



NDF WORKSHOP CASE STUDIES
WG 4 – Geophytes and Epiphytes
CASE STUDY 4

Vanda coerulea
Country – THAILAND
Original language – English

NON-DETRIMENTAL FINDING OF *VANDA COERULEA*

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I. BACKGROUND INFORMATION ON THE TAXA

Vanda coerulea or Blue vanda was discovered in 1837 on *Gordonia* trees (Theaceae) in the oak and pine forests of the Khasia Hills of eastern India and described in 1847 by William Griffith.

This species is an epiphyte orchid, with monopodial growth, single stem with strap-like leaves ranked along the side. This species is native and widely distributed from Assam India, Yunnan and Guizhou province in China, Shan state in Myanmar and from northern to western province of Thailand. The blue orchid can be grown in open air medium to high light erect scape 30-50 cm. long. The inflorescence is blue elegance.

This species is famous and a symbol of Thailand, because it has a magnificent flower, with purplish blue color. This species got the honor from American Orchid Society 39 times, and has been used as the parental stock for new hybrids for more than 4000 hybrids. The famous hybrid is *Vanda Rothschildiana*.

1. BIOLOGICAL DATA

1.1 Scientific name: *Vanda coerulea* Griffh.

Common name: Blue Vanda , Far Mui (Thai language)

1.2 Distribution

In India: The species is reported to be widely distribution in large areas of Assam.

In China: Large population are reported in undisturbed forests of Yunnan, Guizhou province

In Myanmar: Large populations are found in various forests over Shan State

In Thailand: The population is found scattered in the northern part of Thailand from the mountain chain in Chiangmai and Mae Hongson provinces, to the mountain chain in Lampang and Tak provinces, and a few in the western part at Karnchanaburi provinces near Myanmar border.

1.3 Biological characteristics

1.3.1 General biological and life history

This species is an epiphytic plant: stem stout, to 10-30 cm. tall and much taller in old specimens. Monopodial growth, many leaved, the leaves usually strictly horizontal in arrangement. Leaves thickly coriaceous, usually yellow-green, up to 1.5 m. long, 1.7-2 cm. broad, conduplicate towards the base, oblique-truncate and 2 or 3 toothed at apex, sheathing and amplexicaul at base. Inflorescens mostly erect or gracefully arching, to 30 cm. long, 5-14 long lasting flowers, each 8-10 cm. across in the larger phase, thin-textured, pale blue to purplish blue, usually slightly tessellated: sepal broadly obovate, 3.5-5 cm. long, 2.5-3.5 cm. broad, round at apex: petal similar to sepal, 3-4cm. long, 1.8-2.5 cm. broad, and the petals are twisted at base: lip linear-oblong, 1.5-2.5 cm. long, 7-8 mm. broad, 3 lobed; side lobes small, falcate, 4 mm. long, midlobe with 2-3 thickened ridges centrally, and 2 calli basally, emarginated at apex; spur conical cylindrical, 5-6 mm. long, obtuse at the tip; column 6 mm. long.

Flowering period is in July–December depending on the niche habitat. Normally the plant can produce the flower after 4 or 5 years old or the plant is taller than 20 cm. The number of flowers per inflorescence depends on age of plant. In nature, the flower can self pollinate within the inflorescence and only one pod is produced, seed ripen around one year. Seeds are dispersed by air. Rarely found young plants in our survey. The plants grow very slowly; they have only two leaves in a year and drop the leaves when the plants are get old. From our survey, we found that there are one or two plants on the trees. The self pollination of the plants can cause genetic erosion leading to the extinction of the plants in the wild.

1.3.2 Habitat type and the degree of habitat specificity

This orchid grows as an epiphyte in deciduous forest, on several different tree species (such as *Lithocarpus* spp., *Terminalia* spp., *Sterospermum* spp. etc.) and can be found on the tree trunk at a

height of around 10-20 meters. It requires high altitude of about 700 to 1400 meters above sea level and a lot of humidity. Open air circulation and cool condition is essential for the growth of the species.

1.3.3 Role of the species in its ecosystem

Not applicable

1.4. Population

1.4.1 Global population size

Probably widely distributed in undisturbed forest.

1.4.2 Current global population trend

increasing decreasing stable unknown

1.5 Conservation status

1.5.1 Global conservation status (according to IUCN)

Critically endangered Near Threatened Endangered
 Least concern Vulnerable Data deficient

1.5.2 National conservation status for the case study country

Vulnerable

1.5.3 Main threats within the case study

No Threats
 Habitat Loss/Degradation (human induced)
 Invasive alien species (directly affecting the species)
 Harvesting [hunting/gathering]
 Accidental mortality (e.g. Bycatch)
 Persecution (e.g. Pest control)
 Pollution (affecting habitat and/or species)
 Other _____
 Unknown

2. SPECIES MANAGEMENT WITHIN THE COUNTRY FOR WHICH CASE STUDY IS BEING PRESENTED

2.1 Management measures

2.1.1 Management history

— To reduce deforestation, Thailand stopped the royalties for teak logging in 1989.

— In 1987 the orchids were declared as a Restricted Minor Forest Product, according to Forest Act 1941. It means that the specimens of orchids are not allowed for trade, but the consumption has a limit for personal use of only 20 plants.

— In 1992 Thailand revised the Plant Act to comply with the CITES Convention. This Act intend to promote artificial propagation of CITES listed plants and regulated international trade.

— In 1998 the Notification of Department of Agriculture declared that the exportation of orchid can be allowed only for artificially propagated plants and the nurseries have to be registered with the CITES MA of flora of Thailand.

— The plan about the area of forest in the country has been set in the Government strategic plan during five years (2006-2010), the forest area is not less than 33% and not less than 18 % of forest is a National Forest Reserve. At the same time, traditional communities are encouraged and educated about the wise use of their local natural resources.

2.1.2 Purpose of the management plan in place

- Protection of habitat
- Robust for the gene pool
- Propagation of the species
- Better law and regulation
- Education
- Ecotourism

2.1.3 General element of the management plan

— Using the network from several organization of law enforcement, conservation agencies and local communities to address the problem, share information, investigate issues and implement.

— The national strategy plan needs to enhance public awareness of local community and understanding of their local natural resources and conservation.

— Provide incentive for the local community organizations by setting aside a budget for the conservation project about local natural resources.

2.1.4 Restoration or alleviation measures

In situ conservation: Reintroduction of seedling to the area where seed pods were collected such as in Mae-Hongson, Lampang and Tak provinces. The Queen Sirikit Botanical Garden in Chiangmai has introduced the mature plant given by the local community to implant on the height tree trunk in the area where the people collected them in

the past years ago. Hopefully, this trial will make the gene pool strong and will be a highlight for ecotourism when they flower.

For sustainable conservation: The local community nearby the original habitat of *V. coerulea* collected the orchids from the forest and planted in their house for many years, and the botanist from botanical garden has been collecting the seed pods from these plants and using aseptic media for seed germination in laboratory. After transplanting and nursing the seedling in the nursery for one year, the Garden has a project to exchange ten of one year plant with one plant from the local community. The wild orchid plants have been introduced to the area where people had collected.

2.2 Monitoring system

2.2.1 Method use to monitor harvest

Conduct the surveys at the border and domestic trade around the country, along with the reports of seizures of illegal orchid trade in the local market from the forestry police.

Carry out periodic field survey at the natural habitat of this orchid to monitor the population. CITES MA has been visited and interviewed the local community and nursery men about the trade and conservation of the orchid species.

2.2.2 Confidence in the use of monitor

High confidence.

2.3. Legal framework and law enforcement

(national and international to the conservation of the species)

There are laws and regulations related to natural resources and environmental protection in Thailand; such as the 1961 National Park Act and the 1964 Forest Reserve Act.

To implement the CITES Convention, the 1992 Wildlife Animals Reservation and Protection Act has been enacted, and the 1992 Plant Act has been revised. To comply with the aforementioned Act, many regulations has been issued

To combat the illegal wild fauna and flora trade, Thailand is the lead country on the launching of the Association of Southeast Asian Nations, Wildlife Enforcement Network (ASEAN-WEN) in 2005. ASEAN-WEN works closely with the CITES Secretariat, Interpol, World Customs Organization (WCO), and United Nations Office on Drugs and Crime (UNODC).

In 2007 Thailand-WEN was established, to promote networking among relevant law enforcement agencies (e.g. customs, police, qua-

rantine, wildlife department, port/airport authorities, CITES authorities) as well as participation from local community and government to combat wildlife crime.

3. UTILIZATION AND TRADE FOR RANGE STATE FOR WHICH CASE STUDY IS BEING PRESENTED

3.1 Type of use (origin) and destination

Blue Vanda is popular among orchid enthusiasts and hybridizers, large numbers of whole plants have been removed from wild for years. The local community collected this orchid from the wild due to the attractive blue flowers, and sold them for around \$50 for a big plant with flowers (\$1=25 bath). Some plants were reared in their own houses. Now, artificial propagation provides an ample supply of plants adapted to home growing conditions. Breeders have improved the features desired by selecting good characteristics and using the self or cross pollination to develop hybrids. This factor refer to decrease the demand for wild specimens.

3.2. Harvest

3.2.1 Harvesting regime

According to the Forest Act 1941, collection of wild orchids from the forest is prohibited except for research.

3.3. Legal and illegal trade level: to the extent possible, quantify the level of legal and illegal use nationally and export and describe its nature

A CITES Management Authority and Scientific Authority of Thailand conduct sporadic monitoring the domestic and border trade, none of specimen were found. According to the report of seizures of illegal orchid trade, only 2 plants have been recorded. From the annual report Thailand has been exported the artificial propagated plant of this orchid around 200 to 600 plants in every year from 2000-2004. After COP 13th this orchid was down list to Appendix II, the export of artificial specimens reached 1000 plants in 2007. For the control of international trade, the officers at the port of export are well trained by CITES Management Authority every 2 or 3 years on how to differentiate wild collected and artificially propagated orchids and the characteristic of plants under CITES listing.

II. NON-DETRIMENTAL FINDING PROCEDURE (NDFs)

- 1. IS THE METHODOLOGY USED BASED ON THE IUCN CHECKLIST FOR NDFs**
Yes
- 2. CRITERIA, PARAMETERS AND/OR INDICATOR USED**
We used some factors on the checklist for example, Biology, Management, Control and Monitoring
- 3. MAIN SOURCE OF DATA, INCLUDING FIELD EVALUATION OR SAMPLING METHODOLOGIES AND ANALYSIS USED**
CITES Management Authority and Scientific Authority work together to find out the data and reference, and collected information from the monitoring and field survey. Some information comes from local community and from nurseryman.
- 4. EVALUATION OF DATA QUANTITY AND QUALITY FOR THE ASSESSMENT**
The data and information have been collected from several sources; some information is from interview and observation, some from the reference.
- 5. MAIN PROBLEM, CHALLENGES OR DIFFICULTIES FOUND ON THE ELABORATION OF NDF**
Thailand has a designated Scientific Authority with experts from the universities and botanical garden. They devote part time to work on CITES matter; depend on request from Management Authority. The function of MA and SA is not clearly defined and separated. For example, The SA does not have a definition of work about the term of 'Non-Detrimental', the MA have to initiate the making of NDFs. The MA provide funding for the research and cooperate with SA to carry out survey and monitoring. Sometimes the interpretation of the result is not fully based on scientific decisions.
- 6. RECOMMENDATION**
The purpose for making of Non-Detrimental finding of *Vanda coerulea* is to ensure that the down-listing of this species from Appendix I to II does not impact negatively on the survival of the species in the natural habitat. The achievements of NDFs are questionable. Many species of orchid have been declining for over 20 years while trade of wild orchids were banned in many countries, we encountered about

the recovery of the species and the control measure about the trade especially international trade. To recover the species, we have to do more research about natural biological data such as reproductive rate, pollination biology, impact of environment and the rate of survival of reintroduction plant. Nowadays, most orchids in trade are artificially propagated, the plant have characteristics distinguishing them from the wild collected, but some importing countries have stricter controls for artificially propagated. To reduce the pressure on wild-collecting and as an incentive to artificial propagation, the guidelines to differentiate wild collected and artificially propagated should be produced and the measures to control should differ.

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