipiter trivirgatus</i>	RLCV(NT); CITES(II); CSMPS(II); Cap.586	Widespread; common	✓	-	✓
Black Kite <i>Milvus migrans</i>	(RC); CITES(II); CSMPS(II); Cap.586	Widespread; abundant	✓	-	✓
Greater Coucal <i>Centropus sinensis</i>	CSMPS(II)	Widespread; common	✓	✓	-
Lesser Coucal <i>Centropus bengalensis</i>	CSMPS(II)	Widespread; uncommon	✓	-	-
Collared Scops Owl <i>Otus lettia</i>	CITES(II); CSMPS(II); Cap.586	Widespread; common	✓	-	✓
Brown Fish Owl <i>Ketupa zeylonensis</i>	RC; RLCV(EN); CITES(II); CSMPS(II); Cap.586	Scarce; locally distributed	-	✓	✓
Brown Wood Owl <i>Strix leptogrammica</i>	RLCV(NT); CITES(II); CSMPS(II); Cap.586	Scarce and localised	✓	-	✓

Species	Conservation and Protection Status ¹	Distribution and Rarity ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Asian Barred Owlet <i>Glaucidium cuculoides</i>	CITES(II); CSMPS(II); Cap.586	Common though locally distributed	✓	-	-
Bay Woodpecker <i>Blythipicus pyrrhotis</i>	LC	Rare but increasing; localised	✓	-	✓
Grey-chinned Minivet <i>Pericrocotus solaris</i>	LC	Widespread; locally common	✓	-	✓
White-bellied Erpornis <i>Erpornis zantholeuca</i>	LC	Widespread; uncommon	✓	-	✓
Ashy Drongo <i>Dicrurus leucophaeus</i>	LC	Widespread; uncommon	✓	-	✓
Amur Paradise Flycatcher <i>Terpsiphone incei</i>	LC; RLCV(NT)	Widespread; uncommon to rare	✓	-	✓
Japanese Paradise Flycatcher <i>Terpsiphone atrocaudata</i>	LC; RLCV(NT); IUCN(NT)	Widespread; uncommon	✓	-	-
Collared Crow <i>Corvus torquatus</i>	LC; RLCV(NT); IUCN(VU)	Widespread; locally common	-	-	✓
Grey-headed Canary-flycatcher <i>Culicicapa ceylonensis</i>	LC	Widespread; uncommon	✓	-	✓
Yellow-bellied Tit <i>Pardaliparus venustulus</i>	LC	Irregular and rare	✓	-	-
Pygmy Wren-babbler <i>Pnoepyga pusilla</i>	LC	Locally common in central and northeast NT	✓	-	✓
Hartert's Leaf Warbler <i>Phylloscopus goodsoni</i>	LC	Widespread; locally common	✓	-	-
Rufous-capped Babbler <i>Stachyridopsis ruficeps</i>	LC	Widespread; common	✓	-	✓
Red-billed Leiothrix <i>Leiothrix lutea</i>	CITES(II); Cap.586	Uncommon; localised	✓	-	✓
Silver-eared Mesia <i>Leiothrix argentauris</i>	RLCV(NT); CITES(II); Cap.586	Widespread; locally common	✓	-	✓
Chinese Hwamei <i>Garrulax canorus</i>	RLCV(NT); CITES(II); Cap.586	Common and widespread	✓	-	-
Indochinese Yuhina <i>Yuhina torqueola</i>	(LC)	Irruptive / uncommon	✓	-	-
Orange-headed Thrush <i>Geokichla citrina</i>	LC	Widespread; scarce	✓	-	-
Brown-chested Jungle Flycatcher <i>Cyornis brunneatus</i>	RLCV(VU); IUCN(VU)	Widespread; rare	✓	-	-
Lesser shortwing <i>Brachypteryx leucophris</i>	LC	Widespread; locally common	✓	-	✓
Slaty-backed Forktail <i>Enicurus schistaceus</i>	LC	Occasional visitor	✓	-	✓
Orange-bellied Leafbird <i>Chloropsis hardwickii</i>	LC	Widespread; uncommon	✓	-	✓
Tristram's bunting <i>Emberiza tristrami</i>	RLCV(NT)	Widespread; uncommon	✓	✓	✓
Amphibians					
Hong Kong Newt <i>Paramesotriton hongkongensis</i>	PGC; RLCV(NT); IUCN(NT); Cap.170	Common and widespread	✓	-	✓
Hong Kong Cascade Frog <i>Amolops hongkongensis</i>	PGC; RLCV(EN); IUCN(EN); Cap.170	Widespread; uncommon	✓	-	✓
Big-headed Frog <i>Limnonectes fujianensis</i>	LC; RLCV(NT)	Uncommon and localised	✓	-	✓
Lesser Spiny Frog <i>Quasipaa exilispinosa</i>	PGC; RLCV(VU); IUCN(VU)	Common and widespread	✓	-	✓
Brown Wood Frog <i>Hylarana latouchii</i>	LC	Widespread; uncommon	✓	✓	✓
Romer's Tree Frog <i>Liuxalus romeri</i>	PGC; RLCV(VU); IUCN(EN); Cap.170	Widespread; locally common	✓	-	✓
Reptiles					
Brown Forest Skink <i>Sphenomorphus incognitus</i>	RLCV(NT)	Common and widespread	✓	-	✓
Indian Forest Skink <i>Sphenomorphus indicus</i>	LC	Common and widespread	✓	✓	✓
Mountain Wolf Snake <i>Lycodon futsingensis</i>	LC; RLCV(NT)	Very rare; localised	✓	-	-
Taiwan Kukri Snake <i>Oligodon formosanus</i>	RLCV(NT)	Widespread; uncommon	✓	-	✓

Species	Conservation and Protection Status ¹	Distribution and Rarity ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Red Mountain Racer <i>Oreocryptophis porphyraceus</i>	LC	Rare and localised	✓	-	-
Common Rat Snake <i>Ptyas mucosus</i>	PRC; RLCV(EN); CITES(II); Cap.586	Common and widespread	-	-	✓
Chinese Mountain Snake <i>Sibynophis chinensis</i>	LC	Widespread; uncommon	✓	-	-
Many-banded Krait <i>Bungarus multicinctus</i>	PRC; RLCV(EN)	Common and widespread	✓	-	✓
Anderson's Stream Snake <i>Opisthotropis andersonii</i>	PGC; RLCV(NT); IUCN(NT)	Common and widespread	✓	-	-
Striped Stream Snake <i>Opisthotropis kuatunensis</i>	LC	Uncommon and localised	✓	-	-
Mountain Water Snake <i>Trimerodytes percarinata</i>	LC; RLCV(VU)	Widespread; uncommon	✓	-	-
Chinese Slug Snake <i>Pareas chinensis</i>	LC	Very rare; localised	✓	-	-
White-spotted Slug Snake <i>Pareas margaritophorus</i>	RLCV(NT)	Common and widespread	✓	-	✓
Burmese Python <i>Python bivittatus</i>	PRC; RLCV(CR); IUCN(VU); CITES(II); CSMPS(I); Cap.170; Cap.586	Widespread; uncommon	✓	-	-
Butterflies					
Orange Red Skirt <i>Choaspes hemixanthus</i>	LC	Very rare; localised	-	-	✓
Grey Scrub Hopper <i>Aeromachus jhora</i>	-	Rare; widespread	-	✓	-
Oriental Straight Swift <i>Parnara bada</i>	-	Rare; widespread	✓	-	-
Yellow Band Dart <i>Potanthus pava</i>	-	Very rare; widespread	✓	-	-
Hainan Palm Dart <i>Telicota besta</i>	LC	Very rare; widespread	✓	-	-
Pale Palm Dart <i>Telicota colon</i>	LC	Rare; widespread	✓	-	-
Dark Palm Dart <i>Telicota ohara</i>	-	Rare; widespread	-	✓	-
Purple and Gold Flitter <i>Zographetus satwa</i>	RC	Rare; localised	✓	-	-
Magpie Flat <i>Abraximorpha davidii</i>	-	Rare; widespread	✓	-	-
White-banded Flat <i>Gerosis phisara</i>	-	Rare; widespread	✓	-	-
Banded Royal <i>Eliotia jalindra</i>	-	Very rare; localised	✓	-	-
Plain Hedge Blue <i>Celastrina lavendularis</i>	LC	Very rare; widespread	✓	-	-
Metallic Cerulean <i>Jamides alecto</i>	-	Very rare; widespread	✓	✓	✓
Pale Hedge Blue <i>Udara dilecta</i>	LC	Very rare; localised	-	-	✓
Bi-spot Royal <i>Ancema ctesia</i>	LC	Very rare; localised	✓	-	-
Powdered Oak Blue <i>Arhopala bazalus</i>	-	Rare; widespread	-	✓	-
Broad Spark <i>Sinthusia chandrana</i>	-	Rare; widespread	✓	-	-
Peacock Royal <i>Tajuria cippus</i>	LC	Rare; widespread	✓	-	-
Spotted Royal <i>Tajuria maculata</i>	LC	Very rare; localised	✓	-	-
Orange Punch <i>Dodona egeon</i>	RC	Rare; localised	✓	-	✓
Yellow Rajah <i>Charaxes marmax</i>	LC	Uncommon; widespread	✓	-	✓
Chestnut Tiger <i>Parantica sita</i>	-	Rare; widespread	✓	-	-
Swinhoe's Chocolate Tiger <i>Parantica swinhoei</i>	LC	Very rare; widespread	✓	-	-

Species	Conservation and Protection Status ¹	Distribution and Rarity ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Orange Staff Sergeant <i>Athyma cama</i>	LC	Very rare; localised	✓	-	-
Blackvein Sergeant <i>Athyma ranga</i>	LC	Uncommon; localised	✓	-	-
Constable <i>Dichorragia nesimachus</i>	LC	Rare; localised	✓	-	-
Baron <i>Euthalia aconthea</i>	LC	Uncommon; widespread	✓	-	✓
Danaid Egg-fly <i>Hypolimnas misippus</i>	LC	Uncommon; widespread	✓	-	-
Orange Oakleaf <i>Kallima inachus</i>	LC	Very rare; localised	✓	-	-
Sullied Sailer <i>Neptis soma</i>	LC	Very rare; localised	✓	-	-
Eastern Courtier <i>Sephis chandra</i>	LC	Very rare; localised	✓	-	-
Painted Lady <i>Vanessa cardui</i>	LC	Rare; widespread	✓	-	-
Tawny Mime <i>Chilasa agestor</i>	-	Very rare; localised	✓	-	-
Glassy Bluebottle <i>Graphium cloanthus</i>	LC	Uncommon; widespread	✓	-	-
White Dragontail <i>Lamproptera curius</i>	LC	Rare; widespread	✓	✓	✓
Common Rose <i>Pachliopta aristolochiae</i>	-	Rare; widespread	✓	✓	✓
Swallowtail <i>Papilio xuthus</i>	-	Rare; widespread	✓	-	-
Golden Birdwing <i>Troides aeacus</i>	LC; CITES(II); Cap.586	Rare; widespread	✓	-	✓
Common Birdwing <i>Troides helena</i>	CITES(II); Cap.170; Cap.586	Uncommon; widespread	✓	✓	✓
Tailed Sulphur <i>Dercas verhuelli</i>	-	Rare; widespread	✓	-	-
Red-breast Jezebel <i>Delias acalis</i>	LC	Rare; localised	✓	-	-
Small Cabbage White <i>Pieris rapae</i>	-	Rare; widespread	✓	-	✓
Spotted Sawtooth <i>Prioneris thestylis</i>	LC	Rare; widespread	✓	-	-
Odonates					
Ochre Titan <i>Philoganga vetusta</i>	LC	Common; widespread	✓	-	-
Indochinese Copperwing <i>Mnais mneme</i>	LC	Common; widespread	✓	-	✓
Chinese Yellowface <i>Agriomorpha fusca</i>	LC	Abundant; widespread	✓	-	✓
Blue-tailed Shadowdamsel <i>Drepanosticta hongkongensis</i>	GC	Common; widespread	✓	-	-
White-banded Shadowdamsel <i>Protosticta taipokauensis</i>	GC	Common; widespread	✓	-	✓
Tiger Hawker <i>Polycanthagyna erythromelas</i>	LC	Common; widespread	✓	-	✓
South China Grappletail <i>Heliogomphus scorpio</i>	LC	Common; widespread	✓	-	-
Hong Kong Clubtail <i>Leptogomphus hongkongensis</i>	LC	Common; widespread; endemic to HK	✓	-	-
Guangdong Hooktail <i>Melligomphus guangdongensis</i>	GC	Common; widespread	✓	-	-
Dancing Shadow-emerald <i>Idionyx victor</i>	LC	Common; widespread	✓	-	-
Sapphire Flutterer <i>Rhyothemis triangularis</i>	LC	Common; widespread	✓	✓	✓
Emerald Cascader <i>Zygonyx iris</i>	PGC	Abundant; widespread	✓	✓	✓
Fireflies					
Motschulsky's Starworm <i>Rhagophthalmus motschulskyi</i>	Endemic to HK	Widespread; commonness not known	✓	-	-

Species	Conservation and Protection Status ¹	Distribution and Rarity ²	Reported from Literature	Recorded from:	
				Application Site ³	500m Study Area ³
Black-winged Starworm <i>Diplocladon atripennis</i>	Endemic to HK	Restricted; commonness not known	✓	-	-
Lunate Window Firefly <i>Pyrocoelia lunata</i>	Endemic to HK	Widespread; commonness not known	✓	✓	✓
Woodland Glider Firefly <i>Vesta sinuata</i>	Endemic to HK	Restricted; commonness not known	✓	✓	✓
Freshwater Fish					
Taiwan Lesser Bream <i>Metzia formosae</i>	GC; RLCV(VU)	Species of Conservation Concern	✓	-	-
HK Paradise Fish <i>Macropodus hongkongensis</i>	GC	Species of Conservation Concern	✓	-	✓
Small Snakehead <i>Channa asiatica</i>	LC	Uncommon	-	-	✓
Aquatic Invertebrates					
Freshwater Crab <i>Nanhaipotamon hongkongense</i>	PGC	Common	-	-	✓

Notes:

1. Conservation and Protection Status refers to Fellowes *et al.* (2002), Yiu (2017 & 2022), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - a. Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - b. Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - c. Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - d. Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - e. Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - f. Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - g. Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
1. Distribution and rarity follow AFCD Hong Kong Biodiversity Database (AFCD 2022), the latest Hong Kong Bird Report, Karsen *et al.* (1998) or Stanton *et al.* (2017).

6 IDENTIFICATION AND EVALUATION OF IMPACTS

6.1 Assessment Methodology

6.1.1 The potential direct and indirect ecological impacts arising from the proposed development are identified and assessed in this section in accordance with Annexes 8 and 16 of the EIAO-TM.

6.2 Proposed Development of Tai Po Kau Nature Academy

6.2.1 The Application Site is currently vacant with weedy and ruderal vegetation cover. There are several single-storey existing structures. A field study/education/visitor centre with ancillary camping facilities known as “Tai Po Kau Nature Academy” is proposed for the Application Site, where two of the existing structures would be demolished while the remaining three would be redeveloped into the Academy.

6.2.2 The proposed Tai Po Kau Nature Academy will mainly consist of three single-storey buildings which will be redeveloped from the existing structures. There will be a visitor centre, an activity centre and a plant nursery for nature education and field studies. Outdoor spaces with footpaths will be reserved for activity ground, viewing deck, event lawn and plant nursery area for field study/research purpose. A camping ground will be used for overnight educational activities/programme for up to 18 persons.

6.2.3 The proposed development parameters are provided below in **Table 16**.

Table 16. Proposed Development Parameters

Proposed Development Parameters			
Site Area		About 0.9 ha	
Total GFA		About 560 m ²	
No. of Blocks		3	
Structure Details			
Structure No.	Use	Covered Area (approx.) (m ²)	No. of Storey
1	Visitor Centre	220	1
2	Activity Centre	146	1
3	Plant Nursery	194	1
Total		560	/

The Visitor Centre

6.2.4 The visitor centre will be the main welcoming space located near the visitor entrance at the centre of the application site. It will be redeveloped from an existing structure. Some elements from the existing dilapidated structure will be salvaged to be installed in the visitor centre. It will provide a multi-purpose activity area, storage, office, toilet and a sewerage treatment plant.

The Activity Centre

6.2.5 The activity centre will be located at an uphill location to the west of the visitor centre. An activity area with ancillary storage, toilet and changing rooms will be provided. It will also be redeveloped from an existing dilapidated structure on an existing platform.

The Plant Nursery

6.2.6 Another block to the northeast of the visitor centre will be the proposed plant nursery equipped with storage, working area, toilets and changing room. It will serve as the working area for the native plant nursery and field study works. It will provide storage for equipment for handling plants as well as processing and storage of seeds. Outdoor plant nursery areas and seed preparation areas will be provided. There will also be ancillary facilities including a sewerage treatment plant and other E&M facilities. To allow materials/tools to be transported to and from the plant nursery, one private car parking space and one loading/unloading space for staff are proposed in this area.

Centre Operation and Management

- 6.2.7 The proposed education centre will be operated by Pine Garden Foundation Limited, a charitable body registered for tax exemption under Section 88 of the Inland Revenue Ordinance, with the objectives of conserving, restoring and rehabilitating the natural environment. The foundation promotes awareness and advances conservation, restoration and rehabilitation of the environment, ecosystems and areas with natural beauty and scientific interest.
- 6.2.8 In order to enhance the quality in future nature educational and field study/research programmes for the community, the foundation will collaborate with Outdoor Wildlife Learning Hong Kong (OWLHK) who will jointly operate the TPK Nature Academy who will organise educational programmes. OWLHK is a non-government environmental education organization established in 2016 and a registered charity in Hong Kong promoting conservation and environmental education in Hong Kong through outdoor education and research.
- 6.2.9 The proposed TPK Nature Academy will open from Monday to Sunday including Public Holidays, from 10am to 6pm (except for overnight programmes). The Academy is anticipated to accommodate a maximum of 400 visitors daily across multiple sessions with no more than 10 full-time site staff members. The number of visitors will be controlled via an advance booking system. Nature and environmental education activities such as seminars, exhibitions and workshops will be provided in the visitor centre, the activity centre, and the outdoor spaces at the Academy. A tent camping ground will be provided to support overnight educational programmes.

6.3 Construction Phase Impacts

Direct Impacts to Recognised Site(s) of Conservation Importance

- 6.3.1 The Application Site is located outside of the Conservation Area and Tai Po Kau Nature Reserve / Tai Po Kau Special Area. All proposed developments will be located within the boundary of the Application Site, and will not encroach into any recognised sites of conservation importance. Therefore, no direct impacts to any recognised sites of conservation importance will occur.

Direct Impacts of Habitat Loss

- 6.3.2 The Application Site is comprised of two habitat types, namely pond and village / development area. An evaluation of the direct loss of habitats within the Application Site in the absence of mitigation measures (i.e. assuming total habitat loss) is provided below in **Table 17**.
- 6.3.3 The genuine habitat loss, however, as demonstrated in **Table 16** above, would be far lower.

Table 17. Evaluation of direct impacts on secondary woodland in the absence of mitigation measures

Criteria	Pond	Village / Developed Area
Habitat Quality	Low	Low to moderate
Species	Sapphire Flutterer was recorded.	One floral species and 22 fauna species of conservation importance were recorded (although the fauna species are considered to occur transiently only).
Size / Abundance	Small size of approximately 0.021 ha. Abundance of wildlife is generally low.	Small size of approximately 0.779 ha. Abundance of wildlife is low to moderate.
Duration	Permanent	
Reversibility	Irreversible	
Magnitude	Low to moderate magnitude for complete habitat loss within Application Site	
Significance of Impact	Low	Low to Moderate

Direct Impacts to Species of Conservation Importance

- 6.3.4 An evaluation of the potential direct loss of flora and fauna species of conservation importance recorded within the Application Site in the absence of mitigation measures is provided below in **Table 18**.
- 6.3.5 Given that most of these species were recorded within the Application Site in low abundance and frequency, and do not prefer the type of habitats offered within the Site, it is considered that their occurrence in the Application Site is only of a transient nature. Furthermore, these species are highly mobile and are unlikely to sustain direct loss.

Table 18. Evaluation of direct impacts on species of conservation importance without mitigation

Criteria	Floral Species	Faunal Species
Habitat Quality	Low to moderate for village / developed area	Low for pond; Low to moderate for village / developed area
Species	One floral species	23 fauna species of conservation importance were recorded (although most of the fauna species are considered to occur transiently only).
Size / Abundance	Small size of approximately 0.021 ha. Abundance of wildlife is generally low.	Small size of approximately 0.779 ha. Abundance of wildlife is low to moderate.
Duration	Permanent	
Reversibility	Irreversible	
Magnitude	Low magnitude for the low abundance and frequency of these species recorded	
Significance of Impact	Low	Low

Indirect Disturbance Impacts in Construction Phase

- 6.3.6 Potential indirect impacts to other habitats and species of conservation importance during the construction phase may include artificial light, construction noise, vibration, dust, and other forms of human disturbances arising from construction activities.
- 6.3.7 Based on the current design, the proposed development is of small scale. All facilities will be single-storey. No extensive site formation and foundation works are required as the redevelopment works will be largely confined to the existing building footprints. The overall construction period is anticipated to be no more than 12 months, with minimal plant and equipment needed due to the small scale of works required and the limited capacity of the Tai Po Kau access road.
- 6.3.8 Considering the small scale of construction works, potential impacts with regards to air quality, dust, noise, and human disturbance arising from construction activities will be minimal as mainly modification of the existing building structures and only minor excavation works will be required. Furthermore, the Application Site is surrounded by dense, mature secondary woodland in all directions. Impacts such as noise and human activities during construction would be screened off by the woodland edges and would not be able to travel deep into the interior woodland habitats.
- 6.3.9 In regards to the water quality impacts, construction works may potentially generate wastewater. Wastewater generated from general land-based construction works (e.g. general cleaning and polishing, dust suppression, utility installation, etc.) and construction site runoff (e.g. runoff and erosion of exposed bare soil and earth, earth working area and stockpiles, etc.) could potentially pose indirect impacts on the water quality of the adjoining watercourse as these often contain sediment and pollutants such as lubricants. Other activities that are likely to cause water pollution include drainage or sewage effluent from the workforce, and accidental spillage of chemicals (e.g. oil, fuel, solvents, lubricant, etc.).
- 6.3.10 If these flows into the watercourse outside the Application Site, aquatic fauna within these habitats will be affected. Dust and exposed earth from construction operations may also enter the waterbodies via run-off, particularly during periods of heavy rain, or be wind-blown. Sediment from the runoff will raise the suspended solid (SS) level in the watercourse and this will lead to direct mortality of most

aquatic organisms, especially fish, as their gills will be covered and their respiration seriously affected. Chemicals from this runoff may also have acute toxic effect on aquatic organisms. A number of aquatic fauna of conservation importance are known to occur within the Assessment Area, and some were recorded near the Application Site.

- 6.3.11 Considering the small scale of works required, the potential impact on water quality will be limited. Furthermore, in the current design, construction works will be largely restricted to the southern edge of the Application Site, leaving a buffer area of 20-30m in width between the proposed buildings and the nearest watercourse.
- 6.3.12 Regarding hydrology, no streams and wetland will be affected under the proposed development. Impacts to the water table is not expected as there will not be any major excavation works that would lead to groundwater drawdown. In terms of run-off, as demonstrated in the Drainage Impact Assessment prepared for this Application, there will not be a significant increase or reduction in run-off volume.
- 6.3.13 As night-time construction will not be permitted there will be no night-time lighting during the construction phase, as such there will be no impacts from artificial light to wildlife.
- 6.3.14 An evaluation of the indirect disturbance described above in the absence of any mitigation measures is provided in **Table 19**.

Table 19. Evaluation of indirect disturbance impacts to other habitats and species of conservation importance during construction phase

Criteria	Assessment
Habitat Quality	Very high for woodland; moderate to high for watercourse; low to moderate for village / developed area; low for pond
Species	Various species of conservation importance were present, but these comprise highly mobile faunal species
Size / Abundance	Abundance of wildlife is moderate to high
Duration	Temporary for construction phase impacts
Reversibility	Largely irreversible
Magnitude	Low magnitude given the small scale of works proposed
Significance of Impact	Low to Moderate

6.4 Operation Phase Impacts

Direct Impacts of Bird Collision

- 6.4.1 Windows and building curtain-walls are potentially lethal to birds when they collide with glass windows during flight. Reflection of an outdoor scene or a view through a window may appear to a bird as a potential flight path or suitable habitat.
- 6.4.2 Bird species that tend to fly through understorey vegetation where they are guided by a view of light ahead of them, are most vulnerable to this type of collision and the resulted mortality.

Table 20. Evaluation of direct impacts of bird collision during operation phase

Criteria	Assessment
Habitat Quality	Low to moderate
Species	Various bird species
Size / Abundance	Low abundance for birds
Duration	Permanent
Reversibility	Largely irreversible
Magnitude	Low to moderate magnitude
Significance of Impact	Low to Moderate

Indirect Disturbance Impacts in Operation Phase

- 6.4.3 As the Nature Academy will be for educational purpose and will not involve any emission activities, air quality impact is not anticipated.
- 6.4.4 Increased traffic, noise, and human activities may occur during the operation phase as a result from the general operation of the Nature Academy and the education programmes and visitors' activities, including general tours and camping activities.
- 6.4.5 For traffic, all visitors are expected to walk up from the entrance of the Tai Po Kau Nature Reserve, and thus will not generate additional vehicular traffic. Only a minor increase in traffic related to the daily operation of the Academy is expected.
- 6.4.6 The maximum number of visitors per day will be 400 only, and will be strictly controlled through advanced booking mechanism. The potential increase of visitors to the Tai Po Kau Nature Reserve due to the operation of the Academy is not considered significant against the background of the current levels of visitors at the Tai Po Kau Nature Reserve.
- 6.4.7 Low level noise may be generated from outdoor activities including educational tours and camping. However, these activities are considered very similar to the current recreational activities such as hiking, picnic and wildlife watching, which are predominantly operated in low noise level. Hence, only a minor increase in noise level is expected, and this is not considered to be significant.
- 6.4.8 No catering services will be provided on site, therefore, no fire would be generated. Fire is also strictly forbidden during all other operations and activities of the Academy, including camping.
- 6.4.9 All of the operations and activities shall be designed, led and monitored by professional outdoor environmental education practitioners, who shall ensure that all these are conducted in an appropriate fashion which will not result in undesirable ecological and environmental outcome.
- 6.4.10 In terms of sewage, the Nature Academy will generate sewage during the operation phase as there will be a total staff population of no more than 10, up to 400 visitors per day and up to 18 overnight campers including tutors. As there will be not any catering facilities within the Academy, so the sewage flow will only be from toilets and simple hand-washing facilities. As there are no existing public sewerage or sewage treatment facilities in the vicinity of the Site, the sewage generated will therefore need to be treated on site.
- 6.4.11 A Membrane Bio-Reactor package Sewage Treatment Plant will be installed to treat the sewage. The effluent will be treated to an appropriate standard (following Standards for Effluents Discharged into Group D Inland Waters listed under Cap.385 Water Pollution Control Ordinance) before being discharged to the adjacent watercourse. Hence, no water pollution impact is anticipated during the operation phase.
- 6.4.12 Light pollution may occur when artificial outdoor lighting is misdirected, misplaced, unshielded, excessive or unnecessary. As a result, light spills unnecessarily upward and outward, causing glare, light trespass, and a "sky glow" overhead. This may disturb nocturnal species in a number of ways, as the artificial light source may deter their use of nearby areas or habitats, interfere with species' natural circadian rhythm, or disrupt species light-based communications (e.g., in fireflies breeding activities).
- 6.4.13 Nevertheless, night-time activities and number of participants will be limited to a minimal at the Academy. The amount of artificial lighting at night will also be limited to a minimum for safety concern, and will be turned off when not in use. The lighting source to be installed will be equipped with full cut-off or shielded fixtures to minimise light glare and trespass, and will be aimed only towards the ground rather than to the sky or any sensitive habitats nearby. The light beam produced will be

focused onto a small area to reduce the area affected by night-time night. Therefore, no significant impacts in terms of artificial light is anticipated.

6.4.14 For run-off, as demonstrated in the Drainage Impact Assessment, there will not be significant increase in run-off volume as the increase in paved area is minimal.

6.4.15 An evaluation of the indirect disturbance described above in the absence of any mitigation measures is provided in **Table 21**.

Table 21. Evaluation of indirect disturbance impacts to other habitats and species of conservation importance during operation phase

Criteria	Assessment
Habitat Quality	Very high for woodland; moderate to high for watercourse; low to moderate for village / developed area; low for pond
Species	Various species of conservation importance were present, but these comprise highly mobile faunal species
Size / Abundance	Abundance of wildlife is moderate to high
Duration	Permanent
Reversibility	Largely irreversible
Magnitude	Very low
Significance of Impact	Low

6.5 Cumulative Impacts

6.5.1 No cumulative impacts are expected as there is no other planned development in the vicinity.

7 MITIGATION MEASURES

7.1 General Approach

7.1.1 The general approach for mitigating impacts on important habitats and species as stated in Annex 16 of the EIAO-TM is, in order of priority: avoidance, minimisation and compensation.

7.2 Habitat Loss

7.2.1 Under the current layout, the Application Site will be largely preserved and left untouched. Loss of habitats is avoided as construction works will be restricted to the existing building footprints. No loss of pond would occur under the current layout. The residual impact is considered very minor and acceptable.

7.3 Loss of Floral Species of Conservation Importance

7.3.1 Individuals of a protected fern *Neottopteris nidus* were found within the Application Site. The Master Layout Plan has been adjusted to avoid any direct impact to this species.

7.4 Loss of Faunal Species of Conservation Importance

7.4.1 Given that the fauna species of conservation importance within the Application Site were only recorded with low abundance and frequency, and that most of these species do not prefer the type of habitats within the Site, it is considered that their occurrence in the Application Site is only of a transient nature. Furthermore, these species are highly mobile and are unlikely to sustain direct loss. As a result, no specific mitigation measures are proposed.

7.5 Mitigation for Bird Collision

7.5.1 To prevent bird collision, the building design has made reference to international best practices of bird strike prevention. Fritted glass will be used to provide visual markers on glass surface for birds. Further, glasses or windows will be set back with awnings or overhangs to minimise reflection of nearby vegetation or habitat. The residual impact is considered to be acceptable.

7.6 Mitigation for Indirect Disturbance Impacts during Construction Phase

7.6.1 The disturbance impacts to the surrounding habitats and associated wildlife arising from the construction activities could be minimised by adopting the mitigation measures in the sections below.

7.6.2 Construction dust should be suppressed to avoid and minimise the dust covering leaves of plants that would affect their photosynthesis, and thus their health and growth:

- Regular watering, to reduce dust emissions from exposed site surfaces and unpaved roads.
- Proper storage of construction materials.
- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.

7.6.3 Noise impact during construction phase should be avoided and minimised to reduce the disturbance to the habitats adjacent to the works areas:

- Machines, equipment and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.

- Machines and plants known to emit strong directional noise should, wherever possible, be orientated so that the noise is directed away from the nearby habitats.
- Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.

7.6.4 In order to avoid impacts of run-off causing pollution or sedimentation in the habitats adjacent to the Application Site, it will be necessary to implement standard construction site practices in these sites that limit run-off into adjacent water bodies. Generally, indirect water impact to any aquatic fauna during the construction phase should be minimised by implementing water control measures (ETWB TCW No. 5/2005) and the Practice Notes for Professional Persons on “Construction Site Drainage” (ProPECC PN1/94) in controlling water pollution at construction site to avoid direct or indirect impacts any watercourses and good site practices. In particular, the following good site practices/water control measures should be adopted to minimise any pollution entering the watercourse nearby:

- General refuse and construction wastes should be collected and disposed of in a timely and appropriate manner.
- The Application Site should be properly fenced off with hoarding or with sandbag stockpiled along the site boundary. Sediment traps should be installed within the Site to collect and control any construction run-off.
- All works and storage area should be restricted to the Application Site boundary and in accordance with the Master Layout Plan.
- Covering of any exposed soil or other loose materials with tarpaulins to prevent erosion.
- Exposed soil to be covered as quickly as possible following formation works, then seeded and covered with a biodegradable geotextile blanket for erosion control purposes.
- A temporary sewage treatment system or portable chemical toilets should be designed and installed to collect wastewater and prevent it from entering nearby habitats.
- The proposed works site inside or in the proximity of nearby habitats should be temporarily isolated, such as by placing of sandbags or silt curtains with a lead edge at the bottom and properly supported props, to prevent adverse impacts on these areas.
- Construction debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby habitats by rain.
- Contractors should adhere to a strict “clean site” policy, with all construction waste transported to predetermined sites for safe disposal. Under no circumstances should there be any disposal of waste oil or other materials on site.
- Vehicles and other plant should be carefully maintained and properly used to minimise the chance for accidental spillage.

7.6.5 Prior to the commencement of any works, the appointed Contractor / Construction Manager should conduct a formal briefing to the workforce to reinforce the message that the works are being conducted near Tai Po Kau Nature Reserve, an ecological and environmentally sensitive area. Workers should also be informed about the locations of any identified rare/ protected plant species adjacent to the Application Site, concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.

7.6.6 The workforce should be reminded of the need for environmental diligence throughout the duration of works, in particular to avoid littering, improper disposal of construction waste, avoid unnecessarily damage to vegetation or cause noise or visual disturbance during the works.

7.7 Mitigation for Indirect Disturbance Impacts during Operation Phase

7.7.1 No specific mitigation measures are proposed as the indirect impacts are considered to be of low significance.

7.7.2 As mentioned in previous sections, OWLHK and Pine Garden Foundation Limited will be responsible for the daily operations. To better manage and further minimise the potential disturbance impacts during the operation phase, OWLHK and Pine Garden Foundation Limited are recommended to review and improve their operations on a regular.

8 CONCLUSION

- 8.1.1 The Pine Garden Foundation Limited proposes to establish a field study/education/visitor centre with ancillary camping facilities known as “Tai Po Kau Nature Academy” (TPK Nature Academy) at the application site for the promotion of nature education through organised educational activities and programmes, as well as for conducting field studies and research. A Town Planning Board Application is submitted for the proposed ‘Field Study/Education/Visitor Centre’ with ancillary “Holiday Camp” (tent camping ground), which are Column 2 uses in “GB” zone requiring permission from the Town Planning Board under S.16 of the Town Planning Ordinance.
- 8.1.2 An ecological baseline study has been undertaken, comprising a literature review and a 12-month ecological field survey from January to December 2021. Although the Application Site is surrounded by woodland habitat of very high ecological value, the Site itself is dominated by village / developed area of low or moderate ecological value with a small, seasonal pond of low value. Despite the presence of a number of species of conservation importance, the Application Site supports a limited diversity of wildlife, in particular flora, primarily due to the former use as agricultural area and subsequent invasion by weedy and ruderal vegetation.
- 8.1.3 The proposed Nature Academy in its operation phase is envisaged to promote and further strengthen local education and research in ecology, environment and sustainability, with a particular focus on forest in Hong Kong. The Academy is also expected to aid forest restoration and urban forestry in Hong Kong by producing seedlings of native tree species. With the implementation of the mitigation measures recommended, it is considered that the overall residual ecological impact will be reduced to an acceptable level, and it is anticipated that the Academy will bring about ecological gain.

9 REFERENCES

- AFCD. 2003. Rare and Precious Plants of HK. Agriculture, Fisheries and Conservation Department, HKSAR, HK. 234pp.
- AFCD. 2007. Flora of HK Vol. 1. Edited by HK Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences.
- AFCD. 2008. Flora of HK Vol. 2. Edited by HK Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences.
- AFCD. 2009. Flora of HK Vol. 3. Edited by HK Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences.
- AFCD. 2011. Flora of HK Vol. 4. Edited by HK Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences.
- AFCD. 2021. Tai Po Kau Nature Reserve. https://www.afcd.gov.hk/english/country/cou_vis/cou_vis_cou/cou_vis_tpk/cou_vis_cou_tpk.html. Accessed in Feb 2022.
- AFCD. 2022a. HK Biodiversity Database. <http://www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.asp>. Accessed in Jan 2022.
- AFCD. 2022b. HK Live Eco-map. <https://www.hkecomap.net/>. Accessed in May 2022.
- Fellowes, J.F., M.W.N. Lau, D. Dudgeon, G.T. Reels, G.W.J. Ades, G.J. Carey, B.P.L. Chan, R.C. Kendrick, K.S. Lee, M.R. Leven, K.D.P. Wilson, Y.T. Yu, 2002. Wild Animals to Watch: Terrestrial and Freshwater Fauna of Conservation Concern in Hong Kong, HK
- Yu, Y.T, Pang, C.C., Ying, H.K., Tse, I.W.L., Sung, Y.H., Leung, B.H.N., & Fong, H.H.N. 2017. New ecological information about forest birds at Tai Po Kau Nature Reserve. In Hong Kong Bird Report 2015, the Hong Kong Bird Watching Society, Hong Kong.
- IUCN. 2022. IUCN Red List of Threatened Species. (available online at <http://www.iucnredlist.org>).
- Jiang, Z.G., Jiang, J.P., Wang, Y.Z., Zhang, E., Zhang, Y.Y., Li, L.L., Xie, F., Cai, B., Cao, L., Zheng, G.M., Dong, L., Zhang, Z.W., Ding, P., Luo, Z.H., Ding, C.Q., Ma, Z.J., Tang, S.H., Cao, W.X., Li, C.W., Hu, H.J., Ma, Y., Wu, Y., Wang, Y.X., Zhou, K.Y., Liu, S.Y., Chen, Y.Y., Li, J.T., Feng, Z.J., Wang, Y., Wang, B., Li, C., Song, X.L., Cai, L., Zang, C.X., Zeng, Y., Meng, Z.B., Fang, H.X., and Ping, X.G., 2016. Red List of China's Vertebrates. *Biodiversity Science*: 24 (5) 500-551.
- Karsen, S., M.W.N. Lau & A. Bogadek. 1998. HK Amphibians and Reptiles. Provisional Urban Council, HK
- Lee, W. T. C., Chau L. K. C. and Wu S. H. 2003. Kadoorie Farm & Botanic Garden Flora Conservation Publication No. 1 Flora of HK Pteridophyta. Kadoorie Farm & Botanic Garden, HK. 469pp.
- Pang, K. S., Yip, J. K. L. and Lai, P. C. C., 2011. A Review of the Status of the IUCN Red List of Threatened Plants in HK. *HK Biodiversity* 20: 1-8.
- Stanton D.J., Leven M.R. & Hui T.C.H. 2018. Distribution of *Nanhaipotamon hongkongense* (Shen, 1940) (*Crustacea: Brachyura: Potamidae*), a freshwater crab endemic to HK. *Journal of Threatened Taxa*, 10(1): 11156–11165.

Xing F.W., Ng, S.C. and Chau, L.K.C. 2000. Gymnosperms and Angiosperms of HK. Memoirs of the HK Natural History Society. 23:21-136.

Yiu, V. 2017. A Study of Rhagophthalmidae and Lampyridae in HK with descriptions of new species (Coleoptera): Part 2. Lampyrid. 4: 67-119.

Yiu, V. 2022. HK Firefly Species. HK Fireflies. May 12, 2022. <http://fireflies.hk/>

APPENDIX 1

List of Floral Species Recorded in the Surveys

Table 1. Plant species recorded within the Application Site and 500m Study Area

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Abrus mollis</i>	毛相思子	Climber/Shrub	Native	Common					*	
<i>Acacia confusa</i>	台灣相思	Tree	Exotic	Widely cultivated			*		*	
<i>Achyranthes aspera</i>	土牛膝	Herb	Native	Common					*	
<i>Acorus gramineus</i>	石菖蒲	Herb	Native	Very common			***	**		
<i>Acronychia pedunculata</i>	山油柑	Tree	Native	Very common					**	
<i>Adiantum flabellulatum</i>	扇葉鐵線蕨	Herb	Native	Very common					*	
<i>Adina pilulifera</i>	水團花	Shrub/Tree	Native	Very common			**		*	
<i>Ageratum conyzoides</i>	藿香薊	Herb	Exotic	Common	***	***	*		**	
<i>Aglaia odorata</i> var. <i>microphyllina</i>	小葉米仔蘭	Shrub/Tree	Exotic	Cultivated	*					
<i>Aidia pycnantha</i>	多毛茜草樹	Shrub/Tree	Native	Common					*	
<i>Alangium chinense</i>	八角楓	Shrub/Tree	Native	Common	*		*		**	
<i>Albizia corniculata</i>	天香藤	Climber/Shrub	Native	Common					**	
<i>Alchornea trewioides</i>	紅背山麻桿	Shrub	Native	Common					*	
<i>Alleizettella leucocarpa</i>	白果香楠, 白果山黃皮	Shrub	Native	Restricted					*	
<i>Alocasia macrorrhizos</i>	海芋	Herb	Native	Very common	**		**	*	**	
<i>Alpinia hainanensis</i>	草豆蔻	Herb	Native	Very common			**		**	
<i>Alpinia zerumbet</i>	豔山薑	Herb	Native	Very common					**	
<i>Alsophila spinulosa</i>	刺桫欏	Herb	Native	Cap. 586, Cap. 96A, Vulnerable (AFCD 2003)					*	
<i>Alternanthera sessilis</i>	蝦鉗菜	Herb	Native	Common		**				
<i>Ampelopsis cantoniensis</i>	廣東蛇葡萄	Climber	Native	Very common					**	
<i>Ania hongkongensis</i>	香港安蘭, 香港帶唇蘭	Herb	Native	Cap. 96A; Cap. 586; Abundant widespread (Barretto et al. 2011); Restricted (AFCD 2011)					*	
<i>Antidesma bunius</i>	五月茶	Tree	Native	Common					*	
<i>Antirhea chinensis</i>	毛茶	Shrub	Native	Very common			*		*	
<i>Aporusa dioica</i>	銀柴	Tree	Native	Very common			**		***	
<i>Aquilaria sinensis</i>	土沉香	Tree	Native	Common, protected under Cap. 586, listed as "Vulnerable" in China Plant Red Data Book, under State protection (Category II) in China (AFCD 2003), classified as "Vulnerable" on the IUCN Red List					*	
<i>Arachis duranensis</i>	蔓花生	Herb	Exotic	Cultivated						**
<i>Araucaria heterophylla</i>	異葉南洋杉	Tree	Exotic	Cultivated (IUCN: Vulnerable)						*
<i>Archidendron clypearia</i>	猴耳環	Tree	Native	Common	*		*		**	
<i>Archidendron lucidum</i>	亮葉猴耳環	Tree	Native	Common					*	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Ardisia crenata</i>	朱砂根	Shrub	Native	Common			*		**	
<i>Ardisia lindleyana</i>	山血丹	Shrub	Native	Common					*	
<i>Ardisia quinquegona</i>	羅傘樹	Shrub	Native	Very common			*		*	
<i>Arenga pinnata</i>	砂糖椰子, 桃椰	Tree	Exotic	Cultivated					*	
<i>Aristolochia tagala</i>	印度馬兜鈴, 耳葉馬兜鈴	Vine	Native	Status in China as "Critically Endangered" (AFCD 2003), IUCN Red List and TSLCHP					**	
<i>Artocarpus heterophyllus</i>	菠蘿蜜	Tree	Exotic	Cultivated	*					
<i>Artocarpus hypargyreus</i>	白桂木	Tree	Native	Regarded as Common in Corlett <i>et al.</i> (2000). Status in China as "Near Threatened" (AFCD 2003), classified as "Vulnerable" on the IUCN Red List					*	
<i>Artocarpus styracifolius</i>	二色菠蘿蜜	Tree	Native	Restricted					*	
<i>Asclepias curassavica</i>	馬利筋	Herb	Exotic	Cultivated					*	
<i>Asystasia micrantha</i>	小花十萬錯	Herb	Exotic	Cultivated or naturalised	***				**	
<i>Averrhoa carambola</i>	楊桃	Tree	Exotic	Planted	*					
<i>Axonopus compressus</i>	地毯草	Herb	Exotic	Common and naturalised					*	
<i>Bambusa sp.</i>	竹屬	Bamboo	-	-					*	
<i>Bambusa tuldoides</i>	青稈竹	Bamboo	Native	Restricted					*	
<i>Bauhinia championii</i>	缺葉藤	Climber	Native	Common			**		***	
<i>Bauhinia sp.</i>	羊蹄甲屬	Tree	-	-	*					
<i>Begonia cucullata var. hookeri</i>	四季秋海棠	Herb	Exotic	Cultivated	*					
<i>Begonia spp.</i>	秋海棠屬	-	-	-					*	
<i>Berchemia floribunda</i>	勾兒茶	Climber	Native	Common					*	
<i>Bidens alba</i>	白花鬼針草	Herb	Exotic	Very common	****	***	**		**	**
<i>Bischofia javanica</i>	秋楓	Tree	Native	Common			*		*	
<i>Blechnum orientale</i>	烏毛蕨	Herb	Native	Very common			**		**	
<i>Blumea laciniata</i>	六耳鈴	Herb	Native	Common					*	
<i>Boehmeria nivea</i>	苧麻	Shrub	Exotic	Common	*		**		*	
<i>Bougainvillea spectabilis</i>	籐杜鵑	Climber/Shrub	Exotic	Cultivated	**				*	
<i>Brachiaria mutica</i>	巴拉草	Herb	Exotic	Very common	***		**			
<i>Breynia fruticosa</i>	黑面神	Shrub	Native	Very common			*		**	
<i>Bridelia insulana</i>	大葉逼迫子	Tree	Native	Restricted	*		**		***	
<i>Bridelia tomentosa</i>	土蜜樹	Shrub/Tree	Native	Very common	*				**	*
<i>Brucea javanica</i>	鴉膽子	Shrub/Tree	Native	Common					*	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Byttneria grandifolia</i>	刺果藤	Climber	Native	Very common			**		**	
<i>Caesalpinia crista</i>	假老虎筋	Climber	Native	Very common	*		**		*	
<i>Calliandra haematocephala</i>	紅絨球	Shrub	Exotic	Cultivated					*	
<i>Callicarpa kochiana</i>	枇杷葉紫珠	Shrub	Native	Common					*	
<i>Camellia crapnelliana</i>	紅皮糖果茶	Tree	Native	Regarded as Very Rare in Corlett <i>et al.</i> (2000). Protected under Cap. 96, Status in China as "Vulnerable" (AFCD 2003), listed as "Vulnerable" in China Plant Red Data Book, classified as "Vulnerable" on the IUCN Red List					*	
<i>Canarium album</i>	橄欖	Tree	Exotic	Restricted					*	
<i>Canthium dicoccum</i>	魚骨木	Shrub/Tree	Native	Classified as "Vulnerable" in IUCN Red List based on the assessment of its range in Sri Lanka but is regarded as Common in AFCD (2009)			*		**	
<i>Carallia brachiata</i>	竹節樹	Tree	Native	Common			*		**	
<i>Casearia velutina</i>	毛嘉賜樹	Tree	Native	Restricted					*	
<i>Castanopsis fissa</i>	蠟菊錐	Tree	Native	Common					*	
<i>Casuarina equisetifolia</i>	木麻黃	Tree	Exotic	Cultivated					*	*
<i>Cayratia corniculata</i>	角花烏薺莓	Climber	Native	Very common					**	
<i>Celtis sinensis</i>	朴	Tree	Native	Common and widely planted	*		*		*	
<i>Centella asiatica</i>	崩大碗	Herb	Native	Very common			*			
<i>Centotheca lappacea</i>	假淡竹葉	Herb	Native	Common	*		**		**	
<i>Choerospondias axillaris</i>	南酸棗	Tree	Native	Common					*	
<i>Chrysopogon aciculatus</i>	竹節草	Herb	Native	Very common			*			
<i>Cibotium barometz</i>	金毛狗	Herb	Native	Regarded as Very Common in Corlett <i>et al.</i> (2000). Protected under Cap. 586. Status in China as "Vulnerable", under State protection (Category II) in China (AFCD 2003)			*		**	
<i>Cinnamomum camphora</i>	樟	Tree	Native	Common, also cultivated					*	
<i>Citrus maxima</i>	柚	Tree	Exotic	Cultivated	*				*	
<i>Citrus reticulata</i>	桔	Tree	Exotic	Cultivated					*	
<i>Cleisostoma simondii</i> var. <i>guangdongense</i>	廣東隔距蘭, 柱葉隔距蘭	Herb	Native	Cap. 96A; Cap. 586; Very scarce Restricted (Barretto <i>et al.</i> 2011); Common (AFCD 2011)			*			
<i>Cleistocalyx nervosum</i>	水翁	Tree	Native	Common	*		***		*	
<i>Clematis loureiroana</i>	絲鐵線蓮, 甘木通, 長毛鐵線蓮	Climber	Native	Restricted					*	
<i>Clerodendranthus spicatus</i>	腎茶, 貓鬚草	Herb	Exotic	Common					*	
<i>Clerodendrum cyrtophyllum</i>	大青	Shrub/Tree	Native	Common					*	
<i>Clerodendrum japonicum</i>	檳桐	Shrub	Exotic	Common, cultivated and apparently neutralised					*	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Clinopodium gracile</i>	細風輪菜	Herb	Native	Restricted	*					
<i>Codiaeum variegatum</i>	變葉木	Shrub	Exotic	Cultivated						*
<i>Coix lacryma-jobi</i>	薏苡	Herb	Native	Common		*				
<i>Coleus scutellarioides</i>	五彩蘇, 洋紫蘇	Herb	Exotic	Cultivated	**					
<i>Colocasia esculenta</i>	芋	Herb	Native	Cultivated			**	**		
<i>Commelina diffusa</i>	節節草	Herb	Native	Common	**	**	**	**	**	
<i>Cordyline fruticosa</i>	朱蕉	Shrub	Exotic	Cultivated						*
<i>Cratogeomys cochinchinense</i>	黃牛木	Shrub/Tree	Native	Very common	*				**	
<i>Croton</i> sp.	巴豆屬	-	-	-					*	
<i>Cunninghamia lanceolata</i>	杉木	Tree	Exotic	Widely planted in countryside					*	
<i>Cuphea platycentra</i>	雪茄花	Shrub	Exotic	Often planted					*	
<i>Cyathula prostrata</i>	金鈎草	Herb	Native	Common					*	
<i>Cyclobalanopsis edithiae</i>	華南青岡	Tree	Native	Restricted					*	
<i>Cyclosorus interruptus</i>	間斷毛蕨	Herb	Native	Common	**	**				
<i>Cyclosorus parasiticus</i>	華南毛蕨	Herb	Native	Very common	*		**		**	*
<i>Cynodon dactylon</i>	狗牙根	Herb	Native	Very common	**					***
<i>Cyperus involucratus</i>	風車草	Herb	Exotic	Cultivated or naturalised			*			
<i>Cyrtococcum patens</i>	弓果黍	Herb	Native	Very common	**					
<i>Daemonorops jenkinsiana</i>	黃藤	Climber	Native	Restricted			**		**	
<i>Dalbergia benthamii</i>	兩廣黃檀	Climber	Native	Common					**	
<i>Dalbergia hancei</i>	藤黃檀	Climber	Native	Common			*		*	
<i>Dalbergia millettii</i>	香港黃檀	Climber	Native	Common					*	
<i>Daphniphyllum calycinum</i>	牛耳楓	Shrub	Native	Common			*		*	
<i>Daphniphyllum pentandrum</i>	虎皮楠, 交讓木	Shrub/Tree	Native	Common			*			
<i>Delonix regia</i>	鳳凰木	Tree	Exotic	Cultivated	*					*
<i>Dendrotrophe varians</i>	寄生藤	Climber	Native	Very common					*	
<i>Desmodium reticulatum</i>	顯脈山綠豆	Shrub	Native	Restricted					*	
<i>Desmos chinensis</i>	假鷹爪	Climber/Shrub	Native	Common	*		**		***	
<i>Dianella ensifolia</i>	山菅蘭	Herb	Native	Very common					**	
<i>Dichroa febrifuga</i>	常山	Shrub	Native	Restricted			*		***	
<i>Dicranopteris pedata</i>	芒萁	Herb	Native	Very common					*	
<i>Digitaria ciliaris</i>	升馬唐	Herb	Native	Very common		**				

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Dimocarpus longan</i>	龍眼	Tree	Exotic	Cultivated (IUCN: Near Threatened)	*		*		*	*
<i>Diospyros eriantha</i>	烏柿	Shrub/Tree	Native	Very common			*		*	
<i>Diospyros morrisiana</i>	羅浮柿	Shrub/Tree	Native	Very common					*	
<i>Diploclisia glaucescens</i>	蒼白秤鈎風	Climber	Native	Common			**		*	
<i>Diplospora dubia</i>	狗骨柴	Shrub/Tree	Native	Common					*	
<i>Dracaena fragrans</i>	巴西鐵樹	Shrub	Exotic	Cultivated	*		*			
<i>Drymaria cordata</i>	荷蓮豆	Herb	Native	Common	**			*		
<i>Duranta erecta</i>	假連翹	Climber/Shrub	Exotic	Cultivated					*	***
<i>Echinochloa crusgalli</i>	稗	Herb	Native	Common	**					
<i>Echinodorus cordifolius</i>	象耳澤瀉	Herb	Exotic	Cultivated		**				
<i>Elaeagnus loureirii</i>	羅氏胡頹子	Climber/Shrub	Native	Common					*	
<i>Elaeocarpus sylvestris</i>	山杜英	Tree	Native	Very common					*	
<i>Elephantopus scaber</i>	地膽草	Herb	Native	Common					**	
<i>Eleutherococcus trifoliatus</i>	白筋	Climber/Shrub	Native	Restricted					*	
<i>Emilia sonchifolia</i>	一點紅	Herb	Native	Very common	*				*	
<i>Endospermum chinense</i>	黃桐	Tree	Native	Restricted					*	
<i>Engelhardia roxburghiana</i>	黃杞	Tree	Native	-					*	
<i>Entada phaseoloides</i>	檣藤	Climber	Native	Regarded as Very Rare in Corlett <i>et al.</i> (2000), wild population under protection (AFCD 2003)					*	
<i>Equisetum debile</i>	筆管草	Herb	Native	Restricted			*			
<i>Eragrostis atrovirens</i>	鼠婦草	Herb	Native	Common			*			
<i>Eragrostis tenella</i>	鯽魚草	Herb	Native	Very common					*	
<i>Erythrina speciosa</i>	象牙花	Tree	Exotic	Cultivated					*	
<i>Euphorbia hirta</i>	大飛揚草	Herb	Exotic	Very common						*
<i>Eurya nitida</i>	細齒葉柃	Shrub/Tree	Native	Very common			*		**	
<i>Ficus fistulosa</i>	水同木	Tree	Native	Common	*				*	
<i>Ficus hirta</i>	粗葉榕	Shrub/Tree	Native	Common	*				*	
<i>Ficus hispida</i>	對葉榕	Shrub/Tree	Native	Very common	**		**		**	*
<i>Ficus microcarpa</i>	細葉榕	Tree	Native	Common and widely cultivated	*	*	*		*	
<i>Ficus pandurata</i>	琴葉榕	Shrub	Native	Restricted					*	
<i>Ficus pumila</i>	薜荔	Climber	Native	Very common	*				*	
<i>Ficus subpisocarpa</i>	筆管榕	Tree	Native	Common			**		*	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Ficus variegata</i>	青果榕	Tree	Native	Common	*		*		*	*
<i>Ficus variolosa</i>	變葉榕	Shrub/Tree	Native	Very common			*		*	
<i>Ficus virens</i>	大葉榕	Tree	Native	Common	*					
<i>Fissistigma oldhamii</i>	瓜馥木	Shrub	Native	Restricted					*	
<i>Floscopa scandens</i>	聚花草	Herb	Native	Common			*			
<i>Flueggea virosa</i>	白飯樹	Shrub	Native	Common	*					
<i>Gahnia tristis</i>	黑莎草	Herb	Native	Very common			*		**	
<i>Garcinia oblongifolia</i>	黃牙果	Shrub/Tree	Native	Very common	*		*		***	
<i>Gardenia jasminoides</i>	梔子	Shrub	Native	Common					*	
<i>Gelsemium elegans</i>	斷腸草	Climber	Native	Restricted					*	
<i>Glochidion eriocarpum</i>	毛果算盤子	Shrub/Tree	Native	Very common			*		**	
<i>Glochidion hirsutum</i>	厚葉算盤子	Shrub/Tree	Native	Common			*			
<i>Glochidion puberum</i>	算盤子	Shrub	Native	Restricted					*	
<i>Glochidion wrightii</i>	白背算盤子	Shrub/Tree	Native	Very common					*	
<i>Gnetum luofuense</i>	羅浮買麻藤	Climber	Native	Regarded as Very Common by Corlett <i>et al.</i> (2000), classified as "Near Threatened" in IUCN Red List but locally very common in Hong Kong (AFCD 2007)			**		***	
<i>Hedyotis hedyotideia</i>	牛白藤	Climber/Shrub	Native	Very common					*	
<i>Heterosmilax gaudichaudiana</i>	合絲肖菝蕨	Climber	Native	Common					*	
<i>Hibiscus rosa-sinensis</i>	大紅花	Shrub	Exotic	Commonly cultivated	*				*	**
<i>Hydrocotyle verticillata</i>	銅錢草	Herb	Exotic	-			*			
<i>Hygrophila salicifolia</i>	水蓼衣	Herb	Native	Common			*			
<i>Hymenocallis littoralis</i>	水鬼蕉	Herb	Exotic	Cultivated	*					
<i>Hypserpa nitida</i>	夜花藤	Climber	Native	Very common					*	
<i>Ilex asprella</i>	梅葉冬青	Shrub	Native	Very common	*				**	
<i>Ilex pubescens</i>	毛冬青	Shrub	Native	Very common					**	
<i>Ilex rotunda</i>	鐵冬青	Tree	Exotic	Common	*					
<i>Ilex rotunda</i> var. <i>microcarpa</i>	小果鐵冬青	Tree	Native	Common			*		*	
<i>Ilex triflora</i>	三花冬青	Tree	Native	Restricted					*	
<i>Ilex viridis</i>	綠冬青	Shrub/Tree	Native	Common					*	
<i>Illigera celebica</i>	寬葉青藤	Woody climber	Native	Regarded as "Very Rare" in Corlett <i>et al.</i> (2000); Least Concern in China (AFCD 2003) and protected under Cap. 96A					**	
<i>Impatiens hongkongensis</i>	香港鳳仙	Herb	Native	Cap. 96			*			

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Imperata cylindrica</i> var. <i>major</i>	絲茅	Herb	Native	Very common	***					
<i>Indocalamus sinicus</i>	水銀竹	Bamboo	Native	Common			**			
<i>Ipomoea biflora</i>	心萼薯	Herb	Native	Common					*	
<i>Ipomoea triloba</i>	三裂葉薯	Herb	Exotic	Common					*	
<i>Itea chinensis</i>	鼠刺	Shrub/Tree	Native	Very common			*		*	
<i>Ixora chinensis</i>	龍船花	Shrub	Native	Restricted, also widely cultivated						***
<i>Juniperus chinensis</i>	圓柏	Tree	Exotic	Cultivated						*
<i>Kyllinga nemoralis</i>	單穗水蜈蚣	Herb	Native	Very common	*				*	
<i>Kyllinga polyphylla</i>	香根水蜈蚣	Herb	Exotic	Common	***		**		**	**
<i>Lagerstroemia speciosa</i>	大花紫薇	Tree	Exotic	Cultivated	*					*
<i>Lasianthus attenuatus</i>	斜基粗葉木, 小葉雞屎樹	Shrub	Native	Restricted			*			
<i>Lemmaphyllum microphyllum</i>	伏石蕨	Herb	Native	Common			*		*	
<i>Leptochloa chinensis</i>	千金子	Herb	Native	Very common			*			
<i>Lindera communis</i>	香葉樹	Shrub/Tree	Native	Very common					*	
<i>Lindsaea orbiculata</i>	團葉鱗始蕨	Herb	Native	Very common					*	
<i>Liquidambar formosana</i>	楓香	Tree	Native	Common, also widely planted	*				*	
<i>Liriope spicata</i>	山麥冬	Herb	Native	Very common			**		**	
<i>Lithocarpus glaber</i>	柯, 石櫟	Tree	Native	Common					*	
<i>Litsea cubeba</i>	木薑子	Shrub/Tree	Native	Common			*		**	
<i>Litsea glutinosa</i>	潺槁	Tree	Native	Very common	*		*			
<i>Litsea monopetala</i>	假柿木薑子	Tree	Native	Restricted	**		*		**	
<i>Litsea rotundifolia</i> var. <i>oblongifolia</i>	豺皮樟	Shrub/Tree	Native	Very common					**	
<i>Lonicera japonica</i>	忍冬	Climber	Native	Restricted					*	
<i>Lonicera macrantha</i>	大花忍冬	Climber	Native	Common					*	
<i>Lophatherum gracile</i>	淡竹葉	Herb	Native	Very common	*		**		**	
<i>Lophostemon confertus</i>	紅膠木	Tree	Exotic	Cultivated					*	
<i>Loropetalum chinense</i> f. <i>rubrum</i>	紅花檵木	Shrub	Exotic	Cultivated						*
<i>Lygodium japonicum</i>	海金沙	Climber/Herb	Native	Very common	*		*		**	
<i>Macaranga tanarius</i> var. <i>tomentosa</i>	血桐	Tree	Native	Common			**		*	
<i>Machilus breviflora</i>	短序潤楠	Tree	Native	Very common			*			
<i>Machilus chekiangensis</i>	浙江潤楠	Tree	Native	Very common			**		***	
<i>Machilus gamblei</i>	黃心樹, 芳槁潤楠	Tree	Native	Restricted			*		*	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Machilus pauhoi</i>	刨花潤楠	Tree	Native	Restricted	*		*		**	
<i>Machilus velutina</i>	絨毛潤楠	Tree	Native	Common					*	
<i>Maclura cochinchinensis</i>	構棘	Shrub	Native	Restricted					*	
<i>Macrothelypteris torresiana</i>	普通針毛蕨	Herb	Native	Very common	*					
<i>Maesa perlaris</i>	鯽魚膽	Shrub	Native	Common	*		*		**	
<i>Mallotus paniculatus</i>	白楸	Shrub/Tree	Native	Very common			*		*	
<i>Malvaviscus penduliflorus</i>	垂花懸鈴花	Shrub	Exotic	Cultivated	*		*			
<i>Mangifera indica</i>	杧果	Tree	Exotic	Cultivated	*				*	
<i>Melastoma dodecandrum</i>	地荃	Herb/Shrub	Native	Common					*	
<i>Melastoma malabathricum</i>	野牡丹	Shrub	Native	Common			*		**	
<i>Melastoma sanguineum</i>	毛荃	Shrub	Native	Common			*	*	**	
<i>Melicope pteleifolia</i>	三椏苦	Shrub/Tree	Native	Common			*		**	
<i>Melodinus suaveolens</i>	山橙	Climber	Native	Common					*	
<i>Merremia umbellata</i> subsp. <i>orientalis</i>	山豬菜	Herb	Native	Common					*	
<i>Microcos nervosa</i>	布渣葉	Shrub/Tree	Native	Common					**	
<i>Microstegium ciliatum</i>	剛莠竹	Herb	Native	Very common	***	***	*		*	
<i>Mikania micrantha</i>	薇甘菊	Climber/Herb	Exotic	Very common	**	***	*		**	
<i>Millettia nitida</i>	亮葉雞血藤	Climber	Native	Very common					*	
<i>Millettia pulchra</i>	印度崖豆, 印度雞血藤	Shrub/Tree	Native	Restricted					*	
<i>Miscanthus sinensis</i>	芒	Herb	Native	Very common			*			
<i>Murraya paniculata</i>	九里香	Tree	Exotic	Cultivated or naturalised	*					
<i>Musa x paradisiaca</i>	大蕉	Herb	Exotic	Cultivated					*	
<i>Mussaenda pubescens</i>	玉葉金花	Climber/Shrub	Native	Very common					**	
<i>Neottopteris nidus</i>	巢蕨	Herb	Native	Cap. 96A	*		*		*	
<i>Nephrolepis auriculata</i>	腎蕨	Herb	Native	Common					*	
<i>Neyraudia reynaudiana</i>	類蘆	Herb	Native	Very common	**					
<i>Nymphaea lotus</i>	齒葉睡蓮	Herb	Exotic	Cultivated				**		
<i>Odontonema tubiforme</i>	紅樓花	Shrub	Exotic	Cultivated					*	
<i>Oreocnide frutescens</i>	紫麻	Shrub/Tree	Native	Restricted					*	
<i>Ormosia pachycarpa</i>	葇荑紅豆	Tree	Native	Restricted. Status in China as "Endangered" (AFCD 2003)					*	
<i>Oroxylum indicum</i>	木蝴蝶, 千層紙	Tree	Native	Restricted					*	
<i>Osmanthus fragrans</i>	桂花, 木犀	Shrub/Tree	Exotic	Cultivated	*				*	*

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Osmanthus matsumuranus</i>	牛矢果	Shrub/Tree	Native	Restricted			*		**	
<i>Oxalis corniculata</i>	酢醬草	Herb	Native	Very common	**				**	**
<i>Oxalis debilis</i> subsp. <i>corymbosa</i>	紅花酢醬草	Herb	Exotic	Common					*	
<i>Paederia scandens</i>	雞矢藤	Herb	Native	Very common	*				*	
<i>Pandanus tectorius</i>	露兜樹	Shrub/Tree	Native	Very common					*	
<i>Pandanus urophyllus</i>	分叉露兜	Tree	Native	Very common			**		**	
<i>Panicum brevifolium</i>	短葉黍	Herb	Native	Very common	**		**		***	
<i>Panicum maximum</i>	大黍	Herb	Exotic	Very common	***			**	*	
<i>Parthenocissus dalzielii</i>	爬牆虎	Climber	Exotic	Cultivated					*	
<i>Paspalum conjugatum</i>	兩耳草	Herb	Native	Common	**				*	
<i>Pavetta hongkongensis</i>	香港大沙葉	Shrub/Tree	Native	Protected under Cap. 96, but is common in Hong Kong					*	
<i>Pellionia scabra</i>	蔓赤車	Shrub	Native	Common			*		*	
<i>Pentasachme caudatum</i>	石蘿摩	Herb	Native	Common			*			
<i>Pericampylus glaucus</i>	細圓藤	Climber	Native	Restricted					*	
<i>Persicaria chinensis</i>	火炭母	Herb	Native	Very common	*				*	
<i>Phoenix loureiroi</i>	刺葵	Tree	Native	Common			*		*	
<i>Phragmites australis</i>	蘆葦	Herb	Native	Very common				**		
<i>Phyllanthus emblica</i>	油甘子	Shrub/Tree	Native	Very common					*	
<i>Phyllanthus reticulatus</i>	小果葉下珠	Shrub	Native	Common			*		*	
<i>Pilea microphylla</i>	小葉冷水花	Herb	Exotic	Very common	*				*	
<i>Pinus massoniana</i>	馬尾松	Tree	Native	Common					*	
<i>Piper hancei</i>	山蒟	Climber	Native	Very common			*		*	
<i>Piper sarmentosum</i>	假蒟	Herb	Native	Restricted					*	
<i>Plantago major</i>	車前草	Herb	Native	Very common					*	
<i>Platyclusus orientalis</i>	側柏	Tree	Exotic	Often planted (IUCN: Near Threatened)	*					
<i>Podocarpus macrophyllus</i>	羅漢松	Tree	Native	Restricted and often planted					*	
<i>Pogonatherum crinitum</i>	金絲草	Herb	Native	Common			*			
<i>Polyspora axillaris</i>	大頭茶	Shrub/Tree	Native	Very common					**	
<i>Pothos chinensis</i>	石柑	Climber	Native	Very common			**		*	
<i>Pronephrium simplex</i>	單葉新月蕨	Herb	Native	Very common					*	
<i>Pseudodrynaria coronans</i>	崖薑	Herb	Native	Restricted			*			
<i>Pseudodrynaria coronans</i>	崖薑	Herb	Native	Common					*	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Psychotria asiatica</i>	山大刀	Shrub/Tree	Native	Very common			**		***	
<i>Pteris ensiformis</i>	劍葉鳳尾蕨	Herb	Native	Common			*		*	
<i>Pteris fauriei</i>	金釵鳳尾蕨	Herb	Native	Restricted			*		*	
<i>Pteris semipinnata</i>	半邊旗	Herb	Native	Very common					**	
<i>Pteris spp.</i>	鳳尾蕨屬	Herb	-	-	*					
<i>Pueraria lobata</i> var. <i>montana</i>	葛麻姆	Climber	Native	Common					*	
<i>Pueraria lobata</i> var. <i>thomsonii</i>	粉葛	Climber	Exotic	Cultivated	*					
<i>Pygeum topengii</i>	臀果木	Tree	Native	Common					*	
<i>Pyrosia adnascens</i>	貼生石韋	Herb	Native	Common	*					
<i>Rhaphidophora hongkongensis</i>	獅子尾, 崖角藤	Herb	Native	Restricted			*			
<i>Rhaphiolepis indica</i>	車輪梅	Shrub/Tree	Native	Very common					**	
<i>Rhapis excelsa</i>	棕竹	Shrub	Native	Common					*	
<i>Rhododendron</i> sp.	杜鵑屬植物	Shrub	Native	All wild populations of <i>Rhododendron</i> sp. are protected by Cap. 96					*	*
<i>Rhodoleia championii</i>	吊鐘王	Tree	Native	Protected under Cap. 96. Status in China as "Vulnerable" (AFCD 2003)					*	
<i>Rhus succedanea</i>	野漆樹	Shrub/Tree	Native	Common			*		*	
<i>Rourea microphylla</i>	小葉紅葉藤	Climber/Shrub	Native	Common			**		**	
<i>Rourea minor</i>	大葉紅葉藤	Climber/Shrub	Native	Common			*		*	
<i>Roystonea regia</i>	王棕	Tree	Exotic	Cultivated						*
<i>Rubus leucanthus</i>	白花懸鈎子	Climber/Shrub	Native	Common					**	
<i>Rubus reflexus</i>	蛇泡籐	Climber/Shrub	Native	Very common	*		*		**	
<i>Sageretia thea</i>	雀梅藤	Climber/Shrub	Native	Very common					*	
<i>Sagittaria platyphylla</i>	扁葉慈姑	Herb	Exotic	Cultivated		*				
<i>Sagittaria sagittifolia</i> subsp. <i>leucopetala</i>	慈姑	Herb	Exotic	Restricted				**		
<i>Salvinia natans</i>	槐葉蘋	Herb	Native	-				*		
<i>Sapium discolor</i>	山烏桕	Tree	Native	Very common					*	
<i>Sarcandra glabra</i>	草珊瑚	Shrub	Native	Common			*		**	
<i>Sarcosperma laurinum</i>	肉實樹	Tree	Native	Very common			*		*	
<i>Saurauia tristyla</i>	水東哥	Shrub/Tree	Native	Common	*		*		*	
<i>Schefflera heptaphylla</i>	鴨腳木	Shrub/Tree	Native	Very common			**		**	
<i>Schima superba</i>	木荷	Tree	Native	Common					**	
<i>Schoenoplectus triangulatus</i>	水毛花	Herb	Native	Restricted				*		
<i>Scleria levis</i>	毛果珍珠茅, 珍珠茅	Herb	Native	Common			*		**	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Scolopia saeva</i>	廣東刺柃	Shrub/Tree	Native	Common			*		*	
<i>Selaginella tamariscina</i>	卷柏	Herb	Native	Restricted					*	
<i>Selaginella uncinata</i>	翠雲草	Herb	Native	Common					*	
<i>Setaria palmifolia</i>	棕葉狗尾草	Herb	Native	Common	**	*			**	
<i>Smilax china</i>	金剛藤	Climber	Native	Very common					**	
<i>Smilax glabra</i>	土茯苓	Climber	Native	Very common			*		**	
<i>Smilax lanceifolia</i> var. <i>opaca</i>	暗色菝葜	Climber	Native	Common			*		*	
<i>Solanum torvum</i>	水茄	Shrub	Exotic	Common	*				*	
<i>Sonchus oleraceus</i>	苦苣菜	Herb	Exotic	Very common					*	
<i>Spermacoce latifolia</i>	闊葉豐花草	Herb	Exotic	Restricted					*	
<i>Spermacoce remota</i>	光葉豐花草	Herb	Exotic	-					*	
<i>Sphenomeris chinensis</i>	烏韭	Herb	Native	Very common					*	
<i>Spilanthes grandiflora</i>	大花金鈕扣	Herb	Native	Restricted			*			
<i>Spilanthes paniculata</i>	金鈕扣	Herb	Native	Common				*		
<i>Sporobolus fertilis</i>	鼠尾粟	Herb	Native	Very common			*			
<i>Sterculia lanceolata</i>	假蘋婆	Tree	Native	Very common	*		***		**	
<i>Symplocos cochinchinensis</i> var. <i>laurina</i>	黃牛奶樹	Tree	Native	Common					*	
<i>Symplocos glauca</i>	羊舌樹	Shrub/Tree	Native	Common					*	
<i>Syzygium cumini</i>	海南蒲桃	Tree	Exotic	Cultivated					*	
<i>Syzygium hancei</i>	韓氏蒲桃	Shrub/Tree	Native	Common	*		*		**	
<i>Syzygium jambos</i>	蒲桃	Tree	Exotic	Cultivated and naturalised			**	*	*	
<i>Syzygium levinei</i>	山蒲桃	Shrub/Tree	Native	Common					**	
<i>Taxillus chinensis</i>	廣寄生	Shrub	Native	Common	*					
<i>Tetracera asiatica</i>	錫葉藤	Climber	Native	Very common			*		**	
<i>Tetradium glabrifolium</i>	棟葉吳茱萸	Tree	Native	Common					*	
<i>Thunbergia grandiflora</i>	大花老鴉嘴	Climber	Exotic	Common					***	
<i>Thysanolaena latifolia</i>	粽葉蘆	Herb	Native	Common					*	
<i>Toddalia asiatica</i>	飛龍掌血	Climber/Shrub	Native	Restricted					*	
<i>Toxicarpus wightianus</i>	弓果藤	Climber	Native	Very common					**	
<i>Trema tomentosa</i>	山黃麻	Shrub/Tree	Native	Common					*	
<i>Turpinia montana</i>	山香圓	Shrub/Tree	Native	Common					*	
<i>Tylophora ovata</i>	娃兒藤	Climber	Native	Common					*	

Scientific Name	Chinese Name	Growth Form ¹	Origin ²	Status in Hong Kong ²	Habitats ³					
					Application Site		500m Study Area			
					VDA	PO	WC	PO	WL	VDA
<i>Urena procumbens</i>	梵天花	Shrub	Native	Common	*					
<i>Uvaria grandiflora</i>	大花紫玉盤	Climber/Shrub	Native	Restricted					**	
<i>Uvaria macrophylla</i>	紫玉盤	Climber/Shrub	Native	Common					**	
<i>Vernicia montana</i>	千年桐	Tree	Exotic	Cultivated			*		*	
<i>Viburnum sempervirens</i>	常綠英迷	Shrub	Native	Very common					*	
<i>Vitex quinata</i>	山牡荊	Tree	Native	Common	*				*	*
<i>Wedelia trilobata</i>	三裂葉蜆螟菊	Herb	Exotic	Common, also widely cultivated	***		*		**	
<i>Wikstroemia nutans</i>	細軸蕘花	Shrub	Native	Common			*		*	
<i>Youngia japonica</i>	黃鵪菜	Herb	Native	Very common					*	
<i>Zanthoxylum avicennae</i>	筍櫨	Tree	Native	Common					**	
<i>Zanthoxylum scandens</i>	花椒筍	Climber/Shrub	Native	Common			*		*	
Total no. of species recorded				350	90	13	127	14	273	26

*Species considered to be of conservation importance is indicated in bold type

Notes:

- Growth form follows AFCD (2012).
- Origin and Status refer to:
 - Cap. 96 = Chapter 96 Forests and Countryside Ordinance, including the associated Chapter 96A Forestry Regulation
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animal and Plants Ordinance
 - Xing *et al.* (2000)
 - AFCD (2003; 2007; 2008; 2009; 2011; 2012_
 - IUCN (2022)
 - Status in China Red Data Book is retrieved from AFCD (2003)
- Code for abundance: ****= Abundant, *** = Frequent, ** = Occasional, * = Scarce; Habitats: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland

APPENDIX 2

List of Faunal Species Recorded in the Surveys

Table 1. Maximum count of mammal species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³		
			Application Site	500m Study Area	
			VDA	WC	WL
Grey Shrew <i>Crocidura attenuata</i>	-	Uncommon			1
Rhesus Macaque <i>Macaca mulatta</i>	CSMPS(II); CITES(II); Cap.170; Cap.586	Common	11	10	3
Chestnut Spiny Rat <i>Niviventer fulvescens</i>	-	Very Common		1	
Indochinese Forest Rat <i>Rattus andamanensis</i>	-	Very Common			2
East Asian Porcupine <i>Hystrix brachyura</i>	PGC; Cap.170	Very Common	1	1	1
Small-toothed Ferret Badger <i>Melogale moschata</i>	RLCV(NT); Cap.170	Common		1	
Masked Palm Civet <i>Paguma larvata</i>	PRC; RLCV(NT); CITES(III); Cap.170; Cap.586	Common			1
Small Indian Civet <i>Viverricula indica</i>	RLCV(VU); CSMPS(II); CITES(III); Cap.170; Cap.586	Very Common	1		
Domestic Dog <i>Canis lupus familiaris</i>	-	Common			1
Leopard Cat <i>Prionailurus bengalensis</i>	RLCV(VU); CITES(II); Cap.170; Cap.586	Uncommon	1	1	
Eurasian Wild Pig <i>Sus scrofa</i>	-	Very Common	4	2	1
Red Muntjac <i>Muntiacus muntjak</i>	PRC	Very Common	1	2	1
Domestic Ox <i>Bos taurus</i>	-	Common	2	1	
Total Number of Species Recorded			7	8	8
				12	

*Species considered to be of conservation importance is indicated in bold type

Notes:

4. Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - g. Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - h. Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - i. Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - j. Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - k. Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - l. Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - m. Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
5. Status in Hong Kong follows Hong Kong Biodiversity Database (AFCD 2022).
6. Habitat: VD = Village / Developed Area, WC = Watercourse, WL = Woodland.

Table 2. Maximum count of bird species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³					
			Application Site		500m Study Area			
			IF	VDA	IF	VDA	WC	WL
Striated Heron <i>Butorides striata</i>	(LC)	Locally common summer visitor to the Deep Bay area but more widespread on migration and in winter at scattered coastal and inland sites					1	
Little Egret <i>Egretta garzetta</i>	PRC (RC)	Abundant, present all year in wetland areas throughout HK, mostly in the Deep Bay area		1		1	1	1
Crested Serpent Eagle <i>Spilornis cheela</i>	(LC); RLCV(NT); CITES(II); CSMPS(II); Cap.586	Locally common, present all year and probably the largest resident, in woodland			1			
Crested Goshawk <i>Accipiter trivirgatus</i>	RLCV(NT); CITES(II); CSMPS(II); Cap.586	Common resident in woodland throughout HK			1			2
Black Kite <i>Milvus migrans</i>	(RC); CITES(II); CSMPS(II); Cap.586	Abundant, present all year and widespread, with increased numbers in winter between October and March						1
Spotted Dove <i>Spilopelia chinensis</i>	-	Abundant resident in diverse habitats in urban and rural areas		11		4	4	4
Common Emerald Dove <i>Chalcophaps indica</i>	-	Uncommon but widespread resident, locally common in some areas, in closed-canopy shrubland and forest habitats						1
Greater Coucal <i>Centropus sinensis</i>	CSMPS(II)	Widespread and common resident in lowland shrubland areas		1				
Asian Koel <i>Eudynamis scolopaceus</i>	-	Common and widespread, recorded in all months though less frequently in winter, from urban and rural areas with trees				1		1
Large Hawk-Cuckoo <i>Hierococcyx sparverioides</i>	-	Locally common spring and summer visitor to closed-canopy shrubland and woodland						1
Hodgson's Hawk-cuckoo <i>Hierococcyx nasicolor</i>	-	Uncommon spring and summer visitor to closed-canopy shrubland and woodland						1
Collared Scops Owl <i>Otus lettia</i>	CITES(II); CSMPS(II); Cap.586	Common and widespread resident in lowland areas of closed-canopy shrubland and woodland						1
Brown Fish Owl <i>Ketupa zeylonensis</i>	RC; RLCV(EN); CITES(II); CSMPS(II); Cap.586	Scarce and locally-distributed resident mostly in large freshwater streams near mature shrubland or woodland		1				1
Brown Wood Owl <i>Strix leptogrammica</i>	RLCV(NT); CITES(II); CSMPS(II); Cap.586	Scarce and localised resident of mature secondary forest in the New Territories						1
House Swift <i>Apus nipalensis</i>	-	Abundant spring passage migrant, mostly to the Deep Bay area, and widespread common resident	2					
Great Barbet <i>Psilopogon virens</i>	-	Uncommon resident in mature secondary broadleaf forest in central and southeast NT, mostly in Tai Po Kau				2		1
Chinese Barbet <i>Psilopogon faber</i>	-	Recorded at Tai Po Kau, probably breeding						1
Bay Woodpecker <i>Blythipicus pyrrhotis</i>	LC	Rare but increasing resident of mature broadleaf secondary forest with most records from Tai Po Kau						1
Grey-chinned Minivet <i>Pericrocotus solaris</i>	LC	Locally common resident, possibly with winter visitors, in mature closed-canopy woodland				3		20
Scarlet Minivet <i>Pericrocotus speciosus</i>	-	Common resident in mature closed-canopy woodland and woodland edge, even adjoining urban areas				4	5	40
Black-winged Cuckooshrike <i>Lalage melaschistos</i>	-	Common passage migrant and scarce winter visitor to closed and open woodland						2
Brown Shrike <i>Lanius cristatus</i>	-	Common passage migrant and scarce winter visitor in open country habitats		1				

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³						
			Application Site		500m Study Area				
			IF	VDA	IF	VDA	WC	WL	
White-bellied Erpornis <i>Erpornis zantholeuca</i>	LC	Uncommon resident in closed-canopy shrubland and woodland							5
Ashy Drongo <i>Dicrurus leucophaeus</i>	LC	Uncommon winter visitor to woodland areas							1
Hair-crested Drongo <i>Dicrurus hottentottus</i>	-	Common winter visitor, migrant and locally common resident in wooded areas							3
Amur paradise flycatcher <i>Terpsiphone incei</i>	LC; RLCV(NT)	Passage migrant, uncommon in autumn, scarce in spring, and rare winter visitor to woodland areas							1
Red-billed Blue Magpie <i>Uracissa erythroryncha</i>	-	Common resident of closed-canopy shrubland							3
Collared Crow <i>Corvus torquatus</i>	LC; RLCV(NT); IUCN(VU)	Locally common resident, mainly in coastal areas							1
Large-billed Crow <i>Corvus macrorhynchos</i>	-	Common resident of open rural and wooded urban-edge habitats			6		1		2
Grey-headed Canary-flycatcher <i>Culicicapa ceylonensis</i>	LC	Uncommon winter visitor to woodland areas							2
Cinereous Tit <i>Parus cinereus</i>	-	Common resident in open and closed-canopy woodland, shrubland and parkland areas	2	3		2	5		5
Yellow-cheeked Tit <i>Machlolophus spilonotus</i>	-	Locally uncommon resident of mature woodland in central NT					2		8
Red-whiskered Bulbul <i>Pycnonotus jocosus</i>	-	Abundant resident in most habitats except woodland interior	4	33		10	8		40
Chinese Bulbul <i>Pycnonotus sinensis</i>	-	Abundant all year, with migrants and winter visitors occurring, present in nearly all habitats, the most abundant and widespread species in HK		16		10	5		10
Mountain Bulbul <i>Ixos mccllellandii</i>	-	Uncommon and local resident in closed-canopy woodland, with increasing range and numbers							2
Chestnut Bulbul <i>Hemixos castanonotus</i>	-	Common resident and winter visitor to closed-canopy shrubland and woodland throughout HK; subject to periodic winter irruptions					7		16
Barn Swallow <i>Hirundo rustica</i>	-	Abundant passage migrant, common breeding species and uncommon winter visitor	3			1			
Pygmy Wren-babbler <i>Pnoepyga pusilla</i>	LC	Locally common resident in closed-canopy shrubland and woodland, mostly in central and northeast NT but expanding southeast and east					2		2
Mountain Tailorbird <i>Phyllergates cucullatus</i>	-	Uncommon resident and locally common winter visitor in closed-canopy shrubland and woodland				2	3		5
Asian stubtail <i>Urosphena squameiceps</i>	-	Common winter visitor to forest and closed-canopy shrubland							1
Yellow-browed Warbler <i>Phylloscopus inornatus</i>	-	Abundant and widespread winter visitor and migrant to wooded and open-country areas				2	5		4
Pallas's Leaf Warbler <i>Phylloscopus proregulus</i>	-	Common winter visitor and migrant to forest and closed-canopy shrubland					1		2
Dusky warbler <i>Phylloscopus fuscatus</i>	-	Abundant winter visitor and migrant to shrubland and open country areas							2
Two-barred Warbler <i>Phylloscopus plumbeitarsus</i>	-	Uncommon passage migrant, mostly in autumn and winter visitor to shrubland and woodland areas							1
Arctic warbler <i>Phylloscopus borealis</i>	-	Passage migrant common in autumn and uncommon in spring, to lightly wooded areas					1		1

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³						
			Application Site		500m Study Area				
			IF	VDA	IF	VDA	WC	WL	
Brown Bush Warbler <i>Locustella luteoventris</i>	-	Rare winter visitor							1
Yellow-bellied Prinia <i>Prinia flaviventris</i>	-	Abundant resident in a variety of non-woodland habitats		4					1
Common Tailorbird <i>Orthotomus sutorius</i>	-	Widespread and common resident in diverse shrubland and wooded habitats		3		1		2	5
Streak-breasted Scimitar Babbler <i>Pomatorhinus ruficollis</i>	-	Widespread and locally common resident in closed-canopy shrubland and woodland				2		1	2
Rufous-capped Babbler <i>Stachyridopsis ruficeps</i>	LC	Common resident in closed-canopy shrubland and woodland, mainly in the central NT				1		1	8
Huet's Fulvetta <i>Alcippe hueti</i>	-	Uncommon resident of forest areas in central NT							7
Blue-winged Minla <i>Actinodura cyanouroptera</i>	-	Locally common resident in closed-canopy shrubland and woodland of NT				10		5	10
Red-billed Leiothrix <i>Leiothrix lutea</i>	CITES(II); Cap.586	Uncommon, localised resident in shrubland and woodland in central NT							2
Silver-eared Mesia <i>Leiothrix argenteauris</i>	RLCV(NT); CITES(II); Cap.586	Locally common resident in closed-canopy shrubland and woodland in NT and HK Island				2		2	5
Black-throated Laughingthrush <i>Pterorhinus chinensis</i>	-	Widespread and locally common resident in closed-canopy shrubland and woodland, in NT and on HK Island, its previous stronghold				1			4
Swinhoe's White-eye <i>Zosterops simplex</i>	-	Abundant and widespread resident of urban and rural wooded habitats with increased numbers in winter	2	6		10		25	42
Velvet-fronted Nuthatch <i>Sitta frontalis</i>	-	Locally common resident of mature woodland in central NT				2		6	5
White's Thrush <i>Zoothera aurea</i>	-	Uncommon winter visitor and migrant to woodland edge and open woodland						1	
Grey-backed thrush <i>Turdus hortulorum</i>	-	Common winter visitor and migrant to lightly-wooded areas, shrubland and forest						1	2
Eyebrowed Thrush <i>Turdus obscurus</i>	-	Uncommon passage migrant and scarce winter visitor although with some high counts, to lightly wooded areas							3
Oriental Magpie Robin <i>Copsychus saularis</i>	-	Abundant resident in urban and rural areas, including mangrove		4		2		1	3
Dark-sided flycatcher <i>Muscicapa sibirica</i>	-	Uncommon autumn passage migrant to woodland areas, with five spring records						1	
Hainan Blue Flycatcher <i>Cyornis hainanus</i>	-	Locally common summer visitor, passage migrant and scarce winter visitor to closed-canopy shrubland and woodland habitats							5
Lesser shortwing <i>Brachypteryx leucophris</i>	LC	Locally common resident and winter visitor to closed-canopy shrubland and woodland, a recent colonist							1
Slaty-backed Forktail <i>Enicurus schistaceus</i>	LC	Occasional visitor to streams in closed-canopy woodland and shrubland						2	
Blue Whistling Thrush <i>Myophonus caeruleus</i>	-	Common and widespread resident in closed-canopy shrubland and woodland, often near streams and in urban areas		1		1			3
Daurian Redstart <i>Phoenicurus aureus</i>	-	Common winter visitor to shrubland and open woodland		1					1
Blue-winged Leafbird <i>Chloropsis moluccensis</i>	-	-							1

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³						
			Application Site		500m Study Area				
			IF	VDA	IF	VDA	WC	WL	
Orange-bellied Leafbird <i>Chloropsis hardwickii</i>	LC	Uncommon resident and winter visitor in closed-canopy woodland							3
Plain Flowerpecker <i>Dicaeum minullum</i>	-	Status uncertain, possibly overlooked, primarily a scarce winter visitor							1
Fire-breasted Flowerpecker <i>Dicaeum ignipectus</i>	-	Uncommon winter visitor and rare breeding species in shrubland and woodland areas				3		5	3
Scarlet-backed Flowerpecker <i>Dicaeum cruentatum</i>	-	Common resident of open woodland and village edge				3		2	2
Fork-tailed Sunbird <i>Aethopyga christinae</i>	-	Common and widespread resident and winter visitor in woodland and shrubland		2		3		4	5
Eurasian Tree Sparrow <i>Passer montanus</i>	-	Abundant resident of lowland habitats, commensal with man; higher numbers sometimes recorded in fish pond areas and on offshore islands in spring				3			
White-rumped Munia <i>Lonchura striata</i>	-	Common resident of lightly-wooded urban and village-edge habitats		4		1			3
Scaly-breasted Munia <i>Lonchura punctulata</i>	-	Abundant resident in open-country grassy habitats		1					
Grey Wagtail <i>Motacilla cinerea</i>	-	Common winter visitor and passage migrant, mostly to watercourses but also other lowland wetland areas				1		1	1
White Wagtail <i>Motacilla alba</i>	-	A widespread species although most records and high counts from northwest NT		1		1		1	2
Olive-backed Pipit <i>Anthus hodgsoni</i>	-	Common winter visitor and passage migrant to lightly wooded and open country areas, including village edge and parks							1
Tristram's Bunting <i>Emberiza tristrami</i>	RLCV(NT)	Uncommon winter visitor to woodland and shrubland areas		1					1
Total Number of Species Recorded			5	19	3	29	32	69	
			21		76				

*Species considered to be of conservation importance is indicated in bold type

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPs): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong refers to the latest Hong Kong Bird Report published by the Hong Kong Birdwatching Society.
- Habitat: IF = In Flight, VDA = Village / Developed Area; WC = Watercourse; WL = Woodland.

Table 3. Maximum count of amphibian species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in HK ²	Habitat ³				
			Application Site		500m Study Area		
			PO	VDA	PO	WC	WL
Hong Kong Newt <i>Paramesotriton hongkongensis</i>	PGC; RLCV(NT); IUCN(NT); Cap.170	Widely distributed in mountain streams throughout New Territories, Lantau Island and Hong Kong Island			10	20	8
Asian Common Toad <i>Duttaphrynus melanostictus</i>	-	Widely distributed in Hong Kong			*	2	5
Asiatic Painted Frog <i>Kaloula pulchra</i>	-	Widely distributed in Hong Kong		2			2
Butler's Pigmy Frog <i>Microhyla butleri</i>	-	Widely distributed in Hong Kong	10	5			
Hong Kong Cascade Frog <i>Amolops hongkongensis</i>	PGC; RLCV(EN); IUCN(EN); Cap.170	Widely distributed in mountain streams in Hong Kong				1	
Paddy Frog <i>Fejervarya multistriata</i>	-	Widely distributed in Hong Kong				2	3
Big-headed Frog <i>Limnonectes fujianensis</i>	LC; RLCV(NT)	Distributed in mountain streams in Tai Po Kau Nature Reserve, Kam Shan Country Park, Lam Tsuen Country Park and Plover Cove Country Park			1	1	1
Lesser Spiny Frog <i>Quasipaa exilispinosa</i>	PGC; RLCV(VU); IUCN(VU)	Occurs throughout the territory			4	4	3
Günther's Frog <i>Sylvirana guentheri</i>	-	Widely distributed throughout Hong Kong	5	20	50	21	8
Brown Wood Frog <i>Hylarana latouchii</i>	LC	Distributed in woodlands in Tai Po Kau Nature Reserve, ShingMun Country Park, Tai Mo Shan Country Park, Sai Kung West Country Park and Clear Water Bay Peninsula		1	3	5	2
Green Cascade Frog <i>Odorrana chloronota</i>	-	Widely distributed in mountain streams in Hong Kong				2	2
Romer's Tree Frog <i>Liuixalus romeri</i>	PGC; RLCV(VU); IUCN(EN); Cap.170	Distributed in woodlands on Lantau Island, Po Toi Island, Lamma Island, Hong Kong Island and New Territories					3
Brown Tree Frog <i>Polypedates megacephalus</i>	-	Widely distributed throughout Hong Kong	1	8	5	1	1
Greenhouse Frog <i>Eleutherodactylus planirostris</i>	-	Introduced species	2	2			
Total Number of Species Recorded			4	6	7	10	11
			6		12		

*Species considered to be of conservation importance is indicated in bold type

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong refers to the AFCD (2022).
- Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland. * = Species recorded as eggs / tadpoles only.

Table 4. Maximum count of reptile species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³		
			Application Site	500m Study Area	
			VDA	WC	WL
Changeable Lizard <i>Calotes versicolor</i>	-	Widely distributed throughout Hong Kong.	2		1
Brown Forest Skink <i>Sphenomorphus incognitus</i>	RLCV(NT)	Distributed in streams in central and eastern New Territories.		1	1
Indian Forest Skink <i>Sphenomorphus indicus</i>	LC	Distributed in woodlands in eastern and central New Territories.	1		2
Chinese Gecko <i>Gekko chinensis</i>	-	Widely distributed throughout Hong Kong.	1	1	3
Bowring's Gecko <i>Hemidactylus bowringii</i>	-	Distributed throughout Hong Kong.	1		
Garnot's Gecko <i>Hemidactylus garnotii</i>	-	Distributed in Lantau Island, Hong Kong Island and Eastern New Territories.			1
Taiwan Kukri Snake <i>Oligodon formosanus</i>	RLCV(NT)	Widely distributed throughout Hong Kong.			1
Common Rat Snake <i>Ptyas mucosus</i>	PRC; RLCV(EN); CITES(II); Cap.586	Widely distributed throughout Hong Kong.		1	
Many-banded Krait <i>Bungarus multicinctus</i>	PRC; RLCV(EN)	Widely distributed in New Territories, Hong Kong Island and Lantau Island.			1
Bicoloured Stream Snake <i>Opisthotropis lateralis</i>	-	Distributed in streams in eastern, central and western New Territories.		1	
Red-necked Keelback <i>Rhabdophis subminiatus</i>	-	Widely distributed in woodlands throughout Hong Kong.			1
White-spotted Slug Snake <i>Pareas margaritophorus</i>	RLCV(NT)	Distributed in woodland or shrubland throughout Hong Kong.			1
Bamboo Snake <i>Cryptelytrops albolabris</i>	-	Distributed in shrubland, grassland throughout Hong Kong.			1
Total Number of Species Recorded			4	4	10
				12	

*Species considered to be of conservation importance is indicated in bold type

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong refers to the AFCD (2022).
- Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

Table 5. Maximum count of butterfly species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³	
			Application Site	500m Study Area
			VDA	WL
Orange Red Skirt <i>Choaspes hemixanthus</i>	LC	Very Rare		1
Grey Scrub Hopper <i>Aeromachus jhora</i>	-	Rare	1	
Forest Hopper <i>Astictopterus jama</i>	-	Common	1	
Formosan Swift <i>Borbo cinnara</i>	-	Common	2	1
Tree Flitter <i>Hyarotis adrastus</i>	-	Uncommon	1	1
Contiguous Swift <i>Polytremis lubricans</i>	-	Common	2	
Indian Palm Bob <i>Suastus gremius</i>	-	Uncommon	1	
Dark Palm Dart <i>Telicota ohara</i>	-	Rare	1	
Unidentified Palm Dart <i>Telicota</i> sp.	-	-	1	
Water Snow Flat <i>Tagiades litigiosus</i>	-	Common		1
Purple Sapphire <i>Heliophorus epicles</i>	-	Common	5	2
Common Hedge Blue <i>Acytolepis puspa</i>	-	Common	1	1
Plains Cupid <i>Chilades pandava</i>	-	Uncommon		5
Tailed Cupid <i>Everes lacturnus</i>	-	Common	1	
Metallic Cerulean <i>Jamides alecto</i>	-	Very Rare	1	1
Dark Cerulean <i>Jamides bochus</i>	-	Common		3
Transparent 6-line Blue <i>Nacaduba kurava</i>	-	Common		1
Tailless Line Blue <i>Prosotas dubiosa</i>	-	Vagrant		5
Pale Grass Blue <i>Pseudozizeeria maha</i>	-	Very Common	5	3

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³	
			Application Site	500m Study Area
			VDA	WL
Pale Hedge Blue <i>Udara dilecta</i>	LC	Very Rare; Species of Conservation Concern		1
Lesser Grass Blue <i>Zizina otis</i>	-	Common		1
Powdered Oak Blue <i>Arhopala bazalus</i>	-	Rare	1	
Chocolate Royal <i>Remelana jangala</i>	-	Common		1
Plum Judy <i>Abisara echerius</i>	-	Very Common		4
Orange Punch <i>Dodona egeon</i>	RC	Rare		1
Punchinello <i>Zemeros flegyas</i>	-	Common	1	2
Common Duffer <i>Discophora sondaica</i>	-	Uncommon	*	
Large Faun <i>Faunis eumeus</i>	-	Common		1
Tawny Rajah <i>Charaxes bernardus</i>	-	Common	1	1
Yellow Rajah <i>Charaxes marmax</i>	LC	Uncommon		1
Common Indian Crow <i>Euploea core</i>	-	Common	1	1
Blue-spotted Crow <i>Euploea midamus</i>	-	Very Common	3	1
Ceylon Blue Glassy Tiger <i>Ideopsis similis</i>	-	Very Common		1
Glassy Tiger <i>Parantica aglea</i>	-	Common		1
Blue Tiger <i>Tirumala limniace</i>	-	Common		1
Indian Fritillary <i>Argyreus hyperbius</i>	-	Common		1
Colour Sergeant <i>Athyma nefte</i>	-	Common		2
Common Sergeant <i>Athyma perius</i>	-	Uncommon		1
Staff Sergeant <i>Athyma selenophora</i>	-	Common		1

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³	
			Application Site	500m Study Area
			VDA	WL
Rustic <i>Cupha erymanthis</i>	-	Very Common	1	2
Common Mapwing <i>Cyrestis thyodamas</i>	-	Common		1
Baron <i>Euthalia aconthea</i>	LC	Uncommon		2
Green Skirt Baron <i>Tanaecia whiteheadi</i>	-	-		1
White-edged Blue Baron <i>Euthalia phemius</i>	-	Common	1	
Chocolate Pansy <i>Junonia iphita</i>	-	Common	1	1
Lemon Pansy <i>Junonia lemonias</i>	-	Common	2	1
Blue Admiral <i>Kaniska canace</i>	-	Common		1
Common Archduke <i>Lexias pardalis</i>	-	Suspected species		1
Southern Sullied Sailer <i>Neptis clinia</i>	-	Common	1	1
Common Sailer <i>Neptis hylas</i>	-	Very Common		2
Common Lascar <i>Pantoporia hordonia</i>	-	Uncommon		1
Five-dot Sergeant <i>Parathyma sulphita</i>	-	Common	1	
Common Jester <i>Symbrenthia lilaea</i>	-	Common		1
Common Palmfly <i>Elymnias hypermnestra</i>	-	Common	1	2
Banded Tree Brown <i>Lethe confusa</i>	-	Common	2	1
Dark Evening Brown <i>Melanitis phedima</i>	-	Uncommon	1	1
Dark-brand Bush Brown <i>Mycalesis mineus</i>	-	Very Common	2	3
South China Bush Brown <i>Mycalesis zonata</i>	-	Common		2
Common Five-ring <i>Ypthima baldus</i>	-	Very Common	6	8

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³	
			Application Site	500m Study Area
			VDA	WL
Straight Five-ring <i>Ypthima lisandra</i>	-	Common	10	1
Common Mime <i>Chilasa clytia</i>	-	Common	*	
Tailed Jay <i>Graphium agamemnon</i>	-	Common	1	1
Common Jay <i>Graphium doson</i>	-	Common	1	
Common Bluebottle <i>Graphium sarpedon</i>	-	Very Common		1
White Dragontail <i>Lamproptera curius</i>	LC	Rare	1	6
Common Rose <i>Pachliopta aristolochiae</i>	-	Rare	1	1
Chinese Peacock <i>Papilio bianor</i>	-	Common		1
Red Helen <i>Papilio helenus</i>	-	Very Common		1
Great Mormon <i>Papilio memnon</i>	-	Very Common	1	2
Paris Peacock <i>Papilio paris</i>	-	Very Common	1	1
Common Mormon <i>Papilio polytes</i>	-	Very Common	2	1
Spangle <i>Papilio protenor</i>	-	Very Common	1	1
Five-bar swordtail <i>Pathysa antiphates</i>	-	Common	1	
Golden Birdwing <i>Troides aeacus</i>	LC; CITES(II); Cap.586	Rare; Species of Conservation Concern		1
Common Birdwing <i>Troides helena</i>	CITES(II); Cap.170; Cap.586	Uncommon; Species of Conservation Concern	1	1
Lemon Emigrant <i>Catopsilia pomona</i>	-	Common	1	
Mottled Emigrant <i>Catopsilia pyranthe</i>	-	Very Common		1
Three-spot Grass Yellow <i>Eurema blanda</i>	-	Common		1
Common Grass Yellow <i>Eurema hecabe</i>	-	Very Common	2	4

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³	
			Application Site	500m Study Area
			VDA	WL
Painted Jezebel <i>Delias hyparete</i>	-	Uncommon		1
Red-base Jezebel <i>Delias pasithoe</i>	-	Very Common	2	3
Great Orange Tip <i>Hebomoia glaucippe</i>	-	Common		1
Indian Cabbage White <i>Pieris canidia</i>	-	Very Common	3	8
Small Cabbage White <i>Pieris rapae</i>	-	Rare		1
Total number of species recorded			46	69

*Species considered to be of conservation importance is indicated in bold type

Notes:

1. Conservation and Protection Status refers to Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - a. Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - b. Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - c. Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - d. Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - e. Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - f. Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
2. Status in Hong Kong refers to the AFCD (2022).
3. Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

Table 6. Maximum count of odonate species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in HK ²	Habitat ³					
			Application Site		500m Study Area			
			PO	VDA	PO	WC	WL	
Indochinese Copperwing <i>Mnais mneme</i>	LC	Common				2		
Common Blue Jewel <i>Rhinocypha perforata</i>	-	Abundant				1		1
Black-banded Gossamerwing <i>Euphaea decorata</i>	-	Abundant	1			2		
Chinese Yellowface <i>Agriomorpha fusca</i>	LC	Abundant						2
Orange-tailed Sprite <i>Ceriagrion auranticum</i>	-	Abundant			5	1		
Yellow Featherlegs <i>Copera marginipes</i>	-	Abundant			2	1		
Black-kneed Featherlegs <i>Pseudocopera ciliata</i>	-	Common			4	1		
White-banded Shadowdamsel <i>Protosticta taipokauensis</i>	GC	Common				1		
Black Threadtail <i>Prodasineura autumnalis</i>	-	Abundant				1		1
Pale-spotted Emperor <i>Anax guttatus</i>	-	Common			1			
Tiger Hawker <i>Polycanthagyna erythromelas</i>	LC	Common				*		
Chinese Hooktail <i>Ophiogomphus sinicus</i>	-	Common				1		
Blue Dasher <i>Brachydiplax chalybea</i>	-	Common	2		5			
Russet Percher <i>Neurothemis fulvia</i>	-	Common	5		1			1
Red-faced Skimmer <i>Orthetrum chrysis</i>	-	Abundant	2	2	2	1		
Common Blue Skimmer <i>Orthetrum glaucum</i>	-	Abundant		1	1	1		
Marsh skimmer <i>Orthetrum luzonicum</i>	-	Abundant	1					
Common Red Skimmer <i>Orthetrum pruinatum</i>	-	Abundant	1		1	2		2
Wandering Glider <i>Pantala flavescens</i>	-	Abundant	1	1				30
Sapphire Flutterer <i>Rhyothemis triangularis</i>	LC	Common	5					10
Saddlebag Glider <i>Tramea virginia</i>	-	Abundant	1	1	1			
Crimson Dropwing <i>Trithemis aurora</i>	-	Abundant			2	2		1

Species	Conservation and Protection Status ¹	Status in HK ²	Habitat ³				
			Application Site		500m Study Area		
			PO	VDA	PO	WC	WL
Indigo Dropwing <i>Trithemis festiva</i>	-	Abundant	1		2	2	1
Emerald Cascader <i>Zygonyx iris</i>	PGC	Abundant		1			4
Dingy Dusk-darter <i>Zyxomma petiolatum</i>	-	Common			2	1	1
Total no. of species recorded			10	5	13	16	11
			12		24		

*Species considered to be of conservation importance is indicated in bold type

Notes:

1. Conservation and Protection Status refers to Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - a. Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - b. Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - c. Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - d. Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - e. Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - f. Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
2. Status in Hong Kong refers to the AFCD (2022).
3. Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

Table 7. Maximum count of firefly species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³					
			Application Site		500m Study Area			
			VDA	PO	PO	VDA	WC	WL
Bicolor Comb-horned Firefly <i>Stenocladus bicoloripes</i>	-	Recorded from Deep Water Bay, Lung Fu Shan, Tai Po Kau, Tsuen Kam Au, Ng Tung Chai, Wong Cheuk Yeung (Sai Kung) and Ho Chung						3
Comb-horned Firefly <i>Stenocladus</i> sp.	-	Recorded from Yi Tung Shan, Chi Ma Wan, Tso Kung Tam, Lung Kwu Tan, Tai Po Kau and Tai Tong				3		
Lunate Window Firefly <i>Pyrocoelia lunata</i>	Endemic to HK	Recorded from more than 10 locations of lowland and upland natural woodlands as well as upland grasslands, including Mui Tsz Lam, Yuen Tun Ha, Deep Water Bay valley, Tai Po Kau, Yung She O, Tai Mo Shan and Lantau Peak	3				1	11
Red-bellied Window Firefly <i>Pyrocoelia sanguiniventer</i>	-	Recorded from Ngau Ngak Shan, Ngong Ping, Wu Kau Tang and Pat Sin Leng						1
Woodland Glider Firefly <i>Vesta sinuata</i>	Endemic to HK	Recorded from Wu Kau Tang, Ma On Shan, Sha Lo Tung, Ho Chung and Tai Po Kau	1					3
Lei's Swamp Flasher <i>Aquatica leii</i>	-	Recorded from Tai Po Kau, Fung Yuen, Sha Lo Tung, Shui Tsan Tin, Tsiu Hang, Lam Tsuen and Wong Yue Tan			13		1	
- <i>Luciola</i> nr. <i>nicollieri</i>	-	Recorded from Ng Tung Chai, Tsuen Kam Au, Tai Po Kau, Yuen Tun Ha, Kei Ling Ha, Tai Tam, Mount Parker and Mount Butler	2	8				3
Stream Flicker <i>Pygoluciola qingyu</i>	-	Widely distributed along natural streams in all elevations, including Tei Tong Tsai, Mui Tsz Lam, Tai Mo Shan, Yung She O, Bride's Pool, Wu Kau Tang, Ng Tung Chai, Kap Lung and Yi Tung Shan			3		7	5
Total no. of species recorded			3	1	2	1	3	6

*Species considered to be of conservation importance is indicated in bold type

Notes:

1. Conservation and Protection Status refers to Yiu (2017 & 2022), Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
2. Status in Hong Kong refers to the Yiu (2017 & 2022).
3. Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland.

Table 8. Relative abundance of freshwater fish species recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³		
			Application Site	500m Study Area	
			-	PO	WC
Chinese Barb <i>Barbodes semifasciolatus</i>	-	Common		++	++
Predaceous Chub <i>Parazacco spilurus</i>	-	Common			+++
Broken-band Hillstream Loach <i>Liniparhomaloptera disparis</i>	-	Common			++
Flat-headed Loach <i>Oreonectes platycephalus</i>	-	Common			+
Sucker-belly Loach <i>Pseudogastromyzon myersi</i>	-	Common			++
Striped Loach <i>Schistura fasciolata</i>	-	Common			++
Nim <i>Pterocryptis anomala</i>	-	Common			+
Swordtail <i>Xiphophorus hellerii</i>	-	Common		++	++
Swampy Eel <i>Monopterus albus</i>	-	Common		+	+
- <i>Rhinogobius duospilus</i>	-	Common			++
Hong Kong Paradise Fish <i>Macropodus hongkongensis</i>	GC	Species of Conservation Concern			+
Paradise Fish <i>Macropodus opercularis</i>	-	Common		+	
Small Snakehead <i>Channa asiatica</i>	LC	Uncommon			+
Total Number of Species Recorded			0	4	12

*Species considered to be of conservation importance is indicated in bold type

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong refers to the AFCD (2022).
- Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland. Relative abundance: + = 1-10 individuals; ++ = 11-50 individuals; +++ = 51-100 individuals; ++++ = >100 individuals.

Table 9. Relative abundance of aquatic invertebrates recorded in the Application Site and 500m Study Area during the 12-month surveys

Species	Conservation and Protection Status ¹	Status in Hong Kong ²	Habitat ³		
			Application Site	500m Study Area	
			PO	PO	WC
Mayfly (Ephemeroptera) Larva <i>Heptageniidae</i> sp.	-	-			++
Stonefly (Plecoptera) Larva <i>Kamimuria</i> sp.	-	-			+
Backswimmer <i>Enithares</i> sp.	-	-	+	+	+
Water Strider <i>Ptilomera tigrina</i>	-	-	+	+	+
Fishfly (Megaloptera) Larva <i>Neochauliodes</i> sp.	-	-			+
Beetle Larva <i>Eulichas</i> sp.	-	-			++
Water-penny Beetle Larva <i>Psephenoides</i> sp.	-	-			++
Whirligig Beetle <i>Gyrinidae</i> sp.	-	-			+
Crane-fly Larva <i>Tipulidae</i> sp.	-	-			+
Freshwater Shrimp <i>Caridina cantonensis</i>	-	-		+	+++
Freshwater Prawn <i>Macrobrachium vietnamense</i>	-	-			++
Freshwater Crab <i>Nanhaipotamon hongkongense</i>	PGC	-			+
Freshwater Snail <i>Sulcospira hainanensis</i>	-	-			+++
Total Number of Species Recorded			2	3	13

*Species considered to be of conservation importance is indicated in bold type

Notes:

- Conservation and Protection Status refers to Fellowes *et al.* (2002), IUCN (2022), CITES (2022), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern; PRC = Potential Regional Concern, RC = Regional Concern; PGC = Potential Global Concern; GC = Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.
 - Conservation status by IUCN Red List (IUCN 2022): NT= Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered.
 - Protection status by China State Major Protection Status (CSMPS): I = Class I Protected Species in China; II = Class II Protected Species in China.
 - Protection status by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2022): II = Listed in CITES Appendix II, III = Listed in CITES Appendix III.
 - Cap. 170 = Chapter 170 Wild Animals Protection Ordinance.
 - Cap. 586 = Chapter 586 Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong refers to the AFCD (2022).
- Habitat: VDA = Village / Developed Area; PO = Pond; WC = Watercourse; WL = Woodland. Relative abundance: + = 1-10 individuals; ++ = 11-50 individuals; +++ = 51-100 individuals; ++++ = >100 individuals.

APPENDIX 3

Photographic Record

Representative photographs of habitats identified within the Application Site and 500m Study Area:

Village / Developed Area



Pond



Watercourse



Woodland

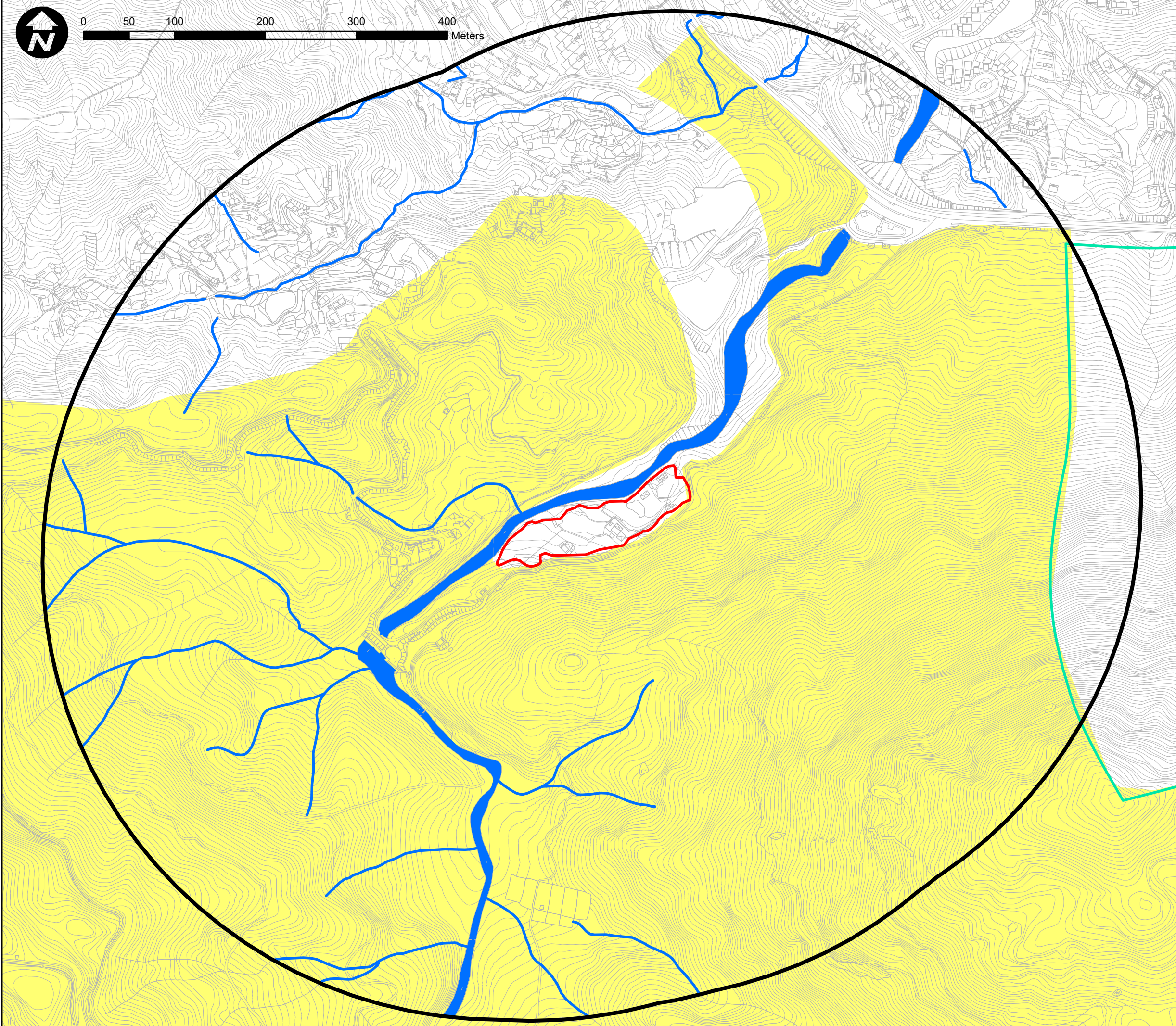


FIGURES



0 50 100 200 300 400 Meters

- ▭ Application Boundary
- ▭ 500m Study Area
- Tai Po Kau Nature Reserve
- Conservation Area
- Watercourse



Document Path: \\10.24.100.10\General\SPCL\spcl-tpk\Figure\MXD\20220627\Fig1_20220627.mxd



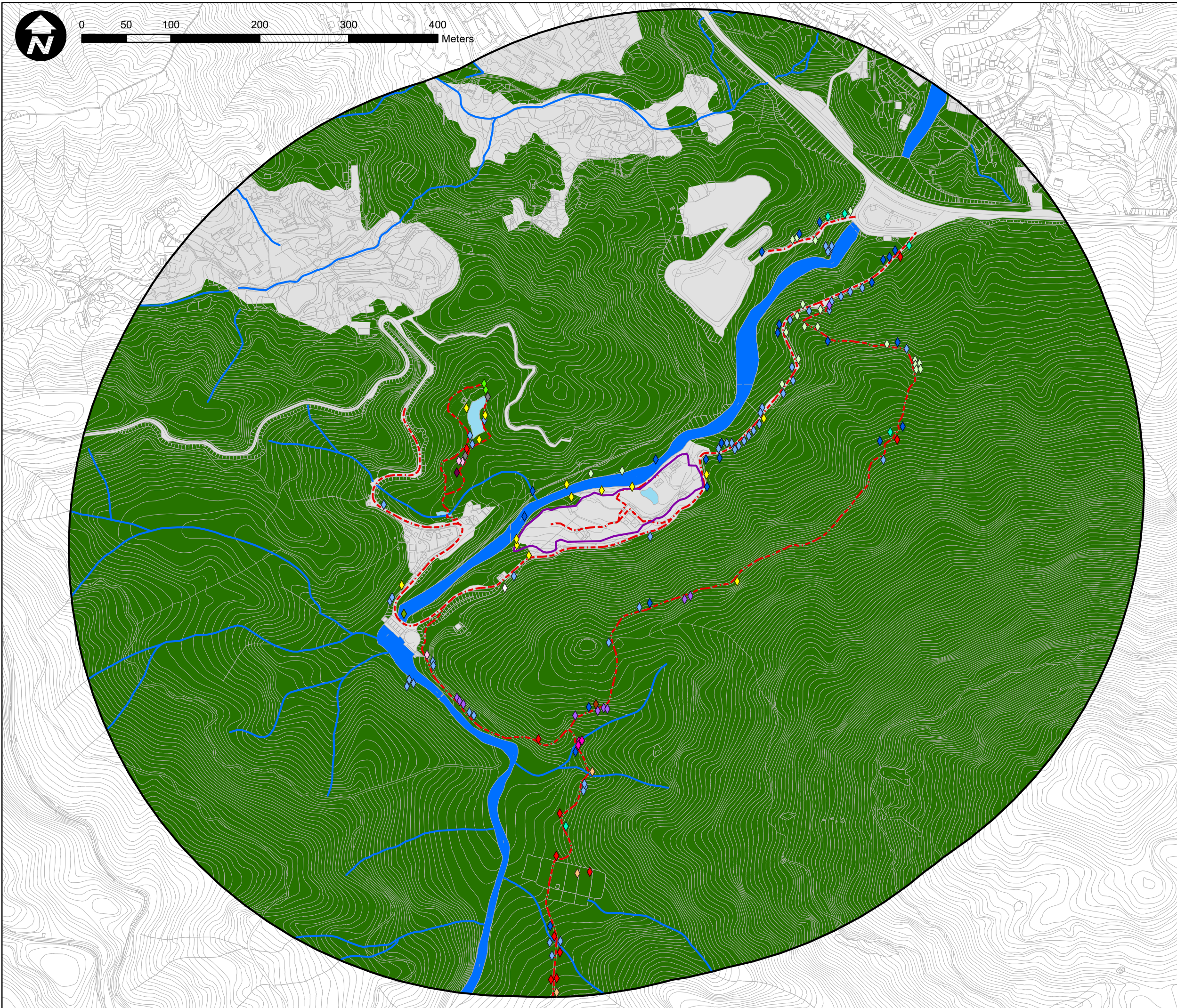
Project Title:
 Section 16 Planning Application for the Proposed
 Tai Po Kau Nature Academy at Tai Po Kau D.D.33
 Lot No. 1, 2, 4, 5, 6, 7, 8 and Adjoining Government Land

Figure Title:
 Recognised Sites of Conservation Importance

Drawn by:	JH	Scale:	1:4,000 on A3
Checked By:	TH	Date:	27 Jun 2022
Approved by:	PJC		
Figure Number:	Figure 1	Revision:	0



0 50 100 200 300 400 Meters



- Application Boundary
- 500m Study Area
- Survey Transect
- Watercourse
- Pond
- Woodland
- Village/Developed Area

Flora Species of Conservation Importance

Climber

- ◆ *Aristolochia tagala*
- ◆ *Entada phaseoloides*
- ◆ *Gnetum luofuense*
- ◆ *Illigera celebica*

Fern

- ◆ *Alsophila spinulosa*
- ◆ *Cibotium barometz*
- ◆ *Neottopteris nidus*

Herb

- ◆ *Impatiens hongkongensis*

Orchid

- ◆ *Ania hongkongensis*
- ◆ *Cleisostoma simondii* var. *guangdongense*

Shrub

- ◆ *Pavetta hongkongensis*

Tree

- ◆ *Aquilaria sinensis*
- ◆ *Artocarpus hypargyreus*
- ◆ *Camellia crapnelliana*
- ◆ *Canthium dicocum*
- ◆ *Ormosia pachycarpa*



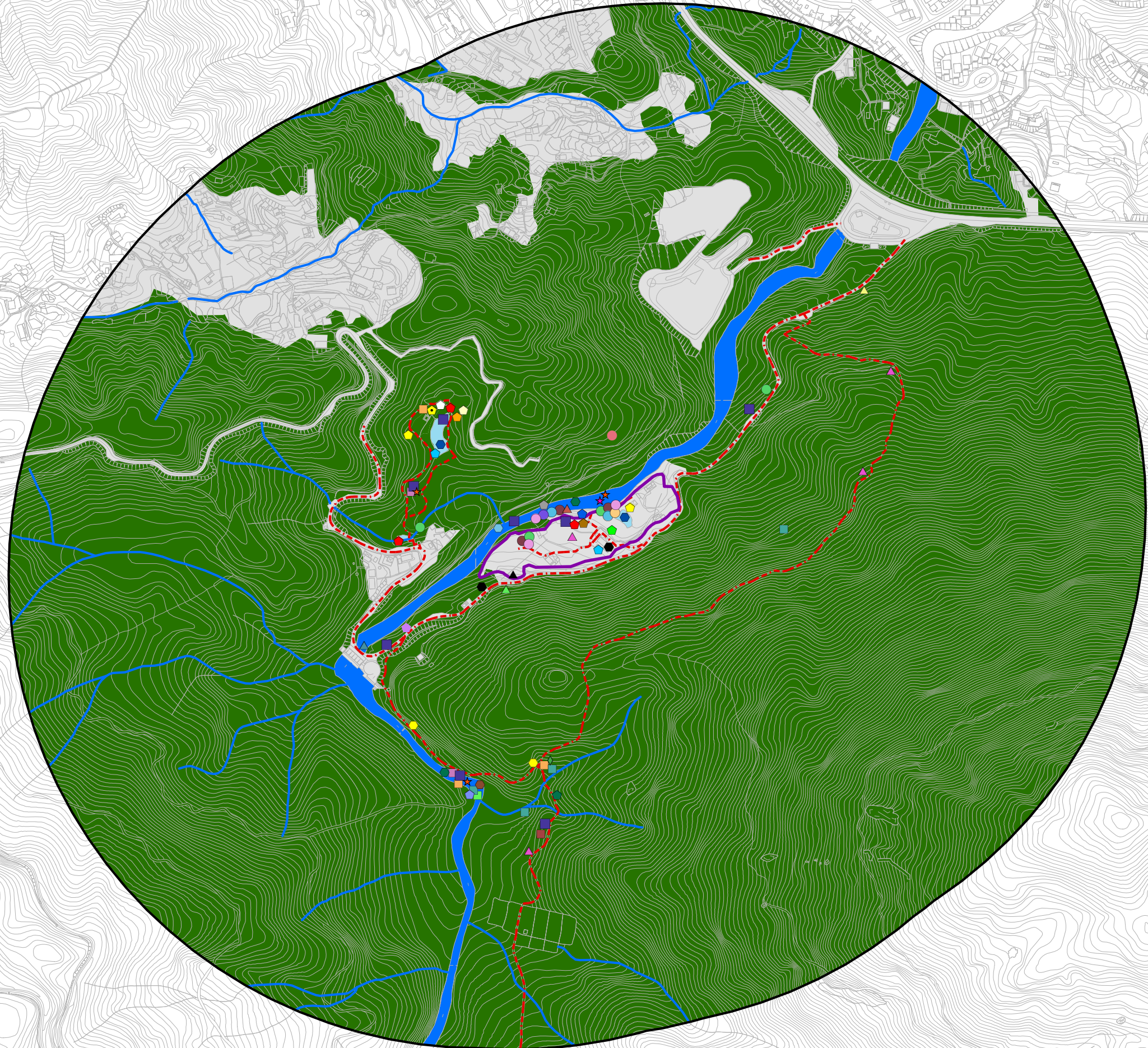
Project Title:
Section 16 Planning Application for the Proposed
Tai Po Kau Nature Academy at Tai Po Kau D.D.33
Lot No. 1, 2, 4, 5, 6, 7, 8 and Adjoining Government Land

Figure Title:
Habitat Map with Indicative Locations of
Floral Species of Conservation Importance Recorded

Drawn by:	JH	Scale:	1:4,000 on A3
Checked By:	NT	Date:	27 Jun 2022
Approved by:	TH		

Figure Number: Figure 2 Revision: 0

Document Path: \\10.24.100.10\General\SPCL\spcl-tpk\Figure\MXD\20220627\Fig3_20220627.mxd



Fauna Species of Conservation Importance

Mammals

- Rhesus Macaque
- East Asian Porcupine
- Small-toothed Ferret Badger
- Masked Palm Civet
- Leopard Cat
- Small Indian Civet
- Red Muntjac

Amphibians

- Hong Kong Newt
- Hong Kong Cascade Frog
- Big-headed Frog
- Lesser Spiny Frog
- Brown Wood Frog
- Romer's Tree Frog

Reptiles

- ▲ Brown Forest Skink
- ▲ Indian Forest Skink
- ▲ Taiwan Kukri Snake
- ▲ Common Rat Snake
- ▲ Many-banded Krait
- ▲ White-spotted Slug Snake

Butterflies

- ◆ Orange Red Skirt
- ◆ Grey Scrub Hopper
- ◆ Dark Palm Dart
- ◆ Metallic Cerulean
- ◆ Pale Hedge Blue
- ◆ Powdered Oak Blue
- ◆ Orange Punch
- ◆ Yellow Rajah
- ◆ Baron
- ◆ White Dragontail
- ◆ Common Rose
- ◆ Golden Birdwing
- ◆ Common Birdwing
- ◆ Small Cabbage White

Odonata

- ◆ Indochinese Copperwing
- ◆ Chinese Yellowface
- ◆ White-banded Shadowdamsel
- ◆ Tiger Hawker (larvae)
- ◆ Sapphire Flutterer
- ◆ Emerald Cascader

Freshwater Fishes

- ★ Hong Kong Paradise Fish
- ★ Small Snakehead

Aquatic Invertebrates

- ◆ *Nanhaipotamon hongkongense*

- Application Boundary
- 500m Study Area
- - - Survey Transect
- Watercourse
- Pond
- Woodland
- Village/Developed Area

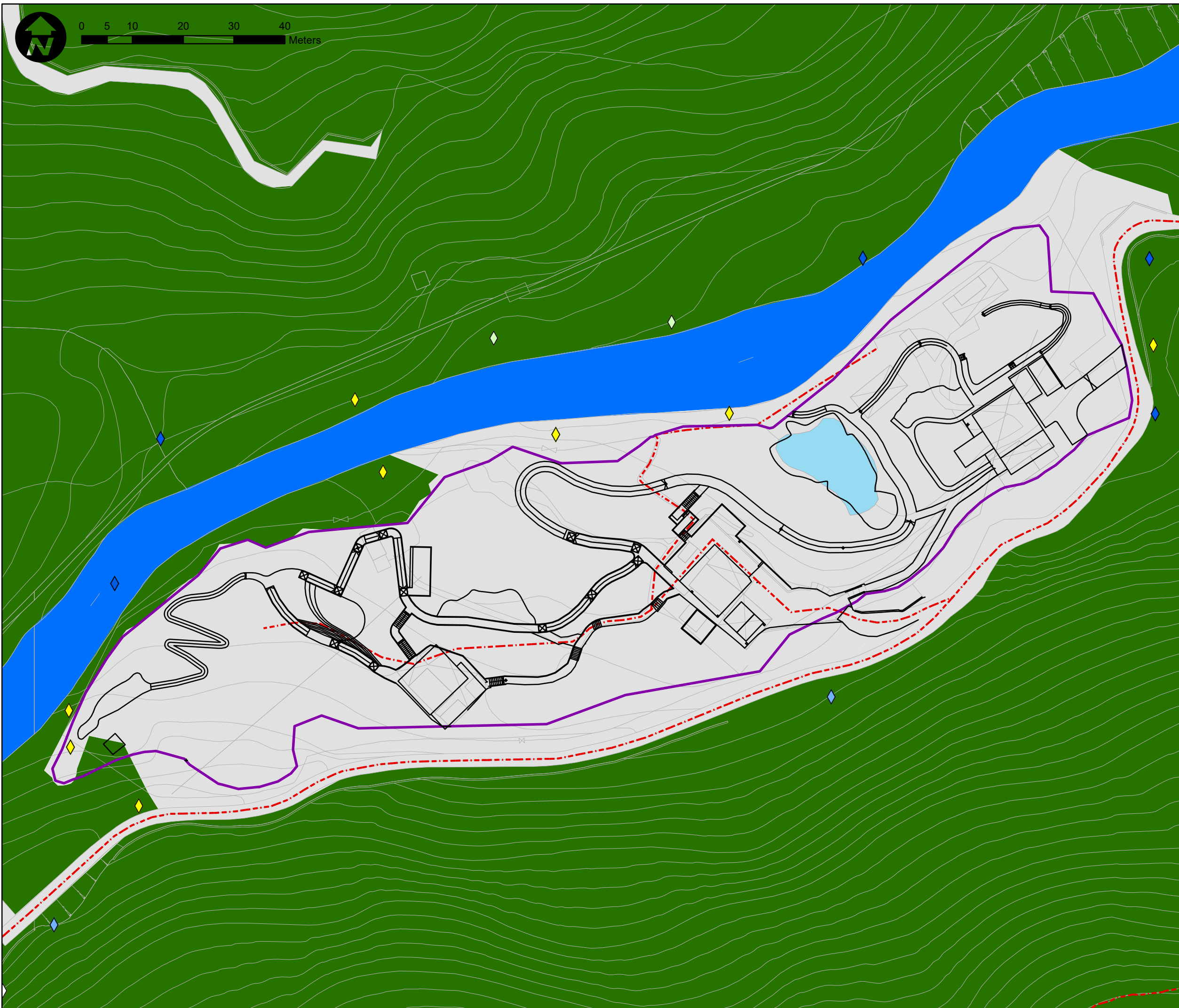


Project Title:
Section 16 Planning Application for the Proposed
Tai Po Kau Nature Academy at Tai Po Kau D.D.33
Lot No. 1, 2, 4, 5, 6, 7, 8 and Adjoining Government Land

Figure Title:
Habitat Map (zoom-in) with MLP and with
Indicative Locations of Faunal Species of
Conservation Importance Recorded

Drawn by:	JH	Scale:	1:4,500 on A3
Checked By:	NT	Date:	27 Jun 2022
Approved by:	TH		
Figure Number:	Figure 5	Revision:	0

Document Path: \\10.24.100.10\General\SPCL\spcl-tpk\Figure\MXD\20220627\Fig4_20220627.mxd



- Application Boundary
 - Building Layout
 - Survey Transect
 - Watercourse
 - Pond
 - Woodland
 - Village/Developed Area
- Flora Species of Conservation Importance**
- Climber**
- ◆ *Gnetum luofuense*
- Fern**
- ◆ *Cibotium barometz*
 - ◆ *Neottopteris nidus*
- Tree**
- ◇ *Camellia crapnelliana*
 - ◇ *Canthium dicoccum*



Project Title:
 Section 16 Planning Application for the Proposed
 Tai Po Kau Nature Academy at Tai Po Kau D.D.33
 Lot No. 1, 2, 4, 5, 6, 7, 8 and Adjoining Government Land

Figure Title:
 Habitat Map (zoom-in) with MLP and with Indicative
 Locations of Floral Species of Conservation
 Importance Recorded

Drawn by:	JH	Scale:	1:700 on A3
Checked By:	NT	Date:	27 Jun 2022
Approved by:	TH		

Figure Number: Figure 4 Revision: 0

Document Path: \\10.24.100.10\General\SPCL\spcl-tpk\Figure\MXD\20220627\Fig5_20220627.mxd



- Fauna Species of Conservation Importance**
- Mammals**
- Rhesus Macaque
 - East Asian Porcupine
 - Small-toothed Ferret Badger
 - Masked Palm Civet
 - Leopard Cat
 - Small Indian Civet
 - Red Muntjac
- Amphibians**
- Brown Wood Frog
- Reptiles**
- ▲ Indian Forest Skink
 - ▲ Common Rat Snake
 - ▲ Many-banded Krait
 - ▲ White-spotted Slug Snake
- Butterflies**
- ◆ Grey Scrub Hopper
 - ◆ Dark Palm Dart
 - ◆ Metallic Cerulean
 - ◆ Powdered Oak Blue
 - ◆ Yellow Rajah
 - ◆ Common Rose
 - ◆ Common Birdwing
- Odonata**
- ◆ Indochinese Copperwing
 - ◆ White-banded Shadowdamsel
 - ◆ Sapphire Flutterer
 - ◆ Emerald Cascader
- Freshwater Fishes**
- ★ Hong Kong Paradise Fish
 - ★ Small Snakehead

- Application Boundary
- Building Layout
- - - Survey Transect
- Watercourse
- Pond
- Woodland
- Village/Developed Area



Project Title:
 Section 16 Planning Application for the Proposed
 Tai Po Kau Nature Academy at Tai Po Kau D.D.33
 Lot No. 1, 2, 4, 5, 6, 7, 8 and Adjoining Government Land

Figure Title:
 Habitat Map (zoom-in) with MLP and with
 Indicative Locations of Faunal Species of
 Conservation Importance Recorded

Drawn by:	JH	Scale:	1:800	on A3
Checked By:	NT	Date:	27 Jun 2022	
Approved by:	TH			
Figure Number:	Figure 5	Revision:	0	