

# Ex-situ Conservation of Native Thai Orchids at Queen Sirikit Botanic Garden

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The orchid family (Orchidaceae) is one of the largest families in the plant kingdom with estimated over 35,000 species represented world wide. Many of which have developed fascinating characteristics to cope with a wild range of habitats, to attract pollinators and to conserve moisture and nutrients.

In Thailand, Orchids are found in all different habitats ranging from hill evergreen forest at 2,565 m. in the north to sea level in the peninsular with approximate a total of 170 genera and 1230 species of which 150 species are considered endemic to the country. Among these 80% are epiphytic and most of the rest are terrestrial and only few species are saprophytic orchids. Some of the important genera are *Dendrobium* spp. (170), *Bulbophyllum* spp. (150), *Eria* spp. (60), *Habenaria* spp. (35), *Coelogyne* spp. (30), *Liparis* spp. (30), *Cymbidium* spp. (20), *Paphiopedilum* spp. (16), and *Vanda* spp. (10).

Although there are quite a large number of Thai wild orchids, however, their records are very scanty. The first record was in 1913 reported that there were exotic materials of Cattleyas introduced by a foreigner to Thailand as a hobby to grow orchids. In 1917, Prince Krompranakornsawan Worapinit translated and published “**Orchid Growing**” as the first book on orchids in Thai language. Later in 1934, the introduction of *Dendrobium Pomadour* had brought in popularity for orchid cultivation in Thailand.

Important progress in the study of the Thai native orchids and flora were initiated in 1955 under the Thai-Danish Flora of Thailand project. Field expeditions were undertaken intensively during 1957-1960 by Th. Sorensen, K. Larsen and B. Hansen from Denmark and His Excellency, the Ambassador of Denmark to Thailand, Professor Gunnar Seidenfaden. This work was carried out in cooperation with a leading Thai botanist: the late Professor Tem Smitinand, of the Royal Forest Department. These activities contributed altogether approximately 15,000 herbarium specimens, preserved specimens in spirit, and living material. A series of botanical papers on taxonomical floristic and ecological topics comprising the results of the expeditions undertaken during 1957-1963 were published in the **Natural History Bulletin** of the Siam Society and the **Dansk Botanik Arkiv**. Later the information were combined and published in the **Orchids of Thailand**, in 1960, as the first orchid flora for Thailand. At present, newly and added information on the Thai orchids has been published into series in the Journal: **Opera Botanica**.

Queen Sirikit Botanic Garden (QBG) was established in 1993 with the aims to serve as a center for academic studies and research, to render services concerning botanical knowledge, and to provide a place of beauty and valuable Thai flora. One of the major activities is to strengthen ex-situ conservation of valuable Thai flora. At present, ex-situ conservation of

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\*Invited lecture presented at the International Conference on Biodiversity and Bioresources: Conservation and Utilization, 23–27 November 1997, Phuket, Thailand. Other presentations are published in *Pure Appl. Chem.*, Vol. 70, No. 11, 1998.

native Thai orchids is one of QBG's most active programs. The Thai wild orchids are collected from various parts of the country, correctly identified by botanists, QBG staff, and all plants are with identification labels. The living collection deposited at QBG is now serving as living library and an important source to improve knowledge on orchid taxonomy, orchid breeding, and academic research, as well as to conserve the rare and endangered species, and propagating by means of biotechniques to prevent them from being extinct.

Northern Thailand where QBG is located is rich in diversity of plant communities and is center of plant distribution of SE Asia. It is estimated that the number of the native orchids in this region exceeding up to 600 species. According to their habitats are depleted as an alarming rate and the over exploitation for large scale commercial, therefore, the ex-situ conservation of the wild orchids is proved to be one of the most effective ways to conserve their genetic resources and increasing its important to ensure their survival for generations to come.

At present there are 78 genera and 300 species of the Thai native orchids deposited and well looking after at QBG's nurseries. Among these 60 species are considered rare and 20 are considered endangered. By the year 2000 when QBG is officially open, it is expected that there will be about 800 species at the garden and will be the largest living collection of the native orchids in the country.

### LIST OF SOME LIVING ORCHIDS AT QBG

(September 1997)

- |     |  |      |   |
|-----|--|------|---|
| 1). | <b>Acampe</b> ochracea (Lindl.) Hochr.<br>Acampe papillosa Lindl.<br>Acampe rigida (Buch.-Ham.) P. F.<br>Hunt  | 7).  | <b>Anoetochilus</b> burmanicus Rolfe  |
| 2). | <b>Acanthephippium</b> sylhetense<br>Lindl.  | 8).  | <b>Anthogonium</b> gracile Lindl.   |
| 3). | <b>Acriopsis</b> indica Wight<br>Acriopsis liliifolia (Koen.) Ormerod  | 9).  | <b>Appendicula</b> hexandra (Koen.) J.<br>J. Sm.  |
| 4). | <b>Adenoncos</b> parviflora Ridl.  | 10). | <b>Arachnis</b> flosaeris (L.) Rchb. f.   |
| 5). | <b>Aerides</b> crassifolia Par. & Rchb. f.<br>Aerides falcata Lindl.<br>Aerides flabellata Rolfe<br>Aerides houlettiana Rchb. f.<br>Aerides krabiensis Seid.<br>Aerides multiflora Roxb.<br>Aerides odorata Lour.<br>Aerides rosea Lodd. ex Lindl. &<br>Paxt.. | 11). | <b>Arundina</b> graminifolia (Don)<br>Hochr.  |
| 6). | <b>Agrostophyllum</b> callosum Rchb. f.  | 12). | <b>Ascocentrum</b> ampullaceum Schltr.<br>Ascocentrum curvifolium Schltr.<br>Ascocentrum miniatum Schltr.<br>Ascocentrum semiteretifolium Seid. |
|     |  | 13). | <b>Brachycorythis</b> helferi Summerh.<br>Brachycorythis henryi Summerh.  |
|     |  | 14). | <b>Bromheadia</b> aporoides Rchb. f.  |
|     |  | 15). | <b>Bulbophyllum</b> affine Lindl.<br>Bulbophyllum bittnerianum Schltr.<br>Bulbophyllum blepharistes Rchb. f.                                    |

- Bulbophyllum careyanum (Hk.) Spreng.  
 Bulbophyllum concinnum Hk. f.  
 Bulbophyllum congestum Rolfe  
 Bulbophyllum crassipes Hk. f.  
 Bulbophyllum didymotropis Seid.  
 Bulbophyllum gracillimum Rolfe  
 Bulbophyllum hirtum (J. E. Sm.) Lindl.
- Bulbophyllum kanburiense Seid.  
 Bulbophyllum lasiochilum Par. & Rchb. f.  
 Bulbophyllum lobbii Lindl.  
 Bulbophyllum macranthum Lindl.  
 Bulbophyllum microtepalum Rchb. f.  
 Bulbophyllum modestum Hk. f.  
 Bulbophyllum morphologorum Krzl.  
 Bulbophyllum mutabile (Bl.) Lindl.  
 Bulbophyllum nigrescens Rolfe
- Bulbophyllum odoratissimum Lindl.  
 Bulbophyllum patens King ex Hk.  
 Bulbophyllum protractum Hk. f.  
 Bulbophyllum propinquum Hk. f.  
 Bulbophyllum psittacoglossum Rchb. f.  
 Bulbophyllum reclusum Seid.  
 Bulbophyllum rufinum Rchb. f.  
 Bulbophyllum secundum Hk. f.  
 Bulbophyllum sessile (Koen.) J. J. Sm.  
 Bulbophyllum sichyobulbon Par. & Rchb. f.
- Bulbophyllum suavissimum Rolfe  
 Bulbophyllum trichocephalum T. & W.  
 Bulbophyllum tricorne Seid. & Smitin.
- Bulbophyllum tripudians Par. & Rchb. f.  
 Bulbophyllum vaginatum Rchb. f.  
 Bulbophyllum wallichii Rchb. f.  
 Bulbophyllum wendlandianum Dammer
- 16). Calanthe cardioglossa** Schltr.  
 Calanthe rosea (Lindl.) Benth.  
 Calanthe rubens Ridl.  
 Calanthe succedanea Gagnep.  
 Calanthe triplicata (Willem.) Ames  
 Calanthe vestita Lindl.
- 17). Chiloschista lunifera** (Rchb. f.) J. J. Sm.  
 Chiloschista parishii Seid.  
 Chiloschista viridiflora Seid.
- 18). Chrysoglossum ornatum** Bl.
- 19). Cirrhopetalum curtisii** Hk. f.  
 Cirrhopetalum lepidum (Bl.) Schltr.  
 Cirrhopetalum retusiusculum Hemsley
- 20). Cleisomeria lanatum** Lindl.  
 Cleisomeria pilosulum Seid. & Garay
- 21). Cleisostoma arietinum** Garay  
 Cleisostoma chantaburiense Seid.  
 Cleisostoma duplicilobum (J. J. Sm.) Garay  
 Cleisostoma filiforme (Lindl.) Garay  
 Cleisostoma fuerstenbergianum Krzl.  
 Cleisostoma racemiferum Garay  
 Cleisostoma rolfeanum Garay  
 Cleisostoma simondii (Gagnep.) Seid.  
 Cleisostoma subulatum Bl.
- 22). Coelogyne cumingii** Lindl.  
 Coelogyne flavida Wall. ex Lindl.  
 Coelogyne lactea Rchb. f.  
 Coelogyne lentiginosa Lindl.  
 Coelogyne trinervis Lindl.  
 Coelogyne viscosa Rchb. f.
- 23). Corymborkis veratrifolia** Bl.
- 24). Cymbidium aloifolium** (Linn.) Sw.  
 Cymbidium bicolor Lindl.

- Cymbidium ensifolium* Sw.  
*Cymbidium lancifolium* Hk.  
*Cymbidium lowianum* Rchb. f.  
*Cymbidium mastersii* Griff. & Lindl.  
*Cymbidium sinense* Wild.  
*Cymbidium traceyanum* Hort. ex O'Brien
- 25). *Dendrobium albosanguineum***  
 Lindl.  
*Dendrobium aphllum* C. E. C. Fischer  
*Dendrobium bellatulum* Rolfe  
*Dendrobium brymerianum* Rchb. f.  
*Dendrobium capillipes* Rchb. f.  
*Dendrobium cariniferum* Rchb. f.  
*Dendrobium christyanum* Rchb. f.  
*Dendrobium chrysanthum* Wall.  
*Dendrobium chrysotoxum* Lindl.  
*Dendrobium compactum* Rolfe  
  
*Dendrobium concinnum* Miq.  
*Dendrobium crepidatum* Lindl.  
*Dendrobium cruentum* Rchb. f.  
*Dendrobium crumenatum* Sw.  
*Dendrobium crystallinum* Rchb. f.  
*Dendrobium dantaniense* Guill.  
*Dendrobium delacourii* Guill.  
*Dendrobium devonianum* Paxt.  
*Dendrobium dixanthum* Rchb. f.  
*Dendrobium draconis* Rchb. f.  
  
*Dendrobium ellipsophyllum* Tang & Wang  
*Dendrobium exile* Schltr.  
*Dendrobium falconeri* Hk.  
*Dendrobium farmeri* Paxt.  
*Dendrobium fimbriatum* Lindl.  
*Dendrobium findlayanum* Par. & Rchb. f.  
*Dendrobium formosum* Roxb.  
*Dendrobium friedricksianum* Rchb. f.  
*Dendrobium gratiotissimum* Rchb. f.  
*Dendrobium griffithianum* Lindl.
- Dendrobium hendersonii* Hawkes & Heller  
*Dendrobium hercoglossum* Rchb. f.  
*Dendrobium heterocarpum* Lindl.  
*Dendrobium infundibulum* Lindl.  
*Dendrobium jenkinsii* Wall. ex Lindl.  
*Dendrobium lindleyi* Steud.  
*Dendrobium lituiflorum* Lindl.  
*Dendrobium moschatum* Sw.  
*Dendrobium nobile* Lindl.  
*Dendrobium ochreatum* Lindl.  
  
*Dendrobium pachyglossum* Par. & Rchb. f.  
*Dendrobium pachyphyllum* (Kze.) Bakh. f.  
*Dendrobium parcum* Rchb. f.  
*Dendrobium parishii* Rchb. f.  
*Dendrobium pendulum* Roxb.  
*Dendrobium podagraria* Hk. f.  
*Dendrobium primulinum* Lindl.  
*Dendrobium pulchellum* Roxb. ex Lindl.  
*Dendrobium scabrilingue* Lindl.  
*Dendrobium secundum* (Bl.) Lindl.  
*Dendrobium senile* Par. & Rchb. f.  
*Dendrobium signatum* Rchb. f.  
*Dendrobium sinuatum* Lindl.  
*Dendrobium sulcatum* Lindl.  
*Dendrobium sutepense* Rolfe ex Downie  
*Dendrobium thyrsoflorum* Rchb. f.  
*Dendrobium tortile* Lindl.  
*Dendrobium trigonopus* Rchb. f.  
*Dendrobium venustum* Teijsm. & Binn.  
*Dendrobium wardianum* Warn.
- 26). *Doritis pulcherrima*** Lindl.
- 27). *Epigeneium amplum*** Summerh.
- 28). *Eria acervata*** Lindl.  
*Eria amica* Rchb. f.  
*Eria biflora* Lindl.  
*Eria bipunctata* Lindl.

- Eria bractescens Lindl.  
 Eria concolor Par. & Rchb. f.  
 Eria cristata Rolfe  
 Eria discolor Lindl.  
 Eria discolor Lindl.  
 Eria floribunda Lindl.
- Eria lasiopetala Ormerod  
 Eria javanica (Sw.) Bl.  
 Eria marginata Rolfe  
 Eria myristiciformis Hk.  
 Eria ornata Lindl.  
 Eria paniculata Lindl.  
 Eria pannea Lindl.  
 Eria pubescens Wight  
 Eria pulchella Lindl.  
 Eria pumila Lindl.
- Eria siamensis Schltr.  
 Eria tomentosa Hk. f.  
 Eria truncata Lindl.
- 29). **Eulophia** andamanensis Rchb. f.  
 Eulophia graminea Lindl.  
 Eulophia macrobulbon Hk. f.  
 Eulophia nuda Lindl.
- 30) **Flickingeria** fimbriata Hawkes
- 31). **Gastrochilus** bellinus Kze.  
 Gastrochilus bigibbus Kze.  
 Gastrochilus obliuus (Lindl.) Kze.  
 Gastrochilus suavis Seid.
- 32). **Geodorum** recurvum (Roxb.)  
 Alston
- 33). **Goodyera** procera Hk.
- 34). **Grammatophyllum** speciosum Bl.
- 35). **Habenaria** chlorina Par. & Rchb. f.  
 Habenaria dentata Schltr.  
 Habenaria lindleyana Steud.  
 Habenaria lucida Wall. ex Lindl.  
 Habenaria rhodocheila Hance  
 Habenaria rostelifera Rchb. f.  
 Habenaria siamensis Schltr.
- 36). **Hemipilia** calophylla Par. & Rchb.  
 f.
- 37). **Holcoglossum** amesianum Christ.
- 38). **Hygrochilus** parishii Pfitz.
- 39). **Ione** rimannii (Rchb. f.) Seid.
- 40). **Kingidium** deliciosum (Rchb. f.)  
 Sweet  
 Kingidium minus Seid.
- 41). **Liparis** regnieri Finet  
 Liparis siamensis Rolfe ex Downie  
 Liparis sutepensis Rolfe ex Downie  
 Liparis viridiflora Lindl.
- 42). **Ludisia** discolor (Ker-Gawl.) A.  
 Rich
- 43). **Luisia** thailandica Seid.  
 Luisia zollingeri Rchb. f.
- 44). **Malaxis** latifolia J. E. Sm.  
 Malaxis orbicularis Tang & Wang
- 45). **Micropera** pallida Lindl.
- 46). **Nervilia** plicata (Adr.) Schltr.  
 Nervilia prainiana (King & Pantl.)  
 Seid.
- 47). **Oberonia** acaulis Griff.  
 Oberonia ensiformis Lindl.  
 Oberonia falconeri Hk. f.  
 Oberonia pyrulifera Lindl.
- 48). **Ornithochilus** difformis Schltr.
- 49). **Otochilus** albus Lindl.  
 Otochilus fuscus Lindl.
- 50). **Paphiopedilum** bellatulum Pfitz.  
 Paphiopedilum callosum Pfitz.  
 Paphiopedilum concolor Pfitz.

- Paphiopedilum exul Pfitz.  
Paphiopedilum godefroyae Pfitz.  
Paphiopedilum niveum Pfitz.  
Paphiopedilum parishii Rchb.f.  
Paphiopedilum sukhakulii Schos. & Sengh.  
Paphiopedilum villosum Pfitz.
- 51). **Papilionanthe** biswasiana Garay  
Papilionanthe teres (Roxb.) Schltr.
- 52). **Pecteilis** sagarikii Seid.  
Pecteilis susannae (L.) Rafin
- 53). **Pelatantheria** ctenoglossum Ridl.
- 54). **Peristylus** goodyeroides (Don)  
Lindl.  
Peristylus gracilis Bl.  
Peristylus lacertiferus (Lindl.) J. J. Sm.
- 55). **Phaius** indochinensis Seid. & Ormerod  
Phaius mishmensis Rchb. f.  
Phaius tankervilleae (Ait.) Bl.
- 56). **Phalaenopsis** cornu-cervi Bl. & Rchb. f.
- 57). **Pholidota** articulata Lindl.  
Pholidota bracteata (Don) Lindl.  
Pholidota convallariae (Rchb. f.)  
Hk. f.  
Pholidota imbricata W. J. Hook  
Pholidota recurva Lindl.
- 58). **Polystachya** concreta Garay & Sweet
- 59). **Pomatocalpa** naevata J. J. Sm.  
Pomatocalpa spicatum Breda
- 60). **Pteroceras** leopardinum Seid. & Smitin.
- 61). **Renanthera** coccinea Lour.
- 62). **Rhynchosstylis** coelestis Rchb. f.  
Rhynchosstylis gigantea Lindl.  
Rhynchosstylis retusa Bl.
- 63). **Rhytionanthos** cornutum Garay  
Rhytionanthos spathulatum Garay
- 64). **Sarcoglyphis** yunnanensis Tsi
- 65). **Seidenfadenia** mitrata Garay
- 66). **Smitinandia** micrantha Holtt.
- 67). **Spathoglottis** affinis De Vries  
Spathoglottis eburnea Gagnep.  
Spathoglottis plicata Bl.  
Spathoglottis pubescens Lindl.
- 68). **Staurochilus** dawsonianus Schltr.  
Staurochilus fasciatus Ridl.
- 69). **Sunipia** scariosa Lindl.
- 70). **Tainia** hookeriana King & Pantl.  
Tainia latifolia (Lindl.) Rchb. f.  
Tainia viridifusca Benth. & Hk. f.
- 71). **Thelasis** pygmaea Bl.
- 72). **Thrixspermum** centipeda Lour.  
Thrixspermum leucarachne Ridl.
- 73). **Trias** intermedia Seid. & Smitin.
- 74). **Trichoglottis** tomentosa Seid.
- 75). **Trichotosia** dasyphylla Krzl.  
Trichotosia pulvinata (Lindl.) Krzl.
- 76). **Thunia** alba Rchb. f.
- 77). **Vanda** bensonii Batem.  
Vanda brunnea Rchb. f.  
Vanda coerulea Griff.  
Vanda coerulescens Griff.  
Vanda denisoniana Bens. & Rchb. f.

Vanda lilacina Teijsm. & Binn.  
Vanda liouvillei Finet.  
Vanda pumila Hk. f.

78). **Vanilla** siamensis Rolfe ex Downie

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