The Republic of the Union of Myanmar
Ministry of Environmental Conservation and Forestry
Forest Department

Taninthayi Nature Reserve Project

# "A Report on Orchid Survey"

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## ACKNOWLEDGMENT

First of all, I would like to express my deepest gratitude and special thanks to Director General of the Forest Department, Ministry of Environmental Conservation and Forestry for giving me a chance to conduct this second orchid survey in Taninthayi Nature Reserve.

I also would like to convey my sincere thanks to U San Aung (Project Director, Taninthayi Nature Reserve) for his kind help, invaluable advice and support.

My special thanks also go to the Warden of Taninthayi Nature Reserve, U Than Naing for his kind logistic support, invaluable advice, and arrangement for tall our survey trips.

My thanks are also due to in -charges and Forest Staff of Different L.O.U for their logistic arrangement and kind assistance during our surveys.

I would like to extend my thanks to workers of Orchid Nursery at Michaung Laung Environmental Education Centre who take care our collected valuable orchids.

My thanks are also going to village and community leaders, who helped us friendly in survey trips and data collection.

Finally, last but not the least I wish to record my sincere thanks to survey members, Dr. Pan Khet Khet and Ko Lin Lin Oo for their enthusiasm and co-operative work during the orchid survey. The survey would not have accomplished without their support and help.

## II

## Background History

First Orchid Survey in TNR was successfully conducted by National Consultant (Orchid Survey) Dr. Saw Lwin and team in 2012. From the orchid survey, 194 orchid collections were performed in four survey trips from March, 2012 to November, 2012. Confirmed species numbers resulted in (73) species. Fifty genus were recorded. Orchid Herbarium Sheets (50) nos. and orchid flowers in spirit bottles (57) nos. were handed over to TNR project and "Report on Orchid Survey" was submitted in May, 2013.

The survey areas covered Yebone - Sahkangyi camp area, Service track road, Heinze – Luwiang Chaung area, some parts of Mayan Chaung area, Tharyarmon village and Raphu old village surrounding area, Koe Sint (Nine Steps waterfall, MichaungLaung old village and adjacent area, Ye Kan Taung, Kalone Tar area and Oarttaran area. Although the orchid surveys in 2012 done many places in TNR, there are some areas still left to explore due to its vast area.

The northern part and southern part of TNR are still lacking for orchid survey. So, we are concentrating the areas which are still left for surveying not covered in 2012 period.

From 2012 survey, one of the successful and impressive results is to record the new **Calanthe** species which is never recorded for science. This new botanical finding was named as ***Calanthe punctata*** by well-known **Calanthe** specialist Dr. Hubert Kurzweil, Senior Researcher from The Herbarium, Singapore Botanic Garden, Singapore and the article " ***Calanthe punctata*** (Orchidaceae), a new species from southern Myanmar "appeared World recognized Scientific Journal; Gardens' Bulletin Singapore 62(2): 163 – 168, 2013.

Another impressive result is finding a new orchid genus for Myanmar in 2012 survey. The new orchid genus for Myanmar is **Stereosandra** and **javanica** which was discovered by the survey team in Sakhangyi area. This new genus discovery has been written and hope to appear in Thai Forestry Bulletin in 2015 and besides above two impressive findings, the survey team also discovered 6 orchids which are new record for Myanmar ; ***Acriopis carii, A. javanica, Coelogyne flavida, Dendrobium excile, Habenaria myriotricha*** and ***Porpx lanii***. The above findings are now recorded more carry – on research and scientific writing.

The orchid survey team in 2012 conducted not only orchid survey but also held two orchid conservation talk at two villages; Tharyar Mon and Michaung Laung (Old Village) shared the knowledge and are "Orchid Growing Courses" for TNR staff, local

participants and Gas companies staff to know the orchid culture and conservation awareness on orchids and other flora. This course was attended by over 40 participants.

The orchid Herbarium Sheets are now displaying in well prepared glass show cases in EEC building which are very valuable things, for orchid lovers and researchers both local and abroad. The orchid survey team thanks to Project Director and staff of TNRP for arranging systematically the orchid herbarium sheets at EEC building. These exhibits can encourage knowing the orchid and other native plants' value and conservation awareness.

The orchid survey team also helped to fill with the collected orchids in Orchid Nursery of EEC, trained the staff and shared the growing knowledge for successful growing and maintenance.

## III

## Materials and Methods

## MATERIALS AND METHODS

3.1 The collection of native orchids growing naturally in the forest and along the small foot paths, near the river bank, stream and all possible places during the four survey routes in TNR appears in Fid.

3.2 The habitat and locations of specimens were determined by using Garmin 12x2 Global Position System (GPS) Device.

3.3 All the specimens were photographed digitally and also in colour prints, measured and record their habitat, inflorescences, and distinctive floral patterns and color in field note books.

3.4 All collected specimens were made into herbarium sheets and some flowers where available were preserved in 70% methylated spirit.

3.5 All live specimens were labeled, potted (or) hanged on tree branches and grown in the Michaung Laung EEC nursery.

3.6 **Orchid Survey Trips in 2014-2015 in TNR.**

3.6.1 First Survey (25.11.2014) to (11.12.2014)

Yae Kan Taung Area. Khotama Chaung Area, Raphu Area

3.6.2 Second Survey (14.1.2015) to (22.1.2015)

Kyauk Shuk Area, Zin bar CF Area, Thetkel Kwet Area, Ka Lone Tar Ywa Area

3.6.3 Third Survey (12.2.2015) to (23.2.2015)

Community Forest 1, 2 and 3 in Zin bar Area, Ye Bone and Sakhangyi Area

3.6.4 Fourth Survey (24.3.2015) to (1.4.2015)

Mye Khan Baw Village and Surrounding Forest Area

## IV

## Orchid Survey Trips

### 4.1 First Orchid Survey

### 4.1.1 Daily Program of First Trip

### 25.11.2014 (Tuesday)

Yangon to Kanbauk by Hevilift P2-KSI, Kant Kaw Taung, TNRP Office.

### 26.11.2014 (Wednesday)

Meeting and Discussion with P.D of TNRP. Preparation for the survey, Kant Kaw Taung, TNRP Office.

### 27.11.2014 (Thursday)

Kanbauk to Yae KanTaung. Yae KanTaung area survey, Yae KanTaung camp site.

### 28.11.2014 (Friday)

Climb up Kyaut Kha Mout Taung and conduct orchid survey in the morning. Walk rim of Yae Kan Taung Lake for survey the whole afternoon and evening, Yae Kan Taung camp site.

### 29.11.2014 (Saturday)

Climb up Payar Pon Kaung Taung (Microwave Taung) and orchid survey in the morning. Afternoon, orchid survey in adjacent area of Yae Kan Taung, Yae Kan Taung camp site (Night Stop).

**30.11.2014 (Sunday)**

Move back from Yae Kan Taung to Kant Kaw Taung, TNRP Office.

**1.12.2014 (Monday)**

Sorting Collected Orchids, Preparation Herbarium Sheets and spirit collection in the whole morning, left to Service Track Road afternoon, Arrived Khotama camp site, cleansed and settled Khotama camp.

**2.12.2014 (Tuesday)**

Whole day Orchid Survey along the Khotama Chaung, Khotama campsite (night stop).

**3.12.2014 (Wednesday)**

Orchid Survey along the Thaphu Chaung in the whole morning. Conduct survey up to meeting point of Thaphu Chaung and Zinn Bar Chaung in afternoon and evening, Night stop at Khotama camp site.

**4.12.2014 (Thursday)**

Orchid Survey along the Mayan Chaung. Then, Bamboo rafting to Zin Bar and Mayan Chaung meeting place. Arrived back camp late evening, Khotama camp site.

**5.12.2014 (Friday)**

Orchid Survey along the Service Track Road up to Kyauk Lone Gyi Sakhan, evening pick us up by Truck and get back Kant Kaw Taung, TNRP Office.

**6.12.2014 (Saturday)**

Sorting out collected plants and preparation for next trip in the whole morning. Left TNRP Office 1:00pm and arrive Raphu LOU 1:45pm.Night stop at Raphu LOU.

**7.12.2014 (Sunday)**

Left Raphu L.O.U, arrived Raphu old village (now, only betel nut plantation) and orchid survey in the old village, adjacent area. Night stop at Raphu old village.

**8.12.2014 (Monday)**

Move to Kin Chaung Camp and conduct survey the whole day, night stop at Kin Chaung Camp site.

**9.12.2014 (Tuesday)**

Conduct orchid survey along the Kin Chaung area the whole day, night stop at Kin Chaung Camp site.

**10.12.2014 (Wednesday)**

Left Kin Chaung camp 8:00am.Conduct orchid survey on along way back to Raphu L.O.U. pick us up 3:00pm and arrive back TNRP office evening. Night stop at TNRP Guest House.

**11.12.2014 (Thursday)**

Sorting out and clearing the collected plants and prepare herbarium sheets. Left TNRP office 1:00pm and take Moe Kaung Kin Express Bus at Ka Lain Aung, 4:00pm.

**12.12.2014 (Friday)**

Arrived back Yangon early morning.

### 4.1.2 Findings and Results

Forty orchid collections (collection no. TNRO 195 to TNRO 234) were collected from the first orchid survey trip (2014).

**Yae Kan Taung Area**

The aim of this time survey to Yae Kan Taung is to find the situation of our New Record for Science orchid; ***Calanthe punctata***, its threats and survey to left areas around Yae Kan Taung. Ye' Kan Taung Lake was built last 164 years ago, some local people said. Yae Kaung Taung Lake is actually the water supply source for Mining Factory near Kan Bauk village. It was learnt that this Mine was now leased to a Private Company from Ministry of Mines. Now, this private Mining Company is constructing a road from their Mine to Yae Kan Taung and it is nearly finished. The new record for science; ***Calanthe punctata*** habitat is now same situation like last two years ago and the population number also the same. However, the habitat of this beautiful species is very fragile condition and it is very close to new road. There may be more visitors will come to Yae Kan Taung from Kan Bauk and other places as picnic or worshiping the pagodas around the lake. It is strongly recommend saving the habitat of this very unusual, endemic orchid and its population. Some other orchids were noticed grow well around lake and no evidence of collection. Six orchid collections were done from Yae Kan Tanug area.

**Khotama Chaung Area**

From this trip, Khotama Chaung, Thapyu Chaung, Mayan Chaung and surrounding areas were surveyed. One beautiful ***Cirrhopetalum* sp** and another small and yellow color flower ***Bulbophyllum* sp** were prominent and collected. These two beautiful small epiphytic orchids were collected on the fallen tree near the Kohtama Chaung. Most of orchids in this area are very similar to Service Track which we collected 2012. However, there is more orchid population than the place that we surveyed last two years ago. A Clump of rare and beautiful ***Calanthe vestita*** **(Thazin Gyi Ahphyu)** was collected on a high tree branch near Thapyu Chaung. Although this special orchid were abundant in last over 3 decades but now rare and rare due to over collection. Other interesting finding was ***Renanthera coccinea*** on a tree near the confluence of Thapyu Chaung and Zin Bar Chaung. ***Renanthera coccinea*** is one of the important parents of today **Renanthera** Hybrids. On the third day, large population of ***Thrixspermum cetipeda*** with interesting flowers were encountered on the way to Mayan Chaung and very nice photos could be taken. ***Eria obesa Thrixspermum trichogllotis*** could be collected with flowers. Twenty- nine orchids were collected from Khotama Chaung Area. No evidence of orchid collection was noticed in this area.

**Raphu Area**

Due to security reason, the survey team was not allowed to enter the core area of TNR. All surveys were done around the Raphu Old village and along the Kin Chaung area. However, the collections and finding of two new small epiphytic orchids were satisfactory for this area. The orchid species diversity is not very high in this area but the population number is extremely high. But one of the sad information is no finding of ***Bulbophyllum auricomum*** **(Thazin)** which were very abundant in this area long times ago. Local people said this kind of orchid is difficult to find and only easy to find when the flowers come out. The special finding from this trip is not only orchids but also accidently finding of ***Crinum thianum*** (the lily which grows in the running water) in the Kin Chaung near Raphu Old village. According to the information from Thai crinum taxonomists, this lily was only can be found in Thai and endemic to Thai. The Lily grows in Kin Chaung is very similar to Thai. More research on this Lily should be conducted to obtain more scientific information of this very unusual plant. Five orchid collections were done from Raphu area.

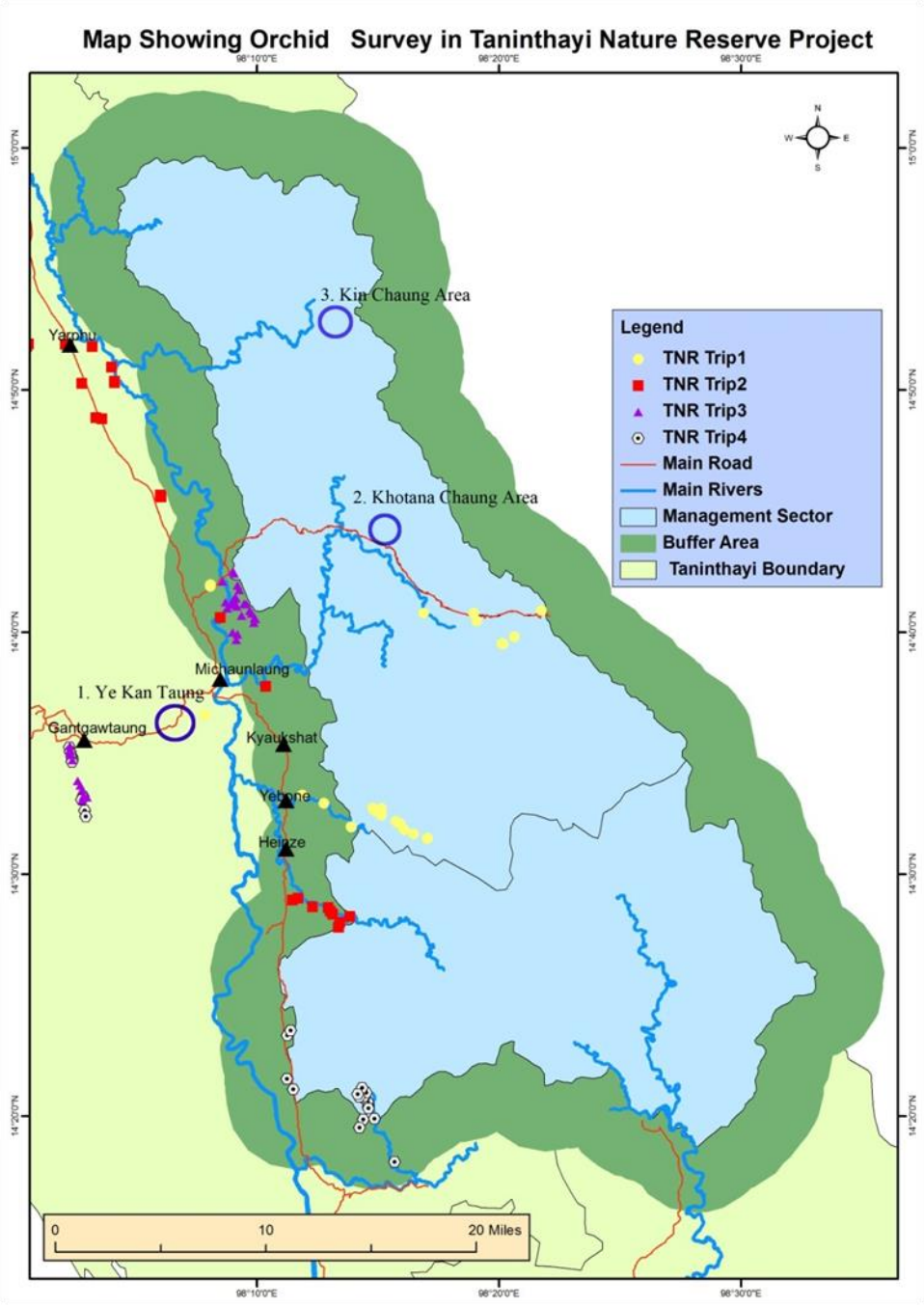
**4.1.3 Orchids collected from First Survey Trip in TNRP, 2014**

| Sr.no. | Collecting code no. | Genus (or) Species | Collected places |
|---|---|---|---|
| | TNRO-195 | ***Eria*** Sp. | Yae Kan Taung |
| | TNRO-196 | ***Bulbophyllum*** Sp. | Yae Kan Taung |
| | TNRO- 197 | ***Oberonia*** Sp. | Yae Kan Taung |
| | TNRO- 198 | ***Smithinandia*** Sp. | Yae Kan Taung |
| | TNRO- 199 | ***Bulbophyllum*** Sp. | Yae Kan Taung |
| | TNRO-200 | ***Bulbophyllum*** Sp. | Yae Kan Taung |
| | TNRO-201 | ***Liparis*** Sp. | Khotama Chaung Area |
| | TNRO-202 | ***Acriopsis*** Sp. | Khotama Chaung Area |
| | TNRO-203 | ***Dendrobium*** Sp. | Khotama Chaung Area |
| | TNRO-204 | ***Dendrobium crumenatum*** | Khotama Chaung Area |
| | TNRO-205 | ***Rhynchostylis retusa*** | Khotama Chaung Area |
| | TNRO-206 | ***Thrixspermum*** Sp. | Khotama Chaung Area |

| | | |
|---|---|---|
| TNRO-207 | ***Gastrochilus*** Sp. | Khotama Chaung Area |
| TNRO-208 | ***Liparis*** Sp. | Khotama Chaung Area |
| TNRO-209 | ***Trias*** Sp. | Khotama Chaung Area |
| TNRO-210 | ***Vandaceous*** Sp. | Khotama Chaung Area |
| TNRO-211 | ***Vandaceous*** Sp. | Khotama Chaung Area |
| TNRO-212 | ***Gastrochilus*** Sp. | Khotama Chaung Area |
| TNRO-213 | ***Renanthera coccianea*** | Khotama Chaung Area |
| TNRO-214 | ***Vandaceous*** Sp. | Khotama Chaung Area |
| TNRO-215 | ***Agrostophyllum*** Sp. | Khotama Chaung Area |
| TNRO-216 | ***Calanthe vestita*** | Khotama Chaung Area |
| TNRO-217 | ***Eria obesa*** | Khotama Chaung Area |
| TNRO-218 | ***Bulbophyllum*** Sp. | Khotama Chaung Area |
| TNRO-219 | ***Cirrhopetalum*** Sp. | Khotama Chaung Area |
| TNRO-220 | ***Bulbophyllum*** Sp. | Khotama Chaung Area |
| TNRO-221 | ***Cirrhopetalum*** Sp. | Khotama Chaung Area |
| TNRO-222 | ***Oberonia*** Sp. | Khotama Chaung Area |
| TNRO-223 | ***Thrixspermum centipeda*** | Khotama Chaung Area |
| TNRO-224 | ***Trias*** Sp. | Khotama Chaung Area |
| TNRO-225 | ***Dendrobium*** Sp. | Khotama Chaung Area |
| TNRO-226 | ***Coelogyne*** Sp. | Khotama Chaung Area |
| TNRO-227 | ***Bulbophyllum*** Sp. | Khotama Chaung Area |
| TNRO-228 | ***Oberonia*** Sp. | Khotama Chaung Area |
| TNRO-229 | ***Thrixspermum*** Sp. | Khotama Chaung Area |
| TNRO-230 | ***Oberonia*** Sp. | Raphu Area |
| TNRO-231 | ***Vandaceous*** Sp. | Raphu Area |

| | | |
|---|---|---|
| TNRO-232 | ***Dendrobium*** Sp. | Raphu Area |
| TNRO-233 | ***Bulbophyllum*** Sp. | Raphu Area |
| TNRO-234 | ***Trias*** Sp. | Raphu Area |

### 4.1.4 Survey Map and Photo( First Survey in 2014)



New record for Science; ***Calanthe punctata*** Kurzweil adult plant growing healthily on a rock

Relatively large population of ***Calanthe punctata*** Kurzweil small seedlings on rock

Water pipe line and road to Yae Kan Taung which are threats to orchid existence

Previously good forests were cut down for road construction

Scenic beauty of Yae Kan Taung

***Panisea uniflora*** are common in Yae Kan Taung area.

Dr. Pan Khet Khet and Ko Lin Lin Oo; recording the G.P.S positions

Beautiful ***Bulbophyllum lemniscatum*** collected from Yae Kan Taung area

Forester Ko Aung Myat Tun recording the foot prints of small animals in Yae Kan Taung

***Calanthe punctata*** Kurzweil habitat and its situation survey

Research on ***Arundina graminifolia*** (Bamboo Orchid)

A group photo of our orchid survey group and supporting forest team from Mi Kyaung Hlaung EEC

We were wet the whole day in survey along the Khotama Chaung.

Fallen trees in the forest are paradise for orchid researchers.

Rare ***Calanthe vestita*** **(Thazin Gyi Ahphyu)** clump growing on a tree branch

Close up beauty of ***Calanthe vestita***

Very cute petite ***Bulbophyllum* spp**


Our camp near Khotama Chaung

***Thrixspermum centipeda*** flowers are very attractive which looks like spiders.

We also surveyed on a bamboo raft along the Zin Bar chaung.


Systematic Digital photo recording

Abundant ***Bulbophyllum*** **sp** are growing naturally on betel nut plantation.

***Acampe* sp** is also very common in TNR area.

Our team spent one night stop in this small hut of Raphu area.

Crinum sp is attractive, which are very similar to Thai's endemic ***Crinum thaianum***.

Close up beauty of ***Crinum***

Various varieties of Rattans are also growing well in Raphu area.

***Oberonia* sp** hanging down from tree branch

A scenic beauty of Kin Chaung

Our simple lunch; fried egg, laphet and fish curry

Having lunch together near Kin Chaung

New finding small orchid clump with flowers (compare the size of ball pen tip)

Looking for the orchid plants on the trees

Forester Ko Thet Ko, his staff, local forest guards from Raphu LOU and our orchid survey team

## 4.2 Second Orchid Survey

### 4.2.1 Daily Program of Orchid Survey in Kyauk Shuk Area

### 14.1.2015 (Wednesday)

Team left from Yangon.

### 15.1.2015 (Thursday)

Arrived Kaleinaung on 7:15 AM morning. Left from Khant Kaw Taung office. Arrive Kyauk Shuk LOU, met U Soe Nyunt Aung, In charge of Kyauk Shuk LOU and discussed the trip. Night stop at Kyauk Shuk L.O.U.

### 16.1.201 (Friday)

Left Kyauke Shuk LOU accompanied with U Soe Nyunt Aung, Ko Win Min Oo (Local staff), Ko Arkar Linn, 4 porters and Ko Wai Yan Kyaw, team member of rattan survey team led by Dr. Nyan Tun. Conducted survey along the route and night stop at Kadin Pyar (Gyanpyar), elevation 1104 ft.

### 17.1.2015 (Saturday)

Left Kadin Pyar camp site after breakfast 7:30 AM. 2:00 PM arrived Pharkhon Chaung (ဖားခုန်ချောင်း) and night stop. Ko Wai Yan Kyaw and Dr. Pann Khet Khet climbed up the Kabarkyaw range up to 1471 ft and collected some orchids.

### 18.1.2015 (Sunday)

After having breakfast, left camp on 8:30 AM. Climbed up Moe Pin Range (elevation 1848'), Arrived Meinmapan upstream and had lunch. Left 2:30 PM and climbed down the steep range. Arrived Payar Taung Kyaung (ဘုရားတောင်ကျောင်း) and night stop.

**19.1.2015 (Monday)**

Left Payar Taung Kyaung 8:30 AM. Collected orchids along the Myintaung Stream. Arrived back the camp afternoon. Night stop at Payar Taung Kyaung.

**20.1.2015 (Tuesday)**

Left the camp 8:00 AM. Climbed up the nearby mountain range and conducted survey the whole morning. Got back the camp and had lunch 1:30 PM. Left the Payar Taung Camp 2:30 PM. Arrived back Kyauke Shuk Village 4:00 PM. Night stop at Kyauk Shuk LOU.

**21.1.2015 (Wednesday)**

Had breakfast in the village. TNR Park Warden U Than Naing arrived Kyauk Shuk LOU and returned back to Khant Kaw Taung office by U Than Naing's wagon. Arrived back Khant Kaw Taung office 3:00 PM. Night stop at Khant Kaw Taung Guest House.

**22.1.2015 (Thursday)**

Prepared and cleared the collected orchids, herbarium sheets and spirit collections. Left Khant Kaw Taung, 2:00 PM and travelled by Moe Kaung Kin Express bus at Kaleinaung. Arrived back Yangon early morning 23.1.2015.

**4.2.2 Orchid Survey in Thatkel Kwet and Kalonetar Area (21.1.2015 to 26.1.2015)**

**21.1.2015 (Wednesday)**

Left Kyauk Shuk L.O.U afternoon and arrived Thetkel Kwat L.O.U evening. Night stop at LOU and discussed with In charge of L.O.U U Zaw Minn regarding with forth coming orchid survey.

**22.1.2015 (Thursday)**

Left Thetkel Kwet L.O.U after breakfast and conducted orchid survey surrounding mountain ranges around Thetkel Kwat village. Night stop at L.O.U.

**23.1.2015 (Friday)**

Conducted continuously orchid survey in Thetkel Kwet area accompanied with forester, U Thet Naing and a local guide the whole day. Night stop at L.O.U.

**24.1.2015 (Saturday)**

After having breakfast, left Thetkel Kwet by motorcycle accompanied by U Zaw Minn, In charge of Thetkel Kwat LOU. Arrived Kalonetar village 10:30 am. Camped near Kalonetanr Chaung. Conducted orchid survey in two directions from the camp.

**25.1.2015 (Sunday)**

Surveys were conducted another two directions which have left by yesterday trip in the whole morning and afternoon. Left 5:00 PM from Kalonetar camp, arrived Thetkel Kwet L.O.U 7:00 PM. Night stop at L.O.U.

**26.1.2015 (Monday)**

All collected orchids were cleared and arranged systematically. All Herbarium sheets arranged and cleaned. Left Thetkel Kwet L.O.U evening and arrived Khantkaw Taung Guest House late evening. Night stop at Khantkaw Taung Guest House.

**4.2.3 Findings and Results**

The survey trip in Kyauk Shuk area was interesting and very tired trip for the survey team. The survey team encountered very few native orchids in deep and dense primary forests during survey since orchids prefer open air and a lot of sunshine conditions.

However, many wild orchids could be found open and deciduous forest type in Payar Taung area. Unusual ***Vandaceous*** orchid sp which resembles ***Holcoglossum amesiana*** was collected near Kamyaung Chaung area on the way to Malakar Taung.

Another two interesting orchids during this survey are ***Phalaenopsis*** sp in Kamyauk Chaung Pyar and a Terrestrial orchid with beautiful leaves called Jewel orchid ***(Ludisia discolor***) under the shade of Moepin Range evergreen forest.

The team encountered some orchids growing at Payar Taung Kyaung and flowering of ***Dendrobium tortile***, ***D. linleyii*** and ***D. crumenatum***. On the way back to Kyauk Shak village, abundant flowering of ***D. crumenatum*** was seen on the betel nut plantations and on perennial trees.

***Eria merguensis*** orchid plant with flower spikes could collect Nwelein Kyaunktan mountain range near Nwelein Payar Taung. ***Pholidota articulata***, ***D. chrysotoxum***, ***D. famerii***, ***D. formosum*** and ***Eria schulleriana*** were encountered with flower spikes during the trip.

Around Thetkel Kwat area, most of the native orchids are similar to other TNR area . Abundant orchids were noticed still grow well on the trees near Kalonetar Chaung, Hlay Kar Htaung Chaung and surrounding area.

### 4.2.4 List of Orchids collected in Kyauk Shuk Area (14-1-2015 to 21-1-2015)

1. TNRO - 235 ***Bulbophyllum*** Sp.
2. TNRO - 236 Vandaceous Sp.
3. TNRO - 237 ***Phalaenopsis*** Sp.
4. TNRO - 238 ***Phalaenopsis*** Sp.
5. TNRO - 239 ***Ludisia discolor***
6. TNRO - 240 ***Bulbophyllum*** Sp.
7. TNRO - 241 ***Lusia*** Sp.
8. TNRO -242 ***Bulbophyllum*** Sp.
9. TNRO - 243 ***Eria merguensis***

Nine orchid samples collected from Kyauk Shuk area (3) **Bulbophyllum** Sp., (1) ***Eria*** Sp., (1) ***Lusia*** Sp., (1) ***Ludisia*** Sp., (2) ***Phalaenopsis*** Sp., (1) ***Vandaceous*** Sp. were collected.

### 4.2.5 List of Orchids Collected in Thetkel Kwet Area (21-1-2015 to 23-1-2015)

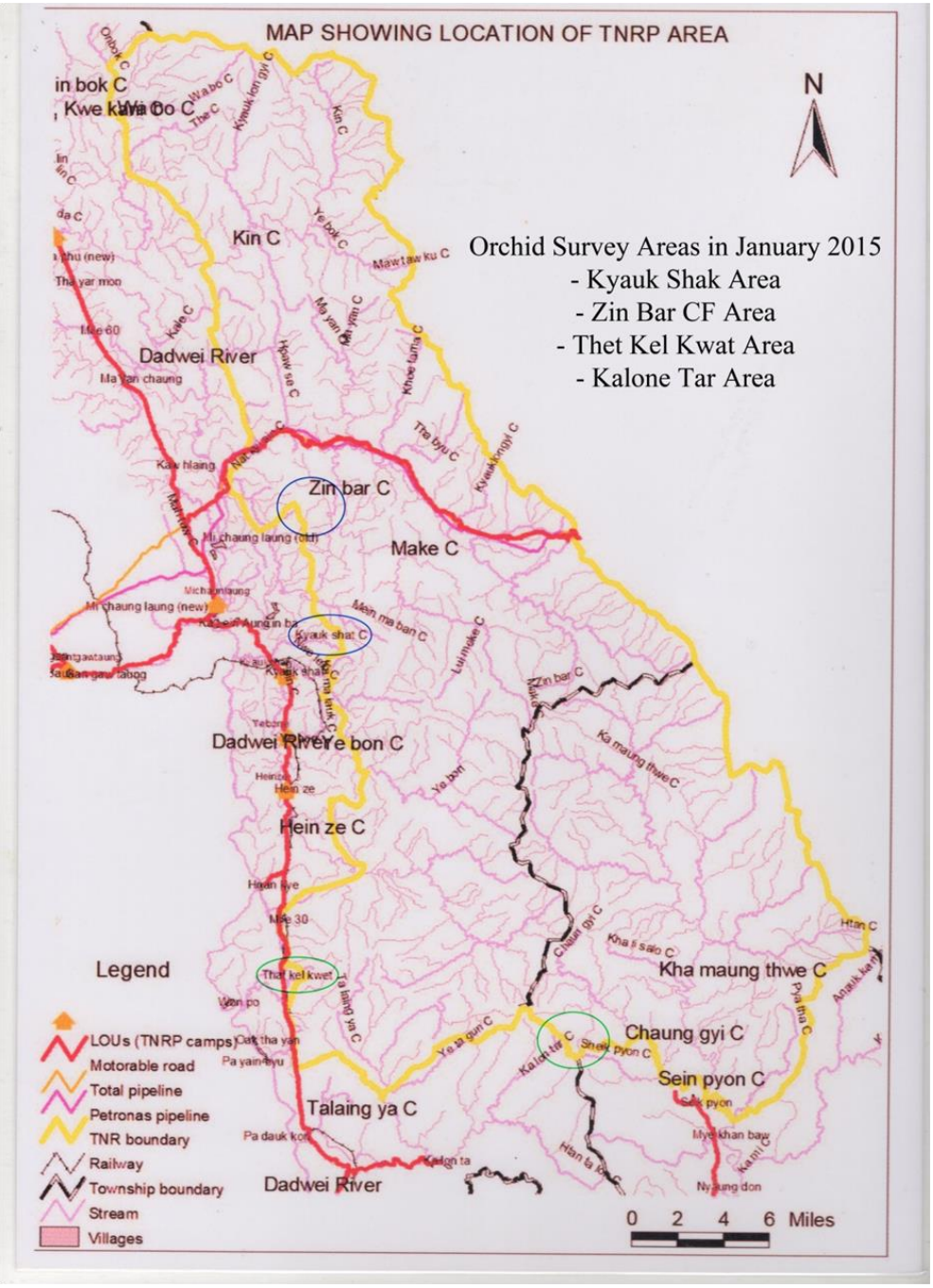
1. TNRO - 244 ***Rhynchostylis*** Sp.
2. TNRO - 245 ***Cymbidium*** Sp.
3. TNRO - 246 ***Dendrobium*** Sp.
4. TNRO - 247 ***Aerides*** Sp.
5. TNRO - 248 ***Aerides*** Sp.
6. TNRO - 249 ***Dendrobium*** Sp.
7. TNRO - 250 ***Dendrobium*** Sp.
8. TNRO - 251 ***Cirrhopetalum*** Sp.

### 4.2.6 List of Orchids Collected in Kalone Thar Chaung and Hlaykhar Taung Chaung (24-1-2015 to 25-1-2015)

1. TNRO - 252 ***Aerides*** Sp.
2. TNRO -253 ***Trias*** Sp.
3. TNRO -254 ***Acampe*** Sp.
4. TNRO -255 ***Gastrochilus*** Sp.
5. TNRO - 256 ***Dendrobium*** Sp.
6. TNRO - 257 ***Dendrobium*** Sp.
7. TNRO - 258 ***Bulbophyllum*** Sp.
8. TNRO - 259 ***Trias*** Sp.
9. TNRO - 260 ***Dendrobium*** Sp.
10. TNRO - 261 ***Aerides*** Sp.

Eighteen orchid samples collected from Thet Kel Kwat and Kalone Thar Chaung and Lhay Khar Taung Chaung area (1) ***Acampe*** Sp., (4) ***Aerides*** Sp.,(1) ***Bulbophyllum*** Sp., (1) ***Cirrhopetalum*** Sp., (1) ***Cymbidium*** Sp., (6) ***Dendrobium*** Sp., (1) ***Gastrochilus*** Sp., (1) ***Rhynchostylis*** Sp., (2) ***Trias*** Sp. were collected.

### 4.2.7 Survey Map and Photo(Second Survey in 2014-15)



# Orchids of Thet Ke Kwayt area

***Acriopsis*** species on a tree

***Bulbophyllum auricomum*** with many flower spikes

# Orchid collections for research

Local guide collecting orchids for survey team

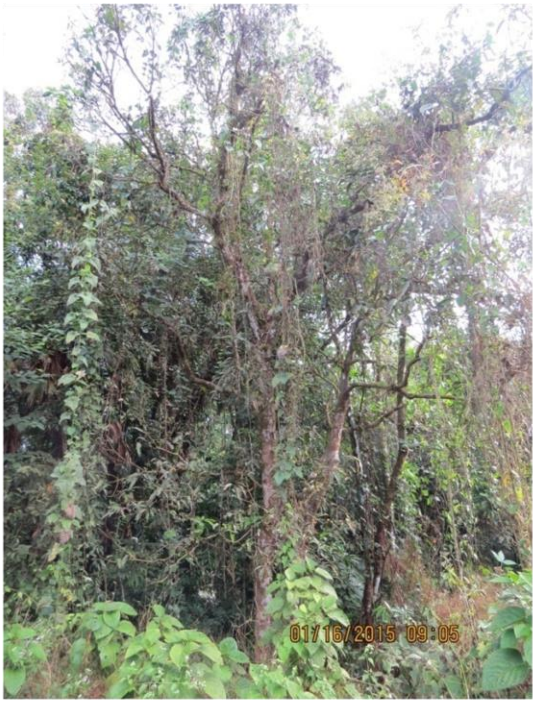
***Dendrobium formosum*** with big fruits

## ***Pomotocalpa*** species

Beautiful yellow flowers

Natural habitat of
***Pomotocalpa*** species


***Acampe*** Sp.

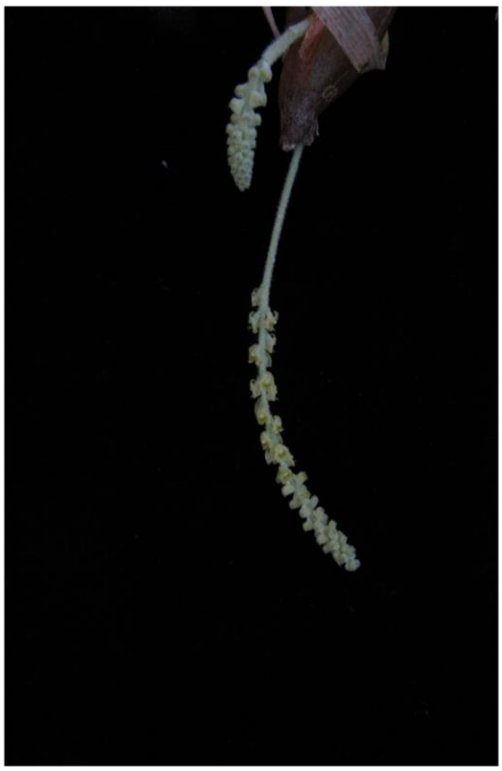



Old trees are good habitat for
Epiphetic Orchids.


Survey Team in Primary Evergreen Forest of Kyauk Shak Area.


Conducting Orchid Survey in Open Forest.


***Eria merguensis***



***Eria merguensis*** Flower spike


***Dendrobium crumenatum***

Golden Yellow ***Bulbophyllum*** Sp.

Wild Orchids cover the whole rock


***Eria obesa***


Hanging ***Dendrobium*** Sp.


The whole tree branch covered with Native Orchids

***Thrixspermum trichoglottis***

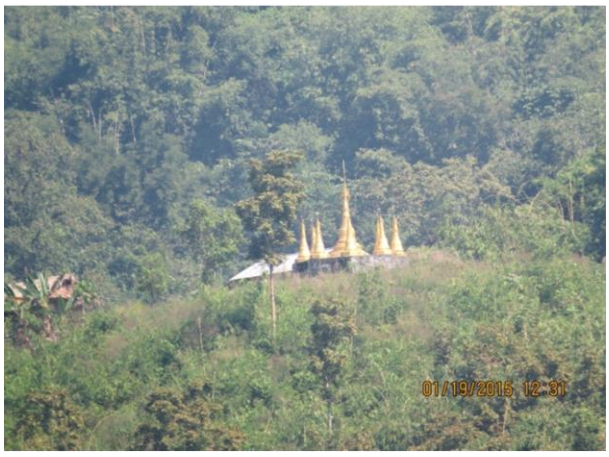

A Wild ***Phalaenopsis*** Orchid with fruits


Primary Forest in Kyauk Shak Area


Jewel Orchid

***Phalaenopsis*** in Shady Area


Dr. Pan Khet Khet distributing her orchid knowledge with TNR Staff and local villagers




Old Pagodas in Payar Taung Kyaung

Beautiful Sunrise in Payar Taung Kyaung

***Paphalaenopsis*** hanging on tree branch

Some orchids grow well on rock

***Acampe orchriatum***

Orchid Survey team, Kyauk Shak LOU Staff and supporting local villagers

### 4.3 Third Orchid Survey

#### 4.3.1 Daily Program of Survey in Community Forest, 1, 2 and 3 in Zin Bar Chaung Area

**4.2.2015 (Tuesday)**

Dr. Hubert Kurzweil arrived Yangon via Silk Air.

**25.2.2015 (Wednesday)**

Left Yangon 5:30 am. Arrived Kant Kaw Taung Office 6:00 pm. Met Warden U Than Naing, Staff officer U Myo Min Latt and discussed about the trip to Ye Bone area at the office. Night stop at Shwe Leikpyar Guest House.

**26.2.2015 (Thursday)**

Left Guest House 7:30 am. Met Warden U Than Naing, Staff office, U Hla Myo Aung, NCs. Dr. Nyan Tun and Daw Than Than Aye . Left Kant Kaw Taung Office and bought dried rations and essencial things for the trip at Kan Bauk Market. Then, proceed to Kalein Aung with Staff Officer U Hla Myo Aung . Had Lunch at Kalein Aung.

Arrived Kyauk Shet L.O.U 1:00pm and did orchid survey around Kyauk Shet village . Night stop at Kyauk Shet L.O.U.

**27.2.2015 (Friday)**

Left Kyauk Shet L.O.U and arrived Ye Bone L.O.U 8:15 am. Left Ye Bone L.O.U together with Ko Win Min Oo, local guard from Kyauk Shet L.O.U and other (7) porters. Started to climb up Si Pin Range. Arrived top of the Si Pin Range 2:15 pm. Arrived Byatkathan Camp (in the core area) 5:30 pm. Night stop at Byatkathan Camp.

**28.2.2015 (Saturday)**

Left Byatkathan Camp 8:45 am after breakfast. Arrived Chaung-ma-gyi camp site 1:00 pm. Had lunch at Chaung-ma-gyi site and left 1:30 pm. Arrived Sakhangyi camp 4:45 pm. Night stop at Sakhangyi camp.

**1.3.2015 (Sunday)**

Conducted orchid survey around Sakhangyi Camp area. Prepared herbarium sheets preparation and cleaned collected orchid species. Night stop at Sakhangyi camp.

**2.3.2015 (Monday)**

Left Sakhangyi camp after having breakfast 8:30 am. Conducted orchid survey along the small stream which united into Sakhangyi stream. Took footpath in the bamboo forest to Thai Border and surveyed about 2 miles area. Arrived back the camp with collected orchids 2:00 pm. Checked the collected orchids and making herbarium sheets and spirit bottle collections. Night stop at Sakhangyi camp.

**3.3.2015 (Tuesday)**

After breakfast fried rice, left Sakhangyi camp. 9:00 am. Arrived Ye Pu area 10:45 pm. Arrived Byatkathan camp 3:45 pm and night stop.

**4.3.2015 (Wednesday)**

Left Sakhangyi camp 8:30 am. Arrived Ye Bone L.O.U 1:00 pm. Then, took hired pick-up truck and arrived back Kant Kaw Taung office 2:00 pm. Met U Than Naing and Dr. Nyan Tun. Arrived Shwe Leikpyar Guest House. 4:00 pm. Hosted dinner for U Than Naing, Dr. Nyan Tun and U Hla Myo Aung at Myittar Mon Restaurant. Night stop at Shwe Leikpyar Guest House.

**5.3.2015 (Thursday)**

Met Warden U Than Naing in the morning. Left 8:30 from Kan Bauk and arrived Maw la myaing evening . Night stop at Shwe Myint Mo Tun Hotel , Maw la myaing.

**6.3.2015 (Friday)**

Left Maw La Myaing 8:30 am. Arrived Yangon evening.

**7.3.2015 (Saturday)**

Dr. Hubert Kurzweil left Yangon 10:30 via Singapore Airline flight to Singapore.

**4.3.2 Findings and Results**

Orchid survey trips were conducted in Community Forest Plot No. 1, 2 and 3 in Zin bar Area. Those CF forests in Zin bar Area are open forest type and mixed evergreen forest type. The forests in CF 1, 2 and 3 are unique for native orchids. Many native orchids grow well abundant in this area. This area is ideal forest for orchid lovers who love orchids. Many native orchids found in this area are very similar to Raphu, Michaung Hlaung and Heinze areas. However, 5 orchid spp. were recorded. They are two ***Bulbophyllum*** sp., one ***Porpax***, one ***Micropera*** and one ***Dendrobium*** spp.

From this trip, five collections (TNRO 262 – TNRO 266) were collected.

Sakhangyi area and on the way from Ye Bone village to Sakhangyi area were very interesting for orchid survey as well as for eco-tourism. Although Si Pin Range was over 1200ft and climbing was tired, the trip was interesting with different kinds of native orchids.

We encountered very big tree (may be some are already hundred years). Since before the Byatkathan camp which is in the core area of TNR. On the way to Byatkathan, ***Dendrobium aphyllum*** with beautiful flowers was able to photograph. ***Acriopsis lillifolia***, (previously called ***Acriopsis* j*avanica***) with flowers were encountered abundantly in the bamboo forests. This orchid grows mostly on the bamboo. So, local people called this orchid as bamboo orchid **(Wah Thitkhwa)**.

Near Byatkathan camp, very interesting ground orchid **Haetaria spp***.* was collected and encountered lots of saprophytic orchid ***Epipogium rosseum*** with flowers on the forest floor. This saprophytic might be new record for Myanmar and after checking with references we like to write an article on this finding. Around the Byatkathan camp, very tall (about 6.5 feet) ground orchid ***Coryporkis vertrifolia*** was encountered which also might be new record for Myanmar, however, further more research needed to confirm and should take more time.

From Byatkathan to Sakhangyi camp was very good primary forest. Although there was so big trees and difficult to climb, some interesting orchids could be collected from the fallen trees.

***Dendrobium parcum*** with yellow flowers, ***D. tortile*** and ***Trichotosia dysyphylla*** were collected.

***Didymoplexis pallens*** with delicate white flowers were founded abundantly near the bamboo groves before Sakhangyi camp.

On 1st March, 2015, we did survey near Sakhangyi area especially on the island where variety of epiphytic orchids grow naturally on the trees. ***Eria xanthochella*** with flowers were collected first time during Taninthayi survey. Some unidentified *Liparis spp* and ***Bulbophyllum* spp** were also collected. We also could collect TNRO 273, ***Coelogyne tenaserresimensis*** with flowers on trees on the island**.** ***Trias picta*** plants with beautiful spotted triangle flowers were collected for herbarium specimen and spirit collection.

On the last day in Sakhangyi camp, 2nd, March, 2015, we went to a little further north about two miles from Sakhangyi camp. Only one single clump of ***Calanthe*** was collected and we left few plants for future propagation and for conservation.

When we got back Ye Bone L.O.U, one of our workers gave us a ***Dendrobium* spp** with flowers and we collected as TNRO 278.

We feel that our orchid survey to Sakhangyi area was very beneficial for our TNR orchid survey program and we witnessed that that area still exists as very valuable primary natural forest.

### 4.3.3 Collected Orchids

**Collected Area**

On the way from Ye Bone to Sakhangyi camp, Sakhangyi area

**Collected Orchids**

1. TNRO 267 ***Haetaria*** *spp.*
2. TNRO 268 ***Epipogium roseum***
3. TNRO 269 ***Oberonia*** *spp.*
4. TNRO 270 ***Eria xanthocheilla***
5. TNRO 271 ***Liparis*** *spp.*
6. TNRO 272 ***Bulbophyllum*** *spp.*
7. TNRO 273 **Caelogyne tenasserimensis**

8. TNRO 274 ***Bulbophyllum*** *spp.*

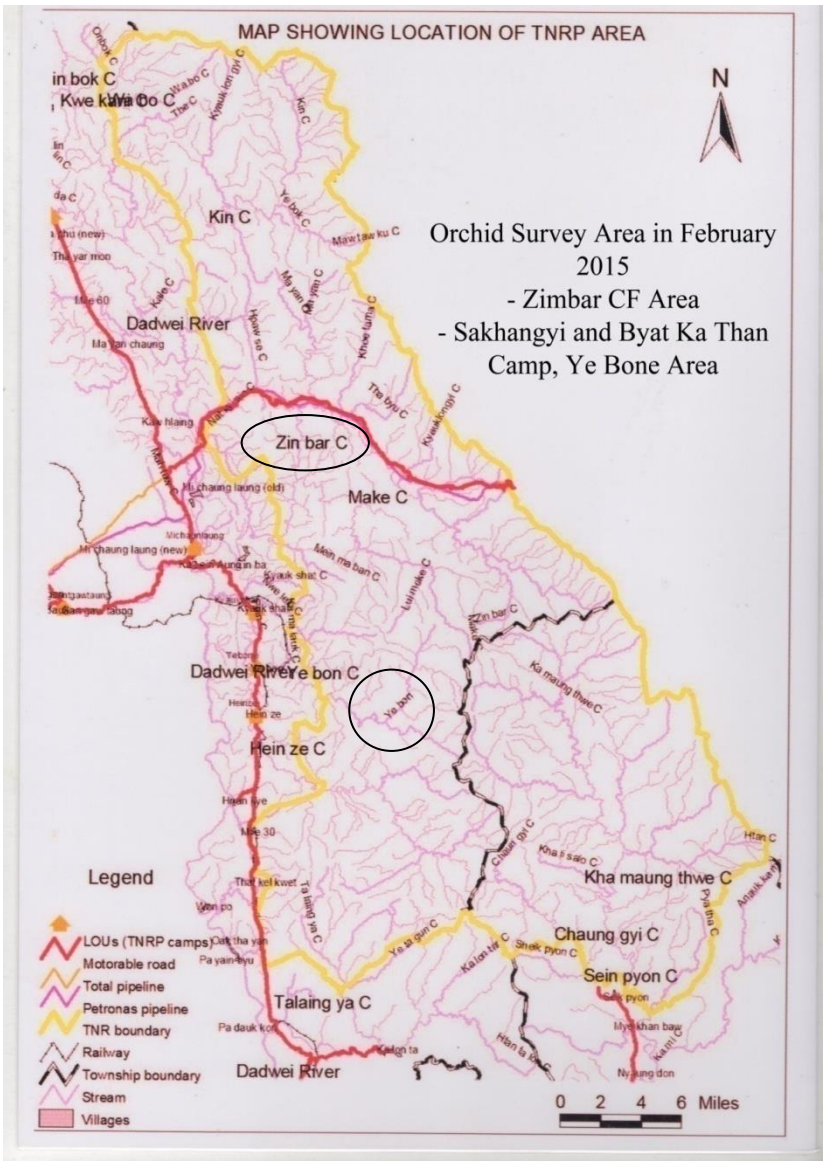
9. TNRO 275 ***Calanthe*** *spp.*

10. TNRO 276 ***Bulophyllum*** *spp.*

11. TNRO 277 ***Pomatocalpa*** *spp.*

12. TNRO 278 ***Dendrobium*** *spp.*

### 4.3.4 Survey Map and Photos( Third survey in 2014-15)



# Zinbar Area Orchid Survey (CF 1,2,3)

Crossing the Zinbar Stream

Undisturbed Forest

## *Dendrobium aphyllum*

Very long ***Dendrobium aphyllum***

Close up beauty of ***Dendrobium aphyllum***

## *Dendrobium farmerii*

***Dendrobium farmerii*** in its natural habitat

Close up beauty of ***Dendrobium farmerii***

## *Bulbophyllm auricomum* (သစ်ပန်း)

***Bulbophyllum auricomum*** grows in its natural habitat

***Bulbophyllum auricomum*** bears fruits

## *Bulbophyllum* species (TNRO 266)


New record for TNR orchid survey

A spike of white flowers

## Collected orchids

***Bulbophyllum colony*** on a big rock

***Flickingeria*** species

Dr. Saw Lwin, preparing orchid herbarium

Dr. Hubert Kurzweil, photographing the orchid

Abundant native orchids in Sakhangyi area

*Trias picta*

Only one clump of *Calanthe* was founded during 3rd trip


Very minute *Bulbophyllum moliniforme*

*Eria xanthocheilla*

Dr. Saw Lwin recording the collected orchids at Sakhangyi Camp

*Epipogium roseum,* a saprophytic orchid

Coelogyne *tenasserimensis*

## 4.4 Fourth Orchid Survey

### 4.4.1 Daily Program of Fourth Orchid Survey

**24.3.2015 (Tuesday)**

Team left from Yangon.

**25.3.2015 (Wednesday)**

Arrived Kaleinaung on 1:30 AM morning. Met U Than Naing and prepared for the trip.

**26.3.2015 (Thursday)**

Left Khant Kaw Taung office accompanied with U Than Naing 4;00 AM. Arrived Dawei on 5:45 AM. On the way back, met Ko Sai Zaw Latt, In charge of Mye Kan Baw L.O.U and bought necessary things and rations for the trip. Arrived Mye Kan Baw village 1:00 PM. Night stop at Mye Kan Baw L.O.U new office building.

**27.3.2015 (Friday)**

Left the village 7:00 AM after having breakfast. Conducted orchid survey in the forest near the village. The survey team encountered plenty of ***Ascocentrum curvifolium*** with red flower spikes growing on the trees in the nearby forests. ***Dendrobium fimbriatum*** with beautiful flower spikes also collected. ***D. formosum, D. crepidatum, Agrostophyllum planicule, Oberonia* sp.*, Porpax* sp.*, Eria perpusilla, Bulbophyllum* sp**. were collected. Had lunch at the watchmen's house of this 60 acres forest owned by U Taw Phyu who is Headman of Mye Kan Baw village. Afternoon survey, ***D. aphyllum, Thrixspermum centipeda, Acampe rigida, Cymbidium aloifolium, Luisia* sp.*, Smithinandia* sp.** and some ***Bulbophyllum* sp**. were collected.

**28.3.2015 (Saturday)**

Had breakfast fried rice and left the village on 8:45 AM. After 20mins cycle drive, arrived Sein Pyon village. Orchids were collected in the betel nut and prenenial trees plantation around the village. ***Thrixspermum* sp.** was found abundantly on the trees. ***Ascocentrum curvifolium*** was also found abundantly in its natural habitats. ***Dendrobium crumenatum*** was common in this area and collected with mature fruits.

Another five different orchid species; TNRO 297 ***Oberonia acaulis***, TNRO 298 ***O. falcata***, TNRO 299 ***O. prainiana***, TNRO 300 ***Agrustophyllum brevipes*** and ***Dendrobium hymenanthum*** were collected.

**29.3.2015 (Sunday)**

Rest at Mye Kan Baw L.O.U office and cleansed, checked the collected orchids in previous days.

**30.3.2015 (Monday)**

Orchid survey was performed in the betel and cashew nut plantation and collected TNRO 302 ***Saccolabiopsis pusilla*** plants. These orchids which grow on Pyin Ma trees. ***Smithinandia micranthum*** (TNRO 303) was also collected. During today trip, ***Cymbidium aloifolium, Dendrobium aphyllum, D. crumenatum, Ascocentrum aurifolium, Acriopsis lilifolia, Oberonia* sp.**, ***Acampe* sp.**, ***Agrostophyllum planicule*** were found on betel nut trees and perennial trees.

**31.3.2015 (Tuesday)**

Had breakfast at Ko Nge Lay shop and packed personnel things and all collected orchids samples. Left on 11:30 AM by Grand Tiger truck from TNRP office and arrived Baharyi village on 1:15 PM. Arrived Mi Kyaunglaung and handed over 2 bags of collected orchids for growing. At night, Project Director hosted dinner for all National Consultants, L.O.U in charges, all staff of TNRP at Myittarmon Restaurant in Kan Bauk.

**1.4.2015 (Wednesday)**

After breakfast, discussed about report with Project Director. Left Khant Kaw Taung office by Highway bus and arrived safely back Yangon 2.4.2015 early morning.

**4.4.2 Findings and Results**

Mye Kan Baw village surrounding forests are very interesting for orchid survey. During 2012 survey, only one plant ***Ascocentrium curvifolium*** could be collected and thus, we thought that species was very rare in TNR area. However, many ***Ascocentrum curvifolium*** with red-orange flower spikes in their habitat were found abundantly in both natural forests as well as cashew nut plantation near Mye Kan Baw village.

Due to weather changes and destruction of natural forests, small stream near Mye Kan Baw village is nearly disappeared. Many varieties of native orchids such as ***Dendrobium formosum, D. crepidatum, D. famerii, D. aphyllum, D. crumenathum, Agrostophyllum planicule, Oberonia*** 3 species***, Smithinandia micranthum*** with flower spikes were seen on the betel nut and cashew nut plantation numerously.

***D. hymenanthum*** was collected first time in this survey and previous survey. ***Saccolabiopsis pusilla*** with very cute tiny flowers were also encountered first time.

According to references, this beautiful orchid was recorded as reported for Myanmar before.

### 4.4.3 Survey Map and Photo ( Fourth Survey in 2014-15)

***Ascocentrum curvifolium*** in natural habitat

***Dendrobium hymenanthun***

Collecting orchids from betel nut plantation

***Saccolabiopsis pusilla***

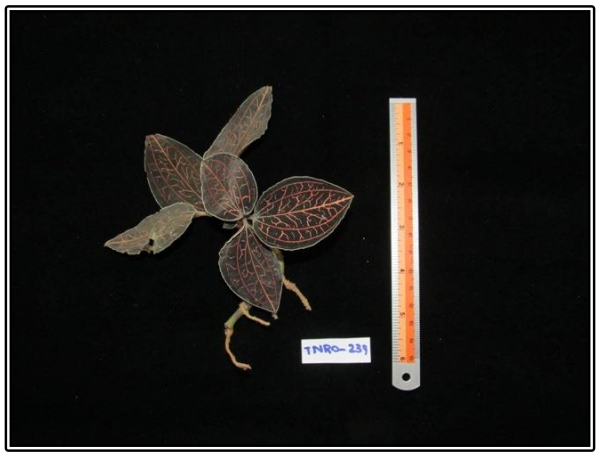
## 5.0 List of Orchids Species collected in Fourth Orchid Survey, 2014-2015

1. TNRO 196 ***Bulbophyllum lemniscata***
2. TNRO 239 ***Ludisia discolor***
3. TNRO 243 ***Eria merguensis***
4. TNRO 268 ***Epipogium roseum***
5. TNRO 272 ***Trichotosia dysyphylla***
6. TNRO 273 ***Coelogyne tenasserimensis***
7. TNRO 276 ***Bulbophyllum moliniforme***
8. TNRO 283 ***Eria perpusilla***
9. TNRO 284 ***Dendrobium heterocarpum***
10. TNRO 286 ***D. thyrsiflorum***
11. TNRO 291 ***Eulophia zollingeri***
12. TNRO 296 ***Micropera pallida***
13. TNRO 297 ***Oberonia acaulis***
14. TNRO 298 ***O. falcata***
15. TNRO 299 ***O. prainiana***
16. TNRO 300 ***D. hymenanthum***
17. TNRO 302 ***Saccolabiopsis pusilla***

1. TNRO - 196 ***Bulbophyllum lemniscatum*** Par.ex. Hk. f


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Yae Khan Taung |
| GPS Position | : | N 14˙ 32′ 44.7″; E 098˙ 02′ 52.1″ |
| Altitude | : | 2273’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | November |
| Stem | : | Rough pseudobulb set close together |
| Leaves | : | Lanceolate |
| Inflorescences | : | Erect |
| Flowers | : | Many, small flowers, reddish brown color |
| Sepals | : | Red and white lamellated paela |
| Petals | : | Reddish brown color |
| Lip | : | White color |
| Odour | : | - |
| Remark | : | - |

2. TNRO 239 ***Ludisia discolor*** (Ker-Gawl.) A, Rich




| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Kyauk Shuk Sankhan |
| GPS Position | : | N 14˙ 35´ 46.9˝; E 098˙ 15´ 07.6˝ |
| Altitude | : | 1591’ |
| Habit | : | Sympodial terrestrial |
| Flowering Period | : | February - April |
| Stem | : | Erect, short |
| Leaves | : | Ovate, dark reddish green with five longitudinal red veins, branching veins from the midrib |
| Inflorescences | : | Erect, pubescent |
| Flowers | : | White color with yellow anther |
| Sepals | : | Glabrous, ovate |
| Petals | : | Linear - lanceolate |
| Lip | : | White color |
| Odour | : | - |
| Remark | : | Rare |

3. TNRO 243 ***Eria merguensis (merguense)*** Lindl.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Kyauk Shuk Sankhan |
| GPS Position | : | N 14˙ 35´ 35.5˝; E 098˙ 12´ 29.1˝ |
| Altitude | : | 567’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | January |
| Stem | : | Cylindrical, tapering towards the apex |
| Leaves | : | Apical elliptic |
| Inflorescences | : | Terminal |
| Flowers | : | Light yellow color, many flowered |
| Sepals | : | Light yellow color |
| Petals | : | Light yellow color |
| Lip | : | Light greenish yellow color |
| Odour | : | - |
| Remark | : | - |

4. TNRO 268 ***Epipogium roseum*** (D.Don) Lindl.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sakhangyi Area-Ye-Bone |
| GPS Position | : | N 14˙ 32´ 46.˝8; E 098˙ 14´ 43.5˝ |
| Altitude | : | 869’ |
| Habit | : | Sympodial terrestrial |
| Flowering Period | : | April – June |
| Stem | : | Pale brown, tuberous, narrowly fusiform, erect |
| Leaves | : | No green leaves |
| Inflorescences | : | Pendulous toward apex |
| Flowers | : | Resupinate, pendulous, many, white color |
| Sepals | : | Weakly spreading, linear - lanceolate |
| Petals | : | Slightly shorter and wider than sepals |
| Lip | : | White with faint purple spots, spurred at base |
| Odour | : | - |
| Remark | : | - |

5. TNRO 272 ***Trichotosia dysyphylla*** (Par. & Rchb.f.) Krzl.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sakhangyi Area-Ye-Bone |
| GPS Position | : | N 14˙ 31´ 28.8˝; E 098˙ 17´ 01.8˝ |
| Altitude | : | 551’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | January |
| Stem | : | Very short |
| Leaves | : | Small with soft hairs, tufted |
| Inflorescences | : | Short, axillary |
| Flowers | : | Hairy yellowish green color, small, solitary |
| Sepals | : | Long white hairs abaxially |
| Petals | : | Oblong, abaxially with dense white long hairs |
| Lip | : | Two brownish purple patches on disc, obovate-oblong |
| Odour | : | - |
| Remark | : | - |

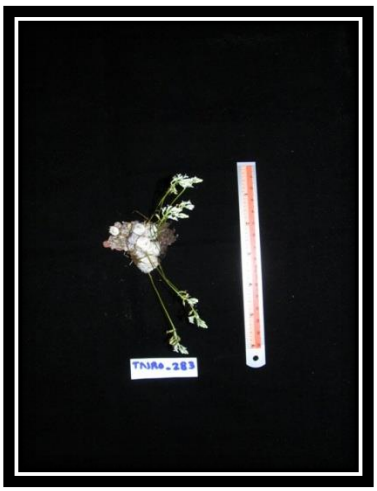
6. TNRO 273 ***Coelogyne tenasserimensis*** Seidenf.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sakhangyi Area-Ye-Bone |
| GPS Position | : | N14˙ 3 1´ 28.8 ; E 098˙ 17´ 01.8˝ |
| Altitude | : | 551’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | February |
| Stem | : | Ovoid, glossy pseudobulb |
| Leaves | : | Erect, fleshly |
| Inflorescences | : | Emerges among the 2 leaves |
| Flowers | : | Yellow color, erect |
| Sepals | : | Yellow color, spread |
| Petals | : | Yellow color |
| Lip | : | Dark brown at the base |
| Odour | : | - |
| Remark | : | - |

7. TNRO 276 ***Bulbophyllum moliniforme*** Par. & Rchb.f.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sakhangyi Area-Ye-Bone |
| GPS Position | : | N 14˙ 31´ 21.4˝; E 098˙ 17´ 15.7˝ |
| Altitude | : | 719’ |
| Habit | : | Sympodial epiphytes, lithophyte |
| Flowering Period | : | November |
| Stem | : | Short,green pseudoblulbs in clusters |
| Leaves | : | Erect, fleshly, deciduous |
| Inflorescences | : | Solitary |
| Flowers | : | Small, orange color |
| Sepals | : | Orange with dark orange line |
| Petals | : | Smaller than sepals with dark orange line |
| Lip | : | Dark orange |
| Odour | : | - |
| Remark | : | One of the smallest sizes of orchids of the ***Bulbophyllum*** |

8. TNRO 283 ***Eria perpusilla*** Par. & Rchb.f.




| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sin Pho Sin Ma Taung Gyaw |
| GPS Position | : | N 14˙ 22´ 03.5˝; E 098˙ 20´ 14.3˝ |
| Altitude | : | 2837’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | February |
| Stem | : | Thin |
| Leaves | : | Narrowly elliptic, deciduous |
| Inflorescences | : | Many, long |
| Flowers | : | White color |
| Sepals | : | White color |
| Petals | : | White color |
| Lip | : | Greenish at the base of lip |
| Odour | : | - |
| Remark | : | - |

9. TNRO 284 ***Dendrobium heterocarpum*** Lindl.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sin Pho Sin Ma Taung Gyaw |
| GPS Position | : | N 14˙ 22´ 03.5˝; E 098˙ 20´ 14.3˝ |
| Altitude | : | 2837’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | March – April |
| Stem | : | Erect, thick, stout pseudostem |
| Leaves | : | Oblong – lanceolate, alternate, many |
| Inflorescences | : | Arising from the apical part of deciduous old stem |
| Flowers | : | In a group, long lived, cream – color |
| Sepals | : | Cream – color, spread |
| Petals | : | Cream – color, spread |
| Lip | : | Streaked with red- purple, ovate - lancelate |
| Odour | : | Fragrant |
| Remark | : | - |

10. TNRO 286 ***D. thyrsiflorum*** Rchb.f.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sin Pho Sin Ma Taung Gyaw |
| GPS Position | : | N 14˙ 22´ 03.5˝; E 098˙ 20´ 14.3˝ |
| Altitude | : | 2837’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | April – May |
| Stem | : | Slender, cylindrical, stout, base narrow |
| Leaves | : | Many alternate, oblancelate |
| Inflorescences | : | Pendulous, many |
| Flowers | : | Densely many – flowered, white color |
| Sepals | : | White color, sometimes flushed pink especially abaxially |
| Petals | : | Suborbicular, white color |
| Lip | : | Yellow color with orange base, suborbicular-triangular |
| Odour | : | Fragrant |
| Remark | : | - |

11. TNRO 291 ***Eulophia zollingeri*** (Rchb.f.) J. J. Sm.

| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Hnan Gye |
| GPS Position | : | N 14˙ 27′ 06.3″; E 098˙ 11′ 05.6″ |
| Altitude | : | 358’ |
| Habit | : | Saprophytes |
| Flowering Period | : | April – May |
| Stem | : | Pseudobulb below grown, large, erect |
| Leaves | : | Green leave absent |
| Inflorescences | : | Stout, with several scattered |
| Flowers | : | Reddish – brown color, suberect, not wide-opening |
| Sepals | : | Apex acuminate |
| Petals | : | Oblanceolate, apex mucronate, shorter and broader than sepals |
| Lip | : | Midlobe cream-colored with purple on apex, Apex rounded |
| Odour | : | Unpleasant |
| Remark | : | - |

12. TNRO 296 ***Micropera pallid*** (Roxb.) Lindl.

| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Mye Khan Baw |
| GPS Position | : | N 14˙ 17′ 40.8″; E 098˙ 26′ 44.9″ |
| Altitude | : | 648’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | August – September |
| Stem | : | Thin, slender |
| Leaves | : | Linear, fleshly |
| Inflorescences | : | Drooping |
| Flowers | : | Yellow color, close |
| Sepals | : | Outside with red-brown stripes |
| Petals | : | Yellow color |
| Lip | : | White with yellow calli |
| Odour | : | - |
| Remark | : | - |

13. TNRO 297 ***Oberonia acaulis*** Griff.

| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sein Pyon |
| GPS Position | : | N 14˙ 20´ 05.5˝; E 098˙ 26´ 24.8˝ |
| Altitude | : | 701’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | November – January |
| Stem | : | Short |
| Leaves | : | Laterally compressed, subbasal, thick |
| Inflorescences | : | Peduncle subterete, many |
| Flowers | : | Many, Greenish color |
| Sepals | : | Ovate, Greenish color |
| Petals | : | Oblong, apex rounded |
| Lip | : | Apex of lib bilobed |
| Odour | : | - |
| Remark | : | - |

14. TNRO 298 ***O. falcate*** King & Pantl.

| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sein Pyon |
| GPS Position | : | N 14˙ 20′ 05.5″; E 098˙ 26′ 24.8″ |
| Altitude | : | 701’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | September |
| Stem | : | Thin pseudobulb, slender |
| Leaves | : | Linear, acute, thick |
| Inflorescences | : | Pendulous, many |
| Flowers | : | Greenish color, bearing flowers almost to the base |
| Sepals | : | Ovate-acute, spreading |
| Petals | : | Elliptic, blunt, spreading |
| Lip | : | Brownish orange color, side lobes much shorter than sepals |
| Odour | : | - |
| Remark | : | - |

15. TNRO 299 ***O. prainiana*** King & Plantl.


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sein Pyon |
| GPS Position | : | N 14˙ 20´ 05.5˝; E 098˙ 26´ 24.8˝ |
| Altitude | : | 701’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | August |
| Stem | : | Very short |
| Leaves | : | Thick |
| Inflorescences | : | Slender |
| Flowers | : | Very small, red-brown color |
| Sepals | : | Rolled back below the flower, edges entire |
| Petals | : | Spreading, narrowly triangular, acute |
| Lip | : | Large, oblong, spreading, apex blunt |
| Odour | : | - |
| Remark | : | - |

16. TNRO 300 ***D. hymenanthum*** Rchb.f.

| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Sein Pyon |
| GPS Position | : | N 14˙ 20´ 05.5˝; E 098˙ 26´ 24.8˝ |
| Altitude | : | 701’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | March – July |
| Stem | : | Narrow & cylindrical, fleshly, four angled |
| Leaves | : | Linear – lanceolate, at the apex of the stem |
| Inflorescences | : | One-flowered, from the upper part of the stem |
| Flowers | : | White color, not spred |
| Sepals | : | White color |
| Petals | : | White color |
| Lip | : | At the tip greenish yellow wart |
| Odour | : | Fragrant |
| Remark | : | - |

17. TNRO 302 ***Saccolabiopsis pusilla*** (Lindl.) Seidenf. & Garay


| | | |
|---|---|---|
| Vernacular Name | : | - |
| Distribution | : | Mye Khan Baw |
| GPS Position | : | N 14˙ 19´ 14.9˝; E 098˙ 24´ 18.3˝ |
| Altitude | : | 1214’ |
| Habit | : | Sympodial epiphytes |
| Flowering Period | : | February – March |
| Stem | : | Enveloped by leaf bearing sheaths |
| Leaves | : | Narrowly oblong-elliptic |
| Inflorescences | : | Pendant, many |
| Flowers | : | Light greenish-yellow color |
| Sepals | : | Greenish-yellow color |
| Petals | : | Greenish-yellow color |
| Lip | : | Broad, white with purple markings |
| Odour | : | - |
| Remark | : | - |

## 6.0 List of TNR Orchid Herbaria Collections (2014 – 2015)

1. TNRO – 196 ***Bulbophyllum*** Sp.
2. TNRO – 197 ***Oberonia*** Sp.
3. TNRO – 206 ***Thrixspermum*** Sp.
4. TNRO – 216 ***Calanthe vestita***
5. TNRO – 217 ***Eria obesa***
6. TNRO – 220 ***Bulbophyllum*** Sp.
7. TNRO – 221 ***Cirrhopetalum*** Sp.
8. TNRO – 222 ***Oberonia*** Sp.
9. TNRO – 223 ***Thrixspermum centipeda***
10. TNRO – 224 ***Trias*** Sp.
11. TNRO – 227 ***Bulbophyllum*** Sp.
12. TNRO – 228 ***Oberonia*** Sp.
13. TNRO – 230 ***Oberonia*** Sp.
14. TNRO – 231 ***Vandaceous*** Sp.
15. TNRO – 233 ***Bulbophyllum*** Sp.
16. TNRO – 235 ***Bulbophyllum*** Sp.
17. TNRO – 240 ***Bulbophyllum*** Sp.
18. TNRO – 242 ***Bulbophyllum*** Sp.
19. TNRO – 243 ***Eria merguensis***
20. TNRO – 246 ***Dendrobium*** Sp.
21. TNRO – 253 ***Trias*** Sp.
22. TNRO – 255 ***Gastrochilus*** Sp.

23. TNRO- 259 ***Trias*** Sp.

24. TNRO – 266 ***Bulbophyllum*** sp.

25. TNRO – 267 ***Haetaria*** sp.

26. TNRO – 268 ***Epipogium roseum***

27. TNRO – 270 ***Eria xanthocheilla***

28. TNRO – 271 ***Liparis*** sp.

29. TNRO – 273 ***Caelogyne tenasserimensis***

30. TNRO – 274 ***Bulbophyllum*** sp.

31. TNRO – 277 ***Pomatocalpa*** sp.

32. TNRO – 278 ***Dendrobium*** sp.

33. TNRO – 279 ***Cirrhopetallum*** sp.

34. TNRO – 281 ***Epipogium roseum***

35. TNRO – 283 ***Eria perpusilla***

36. TNRO – 284 ***Dendrobium heterocarpum***

37. TNRO – 286 ***D. thyrsiflorum***

38. TNRO – 287 ***Dendrobium scabrilingue***

39. TNRO – 289 ***Bulbophyllum*** sp.

40. TNRO – 291 ***Eulophia zollingeri***

41. TNRO – 293 ***Ascocentrum curvifolium***

42. TNRO – 295 ***Luisia*** sp.

43. TNRO – 296 ***Micropera pallida***

44. TNRO – 297 ***Oberonia acaulis***

45. TNRO – 298 ***O. falcata***

46. TNRO – 299 ***O. prainiana***

47. TNRO – 300 ***D. hymenanthun***

48. TNRO – 301 ***Agrostophyllum*** sp.

49. TNRO – 302 ***Saccolabiopsis pusilla***

50. TNRO – 303 ***Smitinandia micrantha***

**Total – 50 Herbaria Collections**

## 7.0 List of TNR Orchid Flower Spirit Collections ( 2014-2015)

1. TNRO – 197 ***Oberonia*** Sp.
2. TNRO – 206 ***Thrixspermum*** Sp.
3. TNRO – 216 ***Calanthe vestita***
4. TNRO – 222 ***Oberonia*** Sp.
5. TNRO – 223 ***Thrixspermum centipeda***
6. TNRO – 224 ***Trias*** Sp.
7. TNRO – 227 ***Bulbophyllum*** Sp.
8. TNRO – 230 ***Oberonia*** Sp.
9. TNRO – 231 ***Vandaceous*** Sp.
10. TNRO – 233 ***Bulbophyllum*** Sp.
11. TNRO – 240 ***Bulbophyllum*** Sp.
12. TNRO – 246 ***Dendrobium*** Sp.
13. TNRO – 253 ***Trias*** Sp.
14. TNRO – 255 ***Gastrochilus*** Sp.
15. TNRO – 259 ***Trias*** Sp.
16. TNRO – 267 ***Haetaria*** sp.
17. TNRO – 268 ***Epipogium roseum***
18. TNRO – 269 ***Oberonia*** sp.
19. TNRO – 276 ***Bulophyllum*** sp.
20. TNRO – 278 ***Dendrobium*** sp.
21. TNRO – 279 ***Cirrhopetallum*** sp.
22. TNRO – 281 ***Epipogium roseum***

23. TNRO – 283 ***Eria perpusilla***

24. TNRO – 284 ***Dendrobium heterocarpum***

25. TNRO – 285 ***Dendrobium*** sp.

26. TNRO – 286 ***D. thyrsiflorum***

27. TNRO – 287 ***Dendrobium scabrilingue***

28. TNRO – 288 ***Bulbophyllum tripaleum***

29. TNRO – 289 ***Bulbophyllum*** sp.

30. TNRO – 291 ***Eulophia zollingeri***

31. TNRO – 293 ***Ascocentrum curvifolium***

32. TNRO – 295 ***Luisia*** sp.

33. TNRO – 296 ***Micropera pallida***

34. TNRO – 300 ***D. hymenanthun***

35. TNRO – 302 ***Saccolabiopsis pusilla***

36. TNRO – 303 ***Smitinandia micrantha***

**Total – 36 Sprit Collection Bottles**

**8.0 List of Orchid Species collected (TNRO – 195 to TNRO – 303) in TNR Orchid Survey, 2014 – 2015**

1. TNRO-195 ***Eria*** Sp.
2. TNRO-196 ***Bulbophyllum*** Sp.
3. TNRO-197 ***Oberonia*** Sp.
4. TNRO-198 ***Smithinandia*** Sp.
5. TNRO-199 ***Bulbophyllum*** Sp.
6. TNRO-200 ***Bulbophyllum*** Sp.
7. TNRO-201 ***Liparis*** Sp.
8. TNRO-202 ***Acriopsis*** Sp.
9. TNRO-203 ***Dendrobium*** Sp.
10. TNRO-204 ***Dendrobium crumenatum***
11. TNRO-205 ***Rhynchostylis retusa***
12. TNRO-206 ***Thrixspermum*** Sp.
13. TNRO-207 ***Gastrochilus*** Sp.
14. TNRO-208 ***Liparis*** Sp.
15. TNRO-209 ***Trias*** Sp.
16. TNRO-210 ***Vandaceous*** Sp.
17. TNRO-211 ***Vandaceous*** Sp.
18. TNRO-212 ***Gastrochilus*** Sp.
19. TNRO-213 ***Renanthera coccianea***
20. TNRO-214 ***Vandaceous*** Sp.
21. TNRO-215 ***Agrostophyllum*** Sp.
22. TNRO-216 ***Calanthe vestita***
23. TNRO-217 ***Eria obesa***
24. TNRO-218 ***Bulbophyllum*** Sp.
25. TNRO-219 ***Cirrhopetalum*** Sp.
26. TNRO-220 ***Bulbophyllum*** Sp.
27. TNRO-221 ***Cirrhopetalum*** Sp.
28. TNRO-222 ***Oberonia*** Sp.
29. TNRO-223 ***Thrixspermum centipeda***
30. TNRO-224 ***Trias*** Sp.
31. TNRO-225 ***Dendrobium*** Sp.
32. TNRO-226 ***Coelogyne*** Sp.
33. TNRO-227 ***Bulbophyllum*** Sp.
34. TNRO-228 ***Oberonia*** Sp.
35. TNRO-229 ***Thrixspermum*** Sp.
36. TNRO-230 ***Oberonia*** Sp.
37. TNRO-231 ***Vandaceous*** Sp.

38. TNRO-232 ***Dendrobium*** Sp.
39. TNRO-233 ***Bulbophyllum*** Sp.
40. TNRO-234 ***Trias*** Sp.
41. TNRO-235 ***Bulbophyllum*** Sp.
42. TNRO-236 ***Vandaceous*** Sp.
43. TNRO-237 ***Phalaenopsis*** Sp.
44. TNRO-238 ***Phalaenopsis*** Sp.
45. TNRO-239 ***Ludisia discolor***
46. TNRO-240 ***Bulbophyllum*** Sp.
47. TNRO-241 ***Lusia*** Sp.
48. TNRO-242 ***Bulbophyllum*** Sp.
49. TNRO-243 ***Eria merguensis***
50. TNRO-244 ***Rhynchostylis*** Sp.
51. TNRO-245 ***Cymbidium*** Sp.
52. TNRO-246 ***Dendrobium*** Sp.
53. TNRO-247 ***Aerides*** Sp.
54. TNRO-248 ***Aerides*** Sp.
55. TNRO-249 ***Dendrobium*** Sp.
56. TNRO-250 ***Dendrobium*** Sp.
57. TNRO-251 ***Cirrhopetalum*** Sp.
58. TNRO-252 ***Aerides*** Sp.
59. TNRO-253 ***Trias*** Sp.
60. TNRO-254 ***Acampe*** Sp.
61. TNRO-255 ***Gastrochilus*** Sp.
62. TNRO-256 ***Dendrobium*** Sp.
63. TNRO-257 ***Dendrobium*** Sp.
64. TNRO-258 ***Bulbophyllum*** Sp.
65. TNRO-259 ***Trias*** Sp.
66. TNRO-260 ***Dendrobium*** Sp.
67. TNRO-261 ***Aerides*** Sp.
68. TNRO-262 ***Bulbophyllum*** sp.
69. TNRO-263 ***Porpax elwesii***
70. TNRO-264 ***Dendrobium*** sp.
71. TNRO-265 ***Micropera*** sp.
72. TNRO-266 ***Bulbophyllum*** sp.
73. TNRO-267 ***Haetaria*** sp.
74. TNRO-268 ***Epipogium roseum***
75. TNRO-269 ***Oberonia*** sp.
76. TNRO-270 ***Eria xanthocheilla***
77. TNRO-271 ***Liparis*** sp.

78. TNRO=272 ***Trichotosia dysyphylla***
79. TNRO-273 ***Caelogyne tenasserimensis***
80. TNRO-274 ***Bulbophyllum*** sp.
81. TNRO-275 ***Calanthe*** sp.
82. TNRO-276 ***Bulophyllum*** sp.
83. TNRO-277 ***Pomatocalpa*** sp.
84. TNRO-278 ***Dendrobium*** sp.
85. TNRO-279 ***Cirrhopetallum*** sp.
86. TNRO-280 ***Vandaceous*** sp.
87. TNRO-281 ***Epipogium roseum***
88. TNRO-282 ***Coelogyne*** sp.
89. TNRO-283 ***Eria perpusilla***
90. TNRO-284 ***Dendrobium heterocarpum***
91. TNRO-285 ***Dendrobium*** sp.
92. TNRO-286 ***D. thyrsiflorum***
93. TNRO-287 ***Dendrobium scabrilingue***
94. TNRO-288 ***Bulbophyllum tripaleum***
95. TNRO-289 ***Bulbophyllum*** sp.
96. TNRO-290 ***Renanthera coccinea***
97. TNRO-291 ***Eulophia zollingeri***
98. TNRO-292 ***Vandaceous*** sp.
99. TNRO-293 ***Ascocentrum curvifolium***
100. TNRO-294 ***Smithinandia*** sp.
101. TNRO-295 ***Luisia*** sp.
102. TNRO-296 ***Micropera pallid***
103. TNRO-297 ***Oberonia acaulis***
104. TNRO-298 ***O. falcata***
105. TNRO-299 ***O. prainiana***
106. TNRO-300 ***D. hymenanthun***
107. TNRO-301 ***Agrostophyllum*** sp.
108. TNRO-302 ***Saccolabiopsis pusilla***
109. TNRO-303 ***Smitinandia micrantha***

**Total collected orchid numbers – 109**

# V
# Discussion

During orchid trip in 2014 and 2015, the survey covered the places which did not conducted in 2012. However, due to the limitation of time constraints, the survey team could not conduct their survey in the raining season; from May to October when most of the ground orchids grow.

The survey team visited their prized orchid species; ***Calanthe punctata*** founded in 2012 orchid survey which is endemic to Yae Kan Taung near Kan Bauk town. The team pleased to see this specie again in its natural habitat, however; its natural habitat is in danger condition due to road construction by DELCO Mining Co., Ltd. The mining company is now constructing a road (now earth road from their company to Yae Kan Taung Dam). This road is very close to this endemic species which is now noticed only this particular spot.

Although there are some encroachments and rubber plantation occurred in some buffers zones of TNR, many wild orchids grow abundantly in the good forests of the reserve. It is also noticed that no commercial sales and orchid collections is occurred in TNR. No orchid sales appear at the bus stations in Kalainaung and Kan Bauk. Although some orchids especially ***Dendrobium*** species were purchased by some traders in last few years ago, no purchasing was evidenced now. But the population number of ***Bulbophyllum ouricomum*** (Thazin orchid) is declining due to over collection by local residents as for growing in their compounds. No commercial sales of Thazin is noticed in TNR area.

Based on our findings, survey and interviews with local people, ***Bulbophyllum vestita*** with showy and elegant flower spikes is noticed population declining in its natural habitats.

It is noted, many different kinds of wild orchids still thriving on the betel nut, cashew nut and mango trees plantations near the villages. It is noted no sign of orchid collection and sales in these plantations.

The new orchid house which is doubled size bigger than previous old orchid house and more modernized and stronger under construction in Mee Kyaunglaung Site. This new orchid house is a special tool for conserving wild orchids of TNR and educational place for visitors and locals.

## VI

## Recommendations

From two orchid surveys in 2012 and 2014 – 2015, the survey team can catalogued (90) species in TNR. Some collected orchids are now growing in the orchid house in Mee Kyaunglaung and Yangon. When these orchid plants flower, National Consultant (orchid) and his team can identify and can put up the more orchid numbers. So, it is important to grow perfectly and care these collected orchids.

It is strongly advised to TNR education team, orchid conservation matters and values of native orchids must be contributed to local people in their educational talks.

The small area of our endemic orchid, ***Calanthe punctata*** near Yae Kan Taung must be protected from destruction. TNR staffs were strongly advised to check regularly this habitat and should talk to DELCO Company for not widening their road and any destruction to this valuable area. TNR staffs are also encouraged to discover more possible habitat of this endemic species.

The orchid consultant and his team always ready to give "Orchid Talk" in different villages around TNR if TNR project can arrange. The orchid team is also willing to help for preparation for orchid related exhibit at Mee Kyaunglaung EEC. It is noted that TNR staffs are patrolling and surveying every months in TNR. If the TNR staffs find unusual and new orchid plants with orchid flowers, the orchid research team likes to examine and request the cooperation.

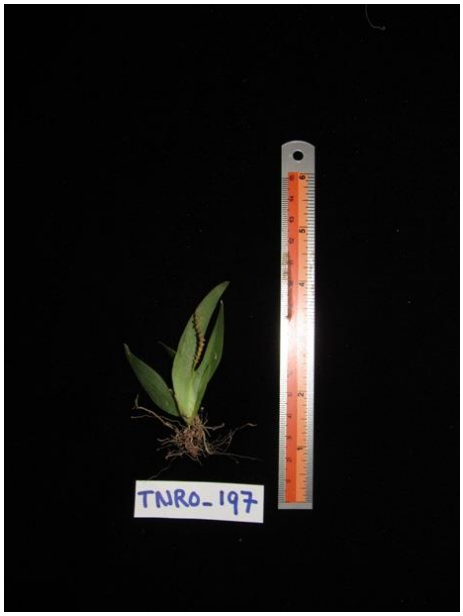
The National Consultant (orchid) is now preparing the orchid conservation poster and brochure to publish for TNRP. These posters and brochures can be used for education awareness program of TNRP.

TNR consists of rich flora and fauna diversity. The survey team encounters different varieties of fern in TNRP area and would like to advise to conduct "A Fern Research" in TNRP in future.

# Appendix: Collected Orchid Photos


TNRO-195 ***Eria* Sp.**


TNRO-196 **Bulbophyllum Sp.**




TNRO-197 ***Oberonia*** Sp.


TNRO-198 ***Smithinandia*** Sp.


TNRO-199 ***Bulbophyllum*** Sp.


TNRO-200 ***Bulbophyllum*** Sp.

TNRO-201 ***Liparis* Sp.**

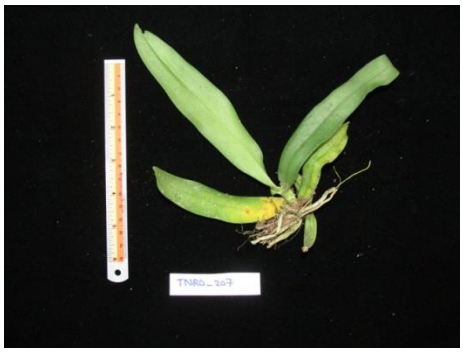
TNRO-202 ***Acriopsis*** Sp.

TNRO-203 ***Dendrobium*** Sp.

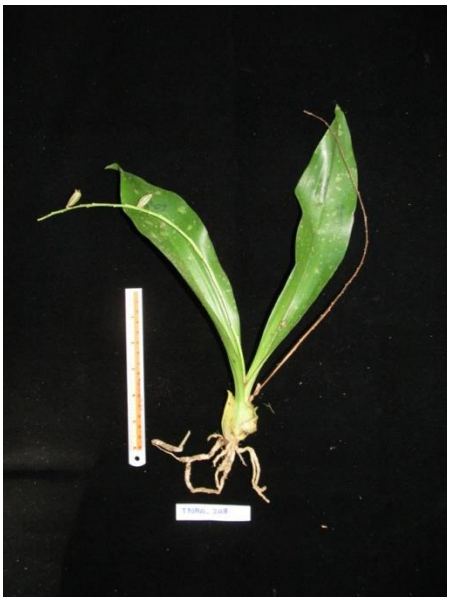
TNRO-204 ***Dendrobium crumenatum***

TNRO-205 ***Rhynchostylis retusa***

TNRO-206 ***Thrixspermum*** Sp.




TNRO-207 ***Gastrochilus* Sp.**

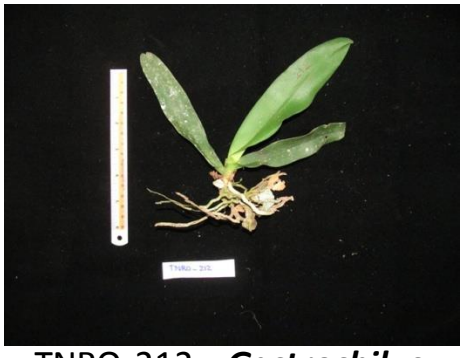


TNRO-208 ***Liparis*** Sp.


TNRO-209 ***Trias*** Sp.

TNRO-210 ***Vandaceous*** Sp.

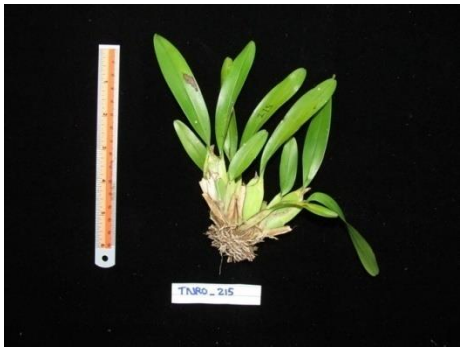
TNRO-211 ***Vandaceous*** Sp.



TNRO-212 ***Gastrochilus*** Sp.

TNRO-213 ***Renanthera coccianea***

TNRO-214 ***Vandaceous*** Sp.



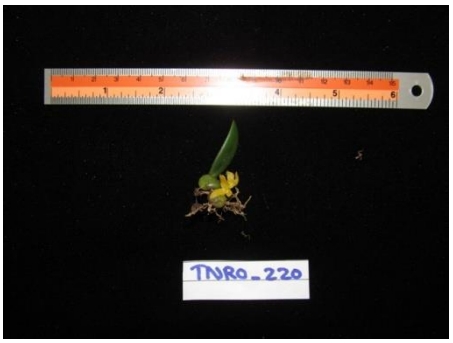

TNRO-215 ***Agrostophyllum*** Sp.

TNRO-216 ***Calanthe vestita***


TNRO-217 ***Eria obesa***

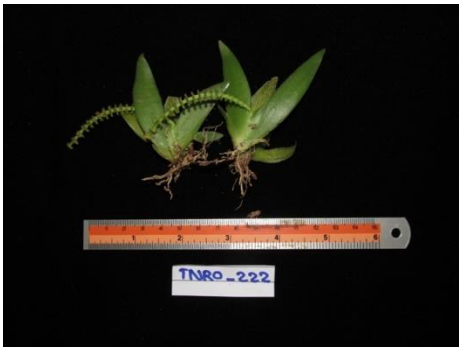

TNRO-218 ***Bulbophyllum*** Sp.


TNRO-219 ***Cirrhopetalum* Sp.**

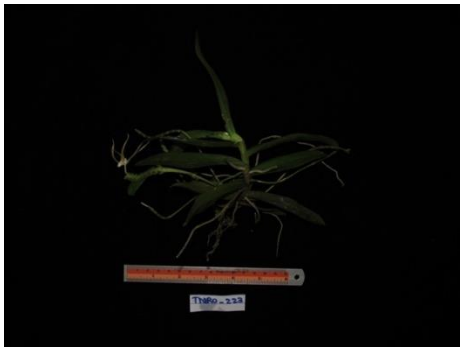



TNRO-220 ***Bulbophyllum*** Sp.


TNRO-221 ***Cirrhopetalum*** Sp.




TNRO-222 ***Oberonia*** Sp.



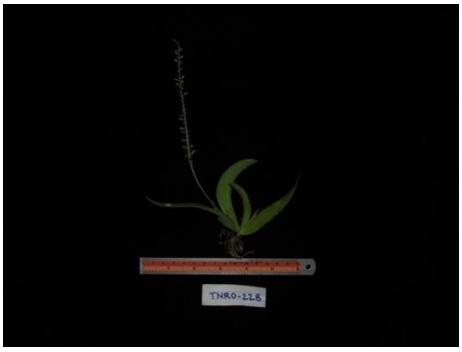

TNRO-223 ***Thrixspermum centipeda***


TNRO-224 ***Trias*** Sp.

TNRO-225 ***Dendrobium* Sp.**

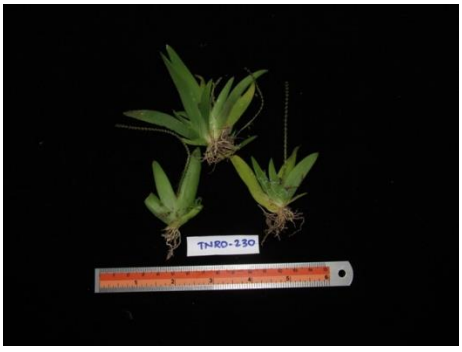
TNRO-226 ***Coelogyne*** Sp.

TNRO-227 ***Bulbophyllum*** Sp.




TNRO-228 ***Oberonia*** Sp.


TNRO-229 ***Thrixspermum*** Sp.




TNRO-230 ***Oberonia*** Sp.


TNRO-231 ***Vandaceous* Sp.**


TNRO-232 ***Dendrobium*** Sp.


TNRO-233 ***Bulbophyllum*** Sp.

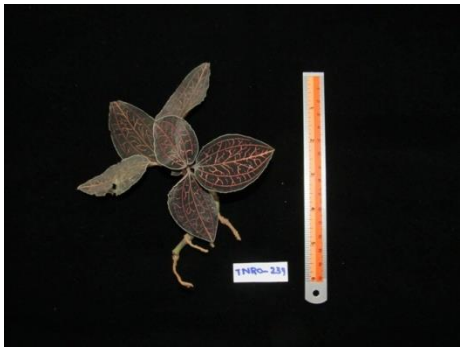

TNRO-234 ***Trias*** Sp.

TNRO-235 ***Bulbophyllum*** Sp.

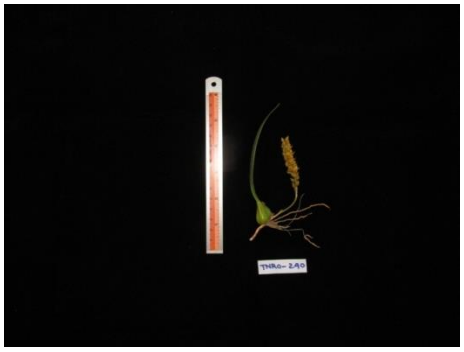
TNRO-236 ***Vandaceous*** Sp.

TNRO-237 ***Phalaenopsis* Sp.**

TNRO-238 ***Phalaenopsis*** Sp.

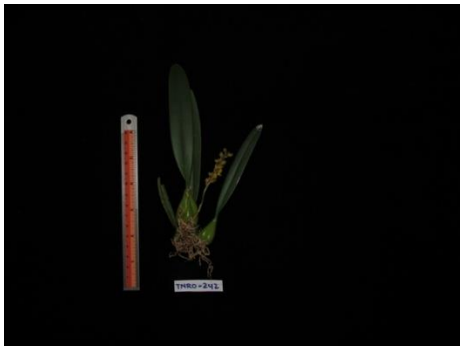


TNRO-239 ***Ludisia discolor***



TNRO-240 ***Bulbophyllum*** Sp.

TNRO-241 ***Lusia*** Sp.



TNRO-242 ***Bulbophyllum*** Sp.

TNRO-243 ***Eria merguensis***

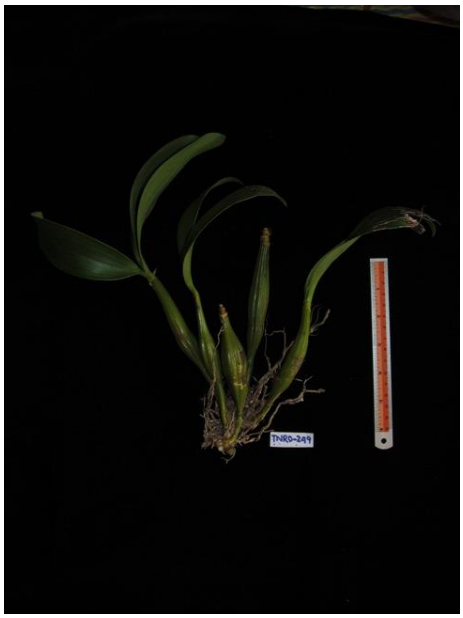
TNRO-244 ***Rhynchostylis*** Sp.

TNRO-245 ***Cymbidium*** Sp.

TNRO-246 ***Dendrobium*** Sp.

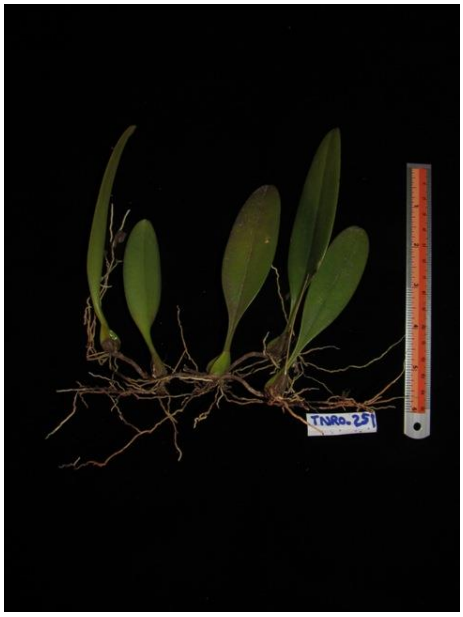
TNRO-247 ***Aerides*** Sp.

TNRO-248 ***Aerides*** Sp.




TNRO-249 ***Dendrobium*** **Sp.**


TNRO-250 ***Dendrobium*** Sp.




TNRO-251 ***Cirrhopetalum*** Sp.

TNRO-252 ***Aerides*** Sp.

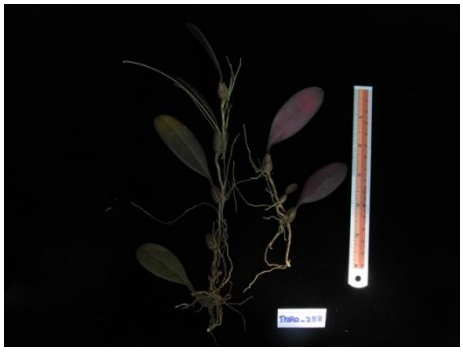

TNRO-253 ***Trias*** Sp.

TNRO-254 ***Acampe*** Sp.

TNRO-255 ***Gastrochilus*** **Sp.**

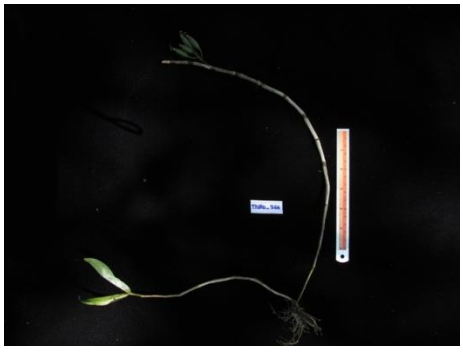
TNRO-256 ***Dendrobium*** Sp.

TNRO-257 ***Dendrobium*** Sp.



TNRO-258 ***Bulbophyllum*** Sp.

TNRO-259 ***Trias*** Sp.



TNRO-260 ***Dendrobium*** Sp.

TNRO-261 ***Aerides* Sp.**


TNRO-262 ***Bulbophyllum*** sp.


TNRO-263 ***Porpax elwesii***

TNRO-264 ***Dendrobium*** sp.

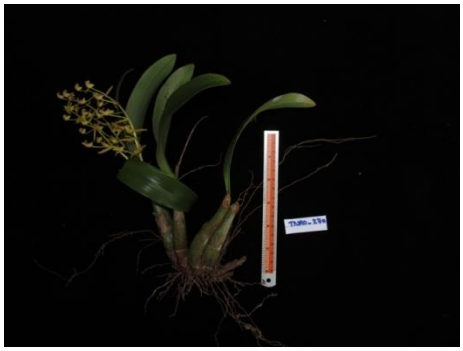
TNRO-265 ***Micropera*** sp.


TNRO-266 ***Bulbophyllum*** sp.

TNRO-267 ***Haetaria* sp.**


TNRO-268 ***Epipogium roseum***


TNRO-269 ***Oberonia* sp.**



TNRO-270 ***Eria xanthocheilla***

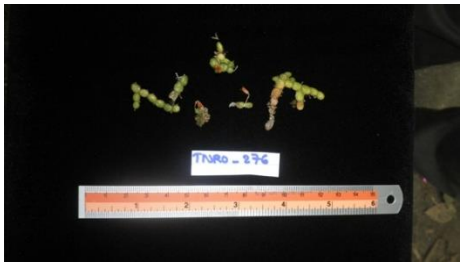
TNRO-271 ***Liparis* sp.**


TNRO-272 ***Trichotosia dysyphylla***


TNRO-273 ***Caelogyne tenasserimensis***

TNRO-274 ***Bulbophyllum*** sp.

TNRO-275 ***Calanthe*** sp.




TNRO-276 ***Bulophyllum*** sp.

TNRO-277 ***Pomatocalpa*** sp.

TNRO-278 ***Dendrobium*** sp.


TNRO-279 ***Cirrhopetallum* sp.**

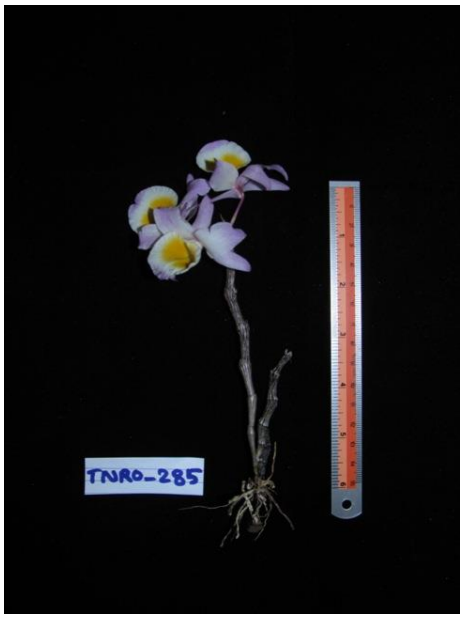

TNRO-280 ***Vandaceous*** sp.


TNRO-281 ***Epipogium roseum***


TNRO-282 ***Coelogyne*** sp.


TNRO-283 ***Eria perpusilla***

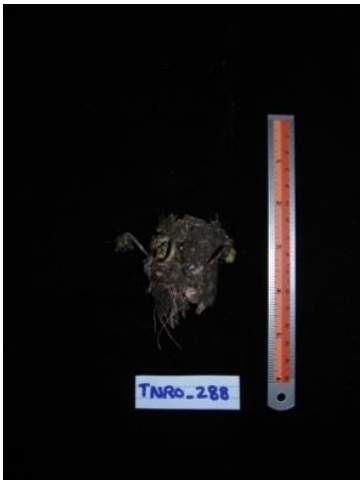

TNRO-284 ***Dendrobium hetero carpum***




TNRO-285 ***Dendrobium* sp.**


TNRO-286 ***D. thyrsiflorum***


TNRO-287 ***Dendrobium scabrilingue***




TNRO-288 ***Bulbophyllum tripaleum***

TNRO-289 ***Bulbophyllum*** sp.

TNRO-290 ***Renanthera coccinea***

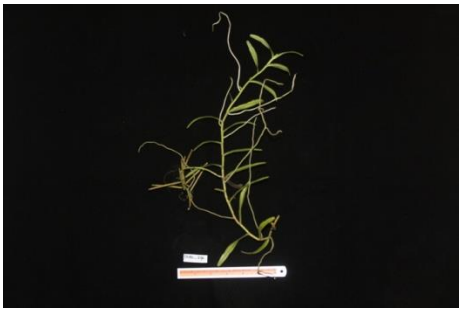
TNRO-291 ***Eulophia zollingeri***

TNRO-292 ***Vandaceous*** sp.

TNRO-293 ***Ascocentrum curvifolium***

TNRO-294 ***Smithinandia*** sp.

TNRO-295 ***Luisia*** sp.



TNRO-296 ***Micropera pallid***

TNRO-297 ***Oberonia acaulis***

TNRO-298 ***O. falcata***

TNRO-299 ***O. prainiana***

TNRO-300 ***D. hymenanthun***

TNRO-301 ***Agrostophyllum*** sp.

TNRO-302 ***Saccolabiopsis pusilla***

TNRO-303 ***Smitinandia micrantha***

| **Appendix** | | | | | | |
|---|---|---|---|---|---|---|
| **Information data of collected Orchids in TNR Orchid Survey (2014 - 2015)** | | | | | | |
| **November, 2014 - March, 2015** | | | | | | |
| **No.** | **Coll. No.** | **Scientific Name** | **Place** | **GPS Position** | **Elevation** | **Trip** |
| 1 | TNRO-195 | ***Eria*** Sp. | Yae Kan Taung | N 14˚ 34′ 43.3″ | 1409′ | 1st Trip |
| | | | | E 098˚ 02′ 23.8″ | | |
| 2 | TNRO-196 | ***Bulbophyllum*** Sp. | Yae Kan Taung | N 14˚ 32′ 44.7″ | 2273′ | 1st Trip |
| | | | | E 098˚ 02′ 52.1″ | | |
| 3 | TNRO-197 | ***Oberonia*** Sp. | Yae Kan Taung | N 14˚ 32′ 44.7″ | 2273′ | 1st Trip |
| | | | | E 098˚ 02′ 52.1″ | | |
| 4 | TNRO-198 | ***Smithinandia*** Sp. | Yae Kan Taung | N 14˚ 33′ 02.7″ | 2196′ | 1st Trip |
| | | | | E 098˚ 02′ 53.0″ | | |
| 5 | TNRO-199 | ***Bulbophyllum*** Sp. | Yae Kan Taung | N 14˚ 33′ 02.7″ | 2196′ | 1st Trip |
| | | | | E 098˚ 02′ 53.0″ | | |
| 6 | TNRO-200 | ***Bulbophyllum*** Sp. | Yae Kan Taung | N 14˚ 33′ 10.1″ | 2196′ | 1st Trip |
| | | | | E 098˚ 02′ 56.4″ | | |
| 7 | TNRO-201 | ***Liparis*** Sp. | Khotama Chaung Area | N 14˚ 43′ 54.3″ | 237′ | 1st Trip |
| | | | | E 098˚ 14′ 35.8″ | | |
| 8 | TNRO-202 | ***Acriopsis*** Sp. | Khotama Chaung Area | N 14˚ 43′ 54.3″ | 237′ | 1st Trip |
| | | | | E 098˚ 14′ 35.8″ | | |
| 9 | TNRO-203 | ***Dendrobium*** Sp. | Khotama Chaung Area | N 14˚ 43′ 54.3″ | 237′ | 1st Trip |
| | | | | E 098˚ 14′ 35.8″ | | |
| 10 | TNRO-204 | ***Dendrobium crumenatum*** | Khotama Chaung Area | N 14˚ 43′ 54.3″ | 237′ | 1st Trip |
| | | | | E 098˚ 14′ 35.8″ | | |
| 11 | TNRO-205 | ***Rhynchostylis retusa*** | Khotama Chaung Area | N 14˚ 43′ 54.3″ | 237′ | 1st Trip |
| | | | | E 098˚ 14′ 35.8″ | | |
| 12 | TNRO-206 | ***Thrixspermum*** Sp. | Khotama Chaung Area | N 14˚ 44′ 16.9″ | 273′ | 1st Trip |
| | | | | E 098˚ 14′ 24.2″ | | |
| 13 | TNRO-207 | ***Gastrochilus*** Sp. | Khotama Chaung Area | N 14˚ 43′ 54.3″ | 273′ | 1st Trip |
| | | | | E 098˚ 14′ 24.2″ | | |
| 14 | TNRO-208 | ***Liparis*** Sp. | Khotama Chaung Area | N 14˚ 43′ 54.3″ | 273′ | 1st Trip |
| | | | | E 098˚ 14′ 24.2″ | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15 | TNRO-209 | ***Trias*** Sp. | Khotama Chaung Area | N 14˙ 43′ 54.3″ | 273′ | 1st Trip |
| | | | | E 098˙ 14′ 24.2″ | | |
| 16 | TNRO-210 | ***Vandaceous*** Sp. | Khotama Chaung Area | N 14˙ 43′ 54.3″ | 273′ | 1st Trip |
| | | | | E 098˙ 14′ 24.2″ | | |
| 17 | TNRO-211 | ***Vandaceous*** Sp. | Khotama Chaung Area | N 14˙ 44′ 22.2″ | 298′ | 1st Trip |
| | | | | E 098˙ 14′ 28.8″ | | |
| 18 | TNRO-212 | ***Gastrochilus*** Sp. | Khotama Chaung Area | N 14˙ 44′ 22.2″ | 298′ | 1st Trip |
| | | | | E 098˙ 14′ 28.8″ | | |
| 19 | TNRO-213 | ***Renanthera coccianea*** | Khotama Chaung Area | N 14˙ 44′ 22.2″ | 298′ | 1st Trip |
| | | | | E 098˙ 14′ 28.8″ | | |
| 20 | TNRO-214 | ***Vandaceous*** Sp. | Khotama Chaung Area | N 14˙ 44′ 22.2″ | 298′ | 1st Trip |
| | | | | E 098˙ 14′ 28.8″ | | |
| 21 | TNRO-215 | ***Agrostophyllum*** Sp. | Khotama Chaung Area | N 14˙ 44′ 32.4″ | 283′ | 1st Trip |
| | | | | E 098˙ 14′ 29.2″ | | |
| 22 | TNRO-216 | ***Calanthe vestita*** | Khotama Chaung Area | N 14˙ 43′ 35.1″ | 202′ | 1st Trip |
| | | | | E 098˙ 14′ 26.6″ | | |
| 23 | TNRO-217 | ***Eria obesa*** | Khotama Chaung Area | N 14˙ 43′ 32.0″ | 194′ | 1st Trip |
| | | | | E 098˙ 14′ 09.9″ | | |
| 24 | TNRO-218 | ***Bulbophyllum*** Sp. | Khotama Chaung Area | N 14˙ 43′ 55.5″ | 237′ | 1st Trip |
| | | | | E 098˙ 14′ 56.6″ | | |
| 25 | TNRO-219 | ***Cirrhopetalum*** Sp. | Khotama Chaung Area | N 14˙ 43′ 55.5″ | 237′ | 1st Trip |
| | | | | E 098˙ 14′ 56.6″ | | |
| 26 | TNRO-220 | ***Bulbophyllum*** Sp. | Khotama Chaung Area | N 14˙ 44′ 06.3″ | 267′ | 1st Trip |
| | | | | E 098˙ 15′ 06.8″ | | |
| 27 | TNRO-221 | ***Cirrhopetalum*** Sp. | Khotama Chaung Area | N 14˙ 44′ 06.3″ | 267′ | 1st Trip |
| | | | | E 098˙ 15′ 06.8″ | | |
| 28 | TNRO-222 | ***Oberonia*** Sp. | Khotama Chaung Area | N 14˙ 44′ 06.3″ | 267′ | 1st Trip |
| | | | | E 098˙ 15′ 06.8″ | | |
| 29 | TNRO-223 | ***Thrixspermum centipeda*** | Khotama Chaung Area | N 14˙ 43′ 34.8″ | 264′ | 1st Trip |
| | | | | E 098˙ 14′ 48.7″ | | |
| 30 | TNRO-224 | ***Trias*** Sp. | Khotama Chaung Area | N 14˙ 43′ 30.0″ | 218′ | 1st Trip |
| | | | | E 098˙ 14′ 44.0″ | | |

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|---|---|---|---|---|---|---|
| 31 | TNRO-225 | ***Dendrobium*** Sp. | Khotama Chaung Area | N 14˚ 43′ 59.9″ | 233′ | 1st Trip |
| | | | | E 098˚ 14′ 13.5″ | | |
| 32 | TNRO-226 | ***Coelogyne*** Sp. | Khotama Chaung Area | N 14˚ 43′ 59.2″ | 383′ | 1st Trip |
| | | | | E 098˚ 14′ 00.7″ | | |
| 33 | TNRO-227 | ***Bulbophyllum*** Sp. | Khotama Chaung Area | N 14˚ 43′ 59.2″ | 383′ | 1st Trip |
| | | | | E 098˚ 14′ 00.7″ | | |
| 34 | TNRO-228 | ***Oberonia*** Sp. | Khotama Chaung Area | N 14˚ 43′ 59.2″ | 383′ | 1st Trip |
| | | | | E 098˚ 14′ 00.7″ | | |
| 35 | TNRO-229 | ***Thrixspermum*** Sp. | Khotama Chaung Area | N 14˚ 43′ 59.2″ | 383′ | 1st Trip |
| | | | | E 098˚ 14′ 00.7″ | | |
| 36 | TNRO-230 | ***Oberonia*** Sp. | Raphu Area | N 14˚ 51′ 37.9″ | 218′ | 1st Trip |
| | | | | E 098˚ 05′ 56.3″ | | |
| 37 | TNRO-231 | ***Vandaceous*** Sp. | Raphu Area | N 14˚ 51′ 36.1″ | 131′ | 1st Trip |
| | | | | E 098˚ 06′ 02.8″ | | |
| 38 | TNRO-232 | ***Dendrobium*** Sp. | Raphu Area | N 14˚ 51′ 36.9″ | 180′ | 1st Trip |
| | | | | E 098˚ 06′ 07.1″ | | |
| 39 | TNRO-233 | ***Bulbophyllum*** Sp. | Raphu Area | N 14˚ 51′ 36.9″ | 180′ | 1st Trip |
| | | | | E 098˚ 06′ 07.1″ | | |
| 40 | TNRO-234 | ***Trias*** Sp. | Raphu Area | N 14˚ 51′ 36.9″ | 180′ | 1st Trip |
| | | | | E 098˚ 06′ 07.1″ | | |
| 41 | TNRO-235 | ***Bulbophyllum*** Sp. | Kyauk Shuk Sankhan | N 14˚ 35′ 30.2″ | 71′ | 2nd Trip |
| | | | | E 098˚ 11′ 36.3″ | | |
| 42 | TNRO-236 | ***Vandaceous*** Sp. | Kyauk Shuk Sankhan | N 14˚ 34′ 24.1″ | 440′ | 2nd Trip |
| | | | | E 098˚ 13′ 14.6″ | | |
| 43 | TNRO-237 | ***Phalaenopsis*** Sp. | Kyauk Shuk Sankhan | N 14˚ 35′ 10.9″ | 1346′ | 2nd Trip |
| | | | | E 098˚ 14′ 46.8″ | | |
| 44 | TNRO-238 | ***Phalaenopsis*** Sp. | Kyauk Shuk Sankhan | N 14˚ 35′ 57.2″ | 1477′ | 2nd Trip |
| | | | | E 098˚ 15′ 17.1″ | | |
| 45 | TNRO-239 | ***Ludisia discolor*** | Kyauk Shuk Sankhan | N 14˚ 35′ 46.9″ | 1591′ | 2nd Trip |
| | | | | E 098˚ 15′ 07.6″ | | |
| 46 | TNRO-240 | ***Bulbophyllum*** Sp. | Kyauk Shuk Sankhan | N 14˚ 34′ 58.7″ | 187′ | 2nd Trip |
| | | | | E 098˚ 12′ 30.7″ | | |

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|---|---|---|---|---|---|---|
| 47 | TNRO-241 | ***Lusia*** Sp. | Kyauk Shuk Sankhan | N 14˚ 34′ 52.8″ | 277′ | 2nd Trip |
| | | | | E 098˚ 12′ 29.3″ | | |
| 48 | TNRO-242 | ***Bulbophyllum*** Sp. | Kyauk Shuk Sankhan | N 14˚ 34′ 52.8″ | 277′ | 2nd Trip |
| | | | | E 098˚ 12′ 29.3″ | | |
| 49 | TNRO-243 | ***Eria merguensis*** | Kyauk Shuk Sankhan | N 14˚ 35′ 35.5″ | 567′ | 2nd Trip |
| | | | | E 098˚ 12′ 29.1″ | | |
| 50 | TNRO-244 | ***Rhynchostylis*** Sp. | Thetkel Kwet | N 14˚ 24′ 28.8″ | 208′ | 2nd Trip |
| | | | | E 098˚ 11′ 01.0″ | | |
| 51 | TNRO-245 | ***Cymbidium*** Sp. | Thetkel Kwet | N 14˚ 24′ 31.5″ | 286′ | 2nd Trip |
| | | | | E 098˚ 11′ 01.6″ | | |
| 52 | TNRO-246 | ***Dendrobium*** Sp. | Thetkel Kwet | N 14˚ 24′ 35.6″ | 280′ | 2nd Trip |
| | | | | E 098˚ 11′ 00.5″ | | |
| 53 | TNRO-247 | ***Aerides*** Sp. | Thetkel Kwet | N 14˚ 24′ 44.9″ | 548′ | 2nd Trip |
| | | | | E 098˚ 11′ 05.4″ | | |
| 54 | TNRO-248 | ***Aerides*** Sp. | Thetkel Kwet | N 14˚ 24′ 50.1″ | 375′ | 2nd Trip |
| | | | | E 098˚ 11′ 03.4″ | | |
| 55 | TNRO-249 | ***Dendrobium*** Sp. | Thetkel Kwet | N 14˚ 24′ 40.6″ | 392′ | 2nd Trip |
| | | | | E 098˚ 10′ 35.2″ | | |
| 56 | TNRO-250 | ***Dendrobium*** Sp. | Thetkel Kwet | N 14˚ 24′ 40.6″ | 392′ | 2nd Trip |
| | | | | E 098˚ 10′ 35.2″ | | |
| 57 | TNRO-251 | ***Cirrhopetalum*** Sp. | Thetkel Kwet | N 14˚ 24′ 40.6″ | 147′ | 2nd Trip |
| | | | | E 098˚ 10′ 35.2″ | | |
| 58 | TNRO-252 | ***Aerides*** Sp. | Ka Lone Tar Ywa | N 14˚ 18′ 22.7″ | 329′ | 2nd Trip |
| | | | | E 098˚ 18′ 27.1″ | | |
| 59 | TNRO-253 | ***Trias*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 29.8″ | 231′ | 2nd Trip |
| | | | | E 098˚ 18′ 27.5″ | | |
| 60 | TNRO-254 | ***Acampe*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 37.1″ | 347′ | 2nd Trip |
| | | | | E 098˚ 18′ 21.7″ | | |
| 61 | TNRO-255 | ***Gastrochilus*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 37.1″ | 347′ | 2nd Trip |
| | | | | E 098˚ 18′ 21.7″ | | |
| 62 | TNRO-256 | ***Dendrobium*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 32.2″ | 235′ | 2nd Trip |
| | | | | E 098˚ 18′ 30.2″ | | |

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|---|---|---|---|---|---|---|
| 63 | TNRO-257 | ***Dendrobium*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 42.4″ | 160′ | 2nd Trip |
| | | | | E 098˚ 18′ 47.4″ | | |
| 64 | TNRO-258 | ***Bulbophyllum*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 44.0″ | 291′ | 2nd Trip |
| | | | | E 098˚ 18′ 50.1″ | | |
| 65 | TNRO-259 | ***Trias*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 44.0″ | 291′ | 2nd Trip |
| | | | | E 098˚ 18′ 50.1″ | | |
| 66 | TNRO-260 | ***Dendrobium*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 44.0″ | 291′ | 2nd Trip |
| | | | | E 098˚ 18′ 50.1″ | | |
| 67 | TNRO-261 | ***Aerides*** Sp. | Hlay Khar Htaung Chaung | N 14˚ 18′ 44.7″ | 297′ | 2nd Trip |
| | | | | E 098˚ 18′ 52.1″ | | |
| 68 | TNRO-262 | ***Bulbophyllum*** sp. | Zin Bar Ywa CF-2 | N 14˚ 38′ 01.5″ | 604′ | 3rd Trip |
| | | | | E 098˚ 11′ 53.8″ | | |
| 69 | TNRO-263 | ***Porpax elwesii*** | Zin Bar Ywa CF-2 | N 14˚ 37′ 50.2″ | 783′ | 3rd Trip |
| | | | | E 098˚ 11′ 55.6″ | | |
| 70 | TNRO-264 | ***Dendrobium*** sp. | Zin Bar Ywa CF-2 | N 14˚ 38′ 33.0″ | 380′ | 3rd Trip |
| | | | | E 098˚ 12′ 15.3″ | | |
| 71 | TNRO-265 | ***Micropera*** sp. | Zin Bar Ywa CF-1 | N 14˚ 39′ 28.4″ | 163′ | 3rd Trip |
| | | | | E 098˚ 10′ 14.4″ | | |
| 72 | TNRO-266 | ***Bulbophyllum*** sp. | Zin Bar Ywa | N 14˚ 38′ 45.9″ | 147′ | 3rd Trip |
| | | | | E 098˚ 10′ 26.0″ | | |
| 73 | TNRO-267 | ***Haetaria*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 35′ 28.5″ | 191′ | 3rd Trip |
| | | | | E 098˚ 10′ 53.1″ | | |
| 74 | TNRO-268 | ***Epipogium roseum*** | Sakhangyi Area-Ye-Bone | N 14˚ 32′ 46.″8 | 869′ | 3rd Trip |
| | | | | E 098˚ 14′ 43.5″ | | |
| 75 | TNRO-269 | ***Oberonia*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 28.8″ | 551′ | 3rd Trip |
| | | | | E 098˚ 17′ 01.8″ | | |
| 76 | TNRO-270 | ***Eria xanthocheilla*** | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 28.8″ | 551′ | 3rd Trip |
| | | | | E 098˚ 17′ 01.8″ | | |
| 77 | TNRO-271 | ***Liparis*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 28.8″ | 551′ | 3rd Trip |
| | | | | E 098˚ 17′ 01.8″ | | |
| 78 | TNRO=272 | ***Trichotosia dysyphylla*** | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 28.8″ | 551′ | 3rd Trip |
| | | | | E 098˚ 17′ 01.8″ | | |

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|---|---|---|---|---|---|---|
| 79 | TNRO-273 | ***Coelogyne tenasserimensis*** | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 28.8″ | 551′ | 3rd Trip |
| | | | | E 098˚ 17′ 01.8″ | | |
| 80 | TNRO-274 | ***Bulbophyllum*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 24.9″ | 703′ | 3rd Trip |
| | | | | E 098˚ 17′ 13.9″ | | |
| 81 | TNRO-275 | ***Calanthe*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 21.4″ | 719′ | 3rd Trip |
| | | | | E 098˚ 17′ 15.7″ | | |
| 82 | TNRO-276 | ***Bulophyllum*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 21.4″ | 719′ | 3rd Trip |
| | | | | E 098˚ 17′ 15.7″ | | |
| 83 | TNRO-277 | ***Pomatocalpa*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 21.4″ | 719′ | 3rd Trip |
| | | | | E 098˚ 17′ 15.7″ | | |
| 84 | TNRO-278 | ***Dendrobium*** sp. | Sakhangyi Area-Ye-Bone | N 14˚ 31′ 21.4″ | 719′ | 3rd Trip |
| | | | | E 098˚ 17′ 15.7″ | | |
| 85 | TNRO-279 | ***Cirrhopetallum*** sp. | Sin Pho Sin Ma Taung Gyaw | N 14˚ 21′ 15.0″ | 1442′ | 3rd Trip |
| | | | | E 098˚ 15′ 57.6″ | | |
| 86 | TNRO-280 | ***Vandaceous*** sp. | Sin Pho Sin Ma Taung Gyaw | N 14˚ 21′ 24.7″ | 1581′ | 3rd Trip |
| | | | | E 098˚ 16′ 02.7″ | | |
| 87 | TNRO-281 | ***Epipogium roseum*** | Sin Pho Sin Ma Taung Gyaw | N 14˚ 23′ 02.0″ | 2565′ | 3rd Trip |
| | | | | E 098˚ 18′ 37.4″ | | |
| 88 | TNRO-282 | ***Coelogyne*** sp. | Sin Pho Sin Ma Taung Gyaw | N 14˚ 23′ 02.0″ | 2565′ | 3rd Trip |
| | | | | E 098˚ 18′ 37.4″ | | |
| 89 | TNRO-283 | ***Eria perpusilla*** | Sin Pho Sin Ma Taung Gyaw | N 14˚ 22′ 03.5″ | 2837′ | 3rd Trip |
| | | | | E 098˚ 20′ 14.3″ | | |
| 90 | TNRO-284 | ***Dendrobium hetero carpum*** | Sin Pho Sin Ma Taung Gyaw | N 14˚ 22′ 03.5″ | 2837′ | 3rd Trip |
| | | | | E 098˚ 20′ 14.3″ | | |
| 91 | TNRO-285 | ***Dendrobium*** sp. | Sin Pho Sin Ma Taung Gyaw | N 14˚ 22′ 03.5″ | 2837′ | 3rd Trip |
| | | | | E 098˚ 20′ 14.3″ | | |
| 92 | TNRO-286 | ***D. thyrsiflorum*** | Sin Pho Sin Ma Taung Gyaw | N 14˚ 22′ 03.5″ | 2837′ | 3rd Trip |
| | | | | E 098˚ 20′ 14.3″ | | |
| 93 | TNRO-287 | ***Dendrobium scabrilingue*** | Sin Pho Sin Ma Taung Gyaw | N 14˚ 20′ 46.9″ | 1541′ | 3rd Trip |
| | | | | E 098˚ 15′ 30.3″ | | |
| 94 | TNRO-288 | ***Bulbophyllum tripaleum*** | Sin Pho Sin Ma Taung Gyaw | N 14˚ 22′ 03.5″ | 2873′ | 3rd Trip |
| | | | | E 098˚ 20′ 14.3″ | | |

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| 95 | TNRO-289 | ***Bulbophyllum*** sp. | Hnan Gye | N 14˚ 27′ 01.4″ | 226′ | 3rd Trip |
| | | | | E 098˚ 11′ 16.2″ | | |
| 96 | TNRO-290 | ***Renanthera coccinea*** | Hnan Gye | N 14˚ 27′ 02.5″ | 412′ | 3rd Trip |
| | | | | E 098˚ 11′ 22.3″ | | |
| 97 | TNRO-291 | ***Eulophia zollingeri*** | Hnan Gye | N 14˚ 27′ 06.3″ | 358′ | 3rd Trip |
| | | | | E 098˚ 11′ 05.6″ | | |
| 98 | TNRO-292 | ***Vandaceous*** sp. | Mye Khan Baw | N 14˚ 17′ 29.9″ | 615′ | 4th Trip |
| | | | | E 098˚ 27′ 11.4″ | | |
| 99 | TNRO-293 | ***Ascocentrum curvifolium*** | Mye Khan Baw | N 14˚ 17′ 06.9″ | 764′ | 4th Trip |
| | | | | E 098˚ 26′ 41.9″ | | |
| 100 | TNRO-294 | ***Smithinandia*** sp. | Mye Khan Baw | N 14˚ 17′ 06.9″ | 764′ | 4th Trip |
| | | | | E 098˚ 26′ 41.9″ | | |
| 101 | TNRO-295 | ***Luisia*** sp. | Mye Khan Baw | N 14˚ 17′ 40.8″ | 648′ | 4th Trip |
| | | | | E 098˚ 26′ 44.9″ | | |
| 102 | TNRO-296 | ***Micropera pallida*** | Mye Khan Baw | N 14˚ 17′ 40.8″ | 648′ | 4th Trip |
| | | | | E 098˚ 26′ 44.9″ | | |
| 103 | TNRO-297 | ***Oberonia acaulis*** | Sein Pyon | N 14˚ 20′ 05.5″ | 701′ | 4th Trip |
| | | | | E 098˚ 26′ 24.8″ | | |
| 104 | TNRO-298 | ***O. falcata*** | Sein Pyon | N 14˚ 20′ 05.5″ | 701′ | 4th Trip |
| | | | | E 098˚ 26′ 24.8″ | | |
| 105 | TNRO-299 | ***O. prainiana*** | Sein Pyon | N 14˚ 20′ 05.5″ | 701′ | 4th Trip |
| | | | | E 098˚ 26′ 24.8″ | | |
| 106 | TNRO-300 | ***D. hymenanthun*** | Sein Pyon | N 14˚ 20′ 05.5″ | 701′ | 4th Trip |
| | | | | E 098˚ 26′ 24.8″ | | |
| 107 | TNRO-301 | ***Agrostophyllum*** sp. | Sein Pyon | N 14˚ 20′ 05.5″ | 701′ | 4th Trip |
| | | | | E 098˚ 26′ 24.8″ | | |
| 108 | TNRO-302 | ***Saccolabiopsis pusilla*** | Mye Khan Baw | N 14˚ 19′ 14.9″ | 1214′ | 4th Trip |
| | | | | E 098˚ 24′ 18.3″ | | |
| 109 | TNRO-303 | ***Smitinandia micrantha*** | Mye Khan Baw | N 14˚ 19′ 14.9″ | 1213′ | 4th Trip |
| | | | | E 098˚ 24′ 18.3″ | | |