

**Advisory Council on the Environment
Nature Conservation Subcommittee**

Fung Shui Woods in Hong Kong

Purpose

This paper briefs Members on the conditions of the Fung Shui woods in Hong Kong.

Background

2. In the past, villagers chose to settle close to wooded areas and preserved native forests behind their home for *Fung Shui* reason. They planted fruit trees and other economic plants on the edges of native forests to maximise their benefits (Iu 2000). These “enhanced” forests that we see nowadays behind some traditional villages, usually in crescent shape, are known as *Fung Shui* woods (FSW) and is a unique landscape and ecological feature in southern China. It is generally believed that they are primary forests which have escaped from clearance by early settlement and thus provide important information on the primeval vegetation of Hong Kong. Hence, FSWs are our important asset from conservation, botanical as well as cultural points of views.

3. Some pioneer studies of selected local FSWs reveal that many of which are the oldest surviving forests in Hong Kong and may be over 300 years old (Shen 1974; Thrower 1975). Before the extent to which FSWs represent primary forest ecosystems and their possible role in biodiversity conservation can be assessed in detail, it is necessary to investigate the species composition of different FSWs in the context of a territory-wide floristic inventory.

Survey Methodology

4. The Agriculture, Fisheries and Conservation Department (AFCD) initiated a territory-wide FSW survey in 2002 (Yip *et al.* 2004). Members of the plant working group of AFCD, together with staff of the Hong Kong Herbarium, have surveyed 115 FSWs of various sizes including the most representative sites in Hong Kong. Though the study aimed to be as

comprehensive as possible, the surveyed sites were not meant to be exhaustive, given the large number and wide geographical coverage of FSWs in Hong Kong.

5. Each field trip of FSW survey would gather information on plant species and the habitat, such as slope aspects, altitude and disturbance status of the FSW. For small sites, we surveyed the entire sites and recorded all vascular plants encountered. For large sites, representative parts of the sites were covered as far as possible. Each survey continued until no new species could be found. A species list of vascular plants was recorded for each site, including the abundant species and dominant species in the canopy. A boundary of the FSW was drawn on survey map and the area of the FSW was subsequently computed using the GIS system.

Results

6. A total of 656 species of vascular plants were recorded in the 115 FSWs, which account for 31% of the total native vascular plants recorded in Hong Kong. The site with the highest plant species richness is Nam Fung Road with 156 species recorded. The largest site is Shing Mun with a total area of 5.3 ha. The site with the highest species density is Kei Ling Ha San Wai with over 100 species in an area just under 0.2 ha. The species richness and areas of the 115 FSWs surveyed are set out at the **Annex**.

7. The flora of FSW trees mainly belong to the families of Euphorbiaceae, Moraceae and Lauraceae, while shrubs and herbs are mostly members of Rubiaceae and Fabaceae (Papilionaceae). These are families typical of tropical or sub-tropical evergreen broad-leaved forests. They mirror a regional characteristic of Hong Kong's vegetation — southern sub-tropical lowland evergreen broad-leaved forests. Common FSW trees are Lance-leaved Sterculia (*Sterculia lanceolata*) (99) (the number indicates the occurrence of the species in the FSW surveyed); Longan (*Dimocarpus longan*) (92); Aporosa (*Aporosa dioica*) (92); Incense Tree (*Aquilaria sinensis*) (89); Ivy tree (*Schefflera heptaphylla*) (82); Hance's Syzygium (*Syzygium hancei*) (64); Camphor Tree (*Cinnamomum camphora*) (56) and *Machilus* species. The most common undergrowth shrubs are Wild Coffee (*Psychotria asiatica*) (96); Asiatic Ardisia (*Ardisia quinquegona*) (89) and Uvaria (*Uvaria macrophylla*) (70).

8. The common FSW plants named above are also widely distributed in other forests in Hong Kong. On the other hand, *Endospermum* (*Endospermum chinense*), *Pygeum* (*Pygeum topengii*) and *Butulang Canthium* (*Canthium dicoccum*) are more restricted to FSW. Some plants such as Pea-like Fruit *Popowia* (*Popowia pisocarpa*), Long-leaved *Xylosma* (*Xylosma longifolium*) and Medicinal Fat-head Tree (*Nauclea officinalis*) are found only in FSW. Evidently, FSW are unique habitats with high floristic significance.

Data Analysis

9. The present comprehensive survey on FSWs could be used as an example to demonstrate how relative conservation importance of sites of the same habitat type can be ranked. Here, we propose a ranking scheme for FSW based on four assessment criteria, namely (1) area, (2) plant species richness (total number of species recorded in each site), (3) number of FSW indicator species (based on a cluster analysis of representative FSW), and (4) number of species of conservation concerned (rare or protected under local and national legislation as well as species restricted to FSW). Although species richness is positively correlated with area, the former indicated the actual plant diversity a site supported while the latter indicated the integrity of the site, the potential to be self-sustained and degree to withstand from human disturbance.

10. The relative score for each criterion was computed as a proportion of the “best” site of that criterion (e.g. the largest site will have a score of 100 for the area and the site half of that size will have a score of 50). This approach were found more appropriate than the use of simple ranking or ordinal value as the absolute difference between the importance of individual sites would be reflected in the relative score. The four criteria had equal weighting and the overall score of each site was the mean of the respective scores of the four criteria.

Conservation of FSW

11. Appropriate conservation recommendations could be made to these FSWs based on the total score, other special ecological features such as the presence of unique rare plant populations or old and significant specimen trees, land status, disturbance status and existing protection status. The sites with the highest ranking deserve the Site of Special Scientific

Interest (SSSI) status for their conservation. We will take into account the results of this ranking exercise on the future designation of important FSWs as SSSI. The remaining FSW, excluding the heavily disturbed sites, would also be considered for appropriate conservation zonings on the respective landuse plans during the plan making process.

12. Botanical and environmental information gathered in this survey of local FSWs forms a solid basis for establishing a comprehensive database. This information helps assess the ecological value of FSWs from a territorial-wide perspective for the better protection of FSW. In addition, the survey and assessment method are dynamic in nature and any new sites surveyed can be fitted into the ranking system for appropriate conservation recommendation.

Raising Public Awareness

13. To arouse public awareness of conservation of FSW, a book entitled *Venturing Fung Shui Woods* has been published (Yip *et al.* 2004). Moreover, seminars together with follow-up guided tours have been organized for school teachers and interested persons. We hope that students and other members of the public would become more aware of the importance of FWS conservation. Concerted efforts are required to ensure that our future generations would be able to appreciate this unique landscape and ecological feature in South China.

Advice Sought

14. Members are invited to note and comment on the findings of the surveys and conservation of FSWs in Hong Kong.

Agriculture, Fisheries and Conservation Department
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Areas and species richness of surveyed Fung Shui Wood

Site	Species Richness	Area (m²)
A Shan	63	4465
Au Ha	67	10783
Fung Hang	73	13367
Fung Yuen	115	28388
Ha Tin Liu Ha	84	11777
Hang Ha Po	51	15393
Hang Tau	23	10166
Heung Yuen Wai	91	12065
Ho Chung	54	8436
Hoi Ha	13	3177
Hok Tau Wai	78	12140
Kai Kuk Shue Ha	69	8082
Kam Tsin	32	6469
Kan Tau Wai	11	4043
Kei Ling Ha Lo Wai	49	3373
Kei Ling Ha San Wai	103	1849
Ko Tong	54	11353
Ko Tong Ha Yeung	12	3082
Kop Tong	26	2608
Kuk Po Sam To	92	8628
Kuk Po San Uk	95	6026
Kwun Yam Shan	90	10522
Lai Chi Chong	120	10808
Lai Chi Wo	69	12325
Lai Tau Shek	90	5463
Li Ma Hang	81	5377
Lin Au	102	19668
Lin Tong Mei	29	17675
Loi Tung	40	15063
Lok Wo Sha	33	13645
Luk Keng Wong Uk	70	19587
Luk Keng Chan Uk	82	27142
Luk Tei Tong	74	12960
Lung Mei	73	10041
Ma On Kong	29	11964
Ma Tseuk Leng	104	6428
Man Uk Bin	80	13542
Mau Ping San Uk	99	9203
Mok Ka	41	3541

Site	Species Richness	Area (m ²)
Mui Tsz Lam (Ma On Shan)	133	22404
Mui Tsz Lam (Plover Cove)	65	11245
Muk Min Tau	77	27949
Nam Chung Cheng Uk	63	17201
Nam Chung Cheung Uk	22	2631
Nam Chung Lo Uk	68	26378
Nam Fung Road	156	38346
Nam Long	36	3142
Nam Shan Tung	93	12319
Ngau Hom	68	17533
Ngong Ping	77	12958
Pak Kong	68	12947
Pak Long	48	3729
Pak Mong	96	9588
Pak Ngan Heung	65	11652
Pak Ngau Shek	76	6383
Pak Sha O	48	13059
Pak Tam	70	2451
Pak Tam Au	62	3788
Pan Long Wan	81	40358
Pat Heung Temple	21	1257
Ping Tun	68	10266
Sam A Chuen	93	8693
San Tau	50	10376
San Tong	39	4675
Sha Lo Tung Cheung Uk	70	7395
Sha Lo Tung Lei Uk	18	2536
Sha Lo Wan	69	23894
Sham Chung	94	2678
Shan Liu	83	6265
Shan Pui	39	16283
Shan Tsui	16	7554
She Shan Tsuen	107	36827
Shek Hang	54	2193
Shek Mun Kap	30	1084
Sheung Leng Pei	60	10547
Sheung Tam Shui Hang	39	7621
Sheung Tin Liu Ha	77	9866
Sheung Wo Hang	82	12368
Shing Mun	132	53170
Shui Hau	56	12281
Shui Kan Shek	51	7734

Site	Species Richness	Area (m ²)
So Kwun Wat Tsuen	48	3785
Ta Tit Yan	60	3694
Tai Om	106	33996
Tai Wan Tau	26	14451
Tai Wo (Tai Po)	41	7335
Tam Wat	65	11639
Tan Chuk Hang Lo Wai	73	13636
Ting Kok	99	24697
Tit Kim Hang	50	7135
To Kwa Peng	76	4721
Tong Fuk	62	9459
Tong Min Tsuen	57	11656
Tong To	69	3717
Tseng Lan Shue	114	13315
Tsing Fai Tong	90	12005
Tsiu Hang	63	11807
Tsung Yuen Ha	62	9161
Wai Tau Tsuen	65	6302
Wang Shan Keuk Ha Tsuen	72	15964
Wang Shan Keuk Sheung Tsuen	63	8335
Wong Chuk Yeung (Fo Tan)	93	4190
Wong Chuk Yeung (Sai Kung)	106	4199
Wong Chuk Yuen	13	606
Wong Mo Ying	52	2560
Wu Kau Tang - Ho Pui	39	4891
Wu Kau Tang - Kau Tam Tso	90	16511
Wu Kau Tang - Leng Pui	18	1535
Wu Kau Tang - Mirror Pool	127	12371
Yim Tso Ha	46	2918
Yuen Kong	10	990
Yuen Tuen	63	6540
Yuen Tun Ha	67	5815
Yung Shue Au	87	5526
Yung Shue Ha	53	10242