

漫步自然圣境



—西藏冈仁波齐植物篇



The Way to the Sacred Land

Cherishing the Wildlife and Traditional
Culture of the Kailash Sacred Landscape

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The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.



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The Kunming Institute of Botany (KIB) is a government sponsored institution under the auspices of Chinese Academy of Sciences (CAS). KIB is dedicated to exploring, conserving and utilizing plants so as to benefit human. Based in Yunnan and Southwest China as well as Southeast Asia and the Himalayas, KIB dedicates its research efforts to plant diversity and plant resources so as to facilitate the development of plant science, biodiversity conservation, sustainable utilization of biological resources and bio-economy in China. Adhering to the national strategy of building an innovation country and the West China Development Program, KIB aims to become a national institute with immense power in creativity and sustainable development and a higher talents base in biology science and an important incubator of natural medicine industry in Southwest China.

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The Way to the Sacred Land

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Culture of the Kailash Sacred Landscape

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2014年是马年，在中国传统的六甲纪年生肖中为午马。马者骏也，即指才能出众之人，又称“才俊”“骏骨”取谐音“俊谷”，可取意为“大丰之年”。马年的到来不禁产生联想：马上有车、马上有房、马上有钱.....而在藏区，如果你问藏族同胞马年将至你会做些什么？相信他（她）会睁着兴奋的双眼毫不犹豫地说：“转山！去朝觐神山冈仁波齐。”藏族是山的民族，他们有大山一样朴实的品格，他们将信仰寄情于山川湖泊，追求在自然状态下体现生命的本真，这是与生俱来的文化基因中对自然的敬畏。

2014 was the year of the horse. In Chinese culture, the horse is linked to success and prosperity. You might look forward to a lucky time – earning more money, getting a house or a car. But if you ask a Tibetan “What will you do in the year of the horse?”, they will tell you that they are going on a pilgrimage to Gang Rinpoche, the holy Mount Kailash. Tibetan people are in tune with the mountain landscape that is their home; reverence for nature and worshipping the mountains and lakes is an integral part of their culture.







据传朝觐神山圣湖已有800多年的历史，那里被信徒们称为“世界的中心”。然而这个中心至今似乎距离现代文明依然遥远。很难想象在过去生活物质极端匮乏的年代，信徒们衣衫褴褛、饥不裹腹，翻越空气稀薄道路崎岖的高山峻岭，穿过一望无际渺无人烟的萧瑟荒漠，顶着凛冽的寒风或炎炎的烈日，徒步或全身匍匐大地叩拜，用身体丈量旅程时的情景。

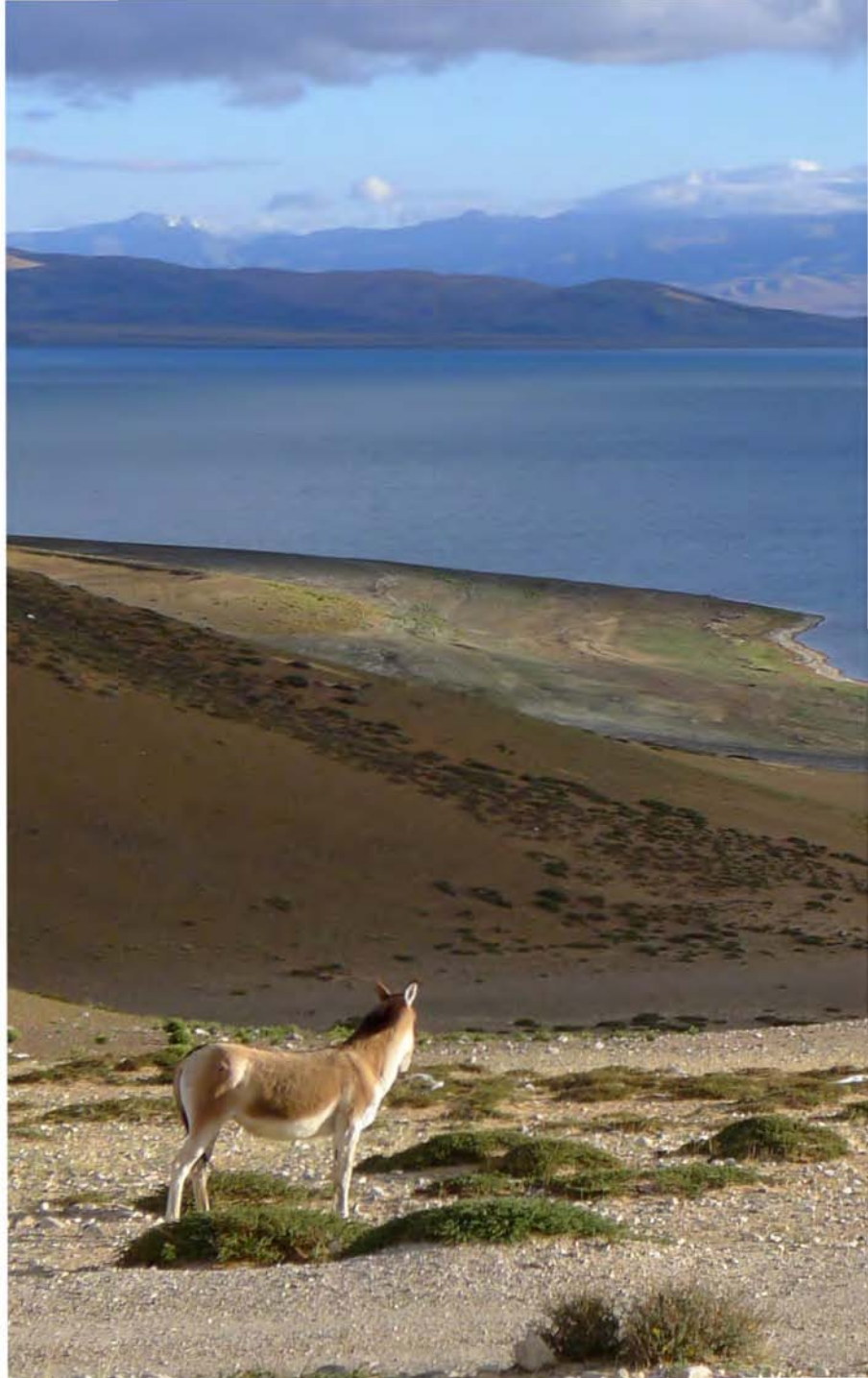
信仰在心中生根，痛苦被剥离开来，生命之花怒放。

People are thought to have worshipped Mt. Kailash and Lake Manasarovar for more than 800 years. The faithful believe it is the centre of the world, though in these modern times it may seem far away. It is hard to imagine that in the past, hungry pilgrims in worn clothes crossed these rugged mountains and vast bleak deserts in the thin air, and cold winds, under a blazing sun, walking and prostrating themselves along the pilgrimage way.

Faith takes root in their hearts, pain fades away, and life blooms.

马年夏天我们对位于西藏自治区阿里地区普兰县的冈仁波齐神山圣湖景区进行了考察，记录了当地的野生植物资源及相关传统文化知识。此次考察是“冈仁波齐神山圣湖生物多样性保护与社区发展项目”活动的一部分。本书的出版是对此次考察的精髓总结，希望能够唤起公众对当地独特的生物多样性和深厚传统文化的保护与尊重。

In the summer of 2014, we made a survey of the wild plants and related traditional knowledge in the Kailash region – in Burang county of Ngari prefecture in the Tibet Autonomous Region of China. The survey was carried out under the 'Kailash Sacred Landscape Conservation and Development Initiative'. This book presents some of the findings from this work. We hope that it will help raise awareness among the general public of the unique plant biodiversity and profound traditional culture of this splendid landscape.









阿里地区面积30万平方公里，平均海拔4500米，辖革吉、日土、扎达、普兰等7县，人口仅8万，是我国人口密度最小的地区之一。冈底斯山脉与喜马拉雅山脉宛如由东向西的两条平行线延伸至阿里深处。在阿里境内，喜马拉雅山脉的最高峰是位于圣湖玛旁雍错南面的海拔7694米的纳木那尼峰，冈底斯山脉的最高峰则属于萨嘎县至仲巴县一带海拔7095米的冷布冈日，又称为罗波峰，并非大名鼎鼎的神山冈仁波齐。也许冈仁波齐身上有太多神圣的光环，成为世人瞩目的神山。而地处冈底斯山脉中段的最高峰冷布冈日鲜有人提及，恐怕只有地质工作者知道它的存在。

Ngari prefecture is divided into seven counties and extends over 30 km² at an average elevation of 4,500 metres above sea level. With a total population of only 80,000, it has one of the lowest population densities in the country. The Kailash and Himalayan mountain ranges stretch in parallel from east to west into the heart of Ngari. The prefecture's highest mountain is in the Himalayan range, Gurla Mandhata which rises to 7,694 m to the south of Lake Manasarovar. The highest peak in the Kailash range is the little known Lengbu Gangri at 7,095, but the most famous peak in the range is Mt. Kailash.

普兰被誉为“雪山环绕的地方”。与尼泊尔、印度接壤，自古就是尼泊尔人和印度人去神山圣湖朝觐的必经之地。普兰县城海拔3900米，坐落于纳木那尼雪山脚下的孔雀河（马甲藏布）河谷。受孟加拉湾湿润空气的影响，这里形成了相对宜人的高原小气候。

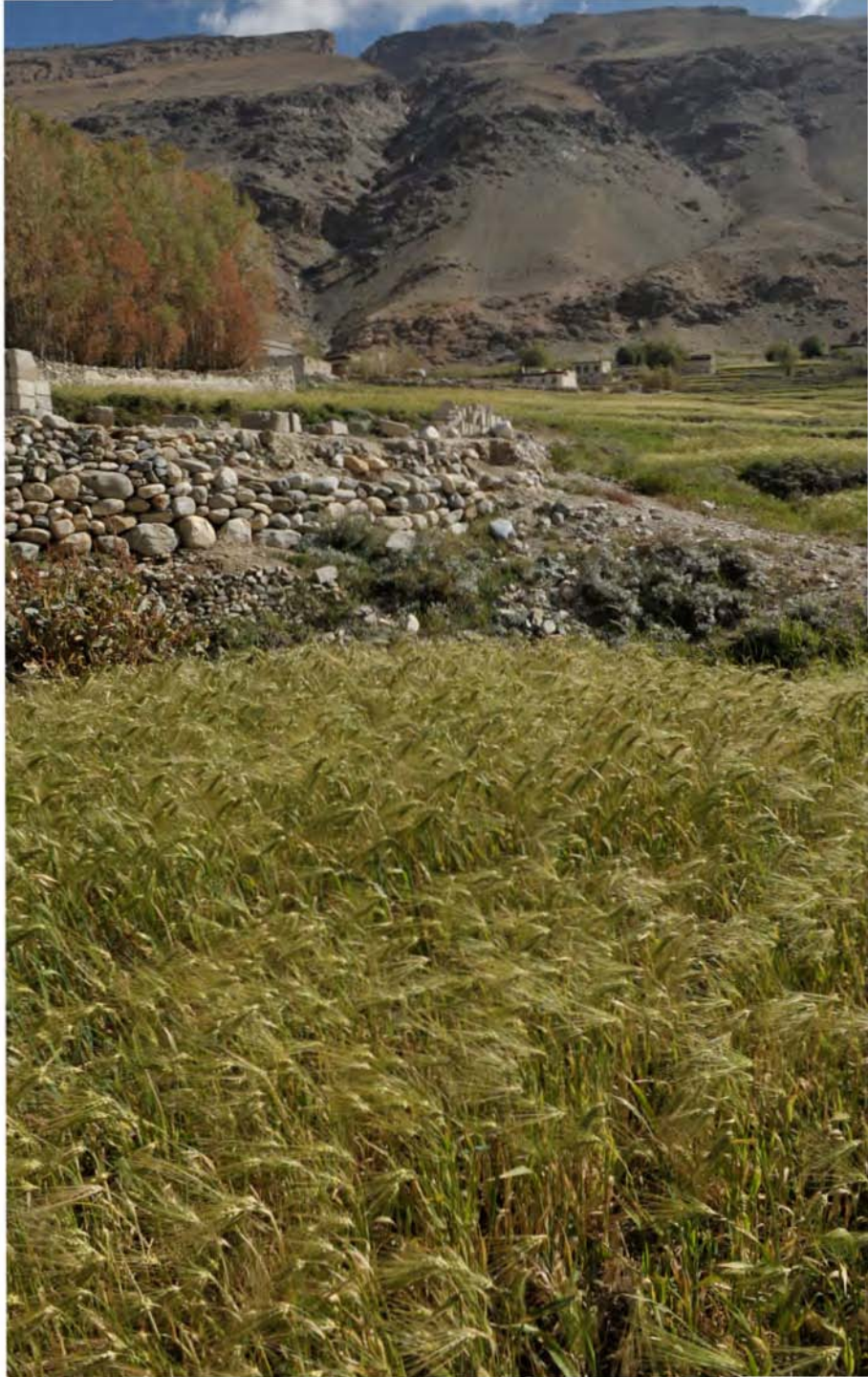
Burang is 'the place surrounded by snow mountains'. The county borders India and Nepal, and all Indian and Nepali pilgrims must pass through here on their way to Kailash. Burang Town lies in the valley of the Karnali river at the foot of the Mount Gurla Mandhata. Burang Town is milder and wetter than other parts of Ngari. The average elevation is only 3,900 m, and the moist monsoon winds from the Bay of Bengal bring precipitation here.





因受阳光和雪水的滋润，普兰成为阿里的粮仓。主要种植有青稞等农作物。但是由于土壤多为沙壤和轻壤，质地较为疏松，结构性差。颇丰的降水以及河流长期侵蚀切割，普兰地势破碎狭窄、坡谷陡峻，塌方、泥石流等灾害时有发生。冬春季节常有较大降雪，影响农牧业生产。

The relatively mild climate has made Burang the granary of Ngari, with barley the main crop. But Burang also suffers from natural disasters, especially landslides during the rainy season. And there is heavy snow in winter and early spring, which have a strong effect on agricultural and pastoral production.





青稞 (*Hordeumvulgare* var. *nudum*) 是青藏高原种植面积最大的农作物，通常生长于海拔3900米左右区域。其是禾本科大麦属植物，又称裸大麦、裸麦，具有耐高寒，种植期短，品种资源丰富的特点。青稞是青藏高原藏族同胞的主食。关于大麦属的起源至今学术界还处于探索和研究之中，而以“青稞”作为大麦的早期称呼，最早的记录可以追溯到公元6世纪的《齐民要术》一书。最近研究发现，青稞的种植极有可能是人类在青藏高原上能够长期定居的决定性因素，定居时间可以追溯到3600年前。

The most widely cultivated crop on the Tibetan plateau is barley (*Hordeum vulgare* var. *nudum*). It can grow at 3,900 m. Barley with various varieties is cold tolerant and has a relatively short growing period. It is the staple food of Tibetans; written records of the crop can be traced back to the 6th Century. It also suggested that barley cultivation have enabled permanent settlement of human on the Tibetan Plateau 3600 years ago.









藏族同胞在野生植物利用方面有丰富的知识，各地区都有独具特色的植物利用方式。从使用数量看草本灌木的比例较大许多植物都有药用功效。

The Tibetan people have a rich knowledge of the use of wild plants, especially herbs and shrubs, which is often site specific. Many plants have a medicinal value.

灌木亚菊（菊科亚菊属）*Ajania fruticulosa* 草本灌木，在青藏高原通常生长在海拔4000~5300米的沙质沟谷或坡地。骆驼和羊喜食。藏药中主要用于治疗各种炎症。民间将它晒干后碾粉制香，熏香辟邪。

The shrub *Ajania fruticulosa* grows between 4,000 and 5,300 m on the Tibetan Plateau. It provides forage for camels and sheep and is used in Tibetan medicine to treat inflammation. Made into incense, it protects against evil.

弱小火绒草（菊科火绒草属）*Leontopodium pusillum* 矮小草本植物，生长在海拔4300~5000米的盐湖边、高寒草甸、石砾地。藏民用其花、叶制作藏医“火炎”，消炎止痛。

Leontopodium pusillum is a small herb that grows between 4,300 and 5,000 m on the Tibetan Plateau. The flowers and leaves are used to treat inflammation and relieve pain.

变色锦鸡儿（蝶形花科锦鸡儿属）*Caragana versicolor* 灌木。通常生于海拔4200~4900米的湖边、沟谷。牲畜喜食花、嫩叶。藏药用于降血压、消炎。为藏香原料之一。

The shrub *Caragana versicolor* grows between 4,200 and 4,900 m on the Tibetan Plateau. Livestock graze on the flowers and young leaves. It is used to treat inflammation and reduce blood pressure and to make Tibetan incense.

匍匐水柏枝（柃柳科水柏枝属）*Myricaria prostrata* 匍匐植物，生长在海拔4300~5200米的湖滩或沟边。家畜喜食的饲料植物。藏民晒干后用叶子熏火以辟邪。藏药中，主治四肢水肿。

The small shrub *Myricaria prostrata* grows between 4,300 and 5,200 m on the Tibetan Plateau. It provides fodder for livestock and is used in Tibetan medicine to treat edema; the dried leaves protect against evil.

穗花韭（百合科穗花韭属）*Milula spicata* 生于海拔2900~4800米的湖边或沙质坡地。优质香料植物，民间用于代替葱、韭类作为烹饪辅料。

Milula spicata grows between 2,900 and 4,800 m on the Tibetan Plateau. It provides a high quality spice and is used as a substitute for onions and leeks.

金露梅（蔷薇科委陵菜属）*Potentilla fruticosa* 生于海拔3600~4800米。湖滩、沟谷。藏民用于庭院观花树种，可作绿篱，也可用于动物饲料或建筑用材，也用于做笤帚。叶可药用，清热健脾。

The small shrub *Potentilla fruticosa* grows between 3,600 and 4,800 m on the Tibetan Plateau. It is used for livestock fodder, as building material, to make brooms, as an ornamental, and for hedging. It is also used as medicine to reduce internal heat in the body and strengthen the spleen.

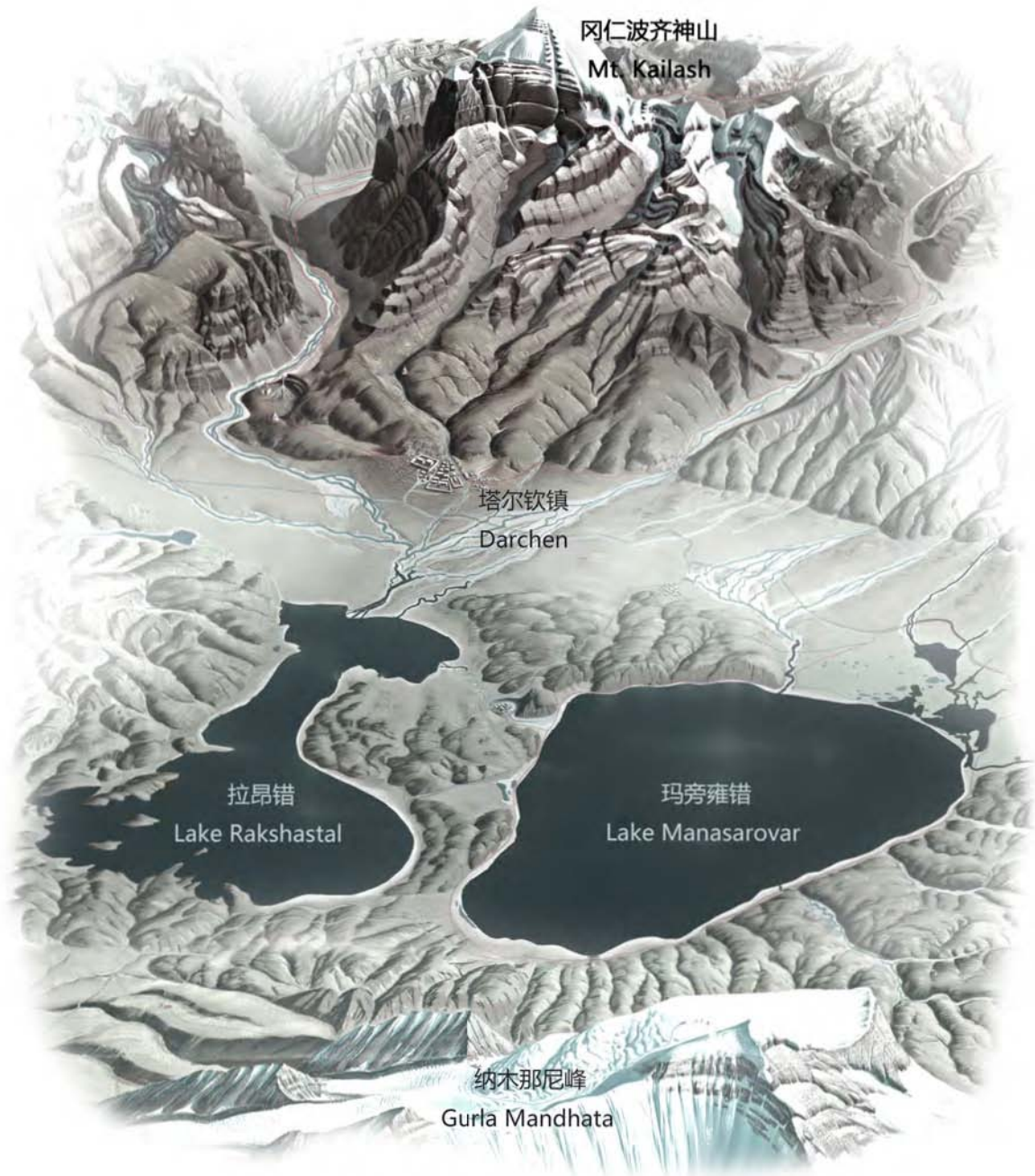






普兰藏民的服饰与藏区其它地方不同，尤其以科迦地区为代表。科迦藏装整套饰品极为奢华，从头到脚都配有蜜蜡、绿松石、玛瑙、珊瑚、珍珠、黄金、白银等。服装上的刺绣也极为精美，各家的针织刺绣图案都有不同纹饰。妇女们神秘的头冠和半掩的微笑散发着令人心动的独有魅力。

This traditional Tibetan dress from the Kejia area of Burang has sumptuous accessories from head to foot made from amber, turquoise, agate, coral, pearls, gold, and silver. The cloth is exquisitely embroidered with patterns that vary from family to family. The women wearing the mysterious crown and subtle smile are especially charming



冈仁波齐神山

Mt. Kailash

塔尔钦镇

Darchen

拉昂错

Lake Rakshastal

玛旁雍错

Lake Manasarovar

纳木那尼峰

Gurla Mandhata

西藏阿里岗底斯山脉景区示意图

神山圣湖景区包括：冈仁波齐峰、玛旁雍错、拉昂错和纳木那尼峰。玛旁雍错和拉昂错是藏南内流水系中面积较大的内陆湖泊，位于冈仁波齐峰（冈底斯山）和纳木那尼峰（喜马拉雅山）之间的一个断陷盆地上，因此构成了两山夹两湖的地貌单元，也造就了这一地区冰川湖水、湿地草原的独特景观。

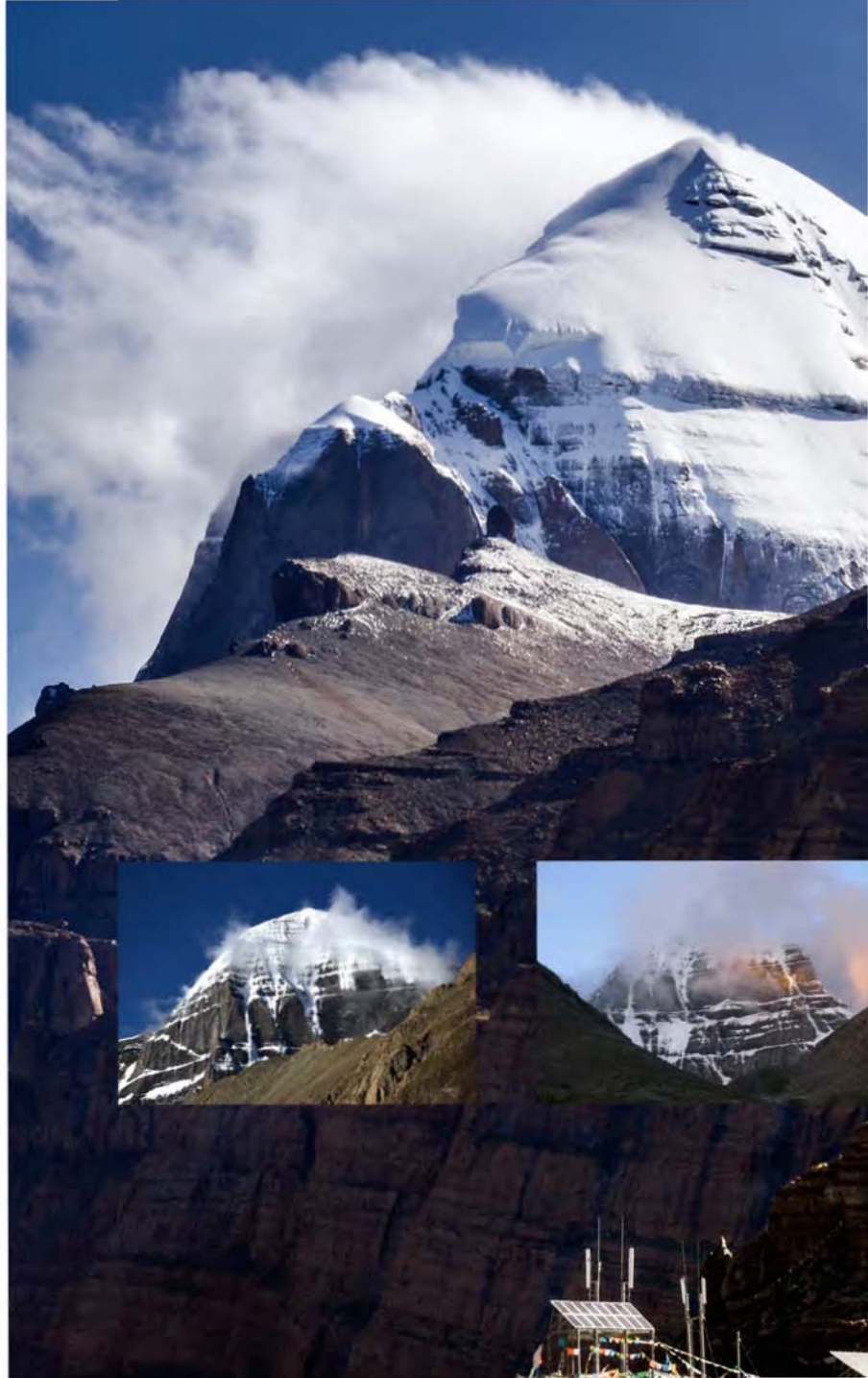
The major scenic sites in the Kailash sacred landscape are Mount Kailash, Lake Manasarovar, Mount Gurla Mandhata, and Lake Rakshastal. The two lakes lie between Mount Kailash to the north and Mount Gurla Mandhata to the south forming a splendid scenic landscape with glaciers, lakes, wetlands, and grasslands.

冈仁波齐峰位于冈底斯山脉西段，山体宽约60~70公里。冈底斯山脉隆起约为白垩纪中期，是印度板块与亚洲板块相撞、挤压断裂与褶皱上升的结果。朝圣冈仁波齐的转山路线是由藏传佛教噶举派大师古仓巴开创，分为内转和外转。不同教派转山的方向有所不同，印度教和佛教徒则沿顺时针方向，耆那教和苯教徒沿逆时针方向，外转路程约57公里。

Mount Kailash is in the western part of the Kailash range, which was formed around the mid-Cretaceous Period as a result of the collision between the Indian and Eurasian Plates. Pilgrims follow a 57 kilometre long circular route or kora around the mountain, Hindus and Buddhists in a clockwise direction and Jain and Bon believers anticlockwise. The kora routes (an inner and an outer path) are said to have been made by Master Gucangba of the Kagyu School, one of the six main schools of Tibetan Buddhism.

我们初见神山冈仁波齐峰是在一个阴云密布，冷风飕飕的傍晚，水平纹理的砂岩和砾岩层层堆叠，构成神山雄浑有力的基座，在海拔6656米的峰顶终年冰雪覆盖，从峰顶而下形成了一条垂直的黑青色裸岩风化槽，并与山峰腰部一圈粗砺的水平裸岩凹槽相错，构成庄严而神奇的“卍”字符号。这一浑然天成的符号图案，令冈仁波齐峰增添了几分神秘而浓重的心灵震撼力。

Our first sight of Mount Kailash was on a windy and overcast evening. We see the grand base of the mountain with layer upon layer of sandstone and conglomerate stacked in horizontal lines. The peak at 6,656 m is permanently covered by ice and snow. A weathered black line descends vertically from the snowy peak crossing a horizontal line across the centre of the mountain to form the symbol '卍', another part of the mystery of the mountain.





从塔尔钦镇徒步7公里，翻过一座小山丘后进入开阔的沟谷，一座巨大的经幡阵横在眼前。红色、黄色、蓝色、绿色、白色的风马旗印满黑色经文，由一根高度20多米的柱子支撑，呈塔状在谷口耸立，这是冈仁波齐转山道的西入口。藏语称之为“塔尔钦”，译成汉语的意思是“大经幡柱”

A seven kilometre walk from Darchen across a gentle hill and down to an open valley brings us in sight of the 20 metre high Tarboche flagpole with its colourful prayer flags. The Tibetan word 'Tarboche' means great prayer flagpole. This is the western entrance to the Kailash kora.





转山的道路是沿着拉曲藏布河谷行进，河谷长约15公里，两侧的褐色暗红岩层宏伟壮观。道路平均宽约2米的碎石路面，平缓起伏，一条蜿蜒清亮的小溪伴随着山道静静流淌。逐步深入河谷，疲惫的身体告诉你脚下的道路海拔在慢慢地提升，风景在你的喘息之间不停地变换。杵着拐杖在路边休息，你会看到石头上刻有朱红色的文字，这是作为祈福的藏语“六字真言”。在视野开阔的地方通常会看到色彩斑斓的经幡，飘动的风马旗提醒你正走在一条到处是故事和传说的转山路上。

The kora path continues for 15 kilometres along the Lha Chu river valley, which is lined on both sides with splendid dark red rock. The two metre wide stony track follows the path of the clear winding stream. Our tired bodies tell us that the elevation is gradually rising. Resting at the road side, we can see the six-syllable Sanskrit mantra “Om mani padme hum” carved into the rocks in red. Prayer flags appear in the open fields and remind us that this is a pilgrimage way, full of stories and legends.

拉曲藏布是高寒干涸性河谷，谷口岩层石壁高耸，河谷尾部为大面积风化碎石，谷底则由贫瘠的沙粒和碎石组成。因此植物很难大面积生长。然而冰川融水形成的溪流从河谷流过，以及岩壁朝向或坡度等因素形成了相对温暖湿润的小环境。各种植物依据不同的环境顽强生长。

The Lha Chu valley mainly consists of sand and broken stone with little soil for plants. But still a variety of plant species cling on wherever there is some moisture and sunlight.

在谷口的色雄天葬台，我们发现小片50公分高的小灌木金露梅(*Potentilla fruticosa*)，娇小的黄色花朵在暗绿色枝叶的陪衬下显得格外耀眼。

We found this 50 centimetre high specimen of *Potentilla fruticosa* with its dazzling yellow flowers and dark green leaves near the mouth of the Lha Chu valley close to the Sexiong pagoda (the Tower of Silence for sky burial).









匍匐水柏枝 (*Myricaria prostrata*) 默默地在小溪附近耕耘，“生活”窘迫使它长的只有几厘米高。

Myricaria prostrata lies silently near the stream; only a few centimetres high because of the harsh environment.

左图：苞叶雪莲 (*Saussurea obvallata*)
披着薄薄的风衣骄傲地站立
Left: *Saussurea obvallata* (Brahma Kamal)
stands proudly in its thin coat.

右图：线叶龙胆 (*Gentiana farreri*) 披着
浅蓝色的头巾在草甸上亭亭玉立
Right: *Gentiana farreri* stands gracefully
in the meadow wearing a light blue scarf.







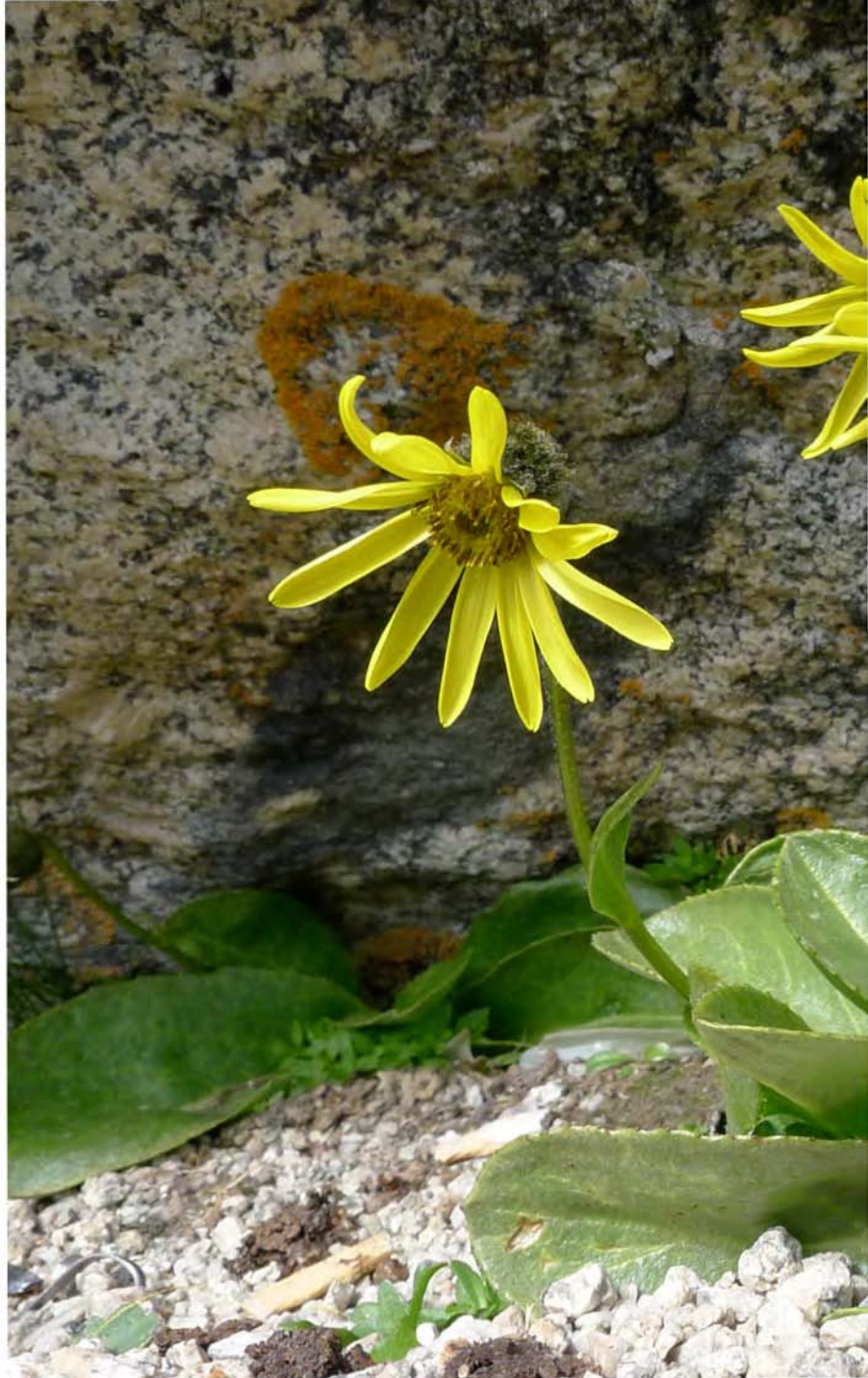


从希夏邦马宾馆附近5300米的第一个台地到5600米的卓玛拉垭口，是转山路上高山植物较为富集的区域。开阔的地方是高山草甸，垭口附近则是岩层经过剧烈风化后形成的高山流石滩。高山草甸与永久雪线之间的地理区域被植物学家称为“高山冰缘带”。这里有些高山植物很容易被发现，它们大多生长在平坦开阔的高山草甸或草甸与石块混杂的地方。即使是清凉林天葬台这样石块密集的地方，在石与石之间狭小的空间里，也有大小不一的小草甸，还能听到石头或小草甸下有淙淙的流水声。

Between the Shishapangma hotel at 5,300 m and the Drolma La pass at 5,600 m, there is an area relatively rich in plant species in the so-called subnival zone. Small patches of alpine meadows and stream banks between the stony outcrops provide a living environment for many plants.

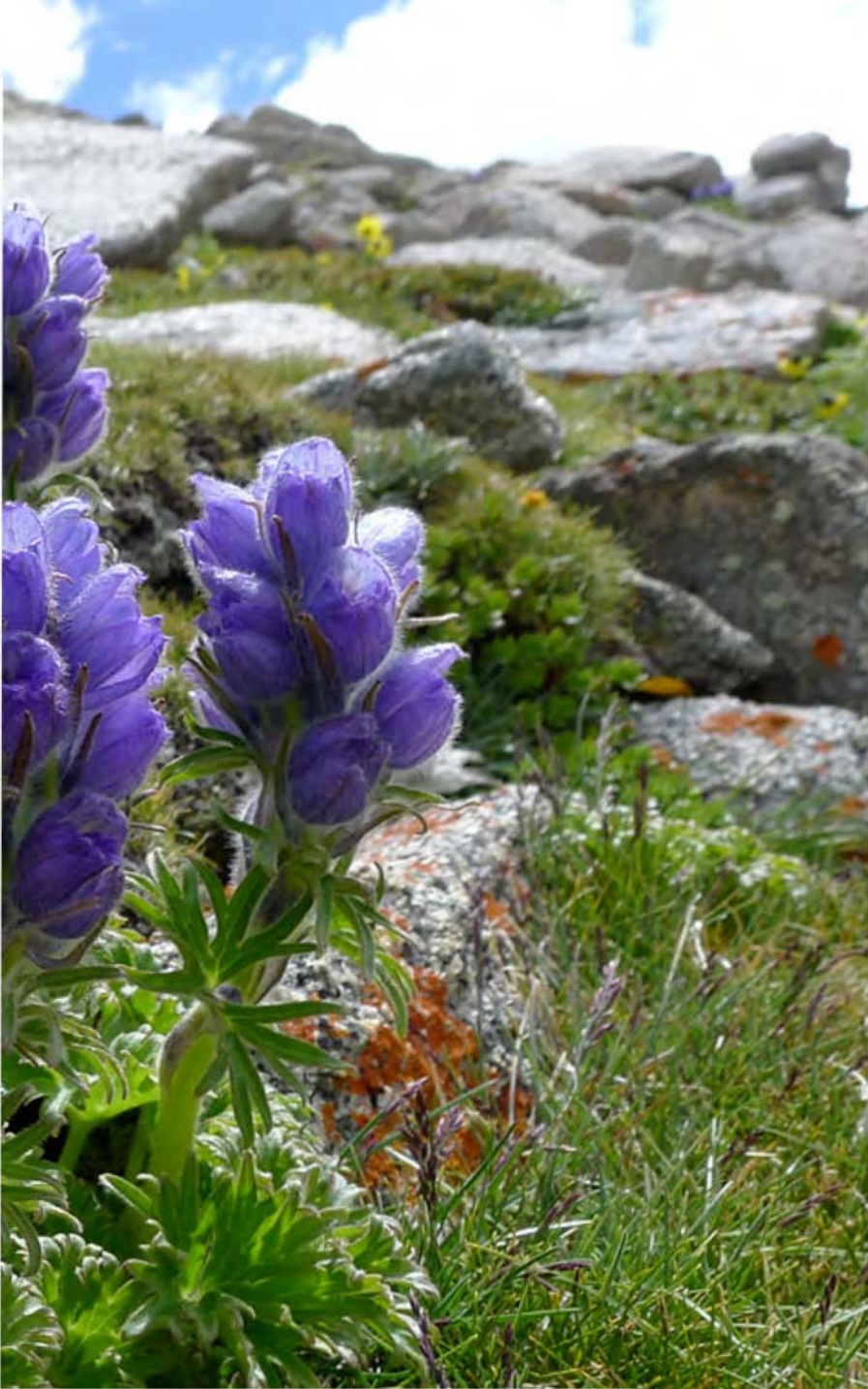
喜马拉雅垂头菊 (*Cremanthodium*
decaisnei) 躲在石头中间不露声色

Cremanthodium decaisnei (Decaisne's
Cremanthodium) hides silently behind
stones.









囊距翠雀 (*Delphinium brunonianum*)
探着身子看着路上转山的人们

Delphinium brunonianum (musk larkspur)
leans forward to watch the pilgrims
performing kora.

云状雪兔子 (*Saussurea aster*) 裹着棉被
蹲在石头下面

Saussurea aster squats among stones
wrapped in a cotton quilt.









在托吉错（慈悲湖）冰碛湖，强烈风化的岩层石块下有一条冰雪融化后形成的溪流。一丛丛、一簇簇的西藏红景天（*Rhodiola tibetica*）生长在水边

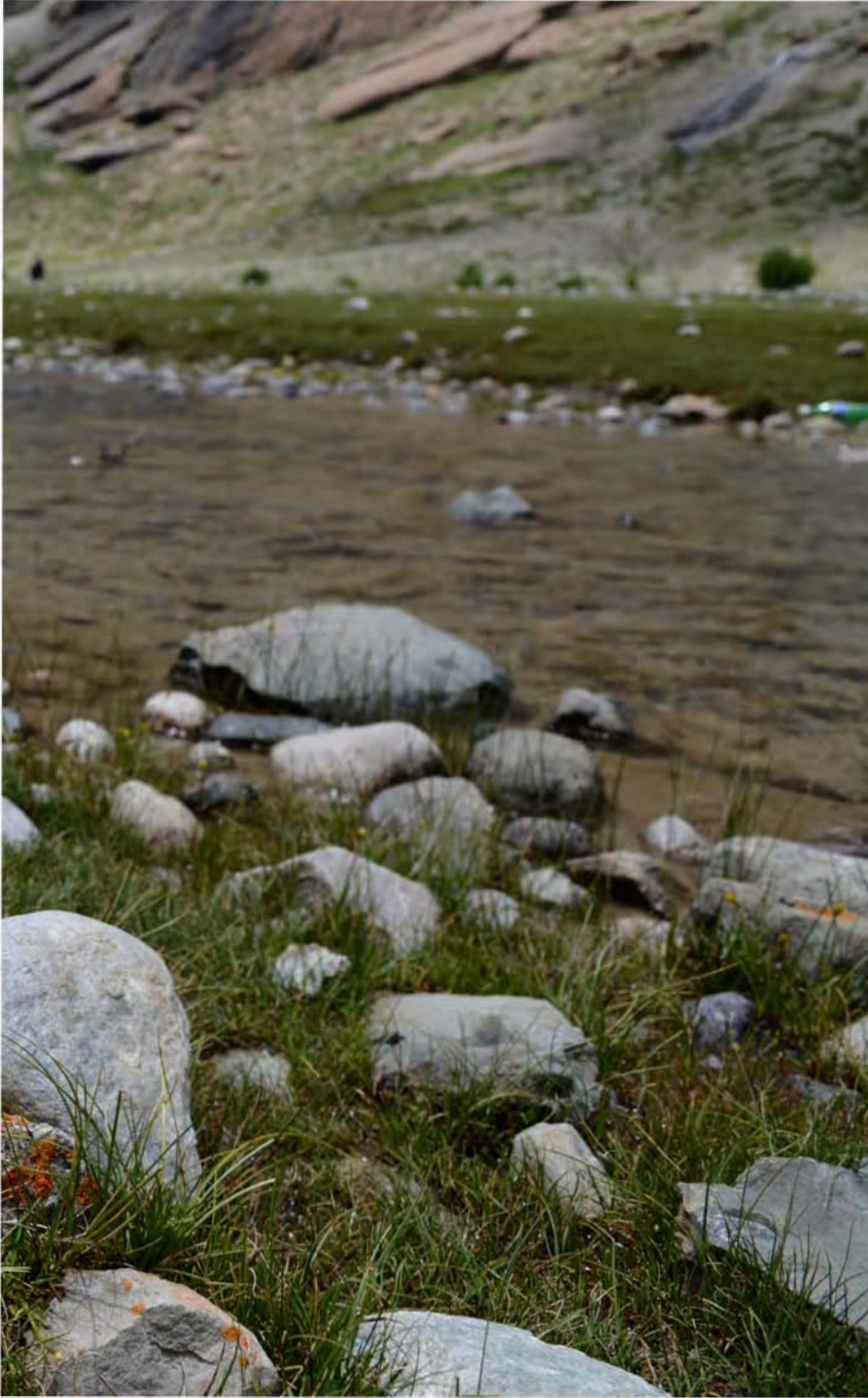
A cluster of *Rhodiola tibetica* (Tibetan rhodiola or red sedum) grows near a stream formed by melting ice and snow close to Thukpe Dzingbu lake – the Lake of Compassion.

毛果委陵菜 (*Potentilla eriocarpa*)









途经仲哲普寺、宗堆，道路全程多为平缓的山道。道路两侧山体不似冈仁波齐西侧的高大险峻，相对平缓的山体形成了开阔的谷地。一条流量较大的溪流沿着河谷蜿蜒流向塔尔钦镇，溪流两侧的高山草甸绿野如茵。

The kora path passes by Zutul-puk Monastery and descends down to Darchen along a flat valley beside a stream lined by green alpine meadows.

接近河谷出口的溪流两侧则以变色锦鸡儿
(*Caragana versicolor*) 为主

Caragana versicolor is the most common
plant along the stream in the lower part
of the valley.









西藏粉报春 (*Primula tibetica*)

普兰蒿草 (*Kobresia burangensis*)









拟耧斗菜(*Paraquilegia microphylla*,
Himalayan spurless columbine)

四裂红景天 (*Rhodiola quadrifida*)









左图 (left) : 红景天属植物 (*Rhodiola* sp.)

右图 (right) : 三裂碱毛茛 (*Halerpestes
tricuspis*, three finger buttercup)

左图 (left) : 圣地红景天 (*Rhodiola sacra*)

右图 (right) : 唐古特虎耳草 (*Saxifraga tangutica*)









左图 (left) : 碎米蕨叶马先蒿 (*Pedicularis cheilanthifolia*)

右图 (right) : 欧氏马先蒿 (*Pedicularis oederi*)

穗序大黄(*Rheum spiciforme*, spiked rhubarb)









左图 (left) : 翼首花 (*Pterocephalus hookeri*)

右图 (right) : 马尿泡 (*Przewalskia tangutica*)



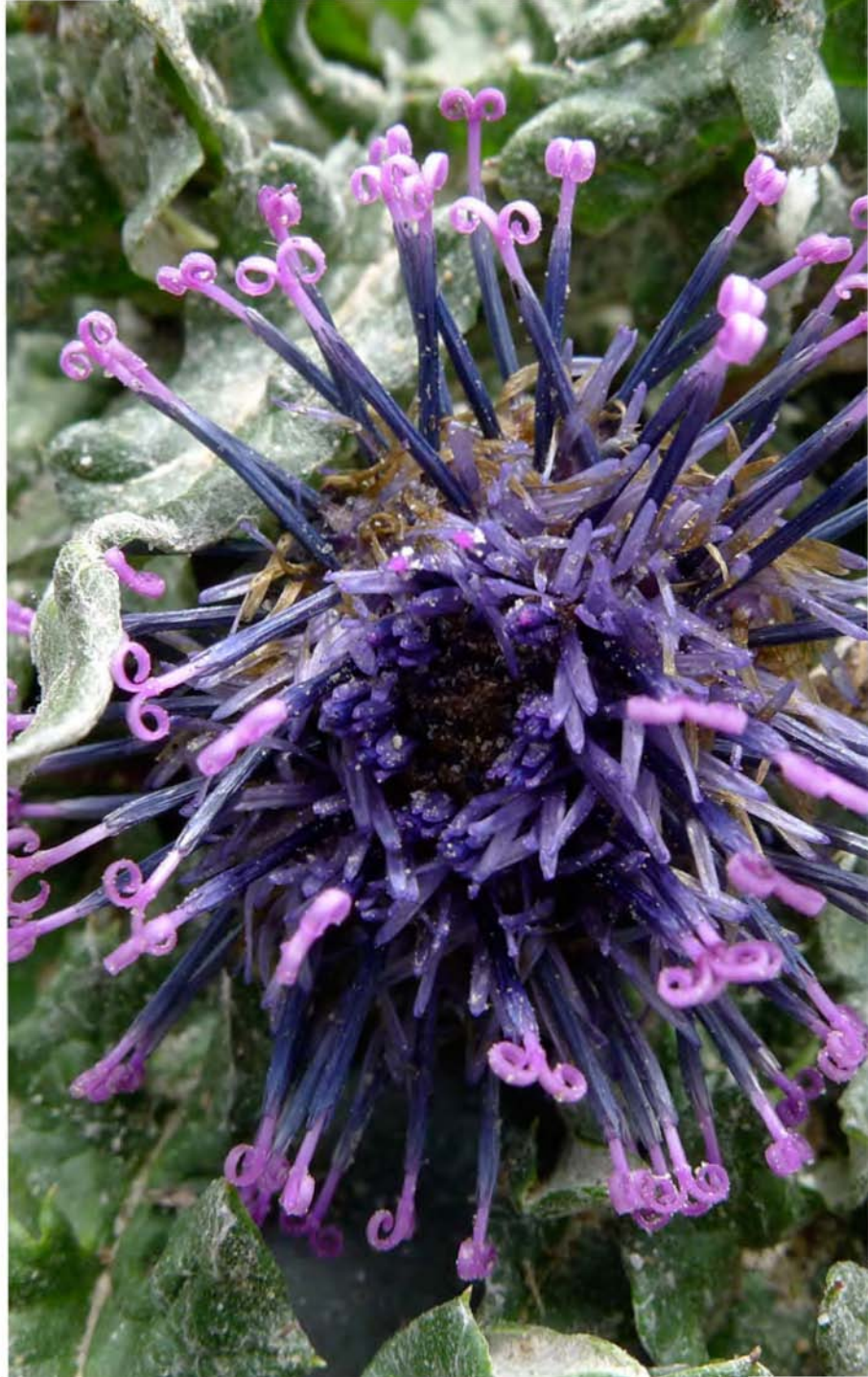


左图 (left) : 白花枝子花 (*Dracocephalum heterophyllum*)

右图 (right) : 西藏微孔草 (*Microula tangutica*)

左图 (left) : 黑苞风毛菊 (*Saussurea melanotrica*)

右图 (right) : 绢毛苣 (*Soroseris glomerata*)









左图 (left) : 藏沙蒿 (*Artemisia wellyi*)

右图 (right) : 甘青青兰 (*Dracocephalum tanguticum*.)

锥花黄堇 (*Corydalis thyrsoiflora*)









海拔7694米的纳木那尼峰是著名的珠穆朗玛五姐妹峰之一，藏族人尊称她为圣母峰或神女峰，主掌智慧。纳木那尼峰位于喜马拉雅山脉中段，其冰雪融水是玛旁雍错和孔雀河的主要水源。

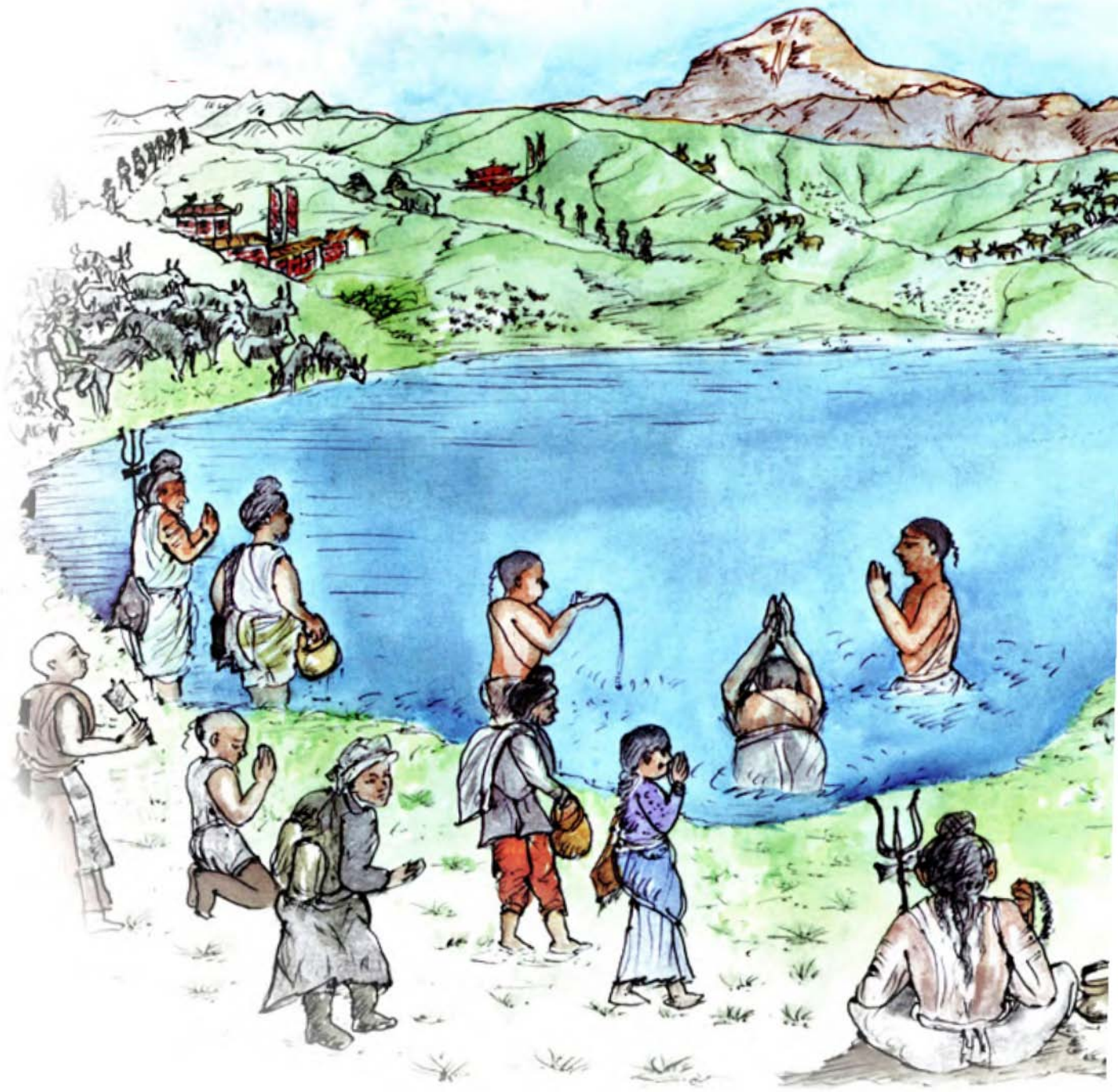
At 7,694 masl, Mount Gurla Mandhata in the central part of the Himalayan range is one of the five famous sister summits of Mount Everest. It is revered by Tibetans as the goddess of wisdom; meltwater from ice and snow on the mountain slopes feeds Lake Manasarovar and the Karnali river.

玛旁雍错平均海拔4590米，面积412平方公里，是藏南内流水系中面积较大的淡水湖泊。史上玛旁雍错是个外流湖，后因冈底斯山洪水和冰水堆积堵塞了河道而形成分水垭口，演变为内陆湖。

Lake Manasarovar lies at 4,590 m and covers 412 square kilometres. It is one of the largest freshwater lakes in the inner water system of south Tibet. Scientific studies indicate that Manasarovar used to be an open lake, and later became closed due to geological activity.









在圣湖边进行植物考察时，不时会看见信民们摇着转经筒、磕着长头，沿着湖边的小道前行；也有来自印度、尼泊尔的香客摆放贡品在湖边祭祀。他们在转湖。圣湖玛旁雍错与神山冈仁波齐一样同为佛教、苯教、印度教、耆那教所崇奉。信民们认为，湖水来自神山的融雪，用它洗浴可清除人们心灵上的“五毒”（贪、嗔、痴、怠、嫉）和肌肤上的污垢。

转湖的道路不像转山的道路那样充满艰险和困难，只是漫长而平坦，转湖的信民有足够的时间，以舒缓平静的心态叩问自己的内心。纯净清凉的圣湖水不仅能洗去人身上的污垢，更能洗涤人的心灵。

Lake Manasarovar is also a place of pilgrimage, attracting believers from the Buddhist, Bon, Hindu, and Jain faiths. Bathing in Manasarovar and drinking its water is believed to cleanse all sins. As we continued with our survey, we saw pilgrims performing kora around the lake, some turning prayer wheels, some prostrating, while a few pilgrims from India and Nepal paid tribute at the lakeside. The Manasarovar kora route is not as difficult as that around Mount Kailash. Pilgrims can take more time to read what is in their hearts. The holy water not only cleans off dirt, it purifies the soul.

圣湖南面，一丛丛叉枝蓼（*Polygonum tortuosum*）似粉红的锦带飘落岸边；不远处，大量浅黄色的赖草（*Leymus secalinus*）在水中随风摇曳；赖草的后面，黑颈鹤、斑头雁等大量水禽在嬉戏。这里还是玛旁雍错湖水最深的区域。

On the southern side of Lake Manasarovar, where the lake is deepest, we found pink *Polygonum tortuosum* (twisted knotweed) surrounded by abundant yellowish grass *Leymus secalinus*, with some waterfowl, black-necked crane, and bar-headed geese playing behind.









圣湖东面，在与湿地相接的草地上，开着紫色花朵的半卧狗娃花（*Heteropappus semiprostratus*）蔚为壮观，与不远处一团团黄色的斑唇马先蒿（*Pedicularis longiflora* var. *tubiformis*）交相辉映。

To the east of Lake Manasarovar, the purple flowers of *Heteropappus semiprostratus* growing where the wetlands meet the grassland contrast nicely with the yellowish *Pedicularis longiflora* var. *tubiformis* (long tube lousewort) .

匍匐水柏枝 (*Myricaria prostrata*)









四裂红景天 (*Rhodiola quadrifida*)

西藏厚棱芹 (*Pachypleurum xizangense*)









左图 (left) : 冰川棘豆 (*Oxytropis glacialis*)

右图 (right) : 光果棉毛葶苈 (*Draba*
winterbottomii var. *Stracheyi* O. E. Schulz)

左图 (left) : 胀果棘豆 (*Oxytropis stracheyana*)

右图 (right) : 小叶棘豆 (*Oxytropis microphylla*, small-leaved locoweed)









在拍摄这些奇特的高山植物时，我们常常被这些“雪山精灵”的千姿百态所吸引。它们身材普遍矮小，甚至紧贴地面仅有几厘米高；有的茎上长满尖尖的刺，或者叶片上有密密的毛；有的纤细娇弱，有的肥矮粗壮。这些高山植物经过长期的演化适应了恶劣的自然环境。它们不在乎土壤贫瘠，空气稀薄，紫外线强烈，以及天气变幻无常；能忍受雨雪、霜冻、强风、冰雹的袭扰。然而气候变化和人为干扰使它们的生存面临着巨大挑战。

During the survey, we were fascinated by the alpine plants. Mostly short, some thorny or hairy, some slim, some sturdy – all manage to survive in this harsh environment with poor soil, thin air, strong radiation, and unpredictable weather. But, they are also fragile and easily affected by climate change and human disturbance.

拉昂错位于玛旁雍错西面，海拔4574米，面积约260平方公里。不同于玛旁雍错，拉昂错由于缺乏充足的补给水源，湖水的矿化程度日渐升高而成为咸水湖。拉昂错直译为“鬼湖”。人们认为它周围没有植物，没有牛羊，死气沉沉，缺乏生机。然而当我们身临其境，却发现事实并非如此。据考证，玛旁雍错和拉昂错原是统一的湖泊，自第四纪以来地质构造变迁造成湖面下降，湖水退缩至使两湖分离，最终形成两个湖泊。

Lake Rakshastal – the ‘lake of the demon’ – lies to the west of Lake Manasarovar at 4,574 m, and covers an area of about 260 square kilometres. Scientific studies indicate that Manasarovar and Rakshastal were once a single lake and became separated due to tectonic activity during the Quaternary period. The saltwater of Lake Rakshastal might seem inhospitable for plants compared to the freshwater of Lake Manasarovar, but as we came close, we found that this is not completely true.









黑褐穗苔草 (*Carex atrofusca subsp. minor*)
等高山植物都有各自不同的命运故事。了解的越深入，越能感到“它们”生活的不易。

Although every alpine plant has its own story to tell, they all seem to have a hard life like *Carex atrofusca subsp. minor*. The more you look the more you feel the challenges.

小叶棘豆 *Oxytropis microphylla*
(small-leaved locoweed)









左图 (left) : 蓝花荆芥 (*Nepeta coerulea*)

右图 (right) : 藓状雪灵芝 (*Arenaria bryophylla*)

左图 (left) : 叉枝蓼 (*Polygonum tortuosum*),
twisted knotweed

右图 (right) : 西伯利亚蓼 (*Polygonum
sibiricum*, Pamir knotweed)









在神山圣湖这个充满信仰的世界里，一切似乎都被赋予了生命的灵性。带着这种感悟，当地的野生植物被信民们通过亲身体验，或观察动物食性等方式所认知，日积月累星火传递，逐步形成具有地域特色的植物保护与利用知识，并融入到信民们的日常生活和宗教文化中。

然而，现代化进程中这些珍贵的传统知识正在消逝。不仅如此，在商业利益裹挟下，一些传统知识被误读和歪曲，传统药用植物功效被盲目放大，或离奇神化，致使这些植物被滥采乱挖，有的甚至濒临灭绝。高山植物依靠千百万年的进化得以在极端环境中生存繁衍，看似坚韧实则脆弱。例如，雪莲（*Saussurea* spp.）为了适应青藏高原的极端环境，种子只能在特定的环境下萌发和生长。一年中开花结果的时期很短，生长周期却需要5~6年。如果人们仅仅采摘地上的成熟部分而不伤及根部，来年地上部分会重新萌发出新的植株。如果在采摘时连根拔起，而且正是其开花结果的阶段，这种毁灭性的方式很可能导致它在这个地方消失。

一个物种的濒危或灭绝极有可能发生在人们的无知和不经意间，我们某些不良习惯或是为了满足好奇心或一己私利的欲望都会给它们造成巨大灾难。而与之伴随的传统知识也将一并消失。

The Kailash Sacred Landscape is home to a unique biodiversity. Over generations, local communities have developed a rich traditional knowledge with distinct local characteristics related to conservation and the use of wild plants for food, clothing, shelter, medicine, and cultural practices. But this invaluable knowledge is disappearing in the face of modernization. And even more problematic, some traditional knowledge, especially on medicinal plants, has been distorted for commercial purposes leading to overexploitation and extinction of these species. Many alpine plants have adapted to the harsh environment over millions of years, but they are vulnerable to human disturbance. For example, the seeds of *Saussurea* spp. will only sprout under very specific conditions, the plant takes five to six years to reach maturity, and it flowers and fruits within a very short period. If the plant is harvested during the flowering and fruiting period, or by removing the whole plant from the soil, it can rapidly disappear.

Important species can become endangered through ignorance and unthinking behaviour. If we don't take account of the needs of these plants, the rich biodiversity and related traditional knowledge in this sacred landscape may vanish altogether.

我们的圣地，我们心灵的净土，为了它
明天更加圣洁，为了我们的子孙后代我们
应该做些什么？

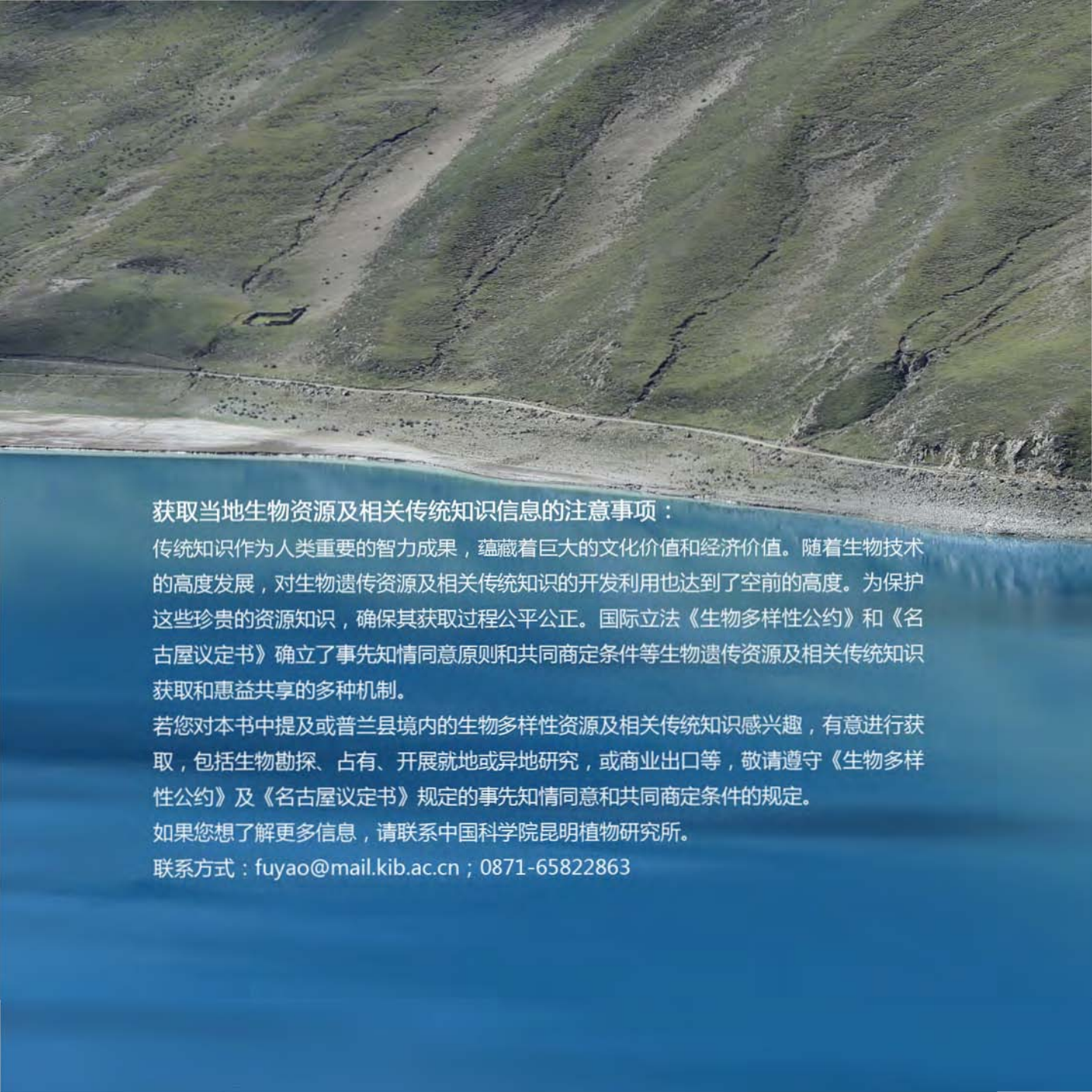
Our sacred land, home of our souls,
what should we do to preserve it for
future generations?





地，
净者，
处是弃物者，
便个责，
守人圣者。
为朝圣者。

西藏文化生态保护区



获取当地生物资源及相关传统知识信息的注意事项：

传统知识作为人类重要的智力成果，蕴藏着巨大的文化价值和经济价值。随着生物技术的高度发展，对生物遗传资源及相关传统知识的开发利用也达到了空前的高度。为保护这些珍贵的资源知识，确保其获取过程公平公正。国际立法《生物多样性公约》和《名古屋议定书》确立了事先知情同意原则和共同商定条件等生物遗传资源及相关传统知识获取和惠益共享的多种机制。

若您对本书中提及或普兰县境内的生物多样性资源及相关传统知识感兴趣，有意进行获取，包括生物勘探、占有、开展就地或异地研究，或商业出口等，敬请遵守《生物多样性公约》及《名古屋议定书》规定的事先知情同意和共同商定条件的规定。

如果您想了解更多信息，请联系中国科学院昆明植物研究所。

联系方式：fuyao@mail.kib.ac.cn；0871-65822863



Information on access and benefit sharing from locally available biological resources and associated traditional knowledge:

The local biodiversity ('genetic resources') and associated traditional knowledge, have a significant cultural and economic value. Traditional knowledge is one of the most important intellectual products of human beings. Several international and national regulations have been made under the Convention on Biological Diversity to ensure fair and equitable sharing of any benefits derived from the access to and use of genetic resources and associated traditional knowledge.

If you are interested in access to and use of biological resources and associated traditional knowledge in the Kailash region for any non-profit or commercial purpose, including research, collection, export, and bioprospecting, please refer to "Prior informed consent" and the Mutually Agreed Terms under the Convention on Biodiversity and the Nagoya Protocol.

For more information, please contact Kunming Institute of Botany, Chinese Academy of Sciences. Email: fuyao@mail.kib.ac.cn Tel.: +86 (0)871 65822863



羽状浅裂
pinnatiobate



羽状深裂
Pinnatifid



羽状全裂
pinnatisect



倒向羽裂
runcinate



掌状半裂
palmately cleft



单数羽状复叶
imparipinnate



双数羽状复叶
paripinnate



掌状复叶
palmate



穗状花序
spica



总状花序
raceme



二回羽状复叶
bipinnate



羽状三出复叶
trifoliate



掌状三出复叶
ternate palmate



单叶复叶
simple compound leave



圆锥花序
panicle



肉穗花序
spadix



菱形
diamond



楔形
cuniform



三角形
triangle



心形
cordiform



鳞形
squamous



头状花序
capitulum

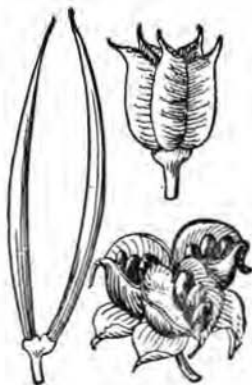




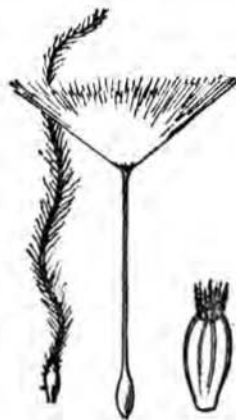
聚合果
aggregate fruit



聚花果
collective fruit



蓇葖果
Follicle



瘦果
achene



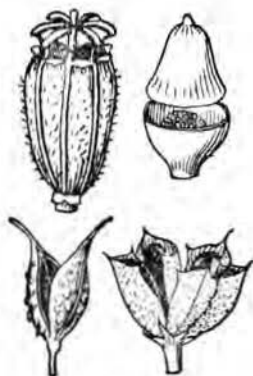
颖果
caryopsis



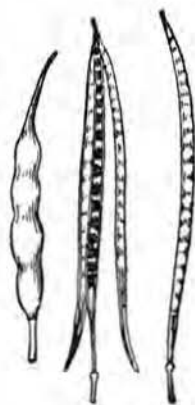
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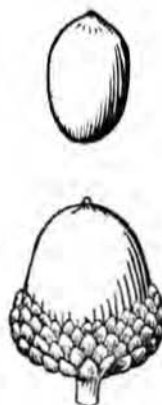
荚果
legume



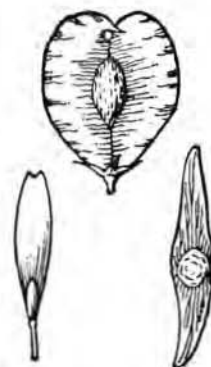
蒴果
capsule



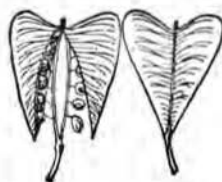
长角果
silicle



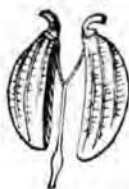
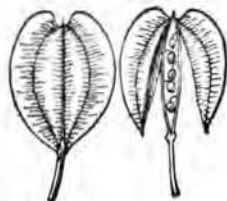
坚果
Nut



翅果
key fruit



短角果
silicle



双悬果
cremocarp

植物形态常识

Tools for recognizing
different plants

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