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COMMUNICATION

DISTRIBUTION OF *CRYPTOPOTAMON ANACOLUTHON* (KEMP, 1918) (CRUSTACEA: BRACHYURA: POTAMIDAE), A FRESHWATER CRAB ENDEMIC TO HONG KONG

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Distribution of *Cryptopotamon anacoluthon* (Kemp, 1918) (Crustacea: Brachyura: Potamidae), a freshwater crab endemic to Hong Kong

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Abstract: *Cryptopotamon anacoluthon* (Kemp, 1918) is a tropical freshwater crab currently considered endemic to Hong Kong. The species is more widely distributed than previously known and potentially occurs outside Hong Kong; however, the habitat of the species is under threat due to developmental activities and channelisation of watercourses. It is hoped that understanding of the distribution of this species will aid in its conservation.

Keywords: Crabs, Crustacea, endemic, freshwater, habitat loss, Hong Kong, pollution, tropical.

Chinese Abstract: 鰓刺溪蟹是一種熱帶淡水蟹，目前被列爲香港的特有品種。本文研究發現本種在香港的分佈較以往認知的更爲廣泛，同時亦可能在香港以外的地方出現。然而，鰓刺溪蟹的棲息地正在遭受渠道化工程及其他各種發展的威脅。本文希望增加對本種分佈的了解，可以幫助及促進本種的保育工作。

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Author Details: David J. Stanton, Michael. R. Leven and Tommy C.H. Hui are all professional ecologists at AEC Ltd. based in Hong Kong. They conduct surveys for a wide range of faunal groups and input into a range of large scale Environmental Impact Assessments and Strategic Planning studies in Hong Kong and Asia.

Author Contribution: DJS, MRL and TCHH all participated in the design of the study, acquisition of data, analysis and interpretation of data, and drafting of the manuscript. DJS And TH read and approved the final manuscript. All the authors have contributed equally to this paper.

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INTRODUCTION

First described from Hong Kong, *Cryptopotamon anacoluthon* (Kemp, 1918) is a tropical freshwater crab (Image 1). This species appears to be relatively stenotopic and is found in shaded shallow streams with clear or unpolluted, fast-flowing waters, rocky substratum, and leaf-litters, which serve as shelter and food (Ng & Dudgeon 1992; Esser & Cumberlidge 2008). The species is listed under the 'Vulnerable' (VU) category of the IUCN Red List of Threatened Species because it might be under long-term threat from rapid anthropogenic changes and also due to its limited distribution (Esser & Cumberlidge 2008). Its published range under Esser & Cumberlidge (2008) is limited to four locations namely, Wu Kwai Sha, Kwun Yum Shan and Tai Po Kau Forest Reserve in New Territories (Ng & Dudgeon 1992) and the Peak on Hong Kong Island (Kemp 1918). However, it is noticed that the species is fairly common and widespread in local unpolluted streams (Ng & Dudgeon 1992; Dudgeon & Corlett 1994; Kennish 1995; Maunsell Consultants (Asia) Ltd. 2005). It has not been recorded outside of Hong Kong to date (Ng & Dudgeon 1992; Maunsell Consultants (Asia) Ltd 2005).

IUCN stated that this species may be threatened by future degradation of clean streams, a result of human population increases and industrial and agrarian development and, incorrectly, that it is not found in a protected area (Esser & Cumberlidge 2008). According to a local conservation assessment, the species is listed as being of Potential Global Concern (Fellowes et al. 2002).

While some Chinese freshwater crabs have been quite well studied, most species are either known only from the type locality or from just a few localities. In these situations, further collections are necessary to ascertain their actual distributions (Cumberlidge et al. 2010). Therefore, we have reviewed literature and made field observations in Hong Kong in order to provide additional information on the distribution of *C. anacoluthon*.

Image 1. *Cryptopotamon anacoluthon* (Kemp, 1918) in its natural habitat

MATERIALS AND METHODS

Study Area

The present study area, Hong Kong Special Administration Region (SAR), People's Republic of China (PRC) (22^{0}09'– 22^{0}37'N & 113^{0}50'–114^{0}30'E) is situated on the south China coast to the east of the Pearl River (Zhujiang) estuary (Fig. 1). Hong Kong occupies an area of 1,100km^2 and is made up of a section of the Chinese Mainland (Kowloon and the New Territories, 793km^2) and islands, of which Hong Kong and Lantau are the largest (78km^2 and 147km^2, respectively). The topography of Hong Kong is generally rugged with little flat land; much of the flatter areas (c. 60km^2) are a result of land reclamation (Dudgeon & Corlett 2004). The Shenzhen River to the north largely separates Hong Kong from the Shenzhen Special Economic Zone of the PRC.

The climate of Hong Kong is distinctly monsoonal and despite its subtropical nature has well-defined seasons associated with the east Asian monsoons (Carey et al. 2001). During winter, the continental high-pressure region over Siberia and Mongolia results in north or northeasterly winds that bring cool, dry air to Hong Kong (Dudgeon & Corlett 2004).

Literature review

A review of literature was undertaken to examine the known distribution of *C. anacoluthon.* Full details of

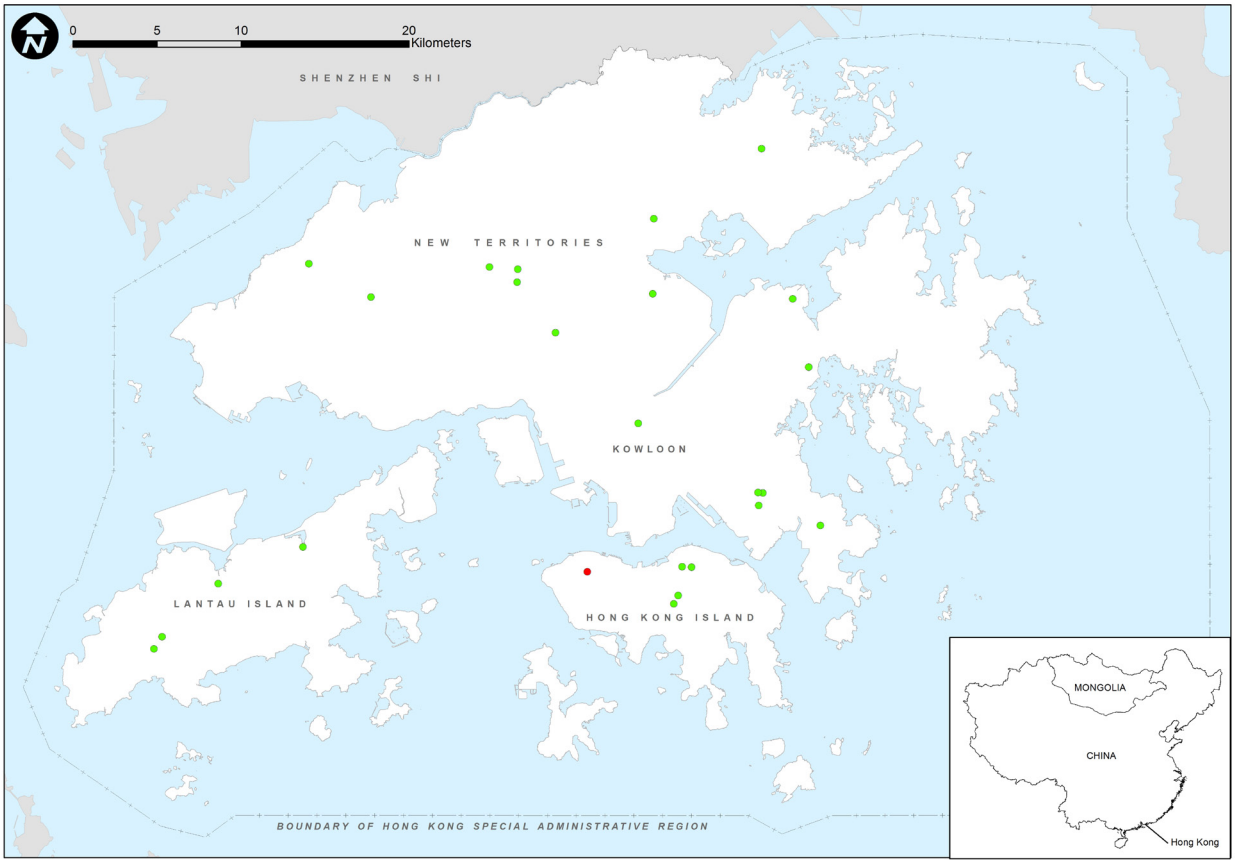

Figure 1. Map of Hong Kong Special Administrative Region, People's Republic of China. Green circles indicate the current distribution of *Cryptopotamon anacoluthon*; red circle denotes the type locality (approximately).

this review and sources can be seen in Appendices 1 and 2. Hong Kong SAR has a robust environmental impact assessment (EIA) process and numerous developments requiring EIA studies have taken place in Hong Kong; potentially affecting streams where this crab occurs. Such EIA studies invariably require surveys of the streams that may be affected. Accordingly, desktop studies of EIA reports were made from the documents available at the Environmental Protection Departments website (http://www.epd.gov.hk/eia/) in order to comprehensively review the available ecological findings from these studies. Additional data was obtained from unpublished studies and the authors' own unpublished results of previous survey findings.

Observations

A review of 110 EIA reports, published between 2002 and 2016, was undertaken and these are listed in Appendix 1. The findings of the present review, combined with additional data obtained from unpublished studies have revealed that *C. anacoluthon* is known from at least 25 locations at 22 sites in Hong Kong (Appendix 1, Fig. 1). The type locality is The Peak on Hong Kong Island (Kemp 1918).

C. anacoluthon have been found mostly in fast flowing watercourses, which pass through semi-mature secondary woodland with limited anthropogenic influences, and with altitudinal range from 8m to 827m. Examples of typical watercourses where the crab has been observed are shown in Image 2. Field observations by the authors are that numbers recorded are generally low, i.e., only several individuals.

DISCUSSION

Distribution and habitat requirements of *C. anacoluthon*

Esser & Cumberlidge (2008) stated that *C. anacoluthon* occurred in four locations in Hong Kong and the probable range may extend into coastal Guangdong. From the present review, however, it is clear that the species is more widespread than previously thought, i.e., with 25 identified locations and approximately 200km^2 area of occupancy. Esser & Cumberlidge (2008)

Image 2. View of watercourses where *Cryptopotamon anacoluthon* occurs.
A - Ma Yau Tong; B - Tei Lung Hau; C - Keung Shan

suggested that the population of *C. anacoluthon* is not severely fragmented, though the watercourses within Hong Kong are often fragmented (Stanton & Leven 2016) and do not share downstream confluences, a result of urbanisation. Many watercourses have been piped or channelised in their lower sections, and these modifications are likely to inhibit the movement of crabs between catchments. Hence, it is likely that within this area of occupancy there are now a number of more or less isolated sub-populations.

Mitigation and Conservation

According to IUCN, no conservation measures are known to be in place for *C. anacoluthon*, and the species is not found in a protected area (Esser & Cumberlidge 2008); however, one of the sites listed by Esser & Cumberlidge (2008) was in fact protected at that time, as it is today. They also mentioned that habitat loss and pollution are the major threats to *C. anacoluthon*. Given its habitat requirements, many of the sites occur within upland, fast-flowing hill streams within wooded habitats, which are largely situated within country parks or protected areas (e.g., Tai Po Kau); however, those sites zoned 'Green Belt' under local planning guidelines are under pressure for housing developments (Authors pers. obs.). It should also be noted that the species does also occur at lower elevations, particularly in the western New Territories and on Lantau Island, where there are developmental pressures on lowland watercourses (see Appendix 2, Fig. 1).

Currently, there is no mechanism in place to protect the ecology of entire rivers and their catchments in Hong Kong (Dudgeon & Chan 1996; Cheung et al. 2010), and there is an urgent need for protection of the remaining rivers in their natural state (Hong Kong Birdwatching Society 2013); a similar situation is occurring in much of the rest of Asia (Cumberlidge et al. 2009, 2010).

When mitigation is prescribed through the EIA process in Hong Kong, it is usually in the form of watercourse preservation and the inclusion of riparian buffers and/or translocation exercises. Currently, there are no stringent guidelines for implementation of habitat management, riparian buffer zones or conducting species translocation (Stanton & Leven 2016). Projects for reducing habitat loss and fragmentation by watercourse restoration, recreation or enhancement and faunal conservation programs are being started or in progress (e.g., Cumberlidge et al. 2009, 2010; Hong Kong Birdwatching Society 2015) in Hong Kong and elsewhere in the southern China region. The restricted range of many crab species from China, together with

the ongoing human-induced loss of habitat in many parts of the region are a cause for concern, and it is considered that conservation activities should be aimed primarily at preserving the integrity of sites and habitats while closely monitoring key populations at the same time (Cumberlidge et al. 2010).

Many of the sites in Hong Kong are isolated, fragmented by a combination of developed areas (where downstream sections have been lost) and physical topography, and have few ecological linkages suitable for a predominantly aquatic species to exploit. Protection of known sites is therefore important, so that these can ensure the continued survival of the species, and suitable habitat management would also be beneficial either by providing increased habitat area or by providing corridors to link populations.

IUCN Red List Status

The present study is not intended to constitute a review of the IUCN listing of *C. anacoluthon*. Nevertheless, we suggest that the IUCN Red List of Threatened Species status of *C. anacoluthon* should be revisited in the light of our findings: it is most unlikely that the population size or its rate of decline and the extent of species occurrence or area of occupancy meet the IUCN criteria for the listing of *C. anacoluthon* as 'Vulnerable'. Conversely, the species is still known only from Hong Kong and probably with a relatively small, fragmented and declining population. Cumberlidge et al. (2010) stated that the existing IUCN Red List status can be updated by gathering current data on the distribution, natural history, population trends, threats, and endemism of China's highly diverse freshwater crabs. Once the IUCN Red List is updated, the conservation strategies can be developed for these understudied, diverse and potentially threatened fauna. It is hoped that the information gathered during the present study will help to feed into this process.

CONCLUSIONS

Cryptopotamon anacoluthon is widely distributed within Hong Kong; recorded throughout the New Territories, Hong Kong and Lantau Islands. So far, the species has not been recorded outside of Hong Kong. Generally, *C. anacoluthon* prefers fast flowing upland streams shaded by secondary woodland; however, the species has also been recorded in lower elevations from several locations, notably on Lantau Island and in the western New Territories. Watercourses in which this species occurs are largely natural with limited anthropogenic impacts such as channelisation or modification, but as the requirement of land increases for development, such areas will be under threat. Watercourse restoration projects provide an opportunity to conserve habitat of the species, and its habitat requirements should be taken into account when restoration measures are planned for potentially suitable watercourses.

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Appendix 1. List of Environmental Impact Assessment reports reviewed during the present study. All reports can be viewed online at http://www.epd.gov.hk/eia/index.html)

Application no.	Environmental impact assessment report
EIA-002/1998	Tsuen Wan Bay Further Reclamation, Area 35, Tsuen Wan Engineering, Planning and Environmental Investigation
EIA-013/1999	Tang Lung Chau Dangerous Goods Anchorage
EIA-014/1999	Main Drainage Channels and Poldered Village Protection Schemes for San Tin, NWNT EIA Study
EIA-017/1999	Essential Public Infrastructure Works associated with West Rail Stations in Yuen Long Tin Shui Wai and Tuen Mun Centre
EIA-020/1999	Route 16 Investigation Assignment from West Kowloon to Sha Tin
EIA-021/1999	Feasibility Study on the Alternative Alignment for the Western Coast Road, Tseung Kwan O
EIA-022/1999	Sha Tin Sewage Treatment Works, Stage III Extension - Environmental Impact Assessment Study
EIA-023/1999	Tseung Kwan O Development - Contract F: Grade Separated Interchange T1/P1/P2
EIA-026/1999	Essential Public Infrastructure Works with West Rail Stations (the Eastern Access Road)
EIA-027/1999	East Rail Extensions - Tai Wai to Ma On Shan
EIA-028/1999	Hebe Haven Yacht Club Development - Phase 2 Environmental Impact Assessment Study
EIA-029/1999	132 kV Overhead Pole Line & Underground Cable from the Existing Po Lam Substation to the Existing Tui Min Hoi Substation - Circuit No.2
EIA-030/1999	Tin Shui Wai Phase 4 Rail Extension
EIA-031/1999	Light Rail Transit (LRT) Extension in Tin Shui Wai Reserve Zone and Grade Separation of the LRT with Pui To Road and Tsing Lung Road in TuenMun
EIA-033/1999	Route 10 North Lantau to Yuen Long Highway Investigation and Preliminary Design (Southern Section
EIA-039/2000	Shenzhen River Regulation Project Stage III - Environmental Impact Assessment
EIA-040/2000	Northshore Lantau Development Feasibility Study - Environmental Impact Assessment
EIA-041/2000	Construction of an International Theme Park in Penny's Bay of North Lantau together with its Essential Associated Infrastructures - Environmental Impact Assessment
EIA-043/2000	Agreement No. CE 73/98 Investigation Assignment for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling
EIA-061/2001	Tseung Kwan O Roads D1, D8 and D10
EIA-063/2001	Replacement of Cremators at Fu Shan Crematorium
EIA-066/2001	The Decommissioning of Underground Fuel Tanks at Tsuen Wan No.1 Pumping Station
EIA-067/2001	Widening of Yuen Long Highway between Lam Tei and Shap Pat Heung Interchange

Application no.	Environmental impact assessment report
EIA-068/2001	Planning and Engineering Feasibility Study for Sham Tseng Development
EIA-071/2001	Sheung Shui to Lok Ma Chau Spur Line
EIA-074/2002	Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 1 Packages 1A-1T and 1B-1T - Kam Tin Trunk Sewerage Phase I and II
EIA-075/2002	Tung Chung road
EIA-076/2002	Fill Bank at Tseung Kwan O Area 137
EIA-078/2002	Deep Bay Link
EIA-079/2002	Ngong Ping Sewage Treatment Works and Sewerage. EIA report submitted to EPD.
EIA-082/2002	Shenzhen Western Corridor
EIA-083/2002	Feasibility Study for Housing Development at Whitehead & Lee On in Ma On Shan
EIA-086/2002	Upgrading and expansion of San Wai Sewage Treatment Works and expansion of Ha Tsuen Pumping Station
EIA-087/2002	Cement Silos Addition Work in Tai Po Cement Depot
EIA-089/2003	The Proposed Submarine Gas Pipelines from Cheng Tou Jiao Liquefied Natural Gas Receiving Terminal, Shenzhen to Tai Po Gas Production Plant, Hong Kong
EIA-093/2004	Improvements to San Tin Interchange
EIA-094/2004	Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2
EIA-096/2004	Peng Chau Sewage Treatment Works Upgrade
EIA-097/2004	Tai Po Sewage Treatment Works Stage V
EIA-099/2004	Renewable Energy by a Wind Turbine System on Lamma Island
EIA-100/2004	Siu Ho Wan Water Treatment Works Extension
EIA-101/2004	Drainage Improvements in Sai Kung
EIA-103/2004	Trunk Road T4 in Sha Tin
EIA-106/2005	New Contaminated Mud Marine Disposal Facility at Airport East / East ShaChau Area
EIA-107/2005	Peng Chau Helipad
EIA-110/2005	Drainage Improvements in southern Lantau
EIA-111/2005	Further Development of Tseung Kwan O Feasibility Study
EIA-112/2005	Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung
EIA-114/2005	Helipad at Yung Shue Wan, Lamma Island
EIA-118/2005	Main Arena of the 2008 Olympic Equestrian Event
EIA-119/2005	Lamma Power Station Units L4 & L5 Flue Gas Desulphurization Plant Retrofit Project
EIA-122/2006	Yuen Long, Kam Tin, Ngau Tam Mei & Tin ShuiWai Drainage Improvement Stage 1, Phase 2B - Kam Tin Secondary Drainage Channel KT13
EIA-124/2006	A Commercial Scale Wind Turbine Pilot Demonstration at Hei Ling Chau
EIA-125/2006	Liquefied Natural Gas (LNG) Receiving Terminal and Associated Facilities
EIA-126/2006	Relocation of Yiu Lian Floating Dock No. 3
EIA-128/2007	Drainage Improvement in Northern New Territories - Package C
EIA-130/2007	Drainage Improvement in Sha Tin and Tai Po
EIA-133/2007	North East New Territories (NENT) Landfill Extension
EIA-143/2007	South East New Territories (SENT) Landfill Extension
EIA-144/2008	Proposed Comprehensive Development at Wo Shang Wai, Yuen Long
EIA-146/2008	Provision of Cremators at Wo Hop Shek Crematorium
EIA-148/2008	Harbour Area Treatment Scheme (HATS) Stage 2A
EIA-149/2008	Proposed Development at Fung Lok Wai, Yuen Long at Lot 1457 R.P. in D.D.123
EIA-156/2008	Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate
EIA-159/2008	Construction of Cycle Tracks and the associated Supporting Facilities from Sha Po Tsuen to Shek Sheung River
EIA-160/2008	Improvement to Pok Oi Interchange
EIA-161/2008	Construction of a Secondary Boundary Fence and new sections of Primary Boundary Fence and Boundary Patrol Road
EIA-161/2008	Construction of a Secondary Boundary Fence and new sections of Primary Boundary Fence and Boundary Patrol Road

Application no.	Environmental impact assessment report
EIA-162/2008	Inter-reservoirs Transfer Scheme (IRTS) - Water Tunnel between Kowloon Bywash Reservoir and Lower Shing Mun Reservoir
EIA-163/2008	Hang Hau Tsuen Channel at Lau Fau Shan
EIA-164/2009	Upgrading of Remaining Sections of Kam Tin Road and Lam Kam Road
EIA-167/2009	Hong Kong Offshore Wind Farm in Southeastern Waters
EIA-169/2009	Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link
EIA-170/2009	Provision of a Poultry Slaughtering Centre in Sheung Shui
EIA-172/2009	Hong Kong - Zhuhai - Macao Bridge Hong Kong Link Road
EIA-173/2009	Hong Kong - Zhuhai - Macao Bridge Hong Kong Boundary Crossing Facilities
EIA-174/2009	TuenMun - Chek Lap Kok Link
EIA-177/2009	Development of a 100MW Offshore Wind Farm in Hong Kong
EIA-178/2009	Black Point Gas Supply Project
EIA-180/2010	Improvement of Fresh Water Supply to Cheung Chau
EIA-186/2010	Integration of Siu Ho Wan and Silver Mine Bay Water Treatment Works
EIA-188/2010	Phase III Redevelopment of The Hong Kong Federation of Youth Groups Jockey Club Sai Kung Outdoor Training Camp
EIA-189/2010	Regulation of Shenzhen River Stage IV
EIA-190/2010	Liantang /Heung Yuen Wai Boundary Control Point and Associated Works
EIA-193/2011	Development of the Integrated Waste Management Facilities Phase 1
EIA-199/2011	Shatin to Central Link - Hung Hom to Admiralty Section
EIA-200/2011	Shatin to Central Link - Tai Wai to Hung Hom Section
EIA-201/2011	Engineering Investigation and Environmental Studies for Integrated Waste Management Facilities Phase 1 - Feasibility Study
EIA-203/2012	Pilot Project for Public - Private Partnership Conservation Scheme, Sha Lo Tung Valley, Tai Po
EIA-206/2012	Drainage Improvement Works at Ngong Ping
EIA-209/2013	Cross Bay Link, Tseung Kwan O
EIA-210/2013	Tseung Kwan O - Lam Tin Tunnel and Associated Works
EIA-212/2013	Development of Lok Ma Chau Loop
EIA-213/2013	North East New Territories New Development Areas
EIA-218/2013	Development of Organic Waste Treatment Facilities, Phase 2
EIA-219/2013	Outlying Island Sewerage Stage 2 - Upgrading of Cheung Chau Sewage Collection, Treatment and Disposal Facilities
EIA-222/2014	Development of Anderson Road Quarry
EIA-224/2014	In-situ Reprovisioning of Sha Tin Water Treatment Works - South Works
EIA-225/2014	Decommissioning of West Portion of the Middle Ash Lagoon at Tsang Tsui, Tuen Mun
EIA-226/2014	Alternative Ground Decontamination Works of the Proposed Kennedy Town Comprehensive Development Area Site
EIA-227/2015	Comprehensive Development and Wetland Protection near Yau Mei San Tsuen
EIA-228/2015	Flyover from Kwai Tsing Interchange Upramp to Kwai Chung Road
EIA-229/2015	Desalination Plant at Tseung Kwan O
EIA-230/2015	Chai Wan Government Complex and vehicle Depot
EIA-232/2015	Operation of the Existing Tai Lam Explosives Magazine at Tai Shu Ha, Yuen Long for Liantang/Heung Yuen Wai Boundary Control Point Project
EIA-233/2015	Tung Chung New Town Extension
EIA-234/2015	Development of Anderson Road Quarry Site - Rock Cavern Developments
EIA-235/2015	Development of Anderson Road Quarry Site - Road Improvement Works
EIA-236/2016	Site Formation and associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery
EIA-237/2016	Additional Gas-fired Generation Units Project

Appendix 2. Locations of *Cryptopotamon anacoluthon* obtained from literature and authors' observations

Site	Latitude (N)[1]	Longitude (E)[1]	Altitude (m)	Number of locations	Conservation area	Source/Additional notes
New Territories						
Kwun Yum Shan	-	-	-	-	-	Esser & Cumberlidge 2008
Tai Mo Shan	22°24'23.71"	114°07'28.01"	827	1	SSSI	Authors' unpublished data
Tai Po Kau	22°25'38.71"	114°10'50.78"	157	-	Special Area	Authors' unpublished data; Esser & Cumberlidge 2008
Tei Lung Hau	22°21'35.49"	114°10'15.89"	57	1	No	Ove Arup & Partners Ltd. 2011
Sam Dip Tam	22°22'53.29"	114°7'26.23"	109	-	No	Mott Connell Limited 2005
Wu Kau Tang	22°30'16.62"	114°14'36.37"	102	1	No	Authors' unpublished data. Found in an EIS within an Country Park Enclave - no formal protection
Fung Yuen	22°28'03.97"	114°10'51.88"	53	1	SSSI	Authors' unpublished data; Mott Macdonald 2010
Wu Kwai Sha	-	-	-	-	-	Esser & Cumberlidge 2008
Shap Sze Heung, Ma On Shan	-	-	-	-	-	Kennish 1995
Tai Tung Wo Liu, Ma on Shan	22°25'22.79"	114°53'43.38"	33	1	No	Authors' unpublished data
Sha Ha, Sai Kung	22°23'22.40"	114°16'13.04"	20		No	Maunsell Consultants Asia Ltd. (2004)
Ma Yau Tong	22°18'–22°19'	114°11'–114°14'	119-202	3	No	Ove Arup & Partners Ltd. 2014; AECOM 2016
Pak Shing Kok, Tseung Kwan O	22°18'18.69"	114°16'37.90"	78	-	No	Maunsell Consultants Asia Ltd. 2005
Ha Tsuen West	22°26'40.09"	113°58'52.68"	31	-	No	Ove Arup & Partners Ltd. 2002
Pat Heung, Shek Kong	22°26'12.50"	114°06'09.13"	65	-	No	Authors' unpublished data
Kam Tin Road, Shek Kong	22°26'00.91"	114°06'07.82"	41	-	No	Mannings (Asia) Consultants Ltd 2009
Shek Kong	22°26'27.18"	114°05'09.22"	13	-	No	MTRC/AECOM 2009b
Lantau Island						
Keung Shan	22°14'32.07"	114°53'53.27"	105	1	No	Authors' unpublished data
Kwun Yum Shan	22°14'15.38"	113°53'33.96"	154	1	No	Authors' unpublished data
Tai Ho, Lantau	22°17'32.22"	113°58'43.07"	8		SSSI	AECOM 2009b; Ove Arup & Partners Ltd. 2015; Some sections of this stream are an EIS
Tung Chung Stream	22°16'19.06"	113°55'47.06"	c. 15	-	-	Ove Arup & Partners Ltd. 2015; Green power 2016; Some sections of this stream are an EIS
Hong Kong Island						
The Peak	22°16'39.93"	114°8'45.74"	514	-	No	Kemp 1918; Esser & Cumberlidge 2008
Braemar Hill	22°16'–22°17'	114°11'–114°12'	186-222	2	No	Authors' unpublished data
Jardine's Lookout	22°15'–22°16'	114°11'–114°11'	175-192	2	Country Park & SSSI	Authors' unpublished data

Notes:

[1] - Latitudes, longitudes and altitudes may be approximate for some sites as exact locations could not always be sourced from literature. Where left blank, location could not be determined.

[2] SSSI - Site of Scientific Interest

[3] EIS - Ecologically Important Stream. EIS are natural streams and rivers with important ecological functions such as providing habitats for diverse or rare animal or plant communities. These are listed on a register maintained by the Government of the Hong Kong SAR but are afforded no specific protection.

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