

DAVIS EXPEDITION FUND

REPORT ON EXPEDITION/PROJECT

Expedition/Project Title: Pilot study of Hkakaborazi National Park, Myanmar (Burma), examining constraints to biodiversity therein

Travel Dates: May-June 2002

Location: Hkakaborazi National Park, Myanmar (Burma)

Group Members: Kate Armstrong

Aims: (see below)

OUTCOME (not less than 300 words):-

During May-June 2003 I traveled to Myanmar to conduct a pilot study with the following aims:

- to gain a better understanding of the geography and vegetation of Hkakaborazi National Park
- to speak with villagers about how conservation within the park affects their livelihoods
- to forge partnerships within Myanmar's conservation organizations with a view to developing collaborative research.

This study was generously funded by the Davis Expedition Fund and the Carnegie Trust.

One month was spent in the park, trekking from the tropical Putao valley to alpine pasture near the Indian border. Vegetation types fall into four basic zones, which are dependant on altitude, slope and aspect: Zone 1 Tropical Forest (Putao to Pangnamdim), Zone 2 Subtropical Forest (Pangnamdim to Mading), Zone 3 Temperate forest (Mading to Sahti Htu), Zone 4 Alpine vegetation, silver fir forest and scree (Zalahtu).

During the trek, discussions with villagers revealed the complex nature of biodiversity management within a national park in which there are settlements. In order for conservation practices to be effective, they must take into consideration the livelihoods and welfare of local people as well as the health of their surrounding environment.

The remainder of the trip was spent in Yangon meeting officials from the Nature and Wildlife Conservation Division of the Forest Department (NWCD-FD), the Forest Research Institute (FRI) and the Wildlife Conservation Society Myanmar Program (WCS-MP) discussing the possibility of future collaborative botanical research within Hkakaborazi. Additionally, a trip was made to Kandawgi Botanical Garden at Pyin Oo Lwin and the National Herbarium at the Forest Research Institute in Yezin.

As a direct result of this pilot study, a 3-year collaborative research project has been developed between the Royal Botanic Garden Edinburgh, NWCD-FD, FRI and WCS-MP, for which a proposal has just been submitted to Round 12 of the Darwin Initiative.

Report: Pilot Study of Hkakaborazi National Park, Myanmar (Burma) examining
constraints to biodiversity conservation therein

May 2 – July 2, 2003

Funding for this expedition was given by the Davis Expedition Fund and the Carnegie Trust. Due to time and monetary constraints, two rather than three months were spent in Myanmar. This duration turned out to be sufficient, as all planned activities were completed in this time-frame.

Itinerary:

- May 2-8 Meetings in Yangon with the Wildlife Conservation Society-Myanmar Program (WCS), Nature and Wildlife Conservation Division of the Forest Department and the Department of Botany at the University of Yangon. Planning and preparation for Hkakaborazi trip.
- May 9 Flight from Yangon to Myitkyina (via Mandalay)
- 10 Flight from Myitkyina to Putao
- 11 Truck from Putao to the Mali Hka, ferry across to Machanbaw and walk 1.5 miles to Sinlumdum II
- 12 Sinlumdum II to Namhti (11 miles)
- 13 Namhti to Maza (12 miles)
- 14 Maza to Nomung (9 miles)
- 15 Nomung to Shimankang (11 miles)
- 16 Shimankang to Golle (14 miles)
- 17 Golle to Shingsanku (9 miles)
- 18 Shingsanku to Pangnamdim (7 miles) (entrance to Hkakaborazi National Park)
- 19 Pangnamdim to Ngawa (15 miles)
- 20 Ngawa to Wangsiwang (9 miles)
- 21 Wangsiwang to Gawai (6 miles)
- 22 Gawai to Tazungdam (10 miles)
- 23 Tazungdam to Sondam/Guba (7 miles)
- 24 Sondam/Guba to Camp Sahti Htu (6 miles)
- 25 Camp Sahti Htu to Camp Zalatu (4 miles)
- 26 Camp Zalatu to the Yak Camp near the Diphuk Lakha (3 miles)
- 27 Camp Zalatu to Mading (7 miles)
- 28 Mading to Tazungdam (9 miles)
- 29 Rest day at Tazungdam
- 30 Tazungdam to Gawai (10 miles)
- 31 Gawai to Ngawa (15 miles)
- June 1 Ngawa to Pangnamdim (15 miles)
- 2 Pangnamdim to Golle (16 miles)
- 3 Golle to Nomung (15 miles)
- 4 Rest day at Nomung
- 5 Nomung to Maza (9 miles)
- 6 Maza to Namhti (12 miles)
- 7 Namhti to Machanbaw, (12 miles) across the Mali Hka by ferry and onto Putao by tractor
- 8 Flight from Putao to Yangon (via Myitkyina and Mandalay)
- June 9-20 Yangon, meetings and discussion with WCS, the Forest Department and the Forest Research Institute (FRI)
- June 21-27 visit to the national herbarium at FRI in Yezin & Kandawgi Botanical Garden
- June 28-July 1 further closing meetings with WCS and the Forest Department in Yangon

July 2: flight to Edinburgh

Forest Types:

Hkakaborazi National Park not only has the distinction of being home to South East Asia's highest peak, Mt. Hkakaborazi at 5,881 m, but more importantly of protecting one of the region's most biodiverse tracts of forest. Encompassing an area of 3,812.48 sq. kilometers at the northern tip of Myanmar (Burma), lying at approximately 28° 05' N and 97° 44' E, the park supports a combination of vegetation types from dense tropical lowland jungle, through subtropical hill forest and temperate rainforest to high altitude alpine meadows and glaciers. Because vegetation cover is so diverse, patterns are not clear-cut and many of these forest types are, in actuality, found mixed together or alternating in patches, depending upon prevailing local conditions. Vegetation type is highly dependent upon altitude, slope and aspect. I have endeavored to outline the forest types along my route. However, as this was a pilot study, specimens were not collected. (Collecting permission is only granted after an MOU with the Forest Department is signed for an official collaborative project.) This is therefore intended as a sketch of the vegetation. It underlines the need for further research and the necessity of collecting specimens.

Vegetation Zone I: Putao (409 m) to Pangnamdim (1,140 m)

This zone is characterized by dense evergreen tropical vegetation grading into subtropical forest and is almost entirely Indo-Malayan in composition. Between Putao and Namhti, at less than 600 meters in hill jungle, the forest is predominantly tropical, with *Mesua ferrea*, *Stereospermum personatum*, *Terminalia myriocarpa*, *Dipterocarpus alatus*, *Dipterocarpus turbinata*, *Ficus elastica*, *Ficus benjamina*, *Nephelium* (rambutan), *Garcinia* (mangosteen), *Sterculia*, *Saurauia*, *Wightia*, *Elaeocarpus*, *Xylopi*, *Fagraea*, *Mussaenda*, *Jasminum*, *Schima wallichii*, *Magnolia*, *Michelia*, *Musa* (banana), *Cyathea* (tree fern), *Pandanus furcatus* (screw pine), *Caryota urens* (fishtail palm), *Calamus* (rattan). Lianas, climbers and epiphytic aroids, ferns and orchids are abundant. *Chirita*, *Begonia* and various ferns are common in damp, dark patches on the forest floor.

Above 600 m, crossing the first ridge to Maza, vegetation begins to change becoming more subtropical with *Cinnamomum*, *Litsaea*, *Castanopsis tribuloides*, *Lithocarpus pachyphylla*, *Quercus lanuginosum*, *Sarauia*, *Litsaea*, *Magnolia*, *Michelia*, *Ilex*, *Rhododendron*, *Illicium*, *Persea*, *Engelhardtia*, *Tetracentron* and the occasional *Tsuga*. *Agapetes*, *Aeschenanthus* and other shrubby epiphytes shroud ridge-line trees. Species which are normally terrestrial such as *Brassiopsis* and *Rhododendron* are here occasionally epiphytic in the moist-laden moss forest. There is a marked decrease in tropical lianas, they still exist, but not in the same number as in lower areas due to a drop in temperature at the top of the ridge where clouds and mist gather. Temperate climbers such as *Lonicera*, *Schisandra* and *Holboellia* take their place. Trees with a more tropical affinity are *Caryota urens*, *Terminalia myriocarpa*, *Callicarpa arborea*, *Ficus cunia*, *Ficus obscura*, *Albizia sherriffii*, *Goniothalamus* and *Dysoxylum*.

The next ridge between Nomung and Golle also supports a predominantly subtropical flora, whereas the track following the Nam Tisang river valley harbors a more tropically-influenced flora. The final ascent in this zone, from Golle to Shinsankhu, crosses a third ridge and then drops down to the national park entrance at Pangnamdim. Here the flora subtly changes again towards temperate and the forest floor-dwelling *Asarum* as well as the distinctive fern, *Dipteris* first appear.

Vegetation Zone II: Pangnamdim (1,140 m) to Mading (2,000 m)

Despite the altitude and proximity to snow-clad mountains, this zone is a curious mix of subtropical forest in the valleys and temperate forest with pines appearing sporadically on higher ridges. Here the Sino-Himalayan and Indo-Malayan phytochoria dovetail into one another resulting in a mixture of floristic elements. Just above Wangsiwang (approx. 1,200 m), there is a dramatic temperate shift in the flora. On the high ridges *Pinus* makes its first appearance, as do species of *Acer*, *Aesculus*, *Carpinus*, *Alnus*, *Edgeworthia gardneri*, *Gaultheria*, and *Rubus ellipticus*. At around 1,500 m, the appearance of *Exbucklandia* and *Eriobotrya* and the disappearance of *Sarauia*, *Calamus*, palms, larger figs and lianas marks a change from subtropical hill jungle to temperate forest. Some subtropical species including *Albizia sherriffii*, *Ficus hirta* and a *Musa*, have, however, colonized the warmer valley-basins. In this zone thick, impenetrable colonies of *Arundinaria* (bamboo) also occur. It is not apparent whether these are natural stands or whether their hold on the landscape is a result of slash and burn agriculture, but once in place, *Arundinaria* crowds out all other species.

Vegetation Zone III: Mading (2,000 m) to above Sahti Htu (2,380 m)

This zone is characterized by mixed temperate forest, where trees are thickly padded with moss and temperate climbers including *Clematis* and *Polygonum*. Subtropical species no longer skirt the river-banks. Temperate genera include: *Acer*, *Tilia*, *Juglans*, *Alnus*, *Betula*, *Taxus*, *Larix*, *Rhododendron*, *Decaisnea*, *Torriceilia*, *Ilex*, *Salix*, *Litsea*, *Viburnum*, *Pieris*, *Pyrus*, *Prunus*, *Hydrangea*, *Photinia*, *Berberis*, *Daphne*, *Daphniphyllum*, *Cotoneaster*, *Euonymus*, *Sorbus*, *Cornus*, *Gaultheria*, *Rosa* and *Rubus*. The 6 ft. tall lily *Cardiocrinum giganteum*, grows in clumps on the mossy forest floor with more diminutive terrestrial orchids, ferns and *Arisaema*. Dense temperate forest opens up gradually giving way to *Rhododendron*, *Juniperus*, *Enkianthus*, and *Vaccinium* shrubbery and finally marshy alpine meadows scattered with *Primula*.

Vegetation Zone IV: Zalahtu and above (3,500 m)

This zone is recognizable by its precipitous ridges with sporadic patches of silver fir (*Abies fargesii*)-*Rhododendron* forest and broad, steep alpine meadows, many still covered in snow during May. Higher ridges are covered with turf and scree. Smaller species of *Rhododendron* are found with *Vaccinium* and *Corylopsis* near stream banks, whilst meadows are carpeted with grasses and early spring-blooming alpine flowers including: *Cassiope*, *Potentilla*, *Meconopsis*, *Paris*, *Primula*, *Bergenia*, *Omphalogramma*, *Daipensia*, *Iris*, *Cardamine*, *Gentianella*, *Anemone*, *Maianthemum*, *Selinum*, *Ranunculus*, *Picrorhizza*, *Fritillaria*, *Arisaema*, *Saxifraga*, *Gentiana*, *Androsace*, *Pedicularis* and *Mandragora*.

Main setbacks to conservation in the Park:

Discussions with villagers revealed the complex nature of biodiversity management within a national park in which there are human settlements. It becomes rapidly apparent that in order for conservation practices to be effective, they must take into consideration the livelihoods and welfare of local people as well as the health of their surrounding environment. At present slash and burn agriculture in conjunction with the cross-boundary trade in medicinal plants and animal parts are the primary threats to biodiversity conservation in Hkakaborazi National Park. However, the solution is not as simple as getting villagers to stop these harmful practices. In response to conservationists concerns, villagers reply, "If you tell us not to cut slash and burn and not to hunt animals, then you kill us! How can we live within such a system?" If sustainable alternatives are not provided, then as long as people own land within the boundaries of the park and its buffer

zone, there will be a people and park conflict. As this national park is fairly new, (having been designated a protected area in 1996) and has not yet been intensively planned and monitored, it offers a clean slate and the possibility to manage biodiversity in a manner that is integrated with local land-use.

Although the majority of the park is covered in undisturbed primary forest, there does appear to be more land under slash and burn cultivation at present than there was during a previous trip in 2001. This is especially true in the Nam Tamai (N'Mai Hka) valley along the park boundary and in the buffer zone. It is clear that villagers residing in this area do not understand that a buffer zone is a form of protected area, and part of the national park complex. Thus, when asked, they give the excuse that they are not farming in the national park. Villagers claim that they do not have many agricultural alternatives, pointing to the fact that there is not enough flat arable land. Perched in this mountainous country with steep valleys, villagers are literally caught between a rock and a hard place. Alternative land use strategies and incentive for change are a necessity to the success of biodiversity conservation within the park; the goal being villagers living sustainably in their landscape. Because the majority of forest in this region is intact and villagers do not often travel to neighboring areas in which the forest has been severely cut, they have no concept of how easily their land can become degraded, saying "our family has always lived on this land...we always cut the forest and it always comes back...this is the way it has always been." This is true with small human populations in areas that have well-managed systems for regeneration, but one need only look to the nearby Himalayan country of Nepal to see what has become of forest under the heavy impact of natural resource extraction.

Locals also often point to the neighboring Gaoligong Shan region of China. There the Chinese government has put in place severe restrictions on forest use in order to support conservation strategies, but has promised to give supplemental funds to villagers for 8 years. This scheme compensates villagers for their difficulties during the crossover period, whilst they learn new farming methods and livelihoods. Although similar rules are in place in Myanmar's Hkakaborazi National Park, villagers get no supplemental funding for their stewardship of the forests and therefore find it economically difficult to make a viable change in their agricultural practices.

In addition to slash and burn agriculture, a thriving trade in wildlife parts and medicinal plants across the Chinese border for use in medicine threatens biodiversity in the park. The majority of this trade happens through a town on the south-eastern border of the national park and China; Makumgang. During the expedition, a few villagers were met on the trail, each of whom had a young monkey, which they intended to sell in China. Numerous other wildlife species meet a similar fate. In the past year, there has been a flurry of new development at the official entrance to the national park; Pangnamdim. It has recently been designated as a sub-township and many new huts have sprung up where there was previously nothing but jungle. Of these structures, the police checkpoint is perhaps the most prominent. One of its main duties is to make sure that villagers on the trail to Makumgang do not possess threatened species for trade. This is a giant step forward. However, during warmer months the border is more porous and it is possible for traders to take a northerly route, bypassing checkpoints. Unfortunately, without economic alternatives, further education and the involvement of local people, this trade will not cease.

Farming methods:

The population of Hkakaborazi is predominantly Rawang. There are, however, four Tibetan villages in the northern reaches of the park. These two ethnic groups have differing agricultural practices. Tibetans keep small well-maintained permanent wheat and barley fields at higher altitudes, which they enrich with manure and a mulch of *Alnus nepalensis* leaves. They also have small supplemental slash and burn farms on which they grow corn. In the subtropical lowland areas (near Nomung) in the park buffer zone and to a much smaller extent on level riverside land within the park (near Gawai), Rawangs have permanent fields which they turn into rice paddies during monsoon season, some of which are shallowly terraced. Unlike the Tibetans, in the more northern reaches of the park, Rawangs have fewer permanent plots due to the steep gradient. Quite a few, apparently good, rice fields have been deserted for a variety of reasons including: loss of productivity, malaria and belief in local Nat spirits. If possible, villagers should be encouraged to continue cultivating land in lieu of abandonment and cutting new temporary slash and burn farms. Soil in this region tends to be poor and a slash and burn cannot typically be farmed for more than two years consecutively. Thereafter productivity drops off and villagers are forced to cut again elsewhere. As flat land becomes used and the soil depleted, they move higher and higher up the hillsides. Here slash and burn farming is particularly devastating on steep slopes, where landslides are likely to occur on bare land.

As an alternative to the problematic lack of flat land, terraced fields were suggested. Villagers responded saying that terracing increased insect herbivory. Also low soil fertility, another obstacle to permanent plots, could be ameliorated through manuring and mulching. Villagers, however, claim that their cattle need to be in the forest and won't stay in their fields long enough for them to collect manure. Additionally, they have no knowledge of or access to green-manure cover crops. The fact that Tibetans at higher altitudes do have permanent fields, collect manure and use leaf mulch appears to be a cultural difference as opposed to a restriction imposed by the landscape. It may also be due to the fact that the Tibetans have very few land holdings in this predominantly Rawang region and must make the most of their village fields. However, as it is not possible for villagers to grow all the food they will need yearly on permanent plots, both groups inevitably must cut slash and burn for supplemental food. Provided that this practice is restricted to one area (such as the N'Mai Hka valley) and does not encroach further and further into the forest, it can become sustainable.

It has been suggested that the dense bamboo-brakes along the N'Mai Hka may not be natural, but may be the result of old slash and burn fields. If so, this would suggest that a significant portion of the land bordering the river has been under cultivation and that it does not easily return back to forest when it is left to regenerate. Once *Arundinaria* (bamboo) takes hold, it blocks out the light and does not allow other species to grow.

In future development efforts, it would be advisable to encourage alternative agriculture through demonstration plots involving terracing and enrichment with mulch and manure. Villagers are also interested in the possibility of growing new crops to supplement their diet. In the past Tazungdam villagers had been given seeds for new vegetables (ie carrots, mustard greens, etc.) by visiting missionaries. These were grown successfully, but thereafter they were unable to gain further access to seed. Villagers also voiced an interest in growing other lightweight cash crops for trade. Lemongrass, tea and cardamon may be considered. Apple and chestnut trees would also grow well in this region. This small economic boost could hopefully help stem the tide of forest destruction.

Additionally, villagers expressed interest in growing medicinal plants such as *Coptis teeta* and *Fritillaria roylei*, the later being abundant near the Diphuk Laka. Its present relative abundance is likely due to the fact that villagers have not collected it in large quantities over the past 10 years, saying that the Chinese traders would not give them an adequate price. Whilst this has been temporarily beneficial for *Fritillaria* populations, it is unlikely to last. Cultivation for trade could be an excellent alternative, making the practice sustainable in the long-term. If such a project were to be undertaken, economic market research would be imperative. In other regions of the Himalaya where the collection of medicinal plants supplies vital income for villagers, but has been depleting local stocks, villagers have turned towards cultivation and value addition through refinement such as steam distillation so that their product can fetch a higher price. Additionally, if a village trade committee were developed and linked directly to a buyer (company) cutting out the middle-men, villagers would get a better price for their goods still. In Nepal this is done to some extent with many species, including *Bergenia purpurascens* and *Picrorhiza scrophulariiflora*. Although they occur in Hkakaborazi, these two particular herbs are not known to be medicinal by local Rawang villagers and are therefore not utilized.

The collection of orchids from the forest by villagers has also become a threat to some species. The endemic terrestrial slipper orchid *Paphiopedalum wardii* tops the list along with *Vanda coerulea*. Villagers sell these orchids in bundles of about 10 plants for \$1 in the Putao market. Their extraction from the forest is so pervasive that none were seen in the wild, where they are reported to grow. This practice must be curbed if these species are to be protected. Ex situ propagation of these orchids and other horticulturally valuable genera found within the park, (such as *Rhododendron*) is another novel way to raise international money for park protection, whilst providing for conservation and limiting the viability of poached material on the black market. Propagation of wild species has not been a common practice elsewhere, as international regulations under CITES restrict the trade of all wild orchids. However, by making coveted species available through ex-situ propagation, black market demand would drop, conservation regulations would be enforced and the national park would raise much needed funds.

Hkakaborazi National Park is still in the early stages of planning for biodiversity management. It is clear that in order to develop meaningful conservation management plans, a deeper understanding of forest structure, composition and diversity is necessary as is data on land-use and local ethnobotanical knowledge.

Future Collaborative Program:

This expedition enabled me to get a better understanding of the layout of Hkakaborazi National Park and to speak with villagers about their perception of conservation, its benefits and restrictions. Also, crucial to building a future partnership, I was able to spend time speaking with officials from the Forest Department about present and future research in the park. Contacts were made in the Nature and Wildlife Conservation Division of the Forest Department, the Forest Research Institute, the Wildlife Conservation Society Myanmar Program, Kandawgi Botanical Garden and the Botany Department at the University of Yangon.

As a direct result of these meetings, a 3-year collaborative botanical research project is being developed involving the Royal Botanic Garden Edinburgh, the Nature and Wildlife Conservation Division of the Myanmar Forest Department, the Forest Research Institute and the Wildlife Conservation Society Myanmar Program. The project proposal has just been submitted to Round 12 of the Darwin Initiative for funding consideration.

The main objectives of this proposed research are:

1. To provide the necessary floristic data for conservation assessment, planning and management in Hkakaborazi National Park.
2. To strengthen the taxonomic capacity of Myanmar's botanical institutes by training staff in field techniques and herbarium management.
3. To enhance the Myanmar national herbarium resource base through herbarium collections and data repatriation of type specimen images and taxonomic references.

Budget:

Edinburgh-Yangon roundtrip airfare: £765.00
Hkakaborazi National Park expedition costs: £1620.48
Lodging: £156.68
Food: £123.02
Transportation: £367.36
Equipment: £91.50
Travel documents: £45.50
Medical: £102.00

Total: £3271.54

The Davis Expedition Fund gave £2,500 and the Carnegie Trust gave £750 towards this expedition. Many thanks are due for their generous support, as this trip was crucial to the development of partnerships within Myanmar and thus future collaborative conservation projects in Hkakaborazi. Thank you!

Contacts made:

Ministry of Forestry:

U Than Swe

Director General
Department of Planning and Statistics
Ministry of Forestry, Yangon
direct line: 0095-1-650-286
office ph: 0095-1-664-845 (personal assistant)
office ph: 0095-1-650-282
fax: 0095-1-664-459
home: 0095-1-534-254
e-mail: psd.mof@mptmail.net.mm

U Shwe Kyaw

Deputy Director General
Ministry of Forestry
Forest Department,
Bayintnaung Rd., West Gyogone
Insein, Yangon, Myanmar
Direct line: 0095-1-681-758
Personal assistant: 681-756
Office ph: 0095-1-681-754
Fax: 0095-1-665-592
Home: 0095-1-681-615
e-mail: teaknet@mptmail.net.mm
direct e-mail: dgfd@mptmail.net.mm

U Soe Win Hlaing

Deputy Director General
Ministry of Forestry
Forest Department,
Bayintnaung Rd., West Gyogone
Insein, Yangon, Myanmar
Office ph: 0095-1-681-758
Home ph: 0095-1-681-757
Fax: 0095-1- 664-336
teaknet@mptmail.net.mm

U Saw Eh Dah

Director
Ministry of Forestry
Forest Department
Training & Research Development Division
Bayintnaung Rd., West Gyogone
Insein, Yangon, Myanmar
Office ph: 0095-1-681-857
Fax: 0095-1-664-336
e-mail: teaknet@mptmail.net.mm
Home ph: 0095-1-641-613

U Khin Maung Zaw

Director
Nature and Wildlife Conservation Division
Forest Department
Bayintnaung Rd., West Gyogone
Insein, Yangon, Myanmar
Office ph: 0095-1-681-920
Home ph: 0095-1-681-621
Fax: 0095-1-681-761
e-mail: nwcd-cas@mptmail.net.mm

U Tin Tun

Assistant Director
Ministry of Forestry
Nature and Wildlife Conservation Division
Forest Department
Bayintnaung Rd. West Gyogone
Insein, Yangon, Myanmar
Office ph: 0095-1-681-920
Home ph: 0095-1-726-825
Fax: 0095-1-681-1761
e-mail: nwcd-cas@mptmail.net.mm

U Aung Din

Assistant Director
Ministry of Forestry
Nature and Wildlife Conservation Division
Forest Department
Bayintnaung Rd. West Gyogone
Insein, Yangon, Myanmar
Office ph: 0095-1-681-761
e-mail: nwcd-cas@mptmail.net.mm
Home ph: 0095-1-290-941
0095-1-297-237
personal e-mail: aungdin@yangon.net.mm

U Win Kyi (Retired)

Director
Forest Research Institute, Yezin
Forest Department
Ministry of Forestry, Pinyinana
Myanmar
tel: 0095-1-664-457 or 0095-1-681-758
tel: 067-21436 or 067-21574
fax: 0095-1-664-336 or 0095-1-665-592

Dr. Kyaw Tint (Retired)

Director General
Forest Department
Bayinthaung Rd.
West Gyogone, Insein, T.S.
Myanmar
tel: 0095-1-71664 or 0095-1-22964

Forest Research Institute:

Switchboard of FRI: 0095-67-21101
Yangon office general phone:
0095-1-664-457
Yezin office general phone:
0095-1-67-21660
general e-mail: teaknet@mptmail.net.mm

U Htun Paw Oo

Director
Forest Research Institute (FRI)
Forest Department
Yezin, Pyinmana
Office ph: 067-21601 or 21600
Home ph: 067-21530

Daw Yin Yin Kyi

Assistant Director
Forest Research Institute (FRI)
Forest Department
Yezin, Pyinmana

Dr. San Win

Assistant Director
Forest Research Institute (FRI)
Forest Department
Yezin, Pyinmana
e-mail: sanwin@mptmail.net.mm
Home ph: 0095-1-664-620

Daw Mu Mu Aung

Yezin Herbarium staff

U Aung Zaw Moe

Yezin Herbarium staff

Khin Pa Pa Shu

Yezin staff

Kandawgi Botanical Garden:**U Thet Tun**

Botanist

Daw Kyu Kyu Thin

Orchid ovuculture

Wildlife Conservation Society:**U Saw Tun Khaing**

Country Program Coordinator
Wildlife Conservation Society
Myanmar Program Office
Bldg, C-1, 2nd floor
Aye Yeik Mon 1st Street
Yandanamon Housing Ave., Hlaing Township
Yangon, Union of Myanmar
ph: 0095-1-524-893
fax: 0095-1-512-838
e-mail: wcsmm@mptmail.net.mm

U Than Myint

Research and Training Coordinator
Wildlife Conservation Society
Myanmar Program Office
Bldg, C-1, 2nd floor
Aye Yeik Mon 1st Street
Yandanamon Housing Ave., Hlaing Township
Yangon, Union of Myanmar
ph: 0095-1-524-893
fax: 0095-1-512-838
e-mail: wcsmm@mptmail.net.mm
Home: 0095-1-707-437

University of Yangon:**Dr. Daw Aye Kyi**

Professor
Department of Botany
University of Yangon
No.(37) Uphee St.
Sanchaung Township, Yangon
Office: 0095-1-535-030
Home ph: 0095-1-510-328
e-mail: botyu@dhelm.edu.gov.mm

Dr. Aung Aung Min

Professor
Department of Botany
University of Yangon
Office: 0095-1-535-030
e-mail: botyu@dhelm.edu.gov.mm

U Win Myint

Lecturer
Department of Botany
University of Yangon
Office: 0095-1-535-030
Home ph (?): 534-040
e-mail: botyu@dhelm.edu.gov.mm