



Report of Rapid Biodiversity Assessments at Dachouding and Sanyue Nature Reserves, Northwest Guangdong, China, April 2001

**Kadoorie Farm and Botanic Garden
in collaboration with
Zhongshan University
Zhaoqing Forestry Bureau**

February 2004

**South China Forest Biodiversity Survey Report Series: No. 37
(Online Simplified Version)**

Report of Rapid Biodiversity Assessments at Dachouding and Sanyue Nature Reserves, Northwest Guangdong, China, April 2001

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Background

The present report details the findings of a trip to Northwest Guangdong by members of Kadoorie Farm and Botanic Garden (KFBG) in Hong Kong and their colleagues, as part of KFBG's South China Biodiversity Conservation Programme (renamed the China Programme in 2003). The overall aim of the programme is to minimise the loss of forest biodiversity in the region, and the emphasis in the first three years is on gathering up-to-date information on the distribution and status of fauna and flora.

Citation

Kadoorie Farm and Botanic Garden, 2004. *Report of Rapid Biodiversity Assessments at Dachouding and Sanyue Nature Reserves, Northwest Guangdong, China, April 2001*. South China Forest Biodiversity Survey Report Series (Online Simplified Version): No. 37. KFBG, Hong Kong SAR, ii + 33 pp.

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February 2004

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Translation of some common Chinese geographical terms

Romanized Chinese (pinyin)	English meaning
Bei	north
Dao	island
Dong	east
Feng shui	the Chinese system of geomancy
Feng, Ding	peak, summit
Gang	harbour
Hai	sea
He, Chuan, Jiang	river
Hu, Chi	lake
Keng, Gu, Gou	valley, stream
Kou	outlet
Ling	range
Nan	south
Ping	flat
Shan	mountain
Shi	city
Tun	hamlet
Wan	bay
Xi	west
Xi, Yong, Keng	stream
Xian	county
Xiang, Cun	village

Report of Rapid Biodiversity Assessments at Dachouding and Sanyue Nature Reserves, Northwest Guangdong, China, April 2001

Objectives

- The surveys of Dachouding and Sanyue Nature Reserves were undertaken at the invitation of Zhongshan University, to provide biodiversity data relevant to an evaluation of the proposed designation of reserve status. A second aim of these surveys was to collect up-to-date information on the fauna and flora of the reserves, and to use this data to help determine conservation priorities within South China.

Methods

- On 15 April 2001 a team of biologists from Hong Kong (ML, BC, LKS, NSC and GTR) and Guangdong (CH) left Guangzhou for **Dachouding Nature Reserve**.
- On 20 April the team departed Dachouding at 09.30 and travelled westward to **Sanyue Nature Reserve**. At 16.00 they arrived at Sanyue Nature Reserve management station at Yueshan Forest Farm (375m).
- During fieldwork visual searching for plants, mammals, birds, reptiles, amphibians, fish, butterflies, and dragonflies was conducted. Moths attracted to lights near human habitation were recorded. Frogs and birds were also identified by their calls. Plant records were made by field observations, with some specimens collected.
- No assessment of mammal status was made.
- Vascular plant records were made and edited by NSC. Mammal records were made by ML, BC and LKS. Records of birds were made or verified by LKS or ML, reptiles and amphibians by ML or BC, fish by BC, butterflies and dragonflies by GTR, moths were identified/collected by ML and verified by RCK.
- Nomenclature in the report is standardised based, unless otherwise stated, on the following references:
 - Flora (Pteridophyta, Gymnospermae and Angiospermae): Anon. (1959-2001); Anon. (1996-2001); Anon. (2003a, 2003b); The Plant Names Project (2003);
 - Mammals (Mammalia): Wilson & Cole (2000);
 - Birds (Aves): Inskipp *et al.* (1996);
 - Reptiles and Amphibians (Reptilia and Amphibia): Zhao E.-M. & Adler (1993); Zhao E. *et al.* (2000);
 - Fish (Actinopterygii): Nelson (1994); Wu *et al.* (1999);
 - Dragonflies (Insecta: Odonata): Schorr *et al.* (2001a, 2001b);
 - Butterflies (Insecta: Lepidoptera): Bascombe (1995);
 - Moths (Insecta: Lepidoptera): Kristensen (1999).
- Information on the global status of species is from IUCN publications, notably IUCN (2003). Certain taxa, including orchids, reptiles, amphibians, fish and invertebrates, have yet to be properly assessed for global status. National conservation status of orchids is based on Wang *et al.* (in press).
- Protected status in China is based on Hua & Yan (1993) for animals, and Yu (1999) for plants.

Location and management of Dachouding Nature Reserve

- Dachouding Nature Reserve is situated in Northwest Guangdong at 24°10'16" to 24°10'52" N, 112°23'50" to 112°27'10"E, in the northeast of Huaiji County, Zhaoqing City District, on the

border with Yangshan County of Qingyuan City District. The size of the reserve is 27.3 km² (Mo, 2002).

- The geology is mainly granite and sandy shale. The reserve has a mountainous landscape. Altitude in the reserve ranges from 625m to 1,626m at the summit of Dachouding (also called Shichuanding by the locals). In 2002 forest cover was reported to be 94.6%, of which about 30% was natural forest (Mo, 2002).
- The region as a whole has a subtropical monsoon climate with a mean annual temperature of 21.7°C. Absolute temperatures range from -3°C to 37.5°C; annual precipitation is about 1,740mm and occurs mainly between April and August. The three major streams (Huangjing Keng, Maoping Da Keng and Fenjiang drainages) drain southwards and eventually feed into the Qiashui He of Sui Jiang, a tributary of the Zhujiang drainage system (Mo, 2002).
- Dachouding Nature Reserve has no villages within the boundary, but was surrounded by a population of some 107,000. The average annual income per person was 4,000 yuan RMB in 2002 (Mo, 2002).
- Dachouding Nature Reserve was originally part of the National Xingang Forest Farm, and was designated a city-level nature reserve in June 2000 by the Zhaoqing City District Government. In the comprehensive plan, 39% of the reserve would become the Core Area. The reserve was established to protect the subtropical evergreen broadleaf forest, rare flora and fauna, especially Cabot's Trogopan *Tragopan caboti* and orchids such as *Cymbidium* spp. (Mo, 2002; State Forestry Administration Wildlife Conservation Office, 2003).

Location and management of Sanyue Nature Reserve

- Sanyue Nature Reserve is situated in Northwest Guangdong at 24°07'25" to 24°14'25"N, 111°51'55" to 111°59'45"E, in the northwest of Huaiji County, Zhaoqing City District, on the border with Guangxi Zhuang Autonomous Region to the northwest, and Lianshan County of Qingyuan City District to the northeast. The size of the reserve is 67.6 km² (Li & Xie, 2002).
- The geology is mainly granite and sandy shale. The reserve has a mountainous landscape, with seven peaks over 1,000m in the vicinity. Altitude in the reserve ranges from 240m to 1,290m at the summit of Eryue Ding. In 2002 34.2% of the reserve area was reported to be broadleaf forest (Li & Xie, 2002).
- The region as a whole has a southern subtropical to subtropical climate with a mean annual temperature of 20.8 °C. Mean monthly temperature ranges from 11.5 °C in January to 28.3 °C in July; annual precipitation is about 1,779 mm and occurs mainly between April and June. The streams radiate in different directions, all eventually feeding into Maning He of Sui Jiang, a tributary of the Zhujiang drainage system (Li & Xie, 2002).
- Sanyue Nature Reserve has no villages within the boundary, but neighbouring Nanzhong Township has a population of 23,207. The average annual income per person was 3,500 yuan RMB in 1998 (Li & Xie, 2002).
- Sanyue Nature Reserve was a forest area originally managed by two national forest farms (Yueshan and Wenquan) and the collective forests of Nanzhong Township. It was designated a city-level nature reserve in June 2000 by the Zhaoqing City District Government. In the comprehensive plan, 41.6% of the reserve would become the Core Area. The reserve was established to protect the subtropical evergreen broadleaf forest, and rare flora and fauna (Li & Xie, 2002; State Forestry Administration Wildlife Conservation Office, 2003).

Results

Vegetation of Dachouding Nature Reserve

- The zonal vegetation of the Dachouding region should be southern subtropical evergreen broadleaf forest. The present vegetation is a mosaic of remnant old-growth forest patches in a matrix of China fir plantation, shrubland and young secondary forest.
- Relatively old-growth subtropical evergreen broadleaf forest occurred as small or fragmented patches with trees up to 15-20m in height and 40-60cm dbh at Huangzuoqiao and Sanfen at 300-800m. Dominant canopy species included *Castanopsis carlesii*, *C. fissa*, *C. fabri*, *C. kawakamii*, *C. lamontii*, *Schima superba*, *Cryptocarya chingii* and *Exbucklandia tonkinensis*. Such forests were also occasionally seen as small patches of Feng shui woods such as the one surveyed at Huangjingkeng, although these forests tend to have a very sparse understorey probably as a result of harvesting and disturbance by local villagers.
- Younger secondary forest, with trees up to 10m and 30cm dbh, dominated by *Pinus massoniana*, *Alniphyllum eberhardtii*, *Rhododendron moulmianense*, *Alangium chinense*, *Schima superba*, *Schefflera heptaphylla*, *Sapium discolor*, and *Castanopsis fissa*, was widely distributed at an elevation of 300-800m. This vegetation type has probably regenerated in the last 20-30 years.
- Extensive cover of montane dwarf forest, with trees about 6-15m and 30 cm dbh, was found at Fenjie, Dachouding and Huangzuoqiao above 800m. This vegetation type is characterised by a windy and moist microclimate, deformed and mossy tree trunks, and a rich understorey. Dominant canopy species included *Machilus leptophylla*, *M. thunbergii*, *Meliiodendron xylocarpum*, *Neolitsea levinii*, *Castanopsis fabri*, *Lithocarpus hancei*, *L. brevicaudatus* and *L. chrysocomus*.
- Mixed grassland and shrubland was found extensively on open spurs and hillsides above 800m above steep ravines around Dachouding, Huangzuoqiao and Fenjie. Such habitat may have been fire-maintained and was dominated by *Rhodomyrtus tomentosa*, *Gahnia tristis*, *Rhododendron simsii*, *R. farrerae*, *R. kwangtungense*, *Rhaphiolepis indica*, *Enkianthus serrulatus* and *Miscanthus sinensis*.

Vegetation of Sanyue Nature Reserve

- The zonal vegetation of the Sanyue region should be southern subtropical evergreen broadleaf forest. Due to limited time and adverse weather conditions, the team was unable to survey all the vegetation types present. The area surveyed had more-or-less continuous forest cover, except for lower altitude areas where much of the relatively gentle slopes had been transformed into farmland and plantation. According to local villagers much of the forest had regenerated since closure for logging in the 1970s. Forest around the Haichong area had been protected since the 1950s and was the best-established in the area.
- Montane evergreen broadleaf forest, with trees up to 20m tall and 40cm dbh, was surveyed in Heichong on hillsides above 600m. Major dominant species included *Machilus pauhoi*, *M. chekiangensis*, *Castanopsis carlesii*, *C. lamontii*, *C. fabri*, *C. fissa*, *Exbucklandia tonkinensis*, *Cryptocarya concinna* and *Xanthophyllum hainanense*.
- Younger broadleaf forest, about 6-15m tall and dominated by *Schefflera heptaphylla*, *Schima superba*, *Castanopsis carlesii* var. *spinulosa*, *C. hystrix*, *Cyclobalanopsis blakei*, *Altingia chinensis*, *Exbucklandia tonkinensis* and *Neolitsea chuii*, could be found on hillsides at Eryue between 500 and 800m.
- Ravine tropical forest, with trees about 6-20m in height and up to 40cm dbh, was found along the main stream of Heichong above 500m, and also in small ravines among agricultural fields at Liangji and Getang. The forest type is characterised by a prominent liana layer below the canopy and the predominance of tropical species, such as *Pinanga sinii*, *Blastus cochinchinensis*, *Alocasia macrorrhiza* and *Cyatheaceae* spp., in the understorey. Major

dominant species included *Machilus pauhoi*, *Ixonanthes chinensis*, *Sloanea sinensis*, *Schefflera heptaphylla*, *Neolitsea chunii*, *Engelhardtia roxburghiana* and *Castanopsis carlesii*.

- Shrubland about 1-2m tall was found on open hillsides above 800m at Eryue. Major dominant species included *Rhodomyrtus tomentosa*, *Miscanthus sinensis*, *Indocalamus* spp., *Arundinella setosa*, *Gahnia javanica*, *Eurya groffii* and *Vaccinium bracteatum*.
- Patches of plantation of *Pinus massoniana* and *Cunninghamia lanceolata* (China Fir) could be found in the surveyed area.

Flora of Dachouding Nature Reserve

- The present survey of Dachouding recorded 378 vascular plant species including 49 fern species in 20 families, five gymnosperm species in four families, and 324 flowering plant species in 91 families (Table 1). This is a fairly high figure given the survey effort, but this may reflect the fragmented nature of the habitat and the diverse landscape of the area.
- Earlier survey of the nature reserve recorded 1,101 vascular plant species in 160 plant families (Mo, 2002).
- Among the species recorded, several are of conservation concern:
 - *Artocarpus hypargyreus* is considered globally Vulnerable although it is widespread in South China. Only a few immature plants were seen.
 - *Castanopsis kawakamii* is considered at Lower Risk (Near-threatened) globally but is also fairly widespread in South China. Locally it was common and dominant at one of the montane evergreen forests.
 - *Cibotium barometz* and *Cinnamomum camphora* are both under Class II National Protection in China, although both are widespread in South China. The latter species has also been cultivated for centuries in the region and it is unclear whether the plants encountered in the Feng shui woods were truly wild.
 - *Carex recurvisaccus* is globally restricted to Yunnan and Guangdong.
 - *Blastus pauciflorus* is globally restricted to Guangdong and Jiangxi.
 - *Microlepia hispida*, *Arachniodes longipinna*, *Vernonia gratiosa* and *Carex shanghaiensis* are new records for Guangdong.
- An earlier survey by Chen Binghui of South China Institute of Botany and Lawrence Chau of KFBG in August 1998 found *Amentotaxus argotaenia* (Hance) Pilg. at Dachouding (Chen Binghui, *in litt.*, 1999). This species is considered globally Vulnerable.
- Mo (2002) also recorded *Castanopsis concinna* which is Class II National Protected in China and globally Vulnerable.

Flora of Sanyue Nature Reserve

- The present survey of Sanyue recorded 358 vascular plant species including 56 fern species in 23 families, three gymnosperm species in two families, and 299 flowering plant species in 95 families (Table 2). This is a fairly high figure given the limited survey effort because of rains.
- Earlier survey of the nature reserve recorded 1,001 vascular plant species in 164 plant families (Li & Xie, 2002).
- Among the species recorded in the present survey, a few species are of conservation concern:
 - *Ixonanthes chinensis* is considered globally Vulnerable but it is widespread in South China and occasionally dominant in broadleaf forest. It was locally common in the core area at Heichong.
 - Four species of Cyatheaceae (*Alsophila spinulosa*, *Gymnosphaera gigantea*, *Gymnosphaera metteniana* and *Gymnosphaera podophylla*) were found. All species of the tree fern family are under Class II National Protection in China. Most species of the family, especially *Alsophila spinulosa*, have been heavily exploited for medicinal purposes. Although

widespread in South China, the first three species are usually sparsely distributed and restricted to relatively well-preserved forest. All of them were locally common in the area surveyed.

- *Cibotium barometz* is under Class II National Protection. It is harvested heavily for medicinal purposes, although it is both widespread and common in South China and not restricted to good forest. It was locally common in the surveyed area.
- *Arachniodes grossa* is globally restricted to Guangdong, Hainan and North Vietnam.
- *Arachniodes simulans* is a new record for Guangdong.
- An earlier survey by Chen Binghui of South China Institute of Botany and Ken So of KFBG on 7 October 1998 (Chen Binghui, *in litt.*, 1999) also found *Cycas taiwaniana* Carruth., a Class I National Protected species, and *Cladopus nymanii* H. Möller, a rarely-collected submerged plant. *Cycas taiwaniana* is considered globally Endangered and has shown a decreasing trend in population.
- Li & Xie (2002) also recorded *Castanopsis concinna* and *Phoebe bournei*, both Class II National Protected in China. The former is considered globally Vulnerable, whereas the latter is at Lower Risk (Near-threatened).

Table 1. Vascular plants of Dachouding Nature Reserve recorded in the present survey. Species which are nationally Protected (Class I or II) (Yu, 1999), globally Threatened or Lower Risk (Near-threatened) (IUCN, 2003) or globally restricted are indicated.

Family	Scientific name	Notes
PTERIDOPHYTA		
Adiantaceae	<i>Adiantum flabellulatum</i> L.	
Aspleniaceae	<i>Asplenium normale</i> D. Don	
	<i>Asplenium prolongatum</i> Hook.	
	<i>Asplenium unilaterale</i> Lam. var. <i>decurrens</i> (Bedd.) H.S. Kung	
	<i>Asplenium wrightii</i> Eaton ex Hook.	
	<i>Asplenium yoshinagae</i> Makino	
Athyriaceae	<i>Allantodia metteniana</i> (Miq.) Ching	
	<i>Diplazium donianum</i> (Mett.) Tardieu	
	<i>Diplazium subsinuatatum</i> (Wall. ex Hook. & Grev.) Tagawa	
Blechnaceae	<i>Blechnum orientale</i> L.	
	<i>Woodwardia japonica</i> (L.f.) Sm.	
Bolbitidaceae	<i>Bolbitis subcordata</i> (Copel.) Ching	
Dennstaedtiaceae	<i>Dennstaedtia scabra</i> (Wall.) Moore var. <i>glabrescens</i> (Ching) C. Chr.	
	<i>Microlepia hispida</i> C. Chr.	new Guangdong record
	<i>Microlepia marginata</i> (Houtt.) C. Chr.	
	<i>Cibotium barometz</i> (L.) J. Sm.	Protected II
Dicksoniaceae	<i>Arachniodes chinensis</i> (Rosenst.) Ching	
	<i>Arachniodes festina</i> (Hance) Ching	
	<i>Arachniodes longipinna</i> Ching	new Guangdong record
	<i>Arachniodes sphaerosora</i> (Ching) Ching	
	<i>Cyrtomium fortunei</i> J. Sm.	
Gleicheniaceae	<i>Dryopteris scottii</i> (Bedd.) Ching ex C. Chr.	
	<i>Dicranopteris pedata</i> (Houtt.) Nakaike (<i>D. linearis</i> var. <i>dichotoma</i> Holtt.)	
	<i>Diplopterygium chinensis</i> (Rosenst.) DeVol	
Hemionitidaceae	<i>Diplopterygium glaucum</i> (Thunb. ex Houtt.) Nakai	
	<i>Coniogramme japonica</i> (Thunb.) Diels	
Huperziaceae	<i>Huperzia serrata</i> (Thunb.) Trevis.	
Lindsaeaceae	<i>Stenoloma chusanum</i> (L.) Ching	
Loxogrammaceae	<i>Loxogramme chinensis</i> Ching	
Lycopodiaceae	<i>Lycopodium casuarinoides</i> (Spring) Holub	
	<i>Palhinhaea cernua</i> (L.) Franco et Vasc.	
Marattiaceae	<i>Angiopteris fokiensis</i> Hieron.	
Nephrolepidaceae	<i>Nephrolepis auriculata</i> (L.) Trimea	
Osmundaceae	<i>Osmunda japonica</i> Thunb.	

Family	Scientific name	Notes
Polypodiaceae	<i>Osmunda vachellii</i> Hook.	
	<i>Colysis elliptica</i> (Thunb.) Ching	
	<i>Colysis elliptica</i> (Thunb.) Ching var. <i>pothifolia</i> Ching	
	<i>Colysis hemionitidea</i> (Wall. ex Mett.) C. Presl	
	<i>Lepidogrammits rostrata</i> (Bedd.) Ching	
	<i>Lepidomicrosorium buergerianum</i> (Miq.) Bosman	
	<i>Lepisorus obscure-venulosus</i> (Hayata) Ching	
	<i>Microsorium fortunei</i> (T. Moore) Ching	
	<i>Microsorium insigne</i> (Blume) Copel.	
	<i>Pyrrosia lingua</i> (Thunb.) Farw	
Pteridaceae	<i>Pteris excelsa</i> Gaud.	
	<i>Pteris grevilleana</i> J. Agardh	
	<i>Pteris semipinnata</i> L.	
	<i>Pteris vittata</i> L.	
	<i>Pteridium aquilinum</i> (L.) Kuhn var. <i>latiusculum</i> (Desv.) Underw. ex A. Heller	
GYMNOSPERMAE		
Gnetaceae	<i>Gnetum luofuense</i> C. Y. Cheng	
	<i>Gnetum parvifolium</i> (Warb.) Chun	
Pinaceae	<i>Pinus massoniana</i> Lamb.	
Podocarpaceae	<i>Podocarpus neriifolius</i> D. Don	
Taxodiaceae	<i>Cunninghamia lanceolata</i> (Lamb.) Hook.	planted
ANGIOSPERMAE		
Dicotyledonae		
Acanthaceae	<i>Baphicacanthus cusia</i> (Nees) Bremek.	
Aceraceae	<i>Acer cinnamomifolium</i> Hayata	
	<i>Acer davidii</i> Franch.	
	<i>Acer reticulatum</i> Champ. ex Benth.	
	<i>Acer tutcheri</i> Duthie	
Actinidiaceae	<i>Actinidia callosa</i> Lindl. var. <i>henryi</i> Maxim.	
	<i>Actinidia fulvicoma</i> Hance var. <i>lanata</i> (Hemsl.) C.F. Liang	
	<i>Actinidia glaucophylla</i> F. Chun	
	<i>Actinidia latifolia</i> (Gardner & Champ.) Merr.	
Alangiaceae	<i>Alangium chinense</i> (Lour.) Harms.	
Anacardiaceae	<i>Rhus hypoleuca</i> Champ. ex Benth.	
	<i>Toxicodendron succedaneum</i> (L.) Kuntze.	
	<i>Toxicodendron sylvestri</i> (Siebold & Zucc.) Kuntze	
Annonaceae	<i>Desmos chinensis</i> Lour.	
	<i>Fissistigma glaucescens</i> (Hance) Merr.	
	<i>Fissistigma oldhamii</i> (Hemsl.) Merr.	
	<i>Uvaria boniana</i> Finet & Gagnep.	
Apiaceae	<i>Centella asiatica</i> (L.) Urb.	
Aquifoliaceae	<i>Sanicula lamelligera</i> Hance	
	<i>Ilex ficoidea</i> Hemsl.	
	<i>Ilex lohfauiensis</i> Merr.	
	<i>Ilex pubescens</i> Hook. & Arn.	
Araliaceae	<i>Ilex viridis</i> Champ. ex Benth.	
	<i>Aralia chinensis</i> L.	
	<i>Brassaiaopsis ferruginea</i> (H.L. Li) C. Ho	
	<i>Dendropanax dentigerus</i> (Harms ex Diels) Merr.	
	<i>Hedera nepalensis</i> K. Koch var. <i>sinensis</i> (Tobler) Rehder	
	<i>Heteropanax fragrans</i> (D. Don) Seem.	
	<i>Schefflera delavayi</i> (Franch.) Harms	
	<i>Schefflera heptaphylla</i> (L.) Frodin	
	<i>Schefflera minutistellata</i> Merr. ex H.L. Li	
	<i>Asarum caudigerum</i> Hance	
Aristolochiaceae	<i>Gymnema sylvestri</i> (Retz.) R. Br. ex Schult.	
Asclepiadaceae	<i>Blumea riparia</i> DC.	
Asteraceae	<i>Cirsium japonicum</i> Fisch. ex DC.	

Family	Scientific name	Notes
	<i>Ligularia japonica</i> (Thunb.) Less.	
	<i>Vernonia gratioiosa</i> Hance	new Guangdong record
	<i>Vernonia solanifolia</i> Benth.	
Balsaminaceae	<i>Impatiens blepharosepala</i> E. Pritz.	
	<i>Impatiens siculifer</i> Hook. f.	
Begoniaceae	<i>Begonia palmata</i> D. Don	
Boraginaceae	<i>Ehretia longiflora</i> Champ. ex Benth.	
Caesalpiniaceae	<i>Bauhinia championii</i> (Benth.) Benth.	
Campanulaceae	<i>Codonopsis lanceolata</i> (Siebold & Zucc.) Trautv.	
Capparaceae	<i>Capparis cantoniensis</i> Lour.	
Caprifoliaceae	<i>Lonicera macrantha</i> (D. Don) Spreng.	
	<i>Sambucus chinensis</i> Lindl.	
	<i>Viburnum fordiae</i> Hance	
	<i>Viburnum odoratissimum</i> Ker Gawl.	
	<i>Viburnum sempervirens</i> Koch	
Celastraceae	<i>Celastrus aculeata</i> Merr.	
	<i>Euonymus centidens</i> H. Lévl.	
	<i>Euonymus dielsianus</i> Loes. ex Diels	
	<i>Euonymus laxiflorus</i> Champ. ex Benth.	
	<i>Tripterygium wilfordii</i> Hook. f.	
Chloranthaceae	<i>Sarcandra glabra</i> (Thunb.) Nakai	
Clethraceae	<i>Clethra faberi</i> Hance	
Clusiaceae	<i>Garcinia multiflora</i> Champ. ex Benth.	
Connaraceae	<i>Rourea microphylla</i> (Hook. & Arn.) Planch.	
Cornaceae	<i>Aucuba chinensis</i> Benth.	
	<i>Dendrobenthamia hongkongensis</i> (Hemsl.) Hutch.	
Daphniphyllaceae	<i>Daphniphyllum calycinum</i> Benth	
Ebenaceae	<i>Diospyros morrisiana</i> Hance ex. Walpers	
Elaeagnaceae	<i>Elaeagnus gonyanthes</i> Benth.	
Elaeocarpaceae	<i>Elaeocarpus decipiens</i> Hemsl.	
	<i>Elaeocarpus japonicus</i> Siebold & Zucc.	
	<i>Sloanea sinensis</i> (Hance) Hemsl.	
Ericaceae	<i>Craibiodendron kwangtungense</i> S. Y. Hu	
	<i>Enkianthus quinqueflorus</i> Lour.	
	<i>Enkianthus serrulatus</i> (E.H. Wilson) C.K. Schneid.	
	<i>Rhododendron farrerae</i> Tate	
	<i>Rhododendron kwangtungense</i> Merr. & Chun	
	<i>Rhododendron mariae</i> Hance	
	<i>Rhododendron moulmianense</i> Hook. f.	
	<i>Rhododendron simsii</i> Planch.	
	<i>Vaccinium bracteatum</i> Thunb.	
Erythroxylaceae	<i>Erythroxylum sinense</i> Y. C. Wu	
Escalloniaceae	<i>Itea chinensis</i> Hook. & Arn	
	<i>Itea coriacea</i> Y.C. Wu	
Euphorbiaceae	<i>Alchornea trewioides</i> (Benth.) Müll. Arg.	
	<i>Antidesma japonicum</i> Siebold & Zucc.	
	<i>Croton lachnocarpus</i> Benth.	
	<i>Glochidion puberum</i> (L.) Hutch.	
	<i>Mallotus philippinensis</i> (Lam.) Müll. Arg.	
	<i>Sapium discolor</i> (Champ. ex Benth.) Müll. Arg.	
Fagaceae	<i>Castanopsis carlesii</i> (Hemsl.) Hayata	
	<i>Castanopsis fabri</i> Hance	
	<i>Castanopsis fargesii</i> Franch.	
	<i>Castanopsis fissa</i> (Champ. ex Benth.) Rehder & E. H. Wilson	
	<i>Castanopsis fordii</i> Hance	
	<i>Castanopsis kawakamii</i> Hayata	Lower Risk (Nt)
	<i>Castanopsis lamontii</i> Hance	
	<i>Cyclobalanopsis blakei</i> (Skan) Schottky	
	<i>Cyclobalanopsis hui</i> (Chun) Chun ex Y.C. Hsu & H. Wei Jen	
	<i>Cyclobalanopsis myrsinifolia</i> (Blume) Oerst.	
	<i>Lithocarpus brevicaudatus</i> (Skan) Hayata	

Family	Scientific name	Notes
	<i>Lithocarpus chrysocomus</i> Chun & Tsiang	
	<i>Lithocarpus corneus</i> (Lour.) Rehder	
	<i>Lithocarpus fenestratus</i> (Roxb.) Rehder	
	<i>Lithocarpus hancei</i> (Benth.) Rehder	
Flacourtiaceae	<i>Casearia balansae</i> Gagnep.	
Hamamelidaceae	<i>Altingia chinensis</i> (Champ. ex Benth.) Oliv. ex Hance	
	<i>Exbucklandia tonkinensis</i> (Lecomte) Steenis	
	<i>Liquidambar formosana</i> Hance	
	<i>Loropetalum chinense</i> (R. Br.) Oliv.	
Hydrangeaceae	<i>Dichroa febrifuga</i> Lour.	
	<i>Hydrangea kwangsiensis</i> Hu var. <i>hedyotide</i> (Chun) C.M. Hu	
	<i>Hydrangea paniculata</i> Siebold	
	<i>Pileostegia tomentella</i> Hand.-Mazz.	
	<i>Pileostegia viburnoides</i> Hook. f. & Thomson	
Icacinaceae	<i>Mappianthes iodooides</i> Hand.-Mazz.	
Juglandaceae	<i>Engelhardtia fenzelii</i> Merr.	
	<i>Engelhardtia roxburghiana</i> Wall.	
	<i>Pterocarya stenoptera</i> C. DC.	
Lardizabalaceae	<i>Stauntonia chinensis</i> DC.	
Lauraceae	<i>Cinnamomum austrosinense</i> H.T. Chang	
	<i>Cinnamomum camphora</i> (L.) J. Presl.	Protected II
	<i>Cinnamomum porrectum</i> (Roxb.) Kosterm.	
	<i>Cryptocarya chingii</i> W.C. Cheng	
	<i>Litsea acutivena</i> Hayata	
	<i>Litsea cubeba</i> (Lour.) Pers.	
	<i>Litsea elongata</i> (Nees) Benth. & Hook. f.	
	<i>Litsea elongata</i> (Nees) Benth. & Hook. f. var. <i>subverticillata</i> (Y.C. Yang) Yen C. Yang & P.H. Huang	
	<i>Litsea greenmaniana</i> C.K. Allen	
	<i>Litsea variabilis</i> Hemsl.	
	<i>Litsea verticillata</i> Hance	
	<i>Machilus leptophylla</i> Hand.-Mazz.	
	<i>Machilus oreophila</i> Hance	
	<i>Machilus thunbergii</i> Siebold & Zucc.	
	<i>Neolitsea cambodiana</i> Lecomte	
	<i>Neolitsea chunii</i> Merr.	
	<i>Neolitsea levinei</i> Merr.	
	<i>Sassafras tzumu</i> (Hemsl.) Hemsl.	
Lythraceae	<i>Rotala indica</i> (Willd.) Koehne	
Magnoliaceae	<i>Manglietia fordiana</i> Oliv.	
	<i>Manglietia moto</i> Dandy	
	<i>Michelia foveolata</i> Merr. ex Dandy	
	<i>Michelia maudiae</i> Dunn	
	<i>Michelia skinneriana</i> Dunn	
Malvaceae	<i>Urena lobata</i> L.	pan-tropical weed
Melastomataceae	<i>Blastus cochinchinensis</i> Lour.	
	<i>Blastus pauciflorus</i> (Benth.) Guillaumin	endemic to Guangdong & Jiangxi
	<i>Melastoma candidum</i> D. Don	
	<i>Melastoma dodecandrum</i> Lour.	
Menispermaceae	<i>Pericampylus glaucus</i> (Lam.) Merr.	
Mimosaceae	<i>Acacia concinna</i> (Willd.) DC.	
	<i>Pithecellobium clypearia</i> (Jack) Benth.	
	<i>Pithecellobium lucidium</i> Benth.	
Moraceae	<i>Artocarpus hypargyreus</i> Hance ex Benth.	Vulnerable
	<i>Artocarpus styracifolius</i> Pierre	
	<i>Ficus erecta</i> Thunb.	
	<i>Ficus fistulosa</i> Reinw. ex Blume	
	<i>Ficus formosana</i> Maxim.	
	<i>Ficus hirta</i> Vahl	
	<i>Ficus pandurata</i> Hance	

Family	Scientific name	Notes
	<i>Ficus pumila</i> L.	
	<i>Ficus sarmentosa</i> Buch.-Ham. ex Sm. var. <i>henryi</i> (King ex Oliv.) Corner	
Myricaceae	<i>Ficus variolosa</i> Lindl. ex Benth.	
Myrsinaceae	<i>Myrica rubra</i> (Lour.) Sieb. & Zucc.	
	<i>Ardisia chinensis</i> Benth.	
	<i>Ardisia hanceana</i> Mez	
	<i>Ardisia lindleyana</i> D. Dietr.	
	<i>Ardisia primulifolia</i> Gardner & Champ.	
	<i>Ardisia pusilla</i> A.DC.	
	<i>Ardisia quinquegona</i> Blume	
	<i>Embelia vestita</i> Roxb.	
	<i>Maesa japonica</i> (Thunb.) Moritz et Zoll.	
	<i>Myrsine stolonifera</i> (Koidz.) E. Walker	
	<i>Mysine seguinii</i> H. Lév	
Myrtaceae	<i>Rhodomyrtus tomentosa</i> (Aiton) Hassk.	
	<i>Syzygium buxifolium</i> Hook. & Arn.	
	<i>Syzygium hancei</i> Merr. & L. M. Perry	
Olacaceae	<i>Schoepfia chinensis</i> Gardner & Champ.	
Oleaceae	<i>Jasminum lanceolarium</i> Roxb.	
	<i>Ligustrum amamianum</i> Koidz.	
	<i>Olea tsoongii</i> (Merr.) P.S. Green	
Papaveraceae	<i>Corydalis shearerii</i> S. Moore	
	<i>Macleaya cordata</i> (Willd.) R. Br.	
Papilionaceae	<i>Dalbergia benthami</i> Prain	
	<i>Dalbergia hancei</i> Benth.	
	<i>Derris alborubra</i> Hemsl.	
	<i>Millettia nitida</i> Benth.	
	<i>Millettia pachycarpa</i> Benth.	
	<i>Mucuna birdwoodiana</i> Tutch.	
	<i>Ormosia glaberrima</i> Y.C. Wu	
	<i>Ormosia semicastrata</i> Hance	
Piperaceae	<i>Piper hancei</i> Maxim.	
Pittosporaceae	<i>Pittosporum pauciflorum</i> Hook. & Arn.	
Polygonaceae	<i>Polygonum chinense</i> L.	
	<i>Reynoutria japonica</i> Houtt.	
Proteaceae	<i>Helicia cochinchinensis</i> Lour.	
	<i>Helicia kwangtungensis</i> W.T. Wang	
Ranunculaceae	<i>Clematis parviloba</i> Gardner & Champ.	
Rhamnaceae	<i>Rhamnus crenata</i> Siebold & Zucc.	
	<i>Ventilago leiocarpa</i> Benth.	
Rosaceae	<i>Eriobotrya fragrans</i> Champ. ex Benth.	
	<i>Laurocerasus phaeosticta</i> (Hance) C. K. Schneid.	
	<i>Laurocerasus zippeliana</i> (Miq.) T.T. Yu & L.T. Lu	
	<i>Photinia prunifolia</i> (Hook. & Arn.) Lindl.	
	<i>Pygeum topengii</i> Merr.	
	<i>Rhaphiolepis indica</i> (L.) Lindl.	
	<i>Rubus crassifolius</i> T.T. Yu & L.T. Lu	
	<i>Rubus grayanus</i> Maxim.	
	<i>Rubus leucanthus</i> Hance	
	<i>Rubus reflexus</i> Ker	
	<i>Rubus reflexus</i> Ker var. <i>lanceolobus</i> F.P. Metcalf	
	<i>Rubus rosifolius</i> Sm.	
Rubiaceae	<i>Aidia canthioides</i> (Champ. ex Benth.) Masam.	
	<i>Aidia cochinchinensis</i> Lour.	
	<i>Canthium dicoccum</i> (Gaertn.) Teysmann & innejijk	
	<i>Coptosapelta diffusa</i> (Champ. ex Benth.) Steenis	
	<i>Gardenia jasminoides</i> J. Ellis	
	<i>Hedyotis caudatifolia</i> Merr. & F.P. Metcalf	
	<i>Hedyotis hedyotide</i> (DC.) Merr.	
	<i>Lasianthus japonicus</i> Miq.	

Family	Scientific name	Notes
	<i>Lasianthus japonicus</i> Miq. var. <i>latifolius</i> H. Zhu	
	<i>Mussaenda pubescens</i> W. T. Aiton	
	<i>Ophiorrhiza japonica</i> Blume	
	<i>Paederia scandens</i> (Lour.) Merr.	
	<i>Paederia scandens</i> (Lour.) Merr. var. <i>tomentosa</i> (Blume) Hand.-Mazz.	
	<i>Pavetta hongkongensis</i> Brem.	
	<i>Tarenna acutisepala</i> W.C. Chen	
	<i>Uncaria rhynchophylla</i> (Miq.) Miq. ex Havil.	
Rutaceae	<i>Evodia lepta</i> (Spreng.) Merr.	
	<i>Toddalia asiatica</i> (L.) Lam.	
	<i>Zanthoxylum ailanthoides</i> Siebold & Zucc.	
	<i>Zanthoxylum myriacanthum</i> Wall. ex Hook. f.	
	<i>Zanthoxylum scandens</i> Blume	
Sabiaceae	<i>Meliosma fordii</i> Hemsl.	
	<i>Sabia discolor</i> Dunn	
	<i>Sabia limoniacea</i> Wall. ex Hook. f. & Thomson	
Sargentodoxaceae	<i>Sargentodoxa cuneata</i> (Oliv.) Rehder & E.H. Wilson	
Saururaceae	<i>Houttuynia cordata</i> Thunb.	
Schisandraceae	<i>Kadsura coccinea</i> (Lem.) A.C. Sm.	
	<i>Schisandra viridis</i> A.C. Sm.	
Scrophulariaceae	<i>Paulownia fortunei</i> (Seem.) Hemsl.	
Staphyleaceae	<i>Turpinia arguta</i> (Lindl.) Seem.	
Sterculiaceae	<i>Reevesia thyrsoidea</i> Lindl.	
Styracaceae	<i>Alniphyllum fortunei</i> (Hemsl.) Makino	
	<i>Huodendron biaristatum</i> (W.W. Sm.) Rehder	
	<i>Melliodendron xylocarpum</i> Hand.-Mazz.	
	<i>Styrax suberifolius</i> Hook. & Arn.	
Symplocaceae	<i>Symplocos adenopus</i> Hance	
	<i>Symplocos anomala</i> Brand	
	<i>Symplocos cochinchinensis</i> (Lour.) S. Moore subsp. <i>laurina</i> (Retz.) Noot.	
	<i>Symplocos congesta</i> Benth.	
	<i>Symplocos lucida</i> (Thunb.) Siebold & Zucc.	
	<i>Symplocos pseudobarberina</i> Gontsch.	
	<i>Symplocos sumuntia</i> Buch.-Ham. ex D. Don	
Theaceae	<i>Adinandra glischroloma</i> Hand.-Mazz.	
	<i>Adinandra millettii</i> (Hook. & Arn.) Benth. & Hook. f. ex Hance	
	<i>Camellia cuspidata</i> (Kochs) Wright	
	<i>Camellia kissii</i> Wall.	
	<i>Cleyera pachyphylla</i> Chun ex H.T. Chang	
	<i>Eurya acuminatissima</i> Merr. & Chun	
	<i>Eurya distichophylla</i> Hemsl.	
	<i>Eurya macartneyi</i> Champ.	
	<i>Eurya nitida</i> Korthals	
	<i>Eurya patentipila</i> Chun	
	<i>Schima superba</i> Gardn. & Champ.	
	<i>Ternstroemia gymnanthera</i> (Wight & Arn.) Bedd.	
	<i>Ternstroemia luteoflora</i> L.K. Ling	
	<i>Tutcheria championii</i> Nakai	
Thymelaeaceae	<i>Wikstroemia monnula</i> Hance	
	<i>Wikstroemia nutans</i> Champ. ex Benth.	
Ulmaceae	<i>Celtis tetrandra</i> Roxb.	
Urticaceae	<i>Boehmeria nivea</i> (L.) Gaudich.	
	<i>Oreocnide frutescens</i> (Thunb.) Miq.	
	<i>Pellionia scabra</i> Benth.	
	<i>Pilea cordistipulata</i> C.J. Chen	
Verbenaceae	<i>Callicarpa brevipes</i> (Benth.) Hance	
	<i>Callicarpa cathaya</i> H.T. Chang	
	<i>Callicarpa formosana</i> Rolfe	
	<i>Callicarpa kochiana</i> Makino	

Family	Scientific name	Notes
Violaceae	<i>Viola diffusa</i> Ging.	
	<i>Viola inconspicua</i> Blume	
Vitaceae	<i>Ampelopsis cantoniensis</i> (Hook. & Arn.) Planch.	
	<i>Tetrastigma hemsleyanum</i> Diels & Gilg	
	<i>Vitis wilsonae</i> H.J. Veitch	
Monocotyledonae		
Araceae	<i>Acorus tatarinowii</i> Schott	
	<i>Arisaema erubescens</i> (Wall.) Schott	
	<i>Arisaema sikokianum</i> Franch. & Sav. var. <i>serratum</i> (Makino) Hand.-Mazz.	
	<i>Colocasia esculenta</i> (L.) Schott	
	<i>Pothos chinensis</i> (Raf.) Merr.	
Areaceae	<i>Calamus rhabdocladus</i> Burret	
Commelinaceae	<i>Floscopa scandens</i> Lour.	
Cyperaceae	<i>Carex arisanensis</i> Hayata	
	<i>Carex canina</i> Dunn	
	<i>Carex cryptostachys</i> Brongn.	
	<i>Carex doniana</i> Spreng.	
	<i>Carex filicina</i> Nees	
	<i>Carex gibba</i> Wahlenb.	
	<i>Carex glossostigma</i> Hand.-Mazz.	
	<i>Carex harlandii</i> Boott	
	<i>Carex ischnostachya</i> Steud.	
	<i>Carex manca</i> Boott ex Benth.	
	<i>Carex nemostachys</i> Steud.	
	<i>Carex perakensis</i> C.B. Clarke	
	<i>Carex recurvisaccus</i> T. Koyama	recorded from Guangdong & Yunnan only
	<i>Carex scaposa</i> C.B. Clarke	
	<i>Carex shanghaiensis</i> S.X. Qian & Y.Q. Liu	
	<i>Carex submollicula</i> Ts. Tang & F.T. Wang ex L.K. Dai	new Guangdong record
	<i>Carex thibetica</i> Franch.	
	<i>Carex truncatigluma</i> C.B. Clarke	
	<i>Gahnia tristis</i> Nees	
	<i>Scirpus ternatanus</i> Reinw. ex Miq.	
Juncaceae	<i>Juncus effusus</i> L.	
	<i>Juncus prismatocarpus</i> R. Br.	
Liliaceae	<i>Dianella ensifolia</i> (L.) DC.	
	<i>Polygonatum cyrtoneura</i> Hua	
	<i>Reineckea carnea</i> (Andrews) Kunth	
	<i>Smilax aberrans</i> Gagnep.	
	<i>Smilax china</i> L.	
	<i>Smilax corbularia</i> Kunth	
	<i>Smilax lanceifolia</i> Roxb.	
	<i>Veratrum schindleri</i> Loes.	
Orchidaceae	<i>Goodyera procera</i> (Ker Gawl.) Hook.	
	<i>Phaius flavus</i> (Blume) Lindl.	
Pandanaceae	<i>Pandanus austrosinensis</i> T. L. Wu	
Poaceae	<i>Indocalamus</i> sp.	
	<i>Miscanthus sinensis</i> Andersson	
	<i>Setaria palmifolia</i> (J. Koenig) Stapf	
	<i>Thysanolaena maxima</i> (Roxb.) Kuntze	
Zingiberaceae	<i>Alpinia oblongifolia</i> Hayata	

Table 2. Vascular plants of Sanyue Nature Reserve recorded in the present survey. Species which are nationally Protected (Class I or II) (Yu, 1999), globally Threatened or Lower Risk (Near-threatened) (IUCN, 2002) or globally restricted are indicated.

Family	Scientific name	Notes
PTERIDOPHYTA		
Adiantaceae	<i>Adiantum flabellulatum</i> L.	
Aspidiaceae	<i>Pleocnemia wintii</i> Holtt.	
Aspleniaceae	<i>Asplenium unilaterale</i> Lam.	
Athyriaceae	<i>Allantodia dilatata</i> (Blume) Ching	
	<i>Allantodia matthewii</i> (Copel.) Ching	
	<i>Allantodia metteniana</i> (Miq.) Ching	
	<i>Callipteris esculenta</i> (Retz.) J.Sm.	
	<i>Diplazium donianum</i> (Mett.) Tardieu	
	<i>Diplazium serratifolium</i> Ching	new Guangdong record
	<i>Diplazium subsinuatum</i> (Wall. ex Hook. & Grev.) Tagawa	
Blechnaceae	<i>Blechnum orientale</i> L.	
	<i>Chieniopteris harlandii</i> (Hook.) Ching	
	<i>Woodwardia japonica</i> (L.f.) Sm.	
Bolbitidaceae	<i>Bolbitis heteroclita</i> (C. Presl) Ching	
	<i>Bolbitis subcordata</i> (Copel.) Ching	
	<i>Egenolfia appendiculata</i> (Willd.) J.Sm.	
Cyatheaceae	<i>Alsophila spinulosa</i> (Wall. ex Hook.) R.M.Tryon	Protected II
	<i>Gymnosphaera gigantea</i> (Wall. ex Hook.) Ching	Protected II
	<i>Gymnosphaera metteniana</i> (Hance) Tagawa	Protected II
	<i>Gymnosphaera podophylla</i> (Hook.) Copel.	Protected II
Dennstaedtiaceae	<i>Microlepia hookeriana</i> (Wall. ex Hook.) C. Presl.	
	<i>Microlepia marginata</i> (Houtt.) C. Chr.	
Dicksoniaceae	<i>Cibotium barometz</i> (L.) J. Sm.	Protected II
Dryopteridaceae	<i>Arachniodes amoena</i> (Ching) Ching	
	<i>Arachniodes chinensis</i> (Rosenst.) Ching	
	<i>Arachniodes grossa</i> (Tardieu & C. Chr.) Ching	restricted to Guangdong, Hainan & Vietnam
	<i>Arachniodes simulans</i> (Ching) Ching	new Guangdong record
	<i>Arachniodes sphaerosora</i> (Ching) Ching	
	<i>Polystichum eximium</i> (Mett. ex Kuhn) C. Chr.	
Gleicheniaceae	<i>Dicranopteris pedata</i> (Houtt.) Nakaïke	
	<i>Diplopterygium chinensis</i> (Rosenst.) DeVol	
	<i>Diplopterygium glaucum</i> (Thunb. ex Houtt.) Nakai	
Hymenophyllaceae	<i>Mecodium badium</i> (Hook. & Grev.) Ching	
Lindsaeaceae	<i>Lindsaea orbiculata</i> (Lam.) Mett. ex Kuhn	
	<i>Stenoloma chusanum</i> (L.) Ching	
Loxogrammeaceae	<i>Loxogramme salicifolia</i> (Makino) Makino	
Lycopodiaceae	<i>Lycopodiastrum casuarinoides</i> (Spring) Holub	
Lygodiaceae	<i>Lygodium flexuosum</i> (L.) Sw.	
	<i>Lygodium scandens</i> (L.) Sw.	
Marattiaceae	<i>Angiopteris fokiensis</i> Hieron.	
Osmundaceae	<i>Osmunda vachellii</i> Hook.	
Plagiogyriaceae	<i>Plagiogyria dunnii</i> Copel.	
Polypodiaceae	<i>Colysis elliptica</i> (Thunb.) Ching	
	<i>Colysis elliptica</i> (Thunb.) Ching var. <i>pothifolia</i> Ching	
	<i>Colysis hemionitidea</i> (Wall. ex Mett.) C. Presl	
	<i>Lepidogrammits rostrata</i> (Bedd.) Ching	
	<i>Microsorium fortunei</i> (T. Moore) Ching	
	<i>Microsorium insigne</i> (Blume) Copel.	
	<i>Pyrrosia lingua</i> (Thunb.) Farw	
Pteridaceae	<i>Pteris biaurita</i> L.	
	<i>Pteris excelsa</i> Gaud.	
	<i>Pteris insignis</i> Mett. ex Kuhn	
	<i>Pteris semipinnata</i> L.	

Family	Scientific name	Notes
Thelypteridaceae	<i>Pteridium aquilinum</i> (L.) Kuhn var. <i>latiusculum</i> (Desv.) Underw. ex A. Heller	
	<i>Dictyocline wilfordii</i> (Hook.) J. Sm.	
	<i>Pronephrium lakhimpureense</i> (Rosenst.) Holttum	
GYMNOSPERMAE		
Gnetaceae	<i>Gnetum luofuense</i> C. Y. Cheng <i>Gnetum parvifolium</i> (Warb.) Chun	
Pinaceae	<i>Pinus massoniana</i> Lamb.	
Taxodiaceae	<i>Cunninghamia lanceolata</i> (Lamb.) Hook.	
ANGIOSPERMAE		
Dicotyledonae		
Acanthaceae	<i>Baphicacanthus cusia</i> (Nees) Bremek.	
Aceraceae	<i>Acer davidii</i> Franch.	
	<i>Acer tutcheri</i> Duthie	
Actinidiaceae	<i>Actinidia lianguangensis</i> C.F. Liang	
	<i>Saurauia tristyla</i> DC.	
Alangiaceae	<i>Alangium chinense</i> (Lour.) Harms.	
Anacardiaceae	<i>Toxicodendron succedaneum</i> (L.) Kuntze.	
	<i>Toxicodendron sylvestre</i> (Siebold & Zucc.) Kuntze	
Annonaceae	<i>Desmos chinensis</i> Lour.	
	<i>Fissistigma glaucescens</i> (Hance) Merr.	
	<i>Fissistigma oldhamii</i> (Hemsl.) Merr.	
	<i>Fissistigma uonicum</i> (Dunn) Merr.	
	<i>Uvaria boniana</i> Finet & Gagnep.	
	<i>Centella asiatica</i> (L.) Urb.	
Apiaceae	<i>Oenanthe javanica</i> (Blume) DC.	
Apocynaceae	<i>Anodendron affine</i> (Hook. & Arn.) Druce	
	<i>Trachelospermum jasminoides</i> (Lindl.) Lem.	
Aquifoliaceae	<i>Ilex ficoidea</i> Hemsl.	
	<i>Ilex pubescens</i> Hook. & Arn.	
	<i>Ilex viridis</i> Champ. ex Benth.	
	<i>Heteropanax fragrans</i> (D. Don) Seem.	
Araliaceae	<i>Schefflera heptaphylla</i> (L.) Frodin	
	<i>Aristolochia fangchi</i> Y.C. Wu ex L.D. Chow & S.M. Hwang	
Aristolochiaceae	<i>Asarum caudigerum</i> Hance	
Asclepiadaceae	<i>Cryptolepis sinensis</i> (Lour.) Merr.	
	<i>Graphistemma pictum</i> (Champ. ex Benth.) Benth. & Hook. f. ex Maxim.	
	<i>Marsdenia tinctoria</i> R. Br.	
	<i>Tylophora ovata</i> (Lindl.) Hook. ex Steud.	
Asteraceae	<i>Ageratum conyzoides</i> L.	introduced from tropical America
	<i>Artemisia indica</i> Willd.	
Begoniaceae	<i>Blumea riparia</i> DC.	
	<i>Begonia circumlobata</i> Hance	
	<i>Begonia crassirostris</i> Irmsch.	
	<i>Begonia palmata</i> D. Don	
Boraginaceae	<i>Ehretia longiflora</i> Champ. ex Benth.	
Burseraceae	<i>Canarium album</i> (Lour.) Raeusch.	
Caesalpiniaceae	<i>Bauhinia championii</i> (Benth.) Benth.	
Caprifoliaceae	<i>Viburnum fordiae</i> Hance	
Celastraceae	<i>Euonymus hederaceus</i> Champ. ex Benth.	
	<i>Euonymus laxiflorus</i> Champ. ex Benth.	
	<i>Euonymus nitidus</i> Benth.	
Chloranthaceae	<i>Sarcandra glabra</i> (Thunb.) Nakai	
Clusiaceae	<i>Garcinia multiflora</i> Champ. ex Benth.	
Cornaceae	<i>Dendrobenthamia hongkongensis</i> (Hemsl.) Hutch.	
Daphniphyllaceae	<i>Daphniphyllum calycinum</i> Benth	
Dilleniaceae	<i>Tetracera asiatica</i> (Lour.) Hoog.	

Family	Scientific name	Notes
Ebenaceae	<i>Diospyros eriantha</i> Champ. ex Benth. <i>Diospyros kaki</i> Thunb.	planted
Elaeocarpaceae	<i>Diospyros morrisiana</i> Hance ex. Walpers <i>Elaeocarpus japonicus</i> Siebold & Zucc. <i>Elaeocarpus nitentifolius</i> Merr. & Chun <i>Elaeocarpus sylvestris</i> (Lour.) Poir. <i>Sloanea sinensis</i> (Hance) Hemsl.	
Ericaceae	<i>Enkianthus serrulatus</i> (E.H. Wilson) C.K. Schneid. <i>Rhododendron moullmainense</i> Hook. f. <i>Rhododendron polyraphidoideum</i> P.C. Tam var. <i>montanum</i> P.C. Tam <i>Vaccinium bracteatum</i> Thunb.	
Erythroxylaceae	<i>Erythroxylum sinense</i> Y. C. Wu	
Escalloniaceae	<i>Itea chinensis</i> Hook. & Arn <i>Itea coriacea</i> Y.C. Wu	
Euphorbiaceae	<i>Antidesma fordii</i> Hemsl. <i>Antidesma venosum</i> E. Mey. ex Tul. <i>Bischofia javanica</i> Blume <i>Breynia fruticosa</i> (L.) Hook. f. <i>Glochidion eriocarpum</i> Champ. ex Benth. <i>Glochidion puberum</i> (L.) Hutch. <i>Glochidion triandrum</i> (Blanco) C.B. Rob <i>Macaranga sampsoni</i> Hance <i>Mallotus philippinensis</i> (Lam.) Müll. Arg. <i>Sapium discolor</i> (Champ. ex Benth.) Müll. Arg. <i>Vernicia montana</i> Lour.	planted
Fagaceae	<i>Castanopsis carlesii</i> (Hemsl.) Hayata <i>Castanopsis carlesii</i> (Hemsl.) Hayata var. <i>spinulosa</i> W.C. Cheng & C.S. Chao <i>Castanopsis fabri</i> Hance <i>Castanopsis fargesii</i> Franch. <i>Castanopsis fissa</i> (Champ. ex Benth.) Rehder & E. H. Wilson <i>Castanopsis hystrix</i> Miq. <i>Castanopsis lamontii</i> Hance <i>Cyclobalanopsis blakei</i> (Skan) Schottky <i>Cyclobalanopsis fleuryi</i> (Hickel & A. Camus) Chun ex Q. F. Zheng <i>Cyclobalanopsis myrsinifolia</i> (Blume) Oerst. <i>Lithocarpus haipinii</i> Chun <i>Lithocarpus hancei</i> (Benth.) Rehder	
Flacourtiaceae	<i>Bennettiodendron leprosipes</i> (Clos) Merr. <i>Casearia balansae</i> Gagnep.	
Gentianaceae	<i>Gentiana loureiroi</i> (G. Don) Griseb.	
Gesnariaceae	<i>Rhynchotechum formosanum</i> Hatus.	
Hamamelidaceae	<i>Altingia chinensis</i> (Champ. ex Benth.) Oliv. ex Hance <i>Exbucklandia tonkinensis</i> (Lecomte) Steenis <i>Liquidambar formosana</i> Hance	
Hydrangeaceae	<i>Hydrangea kwangsiensis</i> Hu <i>Hydrangea kwangsiensis</i> Hu var. <i>hedyotidea</i> (Chun) C.M. Hu <i>Pileostegia viburnoides</i> Hook. f. & Thomson	
Icacinaceae	<i>Mappianthes iodoides</i> Hand.-Mazz.	
Ixonanthaceae	<i>Ixonanthes chinensis</i> Champ.	Vulnerable
Juglandaceae	<i>Engelhardtia fenzelii</i> Merr. <i>Engelhardtia roxburghiana</i> Wall.	
Lamiaceae	<i>Gomphostemma chinense</i> Oliv. <i>Teucrium quadrifarium</i> Buch.-Ham. ex D. Don	
Lauraceae	<i>Cinnamomum porrectum</i> (Roxb.) Kosterm. <i>Cinnamomum tsangii</i> Merr. <i>Cinnamomum validinerve</i> Hance <i>Cryptocarya concinna</i> Hance <i>Cryptocarya densiflora</i> Blume	

Family	Scientific name	Notes
	<i>Lindera metcalfiana</i> C.K. Allen	
	<i>Litsea acutivena</i> Hayata	
	<i>Litsea atrata</i> S.K. Lee	
	<i>Litsea elongata</i> (Nees) Benth. & Hook. f.	
	<i>Litsea verticillata</i> Hance	
	<i>Machilus breviflora</i> (Benth.) Hemsl.	
	<i>Machilus chekiangensis</i> S.K. Lee	
	<i>Machilus leptophylla</i> Hand.-Mazz.	
	<i>Machilus pauhoi</i> Kanehira	
	<i>Neolitsea cambodiana</i> Lecomte	
	<i>Neolitsea chunii</i> Merr.	
	<i>Neolitsea kwangsiensis</i> H. Liu	
Loganiaceae	<i>Gelsemium elegans</i> (Gardner & Champ.) Benth.	
Loranthaceae	<i>Helixanthera parasitica</i> Lour.	
Lythraceae	<i>Rotala indica</i> (Willd.) Koehne	
Magnoliaceae	<i>Manglietia fordiana</i> Oliv.	
	<i>Manglietia moto</i> Dandy	
	<i>Michelia foveolata</i> Merr. ex Dandy	
	<i>Michelia maudiae</i> Dunn	
Malvaceae	<i>Urena lobata</i> L.	pantropical weed
	<i>Urena procumbens</i> L.	
Melastomataceae	<i>Blastus cochinchinensis</i> Lour.	
	<i>Melastoma affine</i> D. Don	
	<i>Melastoma dodecandrum</i> Lour.	
Menispermaceae	<i>Hypserpa nitida</i> Miers	
Mimosaceae	<i>Acacia confusa</i> Merr.	planted and introduced
	<i>Acacia pennata</i> (L.) Willd.	
	<i>Pithecellobium clypearia</i> (Jack) Benth.	
	<i>Pithecellobium lucidium</i> Benth.	
	<i>Pithecellobium utili</i> Chun & F.C. How	
Moraceae	<i>Artocarpus styracifolius</i> Pierre	
	<i>Artocarpus tonkinensis</i> A. Chev. ex Gagnep.	
	<i>Broussonetia kaempferi</i> Sieb.	
	<i>Ficus erecta</i> Thunb.	
	<i>Ficus esquiroliana</i> H. Lév.	
	<i>Ficus fistulosa</i> Reinw. ex Blume	
	<i>Ficus formosana</i> Maxim.	
	<i>Ficus hirta</i> Vahl	
	<i>Ficus hispida</i> L. f.	
	<i>Ficus langkokensis</i> Drake	
	<i>Ficus pandurata</i> Hance	
	<i>Ficus sarmentosa</i> Buch.-Ham. ex Sm. var. <i>henryi</i> (King ex Oliv.) Corner	
	<i>Ficus variolosa</i> Lindl. ex Benth.	
Myrsinaceae	<i>Ardisia gigantifolia</i> Stapf	
	<i>Ardisia hanceana</i> Mez	
	<i>Ardisia mamillata</i> Hance	
	<i>Ardisia primulifolia</i> Gardner & Champ.	
	<i>Ardisia quinquegona</i> Blume	
	<i>Embelia parviflora</i> Wall. ex A. DC.	
	<i>Embelia ribes</i> Burm. f.	
	<i>Embelia vestita</i> Roxb.	
	<i>Maesa japonica</i> (Thunb.) Moritzi et Zoll.	
	<i>Maesa perlarius</i> (Lour.) Merr.	
	<i>Myrsine stolonifera</i> (Koidz.) E. Walker	
	<i>Mysine seguinii</i> H. Lév	
Myrtaceae	<i>Rhodomyrtus tomentosa</i> (Aiton) Hassk.	
	<i>Syzygium buxifolium</i> Hook. & Arn.	
	<i>Syzygium hancei</i> Merr. & L. M. Perry	
Olacaceae	<i>Schoepfia chinensis</i> Gardner & Champ.	

Family	Scientific name	Notes
Oleaceae	<i>Chionanthus ramiflorus</i> Roxb. <i>Jasminum lanceolarium</i> Roxb. <i>Ligustrum sinense</i> Lour. <i>Olea tsoongii</i> (Merr.) P.S. Green	
Oxalidaceae	<i>Oxalis corniculata</i> L.	
Papaveraceae	<i>Corydalis racemosa</i> (Thunb.) Pers.	
Papilionaceae	<i>Bowringia callicarpa</i> Champ. ex Benth. <i>Dalbergia hancei</i> Benth. <i>Millettia pachycarpa</i> Benth. <i>Mucuna birdwoodiana</i> Tutch. <i>Ormosia semicastrata</i> Hance	
Piperaceae	<i>Piper hancei</i> Maxim. <i>Piper hongkongense</i> C. DC. <i>Pittosporum glabratum</i> Lindl.	
Pittosporaceae	<i>Plantago major</i> L.	introduced
Plantaginaceae	<i>Xanthophyllum hainanense</i> Hu	
Polygalaceae	<i>Polygonum chinense</i> L.	
Polygonaceae	<i>Helicia cochinchinensis</i> Lour. <i>Helicia kwangtungensis</i> W.T. Wang <i>Helicia reticulata</i> W. T. Wang	
Proteaceae	<i>Clematis meyeniana</i> Walp. <i>Clematis uncinata</i> Champ. ex Benth.	
Ranunculaceae	<i>Berchemia floribunda</i> (Wall.) Brongn. <i>Sageretia lucida</i> Merr. <i>Ventilago leiocarpa</i> Benth.	
Rhamnaceae	<i>Laurocerasus phaeosticta</i> (Hance) C. K. Schneid. <i>Laurocerasus undulata</i> (Buch.-Ham. ex D. Don) fo. <i>microbotrys</i> (Koehne) T.T. Yu & L.T. Lu <i>Laurocerasus zippeliana</i> (Miq.) T.T. Yu & L.T. Lu <i>Photinia prunifolia</i> (Hook. & Arn.) Lindl. <i>Pygeum topengii</i> Merr. <i>Rosa laevigata</i> Michx. <i>Rubus pirifolius</i> Sm. <i>Rubus reflexus</i> Ker <i>Rubus reflexus</i> Ker var. <i>lanceolobus</i> F.P. Metcalf <i>Rubus rosifolius</i> Sm.	
Rosaceae	<i>Adina pilulifera</i> (Lam.) Franch. ex Drake <i>Aidia canthioides</i> (Champ. ex Benth.) Masam. <i>Aidia pycnantha</i> (Drake) Tirveng. <i>Coptosapelta diffusa</i> (Champ. ex Benth.) Steenis <i>Gardenia jasminoides</i> J. Ellis <i>Hedyotis caudatifolia</i> Merr. & F.P. Metcalf <i>Hedyotis hedyotideia</i> (DC.) Merr. <i>Lasianthus japonicus</i> Miq. <i>Lasianthus sikkimensis</i> Hook. f. <i>Mussaenda erosa</i> Champ. ex Benth. <i>Mussaenda pubescens</i> W. T. Aiton <i>Nauclea officinalis</i> (Pierre ex Pit.) Merr. & Chun <i>Pavetta hongkongensis</i> Brem. <i>Psychotria asiatica</i> L. <i>Psychotria serpens</i> L. <i>Wendlandia uvariifolia</i> Hance	
Rubiaceae	<i>Citrus maxima</i> (Burm.) Merr. <i>Evodia lepta</i> (Spreng.) Merr. <i>Toddalia asiatica</i> (L.) Lam. <i>Zanthoxylum scandens</i> Blume	planted
Rutaceae	<i>Meliosma fordii</i> Hemsl. <i>Meliosma squamulata</i> Hance <i>Meliosma thorelii</i> Lecomte <i>Sabia discolor</i> Dunn <i>Sabia limoniacea</i> Wall. ex Hook. f. & Thomson	
Sabiaceae		

Family	Scientific name	Notes
	<i>Sabia swinhoei</i> Hemsl.	
Sapotaceae	<i>Sarcosperma laurinum</i> (Benth.) Hook. f.	
Schisandraceae	<i>Kadsura heteroclita</i> (Roxb.) Craib	
Scrophulariaceae	<i>Brandisia hancei</i> Hook. f.	
Staphyleaceae	<i>Turpinia arguta</i> (Lindl.) Seem.	
Sterculiaceae	<i>Reevesia thyrsoides</i> Lindl <i>Sterculia lanceolata</i> Cav.	
Styracaceae	<i>Alniphyllum fortunei</i> (Hemsl.) Makino <i>Styrax odoratissimus</i> Champ. ex Benth.	
Symplocaceae	<i>Symplocos adenopus</i> Hance <i>Symplocos congesta</i> Benth. <i>Symplocos lucida</i> (Thunb.) Siebold & Zucc. <i>Symplocos paniculata</i> (Thunb.) Miq. <i>Symplocos stellaris</i> Brand	
Theaceae	<i>Adinandra glischroloma</i> Hand.-Mazz. <i>Anneslea fragrans</i> Wall. <i>Camellia semiserrata</i> C. W. Chi <i>Camellia sinensis</i> (L.) Kuntze <i>Eurya distichophylla</i> Hemsl. <i>Eurya groffii</i> Merr. <i>Eurya impressinervis</i> Kobuski <i>Eurya loquaiana</i> Dunn <i>Eurya macartneyi</i> Champ. <i>Schima superba</i> Gardn. & Champ. <i>Ternstroemia gymnanthera</i> (Wight & Arn.) Bedd.	
Thymelaeaceae	<i>Daphne championii</i> Benth.	
Urticaceae	<i>Boehmeria nivea</i> (L.) Gaudich. <i>Oreocnide frutescens</i> (Thunb.) Miq. <i>Pellionia scabra</i> Benth. <i>Procris wightiana</i> Wall. ex Wedd.	
Verbenaceae	<i>Callicarpa formosana</i> Rolfe <i>Callicarpa kochiana</i> Makino <i>Callicarpa rubella</i> Lindl.	
Violaceae	<i>Viola betonicifolia</i> Sm.	
Vitaceae	<i>Ampelopsis cantoniensis</i> (Hook. & Arn.) Planch. <i>Cayratia corniculata</i> (Benth.) Gagnep. <i>Tetrastigma hemsleyanum</i> Diels & Gilg <i>Tetrastigma planicaule</i> (Hook. f.) Gagnep.	
Monocotyledonae		
Amaryllidaceae	<i>Curculigo capitulata</i> (Lour.) Kuntze	
Araceae	<i>Acorus tatarinowii</i> Schott <i>Alocasia macrorrhiza</i> (L.) Schott <i>Arisaema heterophyllum</i> Blume <i>Pothos chinensis</i> (Raf.) Merr.	
Areaceae	<i>Calamus rhabdocladus</i> Burret <i>Pinanga sinii</i> Burret	
Commelinaceae	<i>Amischotolype hispida</i> (Less. & A. Rich.) D.Y. Hong <i>Commelina diffusa</i> Burm. f.	
Cyperaceae	<i>Carex cruciata</i> Wahlenb. <i>Carex cryptostachys</i> Brongn. <i>Carex filicina</i> Nees <i>Carex glossostigma</i> Hand.-Mazz. <i>Carex harlandii</i> Boott <i>Carex scaposa</i> C.B. Clarke <i>Carex zunyiensis</i> T. Tang & F.T. Wang <i>Gahnia javanica</i> Moritzi <i>Gahnia tristis</i> Nees <i>Scirpus ternatanus</i> Reinw. ex Miq.	
Dioscoreaceae	<i>Dioscorea cirrhosa</i> Lour.	
Liliaceae	<i>Dianella ensifolia</i> (L.) DC.	

Family	Scientific name	Notes
	<i>Liriope spicata</i> (Thunb.) Lour.	
	<i>Paris polyphylla</i> Sm. var. <i>chinensis</i> (Franch.) H. Hara	
	<i>Smilax aberrans</i> Gagnep.	
	<i>Smilax lanceifolia</i> Roxb.	
Marantaceae	<i>Phrynium rheedei</i> Suresh & Nicolson	
Musaceae	<i>Musa balbisiana</i> Colla	
Orchidaceae	<i>Coelogyne fimbriata</i> Lindl.	
	<i>Phaius tankervilleae</i> (Banks ex L'Herit.) Blume	
	<i>Pholidota chinensis</i> Lindl.	
Pandanaceae	<i>Pandanus austrosinensis</i> T. L. Wu	
Poaceae	<i>Arundinella setosa</i> Trin.	
	<i>Miscanthus sinensis</i> Andersson	
	<i>Phyllostachys heterocycla</i> (Carr.) Mitford cv. <i>Pubescens</i>	mainly cultivated
	<i>Sporobolus fertilis</i> (Steud.) Clayton	
	<i>Thysanolaena maxima</i> (Roxb.) Kuntze	
Zingiberaceae	<i>Alpinia japonica</i> (Thunb.) Miq.	
	<i>Alpinia oblongifolia</i> Hayata	
	<i>Zingiber corallinum</i> Hance	

Mammals

- Maritime Striped Squirrels *Tamiops maritimus* were seen throughout the survey at **Dachouding Nature Reserve**. Individuals were seen in some secondary forests.
- Earlier survey of Dachouding recorded 40 mammal species in 19 families. They included rare and/or nationally Protected species such as two macaque species (*Macaca mulatta* and *M. arctoides*), Eurasian Otter *Lutra lutra*, Spotted Linsang *Prionodon pardicolor*, Serow *Naemorhedus sumatraensis*, and Chinese Pangolin *Manis pentadactyla* (Mo, 2002).
- Due in part to adverse weather during the survey period, no mammals or their signs were detected at **Sanyue Nature Reserve**.
- Earlier survey of Sanyue recorded 54 mammal species in 23 families. They included rare and/or protected species such as Clouded Leopard *Neofelis nebulosa*, Asiatic Golden Cat *Catopuma temminckii*, Rhesus Monkey *Macaca mulatta*, Spotted Linsang, Chinese Forest Musk Deer *Moschus berezovskii*, Sambar *Cervus unicolor*, Chinese Goral *Naemorhedus caudatus*, Serow, Chinese Pangolin and Eurasian Otter (Li & Xie, 2002).
- At Sanyue, a former hunter reported Chinese Pangolin was common up to the 1980s, but has since been hunted almost to local extinction. Serow could still be found on high grounds.
- Some of the abovementioned species, plus others previously recorded from Huanji County, but not reported by Mo (2002) and Li & Xie (2002), such as Sika Deer *Cervus nippon* (Zhang *et al.*, 1997 and references therein), may have occurred at Dachouding and/or Sanyue, but more specific and up-to-date information is needed.

Birds

- Seventy-four bird species were recorded at **Dachouding Nature Reserve** (Table 3).
- The most frequently encountered species at Dachouding included Chestnut Bulbul *Hemixos castanonotus*, Black Bulbul *Hypsipetes leucocephalus* and Grey-cheeked Fulvetta *Alcippe morrisonia*.

Table 3. Birds recorded at Dachouding Nature Reserve, 16-19 April 2001. Sequence follows Clements (2000).

Scientific name	English name
<i>Butorides striatus</i>	Little Heron
<i>Ardeola bacchus</i>	Chinese Pond Heron
<i>Bubulcus ibis</i>	Cattle Egret
<i>Egretta garzetta</i>	Little Egret

Scientific name	English name
<i>Spilornis cheela</i>	Crested Serpent Eagle
<i>Lophura nycthemera</i>	Silver Pheasant
<i>Bambusicola thoracica</i>	Chinese Bamboo Partridge
<i>Rallina eurizonoides</i>	Slaty-legged Crake
<i>Streptopelia orientalis</i>	Oriental Turtle Dove
<i>Clamator coromandus</i>	Chestnut-winged Cuckoo
<i>Hierococcyx sparverioides</i>	Large Hawk Cuckoo
<i>Cuculus saturatus</i>	Oriental Cuckoo
<i>Eudynamys scolopacea</i>	Asian Koel
<i>Centropus sinensis</i>	Greater Coucal
<i>Glaucidium brodiei</i>	Collared Owlet
<i>Glaucidium cuculoides</i>	Asian Barred Owlet
<i>Megalaima virens</i>	Great Barbet
<i>Megalaima oorti</i>	Black-browed Barbet
<i>Dendrocopos canicapillus</i>	Grey-capped Pygmy Woodpecker
<i>Blythipicus pyrrhotis</i>	Bay Woodpecker
<i>Apus pacificus</i>	Fork-tailed Swift
<i>Halcyon smyrnensis</i>	White-throated Kingfisher
<i>Hirundo rustica</i>	Barn Swallow
<i>Anthus hodgsoni</i>	Olive-backed Pipit
<i>Motacilla cinerea</i>	Grey Wagtail
<i>Pericrocotus solaris</i>	Grey-chinned Minivet
<i>Pericrocotus flammeus</i>	Scarlet Minivet
<i>Chloropsis hardwickii</i>	Orange-bellied Leafbird
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul
<i>Pycnonotus sinensis</i>	Light-vented Bulbul
<i>Hemixos castanotus</i>	Chestnut Bulbul
<i>Hypsipetes leucocephalus</i>	Black Bulbul
<i>Hypsipetes mccllellandii</i>	Mountain Bulbul
<i>Spizixos semitorques</i>	Collared Finchbill
<i>Brachypteryx leucophrys</i>	Lesser Shortwing
<i>Enicurus schistaceus</i>	Slaty-backed Forktail
<i>Enicurus leschenaulti</i>	White-crowned Forktail
<i>Cinclus pallasii</i>	Brown Dipper
<i>Rhyacornis fuliginosus</i>	Plumbeous Water Redstart
<i>Saxicola torquata</i>	Common Stonechat
<i>Myophonus caeruleus</i>	Blue Whistling Thrush
<i>Turdus obscurus</i>	Eyebrowed Thrush
<i>Pomatorhinus ruficollis</i>	Streak-breasted Scimitar Babbler
<i>Stachyris ruficeps</i>	Rufous-capped Babbler
<i>Garrulax pectoralis</i>	Greater Necklaced Laughingthrush
<i>Garrulax chinensis</i>	Black-throated Laughingthrush
<i>Leiothrix lutea</i>	Red-billed Leiothrix
<i>Alcippe morrisonia</i>	Grey-cheeked Fulvetta
<i>Yuhina castaniceps</i>	Striated Yuhina

Scientific name	English name
<i>Yuhina zantholeuca</i>	White-bellied Yuhina
<i>Paradoxornis webbianus</i>	Vinous-throated Parrotbill
<i>Prinia atrogularis</i>	Hill Prinia
<i>Cettia fortipes</i>	Brownish-flanked Bush Warbler
<i>Bradypterus seebohmi</i>	Russet Bush Warbler
<i>Orthotomus sutorius</i>	Common Tailorbird
<i>Orthotomus cuculatus</i>	Mountain Tailorbird
<i>Phylloscopus reguloides</i>	Blyth's Leaf Warbler
<i>Phylloscopus coronatus</i>	Eastern Crowned Warbler
<i>Phylloscopus tenellipes</i>	Pale-legged Leaf Warbler
<i>Phylloscopus inornatus</i>	Yellow-browed Warbler
<i>Seicercus castaniceps</i>	Chestnut-crowned Warbler
<i>Cyornis hainanus</i>	Hainan Blue Flycatcher
<i>Parus major</i>	Great Tit
<i>Parus spilonotus</i>	Yellow-cheeked Tit
<i>Zosterops japonicus</i>	Japanese White-eye
<i>Aethopyga christinae</i>	Fork-tailed Sunbird
<i>Dicaeum cruentatum</i>	Scarlet-backed Flowerpecker
<i>Dicrurus leucophaeus</i>	Ashy Drongo
<i>Urocissa erythrorhyncha</i>	Red-billed Blue Magpie
<i>Dendrocitta formosae</i>	Grey Treepie
<i>Corvus macrorhynchos</i>	Large-billed Crow
<i>Acridotheres cristatellus</i>	Crested Myna
<i>Emberiza spodocephala</i>	Black-faced Bunting
<i>Emberiza rutila</i>	Chestnut Bunting

- Crested Serpent Eagle *Spilornis cheela*, Silver Pheasant *Lophura nycthemera*, Greater Coucal *Centropus sinensis*, Collared Owlet *Glaucidium brodiei* and Asian Barred Owlet *Glaucidium cuculoides* are Class II Protected in China.
- The presence of forest-dependent birds (including barbets, woodpeckers, bulbuls and babblers) indicates quite intact forest habitats in the vicinity of Dachouding.
- Fifty-nine bird species were recorded at **Sanyue Nature Reserve** (Table 4).
- The most frequently encountered species included Chestnut Bulbul *Hemixos castanonotus*, Grey-cheeked Fulvetta *Alcippe morrisonia* and Spangled Drongo *Dicrurus hottentottus*.

Table 4. Birds recorded at Sanyue Nature Reserve, 21-23 April 2001. Sequence follows Clements (2000).

Scientific name	English name
<i>Butorides striatus</i>	Little Heron
<i>Ardeola bacchus</i>	Chinese Pond Heron
<i>Aviceda leuphotes</i>	Black Baza
<i>Accipiter soloensis</i>	Chinese Sparrowhawk
<i>Accipiter gularis</i>	Japanese Sparrowhawk
<i>Lophura nycthemera</i>	Silver Pheasant
<i>Clamator coromandus</i>	Chestnut-winged Cuckoo
<i>Hierococcyx sparverioides</i>	Large Hawk Cuckoo
<i>Glaucidium brodiei</i>	Collared Owlet

Scientific name	English name
<i>Glaucidium cuculoides</i>	Asian Barred Owlet
<i>Caprimulgus affinis</i>	Savannah Nightjar
<i>Megalaima virens</i>	Great Barbet
<i>Megalaima oorti</i>	Black-browed Barbet
<i>Picumnus innominatus</i>	Speckled Piculet
<i>Halcyon pileata</i>	Black-capped Kingfisher
<i>Eurystomus orientalis</i>	Dollarbird
<i>Hirundo daurica</i>	Red-rumped Swallow
<i>Anthus hodgsoni</i>	Olive-backed Pipit
<i>Motacilla alba</i>	White Wagtail
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul
<i>Pycnonotus aurigaster</i>	Sooty-headed Bulbul
<i>Hypsipetes castanonotus</i>	Chestnut Bulbul
<i>Hypsipetes leucocephalus</i>	Black Bulbul
<i>Hypsipetes mccllellandii</i>	Mountain Bulbul
<i>Enicurus schistaceus</i>	Slaty-backed Forktail
<i>Enicurus leschenaulti</i>	White-crowned Forktail
<i>Saxicola torquata</i>	Common Stonechat
<i>Myophonus caeruleus</i>	Blue Whistling Thrush
<i>Pomatorhinus erythrogenys</i>	Spot-breasted Scimitar Babbler
<i>Pomatorhinus ruficollis</i>	Streak-breasted Scimitar Babbler
<i>Pnoepyga pusilla</i>	Pygmy Wren Babbler
<i>Stachyris ruficeps</i>	Rufous-capped Babbler
<i>Garrulax pectoralis</i>	Greater Necklaced Laughingthrush
<i>Garrulax canorus</i>	Hwamei
<i>Garrulax milnei</i>	Red-tailed Laughingthrush
<i>Leiothrix lutea</i>	Red-billed Leiothrix
<i>Alcippe morrisonia</i>	Grey-cheeked Fulvetta
<i>Yuhina castaniceps</i>	Striated Yuhina
<i>Yuhina zantholeuca</i>	White-bellied Yuhina
<i>Paradoxornis davidianus</i>	Short-tailed Parrotbill
<i>Prinia atrogularis</i>	Hill Prinia
<i>Prinia rufescens</i>	Rufescent Prinia
<i>Prinia flaviventris</i>	Yellow-bellied Prinia
<i>Bradypterus seebohmi</i>	Russet Bush Warbler
<i>Orthotomus sutorius</i>	Common Tailorbird
<i>Orthotomus cuculatus</i>	Mountain Tailorbird
<i>Cyornis hainana</i>	Hainan Blue Flycatcher
<i>Parus major</i>	Great Tit
<i>Zosterops japonica</i>	Japanese White-eye
<i>Aethopyga christinae</i>	Fork-tailed Sunbird
<i>Dicrurus marcrocercus</i>	Black Drongo
<i>Dicrurus hottentottus</i>	Spangled Drongo
<i>Urocissa erythrorhyncha</i>	Red-billed Blue Magpie
<i>Dendrocitta formosae</i>	Grey Treepie
<i>Corvus macrorhynchos</i>	Large-billed Crow

Scientific name	English name
<i>Lonchura striata</i>	White-rumped Munia
<i>Lonchura punctulata</i>	Scaly-breasted Munia
<i>Emberiza arreola</i>	Yellow-breasted Bunting
<i>Melophus lathami</i>	Crested Bunting

- Black Baza *Aviceda leuphotes*, Chinese Sparrowhawk *Accipiter soloensis*, Japanese Sparrowhawk *Accipiter gularis*, Silver Pheasant *Lophura nycthemera*, Greater Coucal *Centropus sinensis*, Collared Owlet *Glaucidium brodiei* and Asian Barred Owlet *Glaucidium cuculoides* are Class II Protected in China.
- Short-tailed Parrotbill *Paradoxornis davidianus* is a new record for Guangdong, previously only recorded in Fujian, Hunan and Yunnan in China.
- The presence of forest-dependent birds (including barbets, woodpecker, bulbuls and babblers) indicates quite intact forest habitat in the vicinity of Sanyue.

Reptiles and Amphibians

- Twenty-one species of amphibian and seven species of reptile (four lizards and three snakes) were recorded at **Dachouding Nature Reserve** during the survey (Table 5).
- The toad *Bufo* sp. could not be firmly identified.
- The most frequently encountered species were *Bufo melanostictus*, *Microhyla heymonsi* and *Eumeces elegans*.

Table 5. Amphibians and reptiles recorded in Daichouding Nature Reserve from 16 to 19 April 2001. Sequence follows Zhao E.-M. & Adler (1993).

Species	Habitat
AMPHIBIA	
<i>Brachytarsophrys carinensis</i>	stream tadpole
<i>Leptolalax liui</i>	stream ✓
<i>Megophrys mangshanensis</i>	ditch ✓
	plantation edge ✓
	shrubland edge ✓
	stream ✓, tadpoles
<i>Megophrys minor</i>	riparian forest ✓
	stream tadpoles
<i>Vibrissaphora liui</i>	stream tadpoles
<i>Bufo</i> sp.	paddy field ✓
<i>Bufo melanostictus</i>	village ✓
	forest edge ✓
	paddy field ✓
	stream ✓
<i>Amolops ricketti</i>	stream ✓
<i>Paa exilispinosa</i>	stream ✓, tadpoles
	ditch ✓, tadpoles
	plantation edge ✓
	pool ✓
<i>Paa spinosa</i>	ditch ✓
	stream ✓
	riparian forest ✓
	pool ✓
<i>Rana fujianensis</i>	shrubland edge ✓
	paddy field ✓
<i>Rana guentheri</i>	pool ✓
<i>Rana latouchii</i>	ditch ✓
	paddy field ✓
	catchwater ✓
<i>Rana limnocharis</i>	forest edge ✓
	plantation edge ✓
	pool ✓

Species	Habitat	
<i>Rana livida</i>	stream	tadpoles
	forest	✓
<i>Rana versabilis</i>	riparian forest	✓
<i>Polypedates dennysi</i>	pool	✓
	paddy field	✓
<i>Polypedates megacephalus</i>	pool	eggs
	paddy field	✓
<i>Microhyla butleri</i>	catchwater	✓
<i>Microhyla heymonsi</i>	catchwater	✓
	pool	✓, tadpoles
	abandoned field	✓
<i>Microhyla pulchra</i>	paddy field	✓
	paddy field	✓
	paddy field	✓
REPTILIA		
<i>Calotes versicolor</i>	forest	✓
<i>Eumeces elegans</i>	shrubland	✓
<i>Sphenomorphus indicus</i>	catchwater	✓
	forest	✓
<i>Tropidophorus sinicus</i>	forest	✓
<i>Oligodon chinensis</i>	forest	✓
<i>Opisthotropis kuatunensis</i>	stream	✓
<i>Opisthotropis latouchii</i>	ditch	✓

- *Megophrys mangshanensis* is restricted to a small area of Hunan and Guangdong.
- In Guangdong, *Brachytarsophrys carinensis* and *Opisthotropis kuatunensis* are known from a limited number of sites.
- There are a number of forest stream species at Dachouding, e.g. *Brachytarsophrys carinensis*, *Megophrys mangshanensis*, *Megophrys minor*, *Vibrissaphora liui* and *Opisthotropis kuatunensis*, indicating there are some intact habitats in the reserve.
- Eleven species of amphibian and four species of reptile (one turtle and three lizards) were recorded at **Sanyue Nature Reserve** during the survey (Table 6). The heavy rains encountered during this survey hampered the survey for herpetofauna.
- Tadpoles thought to be *Rana livida* were found but could not be firmly identified.
- The most frequently encountered species were *Microhyla butleri* and *Microhyla heymonsi*.

Table 6. Amphibians and reptiles recorded in Sanyue Nature Reserve from 21 to 23 April 2001. Sequence follows Zhao E.-M. & Adler (1993).

Species	Habitat	
AMPHIBIA		
<i>Megophrys mangshanensis</i>	forest	✓
<i>Bufo gargarizans</i>	forest	✓
	bamboo forest	✓
<i>Paa exilispinosa</i>	stream	✓
<i>Rana guentheri</i>	marsh	✓
<i>Rana limnocharis</i>	marsh	✓
	plantation edge	✓
	abandoned field	✓
<i>Rana livida</i> ?	stream	tadpoles
<i>Polypedates dennysi</i>	ditch	✓
<i>Polypedates megacephalus</i>	marsh	✓
<i>Microhyla butleri</i>	marsh	✓
<i>Microhyla heymonsi</i>	marsh	✓
	abandoned field	✓
<i>Microhyla pulchra</i>	marsh	✓

Species	Habitat	
REPTILIA		
<i>Geoemyda spengleri</i>	forest	✓
<i>Calotes microlepis</i>	forest	✓
<i>Calotes versicolor</i>	village	✓
<i>Tropidophorus sinicus</i>	stream	✓
	forest	✓

- *Geoemyda spengleri* is a globally Endangered species and is Class II Protected in China.
- *Megophrys mangshanensis* is restricted to a small area in Hunan and Guangdong.
- In Guangdong, *Calotes microlepis* is known from a limited number of sites.
- Villagers of Sanyue reported the wattle-necked soft-shelled turtle *Pelea steindachneri* persists, despite in low numbers following prolonged hunting, in the larger lowland section of the main stream. It is a globally Endangered species and is Class II Protected in China.
- There were a number of forest species at Sanyue, e.g. *Megophrys mangshanensis*, *Geoemyda spengleri* and *Calotes microlepis*, indicating there are some intact habitats in this area.

Fish

- Ten freshwater fish species were recorded from **Dachouding Nature Reserve** (Table 7). Sampling was conducted in five streams.
- The most widespread species recorded include *Onychostoma barbatula*, *Acrossocheilus parallens* and *Schistura incerta*.
- Two species collected could not be firmly identified; one is in the genus *Rhinogobius* and is similar to *R. duospilus* but with a much broader head. The other is a stream catfish in the genus *Pterocryptis*. These species may prove to be of conservation/scientific interest.
- Except for the two unidentified species, none of the species recorded are particularly restricted or rare.

Table 7. Freshwater fish recorded from Dachouding Nature Reserve, Northwest Guangdong, 16-19 April 2001. See text for description of streams.

Species
<i>Acrossocheilus parallens</i>
<i>Onychostoma barbata</i>
<i>Onychostoma barbatula</i>
<i>Liniparhomaloptera disparis disparis</i>
<i>Pseudogastromyzon changtingensis tungpeiensis</i>
<i>Vanmanenia pingchowensis</i>
<i>Schistura fasciolata</i>
<i>Schistura incerta</i>
<i>Pterocryptis</i> sp.
<i>Rhinogobius</i> (cf. <i>duospilus</i>) sp.

- Considering the copious freshwater resources within the reserve, Dachouding supported rather few fish species and fish density was very low, probably due to the intense fishing pressure by destructive methods. This assumption is supported by the presence of very few large-sized individuals.
- Nine freshwater fish species were recorded from **Sanyue Nature Reserve** (Table 8).
- A species in the genus *Rhinogobius*, similar to *R. duospilus* and probably the same as those found in Dachouding Nature Reserve, could not be firmly identified; it may prove to be of conservation/scientific interest.

- The most widespread species recorded were *Onychostoma barbatula* and *Schistura fasciolata*.
- Except for the unidentified species, none of the species recorded are particularly restricted or rare.

Table 8. Freshwater fish recorded from Sanyue Nature Reserve, Northwest Guangdong, 21-23 April 2001. “*” = nomenclature follows Pan, 1991.

Species
<i>Nicholsicypris normalis</i>
<i>Acrossocheilus parallens</i>
<i>Acrossocheilus beijiangensis</i> *
<i>Onychostoma barbatula</i>
<i>Liniparhomaloptera disparis disparis</i>
<i>Pseudogastromyzon changtingensis tungpeiensis</i>
<i>Schistura fasciolata</i>
<i>Schistura incerta</i>
<i>Rhinogobius</i> (cf. <i>duospilus</i>) sp.

- The streams at Sanyue supported rather few fish species, but the adverse weather conditions made intensive sampling impossible, especially in the forested Heichong stream. However, villagers reported that fishing by destructive methods was common and very few large-sized individuals were seen, even along the larger lowland section around the forest farm.

Dragonflies

- Heavy rain was prevalent during the survey period, drastically limiting dragonfly activity. Only nine species were recorded during the survey (Table 9).

Table 9. Dragonflies at Dachouding and Sanyue Nature Reserves, 18, 21 and 23 April 2001. Sequence of families follows Schorr *et al.* (2001a, 2001b).

Species
<i>Philoganga vetusta</i>
<i>Mnais mneme</i>
<i>Mnais tenuis</i>
<i>Bayadera</i> sp.
<i>Ceriagrion fallax</i>
<i>Protosticta</i> sp.
<i>Asiagomphus hainanensis</i>
<i>Davidius fruhstorferi quizhouensis</i>
<i>Lyriothemis tricolor</i>

- The early timing of the survey may also have contributed to the low species richness encountered.
- The presence of *Mnais* and *Bayadera* indicates that streams in the study areas were of high water quality, whilst *Philoganga vetusta* and *Lyriothemis tricolor* are generally associated with forest.

Butterflies

- Heavy rain was prevalent during the survey period, drastically limiting butterfly activity. Only three butterfly species were recorded, all on 21 April in Sanyue Nature Reserve (Table 10).

Table 10. Butterflies at Sanyue, 21 April 2001. Sequence of families follows Bascombe (1995).

Species
<i>Mycalesis mineus</i>
<i>Ypthima baldus</i>
<i>Ampittia dioscorides</i>

- The cool ambient temperature may also have contributed to the low species richness encountered.
- None of these species are of particular conservation concern.

Moths

- A total of 36 moth species attracted to light near human habitation were recorded from **Dachouding Nature Reserve** (Table 11).

Table 11. Moths at Dachouding, 16-19 April 2001.

Scientific name	Notes
<i>Endoclita sinensis</i> (Moore, 1877)	
<i>Histia flabellicornis</i> (Fabricius, 1775)	
<i>Illiberis</i> sp A	Likely to be undescribed.
<i>Toccolosida rubriceps</i> Walker, 1863	
<i>Cyclidia substigmata</i> Hübner, [1831] 1825	Larval host <i>Hibiscus canabinus</i>
<i>Sarcinodes aequiliniaria</i> (Walker, 1860)	
<i>Abraxaphantes perampla</i> (Swinhoe, 1890)	
<i>Abraxas illuminata</i> Warren, 1894	Probable new Guangdong record. In China known only from Hong Kong previously.
<i>Lassaba parvalbidaria</i> (Inoue, 1978)	
<i>Plutodes flavescens</i> Butler, 1880	Probable new Guangdong record. In China known only from Hong Kong previously.
<i>Comostola meritaria</i> (Walker, 1861)	Probable new Guangdong record. In China known only from Taiwan and Hong Kong previously.
<i>Maxates</i> sp. nr. <i>veninotata</i>	Probable new Guangdong record.
<i>Thalassodes immisaria</i> Walker, 1861	Probable new Guangdong record.
<i>Proleptis eucircota</i> Prout, 1913	Probable new Guangdong record.
<i>Asthena undulata</i> (Wileman, 1915)	
<i>Dendrolimus punctatus</i> (Walker, 1855)	Common species widespread in China, sometimes a defoliant of <i>Pinus</i> trees.
<i>Parum colligata</i> (Walker, 1856)	
<i>Acosmeryx sericeus</i> (Walker, 1856)	
<i>Acosmeryx naga</i> (Moore, 1857)	
<i>Antherea assamensis</i> Helfer, 1837	
<i>Bhramaea hearseyi</i> White, 1862	
<i>Pseudojana incandescens</i> (Walker, 1855)	
<i>Dasychira melli</i> Collonette	Determined by A.Schintlmeister, August 2001.
<i>Macrobrochis fukiensis</i> (Daniel, 1952)	
<i>Thysanoptyx signata</i> (Walker, 1854)	Endemic to S. China
<i>Thysanoptyx tetragona</i> (Walker, 1854)	
<i>Barsine striata</i> (Braemer & Grey, 1852)	
<i>Mitochrista ziczac</i> (Walker, 1856)	
<i>Spilarctia robusta</i> (Leech, 1899)	
<i>Aloa lactinea</i> (Cramer, 1777) [HK]	
<i>Cerura tattakana</i> Matsumura, 1927	Determined by A.Schintlmeister, August 2001.
<i>Phalera parivala</i> Moore	
<i>Sarbanissa subalba</i> Leech, 1890	
<i>Asota plaginota</i> (Butler, 1875)	
<i>Chalciope mygdon</i> (Cramer, 1777)	
<i>Gangarides dharmia</i> Moore, 1865	

- A total of 12 moth species were recorded from **Sanyue Nature Reserve** (Table 12).

Table 12. Moths at Sanyue, 20-24 April 2001.

Scientific name	Notes
<i>Rhomborista monosticta</i> (Wherli, 1924)	Known only from Guangdong, Hainan and Hong Kong.
<i>Parum colligata</i> (Walker, 1856)	
<i>Theretra clotho</i> (Drury, 1773)	
<i>Loepa sikkima</i> (Moore, 1865)	New Guangdong record. In China, known only from Hong Kong previously.
<i>Eupterote lativittata</i> Moore	Further work required to establish this species' identity; possibly undescribed.
<i>Ganisa</i> sp A (nr. <i>cyanugrisea</i>)	
<i>Dasychira axutha</i> Collonette, 1934	Probably undescribed; determined by A.Schintlmeister, August 2001.
<i>Phalera parivala</i> Moore	
<i>Phalera</i> sp A (<i>torpida</i> group)	
<i>Arcte coerulea</i> (Guenee, 1852)	Probably a new Guangdong record. Also known from Taiwan and Hong Kong.
<i>Erebus ephesperis</i> (Hubner, [1823] 1816)	
<i>Fodina contigua</i> Wileman, 1914	

- Such a small sample does not allow for an accurate picture of the moth fauna of either site to be established.
- It should be noted though, that amongst this sample were three species that are likely to be undescribed (*Ganisa* sp., *Phalera* sp., *Illiberis* sp.), and seven additional species that are apparently new records for Guangdong. This comes as no surprise, as the moth fauna of southern China as a whole is very poorly known. Recent work on the Notodontidae by Fang & Schintlmeister (2001) found that for this family, around 10% of species were undescribed. The recording of undescribed species is indicative of the lack of previous work in the region in relation to the diversity present.
- South and West China is a centre of global diversity for the Cyclididae (Heppner, 1991; Zhu & Wang, 1991).

Summary of flora and fauna

- Due to the adverse weather conditions, the present surveys covered only small portions of the two nature reserves. The adverse weather also affected the activities of birds, reptiles, butterflies and dragonflies, and made fish sampling difficult, leading to a relatively low number of recorded species for these groups.
- In **Dachouding Nature Reserve**, the surveyed area was found to be a mosaic of remnant old-growth forest patches up to 20m tall, in a matrix of China fir plantation, shrubland and young secondary forest. Some highly fragmented and disturbed mature forest patches could be found at lower altitude around villages and streamsides, preserved mainly for Feng shui reasons.
- The present survey recorded 378 vascular plant species, a rather high figure given the amount of survey effort. However, this may reflect the fragmented nature of the habitat and the diverse landscape of the area. The recorded flora included one globally Threatened species (*Artocarpus hypargyreus*) and two nationally Protected but widespread and common species (*Cibotium barometz* and *Cinnamomum camphora*). Two globally restricted species and four new records for Guangdong were also found in the present survey.
- A moderate number of vertebrate species were recorded during the survey: one mammal, 74 birds, 21 amphibians, seven reptiles and ten fish.
- Mo (2002) gave a long list of mammals from Dachouding, including nationally Protected species. The continued presence of many species however, especially those susceptible to forest clearance and hunting, must be considered uncertain unless otherwise proven with recent records.

- Five of the birds recorded are nationally Protected; the presence of forest species such as barbets, woodpeckers, certain bulbuls and babblers indicate forest habitat was still intact in places.
- The frog *Megophrys mangshanensis* is globally restricted. Others (e.g. *Brachytarsophrys carinensis* and *Megophrys minor*) are forest stream species indicative of little disturbance in their stream habitat.
- Two fish species collected could not be identified; one in the goby genus *Rhinogobius* and a stream catfish in the genus *Pterocryptis*. These species may prove to be of conservation/scientific interest.
- Six dragonfly and 36 moth species were recorded; no butterfly species was recorded at Dachouding. The heavy rain and cool ambient temperature is believed to be the major contributing factor for the low species richness encountered. One moth species has yet to be described. Some dragonfly species found are dependent either on clean water or forest habitat.
- The biodiversity significance of Dachouding Nature Reserve was not assessed by MacKinnon *et al.* (1996). The present survey briefly covered sections of this small reserve in adverse weather, and the areas visited were rather degraded. However, since the site was found to support some species of conservation concern, and is a significant headwater forest for the surrounding community, it is here considered of high local importance.
- In **Sanyue Nature Reserve**, the surveyed area had more-or-less continuous forest cover, except at lower altitude area where vegetation on most of the relatively gentle slopes had been transformed to farmland and plantation. Much of the forest was about 6-15m tall and had regenerated since closure for logging in the 1970s. Older broadleaf forest, believed to be 50 years old, has been protected by the local community as headwater forest, particularly in the Heichong area. The broadleaf forest around Heichong stream has the most well-established forest structure in the surveyed area.
- The present survey recorded 358 vascular plant species, a rather high figure given the survey effort. The recorded flora included one globally Threatened (*Ixonanthes chinensis*) and one nationally Protected species (*Cibotium barometz*), although both are widespread and common in South China. Four tree fern species under Class II National Protection were also found. One globally restricted species (*Arachniodes grossa*) and one new record for Guangdong were found in the present survey.
- A moderate number of vertebrate species were recorded during the survey: 59 birds, 11 amphibians, four reptiles and nine fish.
- Li & Xie (2002) reported a long list of mammals from Sanyue, including nationally Protected species. The continued presence of many species however, especially those dependent on mature forest, must be considered uncertain unless otherwise proven with recent records.
- Seven of the birds recorded are nationally Protected; the presence of forest species such as barbets, bulbuls and babblers indicate forest habitat was still intact in places. One new record for Guangdong was found.
- The forest turtle *Geoemyda spengleri* is a globally Endangered species and is Class II Protected in China. The presence of this terrestrial turtle as well as the forest lizard *Calotes microlepis* indicated that the supporting forest was ecologically intact and has received relatively little disturbance.
- A fish species in the genus *Rhinogobius* may be a new record for China or new to science, and may prove to be of conservation/scientific interest.
- Five dragonfly, three butterfly and 12 moth species were recorded. The heavy rain and cool ambient temperature are believed to be the major contributing factor for the low species richness encountered. Two moth species have yet to be identified. Some dragonfly species found are dependent on clean water or forest habitat.

- The biodiversity significance of Sanyue Nature Reserve was not assessed by MacKinnon *et al.* (1996). The present survey briefly covered sections of this reserve in adverse weather, and the areas visited was rather degraded (except Heichong). However, since the site was found to support some species of conservation concern, and is a significant headwater forest for the surrounding community, it is here considered of high local importance. One of the core areas, with well-established forest, is at relatively low altitude. If protected well the conservation significance of Sanyue Nature Reserve may eventually become of regional importance following further forest loss in other lowland areas across South China.

Threats and problems

- Much past degradation has taken place at the two reserves, and it is likely that significant biodiversity loss has occurred in the areas visited.
- Mature forest at **Dachouding** occurred mainly as isolated patches in a matrix of shrubland, whereas at **Sanyue**, the lowland forests occurred mainly as fragmented patches. Such fragmented forest is unfavourable to the survival of some of the forest-dependent biota and is likely to be accompanied by the slow erosion of forest biodiversity.
- In **Dachouding Nature Reserve**, illegal hunting, especially on high ground near Fenjie, was reported to be common and is a threat to the Endangered Cabot's Tragopan.
- At the time of our visit, the people at the management station's guesthouse paid little attention to the environment and the nearby stream bank has become a rubbish dump.
- Electrofishing was evidently common and larger streams draining Dayan Keng and Sanfen had very low fish density and biomass during the survey.
- In **Sanyue Nature Reserve**, electrofishing had evidently damaged the fish fauna, as reported by the local villagers. During the 2001 survey, only young individuals of the large-bodied species, such as carps *Acrossocheilus* and *Onychostoma*, were seen in the area.
- Illegal hunting/collecting has reportedly decimated populations of the stream fauna, for example fish, turtle and frogs.

Opportunities

- The forests surveyed in both reserves were relatively young (except those preserved for Feng shui reasons and as headwater forest). If the regenerating habitats are carefully protected from fire, logging, hunting, grazing and other unsuitable activities, there is potential for natural forest and its biotic community to re-establish themselves in future decades.
- A lot of the hillsides above 800m at Dachouding and below 500m at Sanyue are now covered with shrubland and abandoned farmland, and here forest regeneration could be accelerated by planting an assemblage of tree species native to the region. Planting of trees with nuts and fleshy fruits would help to attract seed dispersal agents, and thus speed up forest regeneration. Priority might be given to linking up more mature forest patches to establish contiguous forests spanning the altitudinal range of the reserves. Advice for tree planting could be sought from regional centres of expertise (such as South China Agricultural University, The University of Hong Kong and KFBG) regarding reforestation techniques and managing native tree nurseries.
- **Sanyue Nature Reserve** is continuous with Bijiashan Provincial Nature Reserve in Lianshan County to the north, and national/provincial-level ecological community forests in Hezhou City District of Guangxi Province (Li & Xie, 2002). The combined wilderness area should provide good habitat for species which require large home ranges and are susceptible to human disturbance. For better protection, patrolling and managing the forest and biodiversity in this district, some form of cooperation between these three administrative entities would be beneficial.

Acknowledgements

The editors wish to thank Prof. Chang Hong of Zhongshan University and the Zhaoqing Forestry Bureau for their invitation and assistance. We would also like to thank all participants of the survey team, including field staff from Dachouding and Sanyue Nature Reserves. Prof. Chang Hong kindly provided information regarding the reserves' designation proposals. This work has been funded by KFBG and Zhaoqing Forestry Bureau.

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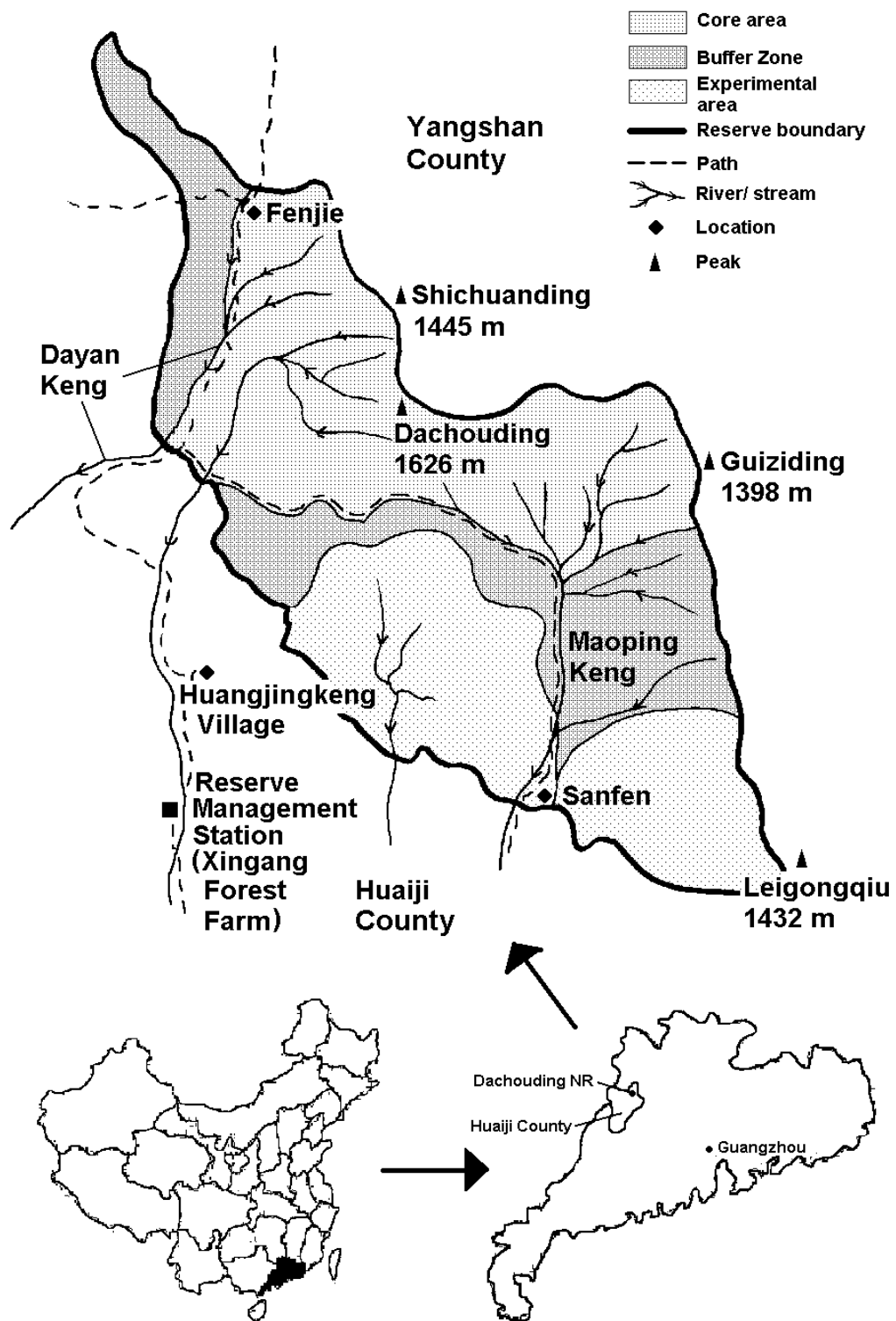


Figure 1. Map showing location of Dachouding Nature Reserve, Northwest Guangdong, China.

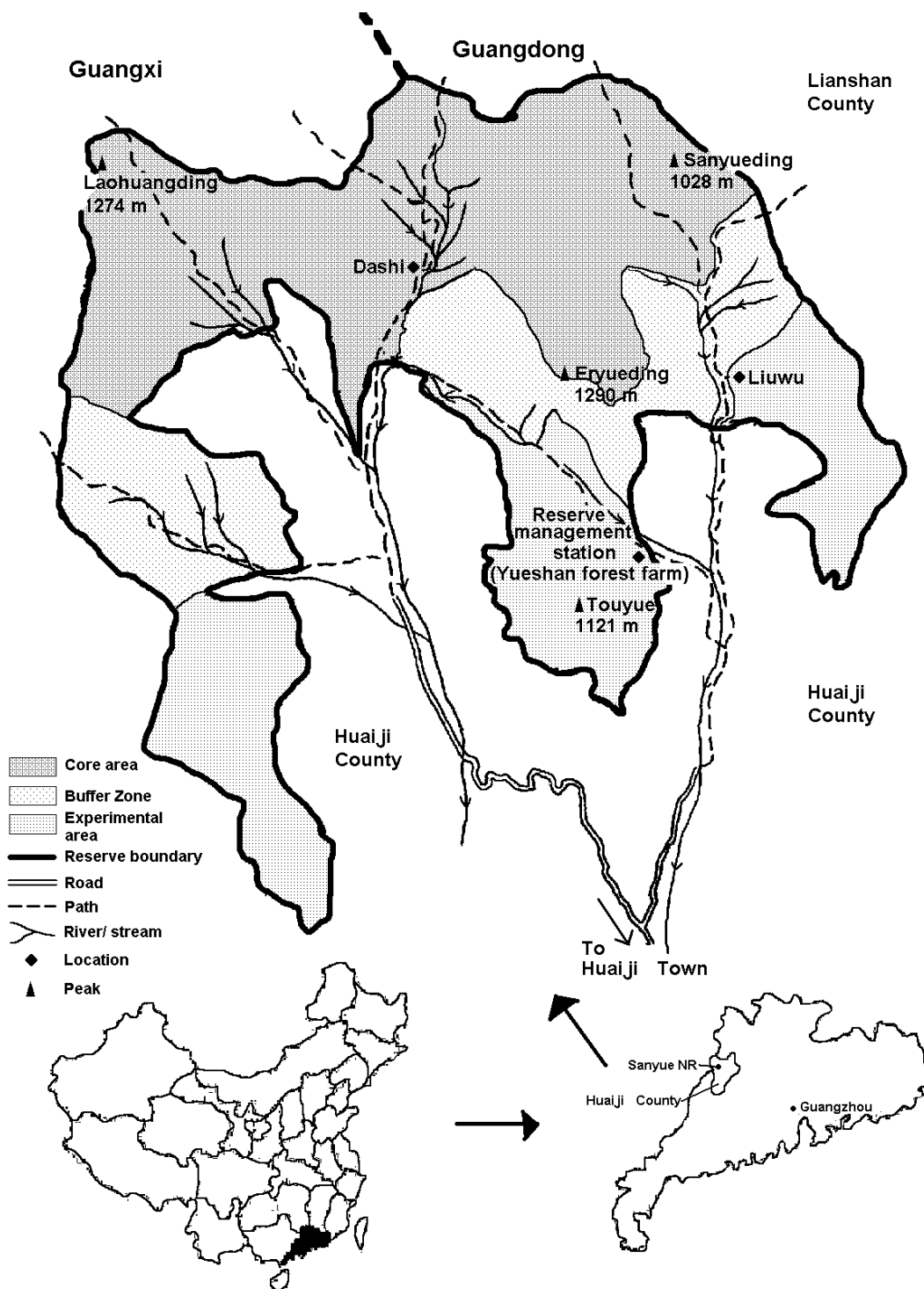


Figure 2. Map showing location of Sanyue Nature Reserve, Northwest Guangdong, China.