



Iris loczyi (top and middle left), a member of the Limniris Section, forms dense, expanding, ring-like tussocks, here growing on the Lamma La at about 5000 m in a bleak and wind-eroded habitat of sandy and stony ground; *Iris lactea* (above middle) is widespread north of the Himalaya, indeed all the way to western and northern China and Mongolia, here growing on an irrigation bank; *Meconopsis napaulensis* (bottom left) known previously only from the adjacent regions of Nepal to the west, here growing in a shady spot along the Friendship Highway (Lhasa to Kathmandu) close to the Nepalese border.

THE AGS IN TIBET 2005

In July 2005 the AGS organised a tour to Tibet (Xizang) under the joint leadership of John & Hilary Birks and Harry Jans. This is the first time that the Society has ventured into this vast and relatively little-known country and this article describes in detail the various adventures that confronted the party and the numerous exciting plants observed. The article is multi-authored, with contributions from John & Hilary Birks, Joanne Everson, Harry Jans and David & Margaret Thorne.

Tibet has a rich and diverse flora, spectacular landscapes, and fascinating cultures. Any journey to this remarkable country variously referred to as Shangri-La, the Land of Snows or 'The Roof of the World' is likely to be an adventure and the 2005 AGS tour turned out to be a great adventure in very many ways — botanically, culturally, logistically, organisationally, travel-wise — as well as being physically demanding and immensely rewarding.

For centuries the Buddhist kingdom of Tibet, tucked behind the mountain vastness of the Himalaya, has stimulated the imagination of travellers and adventurers in the West. Lhasa, the ultimate prize for many travellers, became the Forbidden City, and very few Westerners were allowed to visit it. When Tibet became open to travellers in the mid-1980s, it was no longer the hidden hermit kingdom that had fired the imagination of early Western travellers and writers. It was now part of the People's Republic of China and remains without its spiritual leader, the Dalai Lama, who now lives in exile in northern India. The *Lonely Planet* volume about Tibet says 'Tibet is without doubt one of the most remarkable places to visit in Asia. It offers fabulous monastery sights,

PHOTOS HARRY JANS



Tibet lama with a prayer wheel

herbarium material, monograph or flora, field identification), and the person who made the identification. This data-base is available at <http://www.eecrg.uib.no> under Places We Work, Tibet. The species lists for each day are also available at this website. A list of all the birds and mammals seen was prepared by David and Margaret Thorne and is also available from this website, as are additional vegetation diagrams, maps, and plant images and A.F.R. Wollaston's (1922) list of plants, birds, and mammals from the Kangshung area. To see over 640 images from the 2005 Tibet Expedition, visit Harry Jans' fine website <http://www.jansalpines.com> and go to Photo Gallery and Tibet. Harry has also produced a DVD of the 2005 Tibet tour. Details are available from his website.

THE TOUR

PART ONE: LHASA AREA

[Lhasa and the mountains to the east (Mi La and Rutok), July 9-12th (plus July 3-8th, John & Hilary Birks alone)]

The group spent its first two days in Tibet acclimatising to Lhasa's high altitude (3648 m) by visiting three of the several cultural highlights in the city. On July 10 we visited the unbelievable Potala Palace, the deserted but impressive home of the Dalai Lamas and one of the world's largest buildings; Barkhor Square with its medieval pilgrim circuit, religious artefacts, prostrating pilgrims and, nearby, its varied market stalls, numerous pool tables and amazing shops; Jokhang Temple, the most revered religious structure in Tibet. The only plants found (17 species) were growing on the very

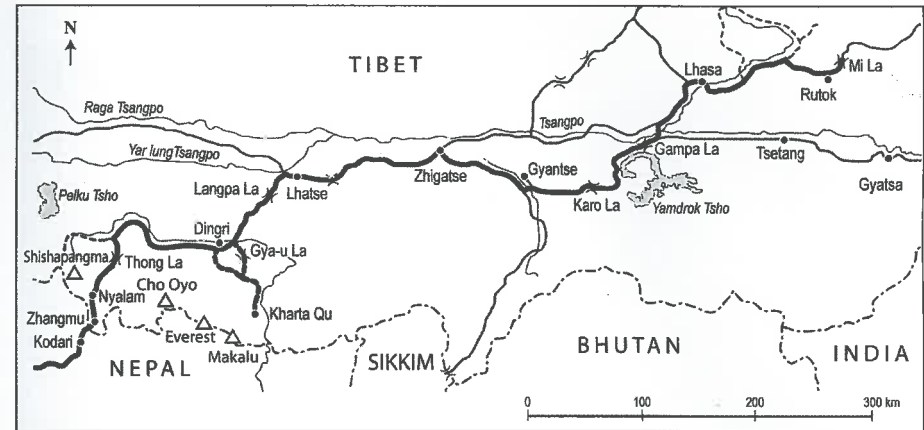
dry slopes below the Potala Palace (e.g. the shrubs *Sophora moorcroftiana*, *Caragana jubata*, *Hippophae tibetana*), on stone walls of the Potala (e.g. the rupestral ferns *Cheilanthes argentea* and *Lepisorus clathratus*), or in the grounds within the Palace (*Juniperus indica*, *J. recurva* (both used for incense) and the attractive *Arisaema flavum*).

We visited the Drepung Monastery 8 km west of Lhasa (3700-3820 m) on July 11. Drepung was once the world's largest monastery, with a population of up to 10,000 monks. Drepung translates as 'rice heap', a reference to the huge numbers of white monastic buildings spread along the hillside. The annual precipitation here is about 400 mm (16 in). The vegetation on the slopes around is a mixture of dry shrub-steppe and steppe. Exploration of



The widespread Tibetan *Clematis tibetana* subsp. *vernayi* (above and right) inhabits dry rocky places: the flower colour varies from yellow or greenish-yellow, to brownish or almost black

PHOTOS HARRY JANS



Map showing where the AGS group visited around Lhasa to Mi La, along the Friendship Highway from Lhasa to Zhitgatse and Dingri, the road to Kharta, and the return from Kharta to Nyalam and Kodari via Dingri. The route is shown by a thick line.

the slopes above the monastery and of shaded rocks and scrub by a stream yielded several plants of note. These included *Clematis tibetana* subsp. *tibetana* and *C. tangutica* growing amidst dry rocks,



the gesneriad *Corallodiscus kingianus*, and the small *Selaginella tamariscina* on shaded rocks, *Arisaema flavum* in shaded areas, *Primula* cf. *jaffreyana* by a stream, the attractive ferns *Cheilanthes argentea*, *Lepisorus bicolor*, *L. clathratus*, and *Neocheiropteris waltonii* on dry rock outcrops growing with *Ephedra saxatilis*, *Campanula pallida*, and *Sedum glabosum*, and a range of steppe species on the dry slopes including *Sophora moorcroftiana*, *Hippophae tibetana*, *Ajania tibetica*, *Artemisia* spp., *Caragana jubata*, *Astragalus rigidulus*, *Trigonotis tibetica*, *Ceratostigma ulicina*, and *C. minus*. Within the monastery, *Juniperus indica* and *J. recurva* were frequent, with the indigenous peach *Prunus mira*, *Rosa sericea*, *Polygonatum cirrhifolium*, *Ailanthus sinensis*, and *Ulmus pumilio* also planted in courtyards. The mistletoe-like *Arceuthobium oxycedri* was locally common on the junipers. An unusual form of *Meconopsis horridula* was found at Drepung by the intrepid plant explorers Frank Ludlow and George Sherrif in the 1930s and, in recent times,



Tibetan farm, Dorgon, near Zhigatse (top);
problems on the road to Kharta (bottom)

on dry shallow stony soils near the prayer-flag look-out.

On July 14 we continued from Zhigatse to Dingri along the Friendship Highway, now forever in our collective memory as the 'Unfriendly Highway'! It took 12 hours to travel 380 km and only 21 species were recorded. Some inconspicuous weedy plants (e.g. *Microgynoecium tibeticum*, *Plantago asiatica*) or cultivated plants (e.g. *Linum usitatissimum*, *Prunus mira*) were seen by the traditional Tibetan farm we visited at Dorgon (3880 m). During a short stop (3875 m) large sheets of *Oxytropis sericopetala* on bare silt were seen, with *Caragana spinifera*. *Gentiana emodi* was found at another short stop (3875 m). The conspicuous, dark-flowered, brown to black *Clematis tibetana* subsp. *vernayi* was locally common in dry areas, scrambling over bushes or forming large masses on the ground. *Juniperus indica* was found occasionally on rocky areas, usually with its parasite *Arceuthobium oxycedri*. The Langpa La (5220 m) could have been interesting botanically but conditions were bad, with extreme cold, wind and snow. Plants of interest there included *Androsace tapete* and *Erysimum chamaeophyton*. The road quickly deteriorated because it was being 'improved'. These 'improvements' involve digging up at least 150 km all at once and as a result one had to drive round obstacles, over fields, along stream beds, and across rivers. Aggravated by heavy rain, the road had become a glorified mud bath. At times it felt as if we had suddenly been enrolled on 'It's a knock out' or an army off-road driving assault course. Most of the vehicles lacked the standard equipment you would expect in a hire vehicle: headrests, seat belts, etc.

are obviously 'luxuries', apparently unnecessary for Tibetan land-cruiser passengers! However, the greatest torture, apart from the bruising that resulted from limbs being constantly bumped and banged, was the incessant Chinese pop-music played on the car stereos. One driver seemed to own only two cassettes and, taking into account two days on constant loop, this can surely go down as a great enduring sacrifice in the name of AGS botanical exploration! After much bumping, skidding and sliding due to the atrocious and never-ending 'improvements' we finally reached the restricted area at Dingri (4340 m) to be greeted by our Sherpas from Nepal who had set up camp on a flat meadow. However, it was occupied by a crowd of singing, drunken local Tibetan women dancing in an erratic circle. Fortunately, a thunderstorm broke and the drunken locals quickly dispersed! Peace prevailed after a rather exhausting and trying day.

July 15 was officially a rest day but after a few hours in camp, we walked to Rachu (a nearby village) and explored the dry open slopes above (4410-4560 m). The flora was rather poor and sparse but after some determined searching a total of 59 species was recorded.

The dry slopes had several attractive legumes including *Astragalus monbeigii*, *A. monticolus*, *Oxytropis microphylla* and *O. melanocalyx*, small cushions of *Eritrichium lasiocarpum* and *Androsace tapete*, and spiny clumps of *Caragana spinifera* and *C. jubata*. Several specimens of the attractive *Phlomis younghusbandii* and *Lamiophlomis (Phlomis) rotata* were growing in loose, fine scree. In more stable areas on the scree and in open areas within the village, we also found *Ephedra gerardiana*, *Juniperus squamata*, *Ceratostigma minus*, *C. ulicina*, *Trigonotis rockii*, *Heteropappus altaicus*, *Potentilla bifurca*, *Arabidopsis himalaica* and the showy *Cynoglossum wallichii* var. *glochidiatum*. Other plants of note

PHOTOS: JOHN BIRKS (TOP), HARRY JANS (BOTTOM)

views of Mt Nojin (7191 m) and the Kangtang glacier were very enticing. The area would, we suspect, repay careful botanical searching in the absence of the locals! A scenic stop further on by the prayer flags above Simi La (4360 m) was botanically rewarding with black-flowered forms of *Clematis tibetana* subsp. *vernayi*, *Pulicaria insignis*, *Androsace wardii*, *Onosma hookeri* var. *longiflorum*, *Pedicularis rupicola* and *Astragalus monticolus* growing



The (drunk) Tibetan welcoming party at Dingri Camp

heavy monsoon clouds roll up the gorge to its mouth, where they are cut off sharply, so that within a mile you may pass from the dry climate of Tibet to the moist, steamy air of a Nepalese character, with its luxuriant vegetation.'

The AGS party took advantage of this remarkable ecotonal situation and explored the dry sub-alpine shrub-steppe and steppe to the west in the morning and the moist sub-alpine woodland to the east in the afternoon, at altitudes between 3600-3750 m. Mean annual precipitation at Kharta is probably about 650 mm (26 in), decreasing to less than 500 mm (20 in) a few kilometres to the west. The mean January temperature is probably about -15°C.

The sub-alpine shrub-steppe and steppe (3700-3800 m) is dominated by the shrubs *Juniperus squamata*, *J. indica*, *Caragana erinacea*, *Potentilla fruticosa*, *Cotoneaster acuminatus*, and *C. microphyllus*, several tall *Artemisia* species and a range of grasses including *Stipa purpurea*, *S.*



Arenaria edgeworthiana at Kharta

mongholia, and *Roegneria nutans*. The dwarf shrub *Ephedra gerardiana* was locally common. Conspicuous interesting herbs in the steppe included *Onosma hookeri* var.

PHOTO: HILARY BIRKS

longiflorum, *Thymus linearis*, *Incarvillea younghusbandii*, *Morina kokonorica*, *Androsace tapete*, *Cyananthus microphyllus*, *Euphorbia stracheyi*, *Bupleurum candollei*, *Eritrichium minimum*, *Arenaria edgeworthiana*, *Thalictrum* cf. *atriplex*, the diminutive *Campanula nakaoui*, the parasitic *Orobanche cernua* var. *hansii*, the attractive *Geranium orientali-tibeticum* growing amidst bushes, large mats of *Potentilla cuneata* and *P. eriocarpa*, several *Astragalus* species (*A. monbeigi*, *A. monticolus*, *A. pulvinatus*, *A. rigidulus*), three *Youngia* species (*Y. depressa*, *Y. gracilipes*, *Y. simulatrix*), two *Leontopodium* species (*L. monocephalum*, *L. jacotianum*), *Crepis flexuosa*, and, most surprisingly, *Koenigia islandica* in a wet seepage area within dry steppe.

Whilst we were all busy botanising on our hands and knees, three little boys appeared, carrying impossibly large loads strapped to their backs. Each had shaved heads, with conspicuous sores, dirty faces, and ragged clothes, and one had his small feet poking out of the front of his shoes. It was very difficult to make these

obviously inquisitive but very serious youngsters smile; maybe it was because it was a Sunday and they were on their way to the local boarding school in Kharta. But we seemed to give them some entertainment and news of our presence must have spread for, on our return to camp, a Tibetan trader appeared with the latest range in 'genuine' Gore-tex mountain jackets for us to barter for. An opportunity is never missed to make some money and even one of our Sherpas bought a down jacket. Unfortunately, the only colour in his size was bright pink!

Steep banks and rocky screes by the road were floristically very rich. The beautiful lilac *Scutellaria prostrata* ran between the rocks, growing with a range of attractive plants including *Nepeta lamiopsis*, *N. discolor*, tall *Cicerbita roborowskii* (with powder blue hanging heads), bright blue *Onosma waltonii*, *Rabdosia parviflora*, *Silene gonosperma*, *Leontopodium stracheyi* and *Anaphalis contorta*.

On our return to camp, an Ibisbill flew down to the bank of the Kharta Tsangpo and remained in the area for several hours.

After lunch in camp we crossed the Kharta Tsangpo to explore the wooded areas in the monsoonal 'cloud zone'. The river banks supported a characteristic mixed vegetation with the shrubs *Hippophae salicifolia*, *H. tibetana*, *Myricaria rosea*, and *Salix sclerophylla*, and the tall grass *Calamagrostis pseudophragmites*. River gravels supported a specialised flora including *Oxytropis melanocalyx*, *Persicaria glacialis*, *Oxyria digyna*, *Phleum alpinum*, *Potentilla argyrophylla*, *P. griffithii*, and *Schulzia dissecta*. The ditches and runnels were filled with a superb display of sulphur-yellow *Primula sikkimensis*, while



Scutellaria prostrata



Horse race festival, Rachu near Dingri

PHOTO: HARRY JANS AND OPPOSITE LEFT



Camp by Tsho Shau

moister climate, the vegetation increased rapidly. On these slopes there were rhododendrons 5 feet high, mountain ash, birch, willows, spiraeas, and juniper. At the top of the pass there was not much of a view, but prowling round I came across some very fine saussureas with their great white woolly heads and a wonderful meconopsis of a deep claret colour that I had never seen before. There were fifteen to twenty flowers on each stem, and it grew from 2 to 3 feet high

This account is probably the first recorded sighting of *M. tibetica*. The Samchung La is at the head of the valley, parallel to and about 5 km east of where we found *M. tibetica* near Tsho Shau and on the lower slopes of Sha-u La where we found it again next day. A.F.R. Wollaston (1922) records having collected it and given his plant specimens to the Herbarium at the Royal Botanic Gardens, Kew, but Grey-Wilson (2006)

has not been able to locate the material there.

As well as *Meconopsis tibetica*, the day's botany was extremely rewarding with 79



Saxifraga hynchitis, see p.320



Plants of the Sha-u La:
Cyananthus incanus (top left);
C. pedunculatus (top right);
Androsace lehmanii (bottom right);



new species added to our list. As we worked through the collections that evening we had no idea that the botany could get even better but, on the next day, it did.

July 20th is a day that we will not easily forget! Not only was it the richest day botanically with 213 species, but it was also the day that John Birks began to see double and was given oxygen and much appreciated help from David Sheals, David Thorne, the sherpas, and our anonymous Tibetan helper, whom we called the 'medicine man' because he always carried the expedition medical kit. Early morning botanising above our camp in search of *Lilium nanum* brought an unexpected dividend when some adventurous members disturbed a family party of four Tibetan Snowcock, which flew very noisily across the valley over those remaining below.

The 9 km trek took us from Tsho Shau (4650 m) to Zokshyam (4015 m) over the Sha-u La (4888 m) and down into

the Karma Valley. Quite soon after leaving our Tsho Shau camp, we found two further populations of *Meconopsis tibetica* up to about 4600 m on the lower slopes of the Sha-u La. Other plants of interest in the low-alpine *Rhododendron* heaths and grasslands included *M. simplicifolia*, *M. paniculata*, *M. grandis*, *M. horridula*, *Androsace robusta* subsp. *purpurea*, *Ligularia cremanthoides*, *L. hookeri*, *Lloydia serotina*, *Lilium nanum* (both colour forms), *Corydalis polygalina*, *Geranium refractoides*, *Pedicularis daltonii*, *Anemone imbricata*, *A. cf. smithiana*, *A. demissa*, *A. trullifolia*, *A. obtusiloba*, *Cremanthodium oblongatum*,

PHOTOS: HARRY JANS

ALPINES IN SOUTH-EAST TIBET

Anne M. Chambers has travelled on four occasions to an area of south-eastern Tibet between 92° and 97° latitude, the first two trips in the area of the Tsangpo river and its eastern tributaries, the other two exploring the Tsari valley and the adjacent Bimbi La.

The Himalayan chain runs south-west to north-east through the region: its mountains and their influence on local climate give rise to a much greater diversity of habitats and species than is found elsewhere in Tibet.

In this account the author describes some of the most memorable alpine and herbaceous plants encountered.

Kingdon Ward's eloquent prose in chapters enticingly headed 'In the Rhododendron Fairyland' and 'The Paradise of Primulas' first alerted me to the wealth of plants in the area around Namcha Barwa and the Tsangpo bend in SE Tibet. After that, it was just a matter of getting there and in June 1995 we (a small group there headed by Kenneth Cox) succeeded. After driving east from Lhasa for two days we reached the village of Pe at the foot of the Doshong La. Here, just before it is constricted between the peaks of Gyala Peri and Namcha Barwa, the river broadens and deposits much of its silt. *Iris decora*, easily identified by its horizontal falls, and a good form



Namcha Barwa (above) in south-eastern Tibet, a plant-hunter's paradise

of *Arisaema flavum* grew happily in the dry sand by the road but, as soon as we started to ascend the track to the Pass, the vegetation changed dramatically, the dominant spiny oak was replaced by mixed forest and we stopped to camp in a wet meadow surrounded by *Iris chrysographes* and various colour forms of *Primula alpicola*. Above the camp, clumps of *P. macrophylla* were pushing through the bleached grass and from there we could see the considerable amount of snow remaining on the pass. As Peter Cox explains elsewhere, the Doshong La attracts inordinate precipitation throughout the year. No explorer has ever had anything good to say about its

weather and Ludlow's favourite adjective, 'execrable', was appropriate.

It is Peter's privilege to write about the rhodo-fest that is the Doshong La but I must risk repetition by mentioning one species, *R. forrestii*. As we climbed towards the Pass, this plant stood out more than any other. Its large glowing red bells over prostrate foliage made a picture against the rocks, worth every effort to see. And it was an effort: the path soon disappeared under deep snow, soft in places, icy in others, always difficult, but the summit rocks were clear of snow, as were a few rocky islets. Not all had an identical mix of plants but generally, as well as some dwarf willow, there was



A pale yellow form of *Diapensia himalaica*