

美 国 新 一 代 研 究 生 院

TIBETAN ANTELOPE

# 西藏藏羚羊

刘务林 等 编 著

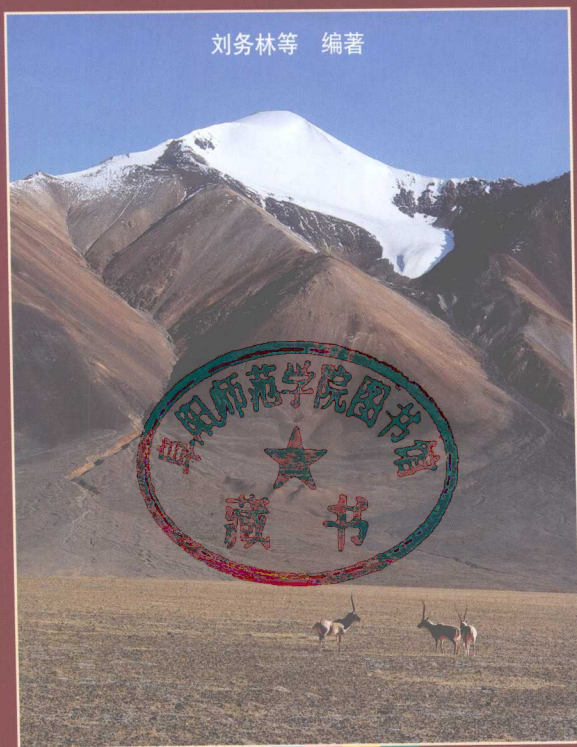
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# 序一

青藏高原的西北，延伸着一片广袤的土地，绝大部分区域的海拔超过4500m。其中有一部分属于中国西藏自治区，它在北边和新疆相连；在东边和青海相邻。藏族人把这片土地叫做“羌塘”——北部平原。那里的植被稀疏，最低温度可达零下40℃，怒吼的风不断掠过这片荒芜。当地的牧民居住在南部，那里的植物比较丰富，足够养活牧民的牛羊。其余的土地就更多地属于了野生动物。

在羌塘，虽然一眼望去显得十分贫瘠，但是她却孕育了一个世界上独一无二的大型哺乳动物群落。那里有狼、西藏棕熊、雪豹等食肉动物，同时也有野牦牛、藏野驴、岩羊、藏原羚等有蹄类动物。同时，更重要的是，那里拥有着著名的藏羚羊，这个物种的迁徙活动覆盖了这个没有尽头的高原，勾勒着整个生态系统的轮廓。

在最近的十多年中，很多外部的影响进入了羌塘，进入到当地野生动物，尤其是藏羚羊的世界中。当地游牧人口不断上升，所有质量好的草地都被占用了。随着家庭承包责任制的推行，越来越多的家庭从游牧转型为定居放牧，管理着固定的草场。原本开放的草场，被围栏围了起来。土屋取代了帐篷；摩托车取代了马。道路向偏远的角落延伸；矿业发展觊觎着地下的金矿。在20世纪90年代，为了巨额利益，非法的偷猎屠杀了成千上万的藏羚羊，羊绒被走私到印度编织成沙图什披肩。

西藏、新疆和青海的林业局担负着保护当地野生动物的职责。藏羚羊是最为关键的保护物种。有些藏羚羊种群在产仔季节进行迁徙，从西藏转移到新疆和青海。产仔结束后回到西藏，度过秋冬和初春。而就在这些冬季栖息区域，逐渐增加的围栏有可能会妨碍它们的活动，家畜和它们竞争牧草，人类活动干扰它们冬季交配期的行为。

各级政府部门为了保护藏羚羊和其他物种，创建了多个保护区，开展了卓有成效的工作。西藏建立了羌塘自然保护区，总面积将近30万km<sup>2</sup>。在它北边，相邻着新疆的西昆仑保护区、中昆仑保护区和阿尔金山保护区；在它东边，连接着青海的可可西里保护区和三江源保护

区。所有这些保护区加在一起，面积超过100万km<sup>2</sup>，保护着生活于其中的藏羚羊和其它所有动植物，保护着所有这些生物在这片土地上生活的权利，几乎近似于当地牧民和家畜的权利。

要确保野生动物传统家园、同时又确保当地居民的生活水平，处理保护需求和经济发展之间的矛盾，这些都是我们面对的巨大挑战。

我在这里提到这些背景，是为了强调羌塘正处于一个重要的、持续而快速的转变时期。只有对自然资源进行持续不懈的研究和监测，才能依靠科学的理解来提出问题和解决方案，而不是靠直觉进行管理。这也正是刘务林先生这本书如此有价值的缘由。作为西藏自治区林业局的研究人员，他在野生动物研究和保护规划领域的工作已经有二十多年的时间，包括对藏羚羊和其他物种的研究。这本书提供了重要的原始资料，使得以后的变化信息可以与之进行比较和分析。比如：在西藏各乡村藏羚羊数量的估计、藏羚羊关键产仔地的指出、重要的藏羚羊食用植物名单等。这仅是本书中多个主题中的三个。当读者看到书中描写刘务林在2001年至2005年一共行走了17707km开展调查，这还只是个简单的统计。但是，当读者意识到在这片高海拔艰苦的土地上行车的困难时，即便是夏天也有大雪纷飞，任何读者都会感叹这项工作的艰巨。没有人会惊愕，为何只有很少的人有决心在这片土地上坚持探索和研究。

从1988年开始，我一直和西藏自治区林业局以及西藏高原生物研究所开展合作研究。在数次调研和探险旅程中，刘务林先生是我们工作组的领队，这是我感到十分幸运的事情。我一直钦佩他对于工作的热情，无论是拍摄植物花卉、计数藏野驴群、绘制藏羚羊迁徙线路，还是野外工作中每天观察到的各种有意思的情况。写到这，我的记忆回到了1994年6月。那时我们驱车进入了羌塘北边无人区，将最后一个牧户家也甩得很远。在那里，我们看到一只雌性西藏棕熊正在挖鼠兔，她身边跟随着一只雄的。一只独狼追逐着一群藏羚羊，双方都





乔治·B.夏勒(右)与刘务林(左)于1997年6月在羌塘东部考察藏羚羊。然而,羌塘的天气向来不愿善待外来者。狂风怒吼的暴风雪不停地鞭打着我们的行队;而雪融化后地面又变成了沼泽。我们所有的车辆都陷入了沼泽,但藏羚羊却继续前行。我们的队伍不得不放弃车辆,步行一周,穿越草原,到最近的牧民点,找到马匹和牦牛,到最近的社区寻求帮助。



用最快的速度。一方为了获得食物,另一方为了保住生命。直到一头雌性个体脱离了其他伙伴,被狼拖倒在地,扬起了一阵尘土。那次,我们共记录到437只野牦牛,对于这种令人印象深刻并且濒危的物种,这是一次数量很大的记录。那次之后,我和刘务林一同发表了一篇关于野牦牛的科学文章。

那一次行程中,我们也曾在一个山坡上发现一顶帐篷,四周没有人家。接近后发觉这是个偷猎者安置的营地,就在怀孕的藏羚羊迁徙路线上。这是个令人心痛的景象,帐篷旁的地上凌乱地放着藏羚羊的头、尸体和死胎,藏羚羊皮被抓了下来,正在晒干。还有一头被肢解了的牦牛。后来偷猎者中一个交待,那头野牦牛是他们连续发射22颗子弹后慢慢死亡的。类似这样的多次遭遇报告,促使西藏自治区林业局加强反偷猎投入。在法庭、边检站和其他多部门的共同努力下,偷猎越来越少,藏羚羊的数量开始逐步恢复。

野外工作中,每天晚上,我们组里的人会坐在一起分享各自的观察结果,讨论羌塘保护区需要进行的各种工作。羌塘,这个隐蔽在中国西边最偏远处的自然宝藏,就像我们所知的,野牦牛种群只有在没有家牦牛的地方才能从根本上延续下去。如果生活在一起,那么就会发生杂交,野牦牛的纯遗传血统就会被污染。整个羌塘北部需要完整地保护起来,为了野牦牛,藏羚羊还有其他所有野生动物。我们注意到有些藏羚羊迁徙到青海产仔。这个迁徙种群有多大?他们产仔地在哪里?在西藏境内的计数会有所偏颇,除非青海和新疆境内的数量也得到准确的计数。如果其他省份内的藏羚羊产仔地没有得到良好的保护,那么对于西藏境内的藏羚羊种群的延续和生存就会有直接的负面影响。三个省份之间的合作十分必要并且显而易见。随着各种数据的收集和不断地提问,我们一步步共同计划着未来的工作。

为了了解从西藏迁徙到青海产仔的藏羚羊情况,我们于1997年前往青海。当藏羚羊雌性急匆匆地向东北行进,去往神秘的产仔地时,我们在后面跟踪了120km。然而,羌塘的天气向来不愿善待外来者。狂风怒吼的暴风雪不停地鞭打着我们的行队;而雪融化后地面又变成了沼泽。我们所有的车辆都陷入了沼泽,但藏羚羊却继续前行。我们的队伍不得不放弃车辆,步行一周,穿越草原,到最近的社区寻求帮助。但是,即便如此艰险的旅程仍旧没有影响到刘务林对于野生动物的热爱和对羌塘的关注。

这本书,出自于多年的艰苦工作,最重要的是传达了这样一个信息——羌塘是中国保护工作中的一个稀罕的机会。许多数据已经收集到了,但有更多的疑问和信息有待收集和研究的。比如,我们不知道整个青藏高原有多少头藏羚羊,任何一个精确程度的统计都没有。我们知道在有些地方,在良好的保护下藏野驴数量已经上升,牧民们开始抱怨这些动物和他们家畜对牧草的竞争。诸如此类的问题,都要求积极的研究、合理的管理以及当地社区的参与。无论是围栏建设中的问题还是藏野驴数量的估计,都同时涉及生物学和文化研究,十分复杂,需要多方面的共同广泛合作。

在这本书中,刘务林为藏羚羊的研究提供了重要珍贵的信息,同时还表现了他对于保护挑战和机遇的洞察力以及智慧。现在,对于所有关心羌塘地区居民、草场、野生动物和家畜的人们,有责任发展革新的长远项目,保护这片美丽而且与众不同的地方,使之达到生态上的和谐。

乔治·B.夏勒

注:乔治·B.夏勒——国际著名博物学家,2007年被邀请为中国中央电视台高端访问节目学者,美国国际野生动物保护学会自然科学部主任,后任副理事。

2007年11月11日





# FOREWORD

A vast upland stretches across the northwestern part of the Tibetan Plateau, much of it above 4500 m in elevation, and it includes a large part of the Tibet Autonomous Region (TAR) and the adjoining parts of southern Xinjiang and western Qinghai. Tibetans call it the Chang Tang, the northern plain, a region where vegetation is sparse, temperatures drop to minus 40, and winds howl over the bleak landscape. Pastoralists occupy the southern part where grazing is adequate for their sheep, goats, and yaks. The rest still belongs to the wildlife.

Though seemingly barren, the Chang Tang harbors a distinctive assemblage of large mammals, one found nowhere else. There are wolves, brown bear, and snow leopard among the predators, and wild yak, kiang or Tibetan wild ass, blue sheep, and Tibetan gazelle among the hoofed species. But, above all, there is the chiru or Tibetan antelope whose migrations over the endless steppes help to define the ecosystem.

Outside forces have intruded into the Chang Tang in recent decades, so much so that the wildlife, including the chiru, has been affected. The households of pastoralists have increased until all good rangelands are now occupied. With a change in land use policies, households have become more sedentary on private land leased from the government. The open range is being fenced. Tents are giving way to houses and horses to motorcycles. Roads penetrate remote corners, and mining companies covet deposits of gold. Chiru have been illegally slaughtered by the tens of thousands for their fine wool, especially during the 1990s, with the wool smuggled to India for weaving into fine Shahtoosh shawls.

The forestry departments of the TAR, Xinjiang, and Qinghai have a responsibility to protect the wildlife. The chiru is a key species in this effort. Some chiru populations migrate seasonally from the TAR into Xinjiang and Qinghai to calve and then return. The

animals spend autumn to the following spring in areas where the fences of pastoralists may hamper their movements, livestock competes with them for forage, and human activities disrupt their December mating period.

The government departments concerned have done a magnificent job of providing legal protection to chiru and other species by creating reserves. The TAR has the Chang Tang Nature Reserve, about 300,000 square kilometers in size. Bordering it to the north, Xinjiang has the West Kunlun, Mid-Kunlun, and Arjin Shan reserves, and, to the east, Qinghai has the Kekexili and Sanjiangyuan reserves. In total, one block of terrain of over half a million square kilometers in size offers chiru, as well as all animals and plants, a right to exist there as much as do the pastoralists with their livestock.

To assure the wildlife its traditional home and the pastoralists their livelihood, to resolve the conflicting demands of conservation and economic development, is the huge challenge ahead.

I mention this background to emphasize that the Chang Tang is in transition with changes constant and rapid. This requires perpetual study and monitoring of its resources so that problems can be addressed not with intuition but with understanding. And this is why this report by Liu Wulin is so valuable. As a staff member of the Tibet Forestry Bureau, he has for two decades been involved with wildlife research and conservation planning concerning chiru and other species. By providing information on estimated chiru numbers in each country of the TAR, by pinpointing critical chiru calving areas, and by listing important food plants, to name just three topics, the report offers a baseline against which future changes can be compared. When one reads that Liu Wulin traveled 17,706 km in transects between 2001 and 2005 it is a simple statistic. By when one realizes the problems



of traveling cross-country over the high, harsh terrain where it snows even in summer; one appreciates the hardship that such work involves. No wonder that so few have the dedication and determination to venture into the region.

I have collaborated with the Tibet Forestry Bureau, and also the Tibet Plateau Institute of Biology, since 1988. It has been my good fortune that Liu Wulin was our team leader on several journeys of research and exploration. I always admired his enthusiasm as he photographed flowers, counted kiang herds, plotted chiru migrations, and in general recorded the many interesting observations that a field project offers daily. My memories go back to June 1994 when we drove into the northern Chang Tang far beyond the last pastoralists. There we watched a female brown bear digging for pikas while a courting male remained by her side. A lone wolf chased a chiru herd, both racing at utmost speed, one for a meal and the others for their lives, until one female veered from the others and was pulled down by the wolf in a cloud of dust. Our notes showed a total of 437 wild yaks, a fine tally of these impressive and endangered animals. Based on these and other data, Liu Wulin and I wrote a joint scientific paper on wild yaks.

On that trip we also spotted an isolated tent on a hillside. On closer inspection it turned out to be a poacher's camp placed on the migration route of pregnant chiru. It was a sad sight, the ground littered with chiru heads, carcasses, and fetuses, and chiru hides stretched out to dry. There was a dismembered yak too, his death slow under a fusillade of twenty-two bullets, according to one of the poachers. However, an encounter such as this stimulated the Tibet Forestry Bureau to increase its anti-poaching efforts. Together with the cooperation of the courts, border posts, and other departments, those efforts have reduced poaching, and chiru numbers appear to be now recovering.

In the evenings our team companionably shared observations and discussed what needed to be done to protect the Chang Tang, a natural treasure hidden in the most remote part of China. Wild yaks, we knew,

could ultimately survive only in places free of domestic yaks because the two hybridize when they come into contact. The whole northern half of the Chang Tang ought to be reserved for them and other wildlife. We noted that some chiru move into Qinghai to calve. How many make that journey and where do they go? Counts of chiru in the TAR could be skewed unless the number of animals in Qinghai and Xinjiang are also considered. Lack of protection on calving grounds in other provinces could have a direct impact on the survival of the TAR populations. Cooperation between the TAR and its neighbors is obviously essential. By collecting facts and asking questions based on the facts we planned future work step by step.

We needed to find out more about chiru migrations from the TAR into Qinghai. In June 1997 we went to that province. For 120 km we followed chiru females as they hurried toward the northeast, toward their mysterious calving ground. Weather in the Chang Tang is seldom kind to outsiders. Heave storms lashed us again and again, and when the snow melted the ground became a morass. All our vehicles bogged down-- and the chiru continued on. Our team walked for a week across the steppe to find help at the nearest community. Even this arduous adventure did not affect Liu Wulin's interest and concern for the Chang Tang.

This report, based on years of hard work, conveys above all that China retains a rare conservation opportunity in the Chang Tang. Much has been accomplished--and much remains to be done. For example, we do not know with any degree of accuracy how many chiru exist today on the Tibetan Plateau. However, we do know that kiang have increased in some areas under good protection, and that now pastoralists complain of competition for forage with their livestock. Like all such issues, it requires active research and management with the goodwill and participation of the pastoralists. The solution to any problem, whether fence construction or kiang number, is so complex biologically and culturally that widespread cooperation is essential.

*George B. Schaller*

November 11 2007







苏建平 摄

藏羚羊真正被社会更高度的认识大概也就是近30年以来的短暂时间。我有幸在这20年内与藏羚羊结上了不解之缘，总感到有一股无形的动力推动着我，每年都想见到藏羚羊。它们现在生活、生存中每一个环节，每一项涉及生存环境的因素会对它们怎么样，所有与藏羚羊有关的事件时常自然而然地萦绕在我的脑际里，这也许是与它们的感情太深所致。

——编者



# 序二

我很高兴地读完了刘务林先生的新作《西藏藏羚羊》。

青藏高原是地球上一个独特的地理单元。羌塘高原是青藏高原的核心地带，是号称生命禁区的无人区。而藏羚羊却在这片缺氧、寒冷、风大、草稀的土地上顽强地生存着。蓝天下，藏羚羊自由驰骋，来往于冰峰下盐湖旁，藏羚羊的数量曾达百万之众，是雪域高原上一道动物奇观。藏羚羊作为一种生活在世界上海拔最高的青藏高原上的大型哺乳动物，它是何时出现在这片茫茫高原的？它是在严酷的高原生境中生存、繁衍的？所有这些一直是生物界感兴趣的问题。刘务林先生一直在西藏工作，在最近20年中，他多次深入西藏境内的藏羚羊分布区考察。他曾有机会陪伴著名自然博物学家乔治·夏勒博士参加羌塘高原的野外考察。在考察中，刘务林先生仔细观察、善于学习，积累了大量的素材。他平时积极思考、勤于笔耕，写作了一系列关于西藏野生动物的著作。这部《西藏藏羚羊》是他的新作。

藏羚羊分布区广，横跨西藏、青海和新疆三地。藏羚羊又生活在人迹罕至的高原，高原上疾风似箭、白雪皑皑、阳光眩目、空气稀薄。在非繁殖季节中，藏羚羊还怕人，它们会远远避开考察队的车辆，所以观察动物行为需要时间与耐心。在羌塘高原考察藏羚羊，其艰辛和危险只有身临其境的人才知道。只有那些执著、具有献身精神的人才能在这种严酷的环境中一点一滴地积累资料。刘务林先生正是这样一位难得的有理想、有事业心的人，经过近20年的时间，刘务林先生积少成多、集腋成裘，将他所记录、阅读的素材汇集成这本《西藏藏羚羊》。书中的原始资料有助于全面了解藏羚羊的分布、行为和生态，对青藏高原野生动物研究是一个贡献。

人们开始了解藏羚羊是20世纪90年代，那时藏羚羊遭到大规模偷猎。当人们看到那成群的被扒皮的藏羚羊陈尸在旷野上时，血淋淋的莎图什贸易受到大家的一致谴责。人们将目光投向青藏高原，关注那里的野生动物，关注那里的藏羚羊。刘务林先生在书中介绍了藏羚羊的价值与藏羚羊的非法贸易以及近年来对藏羚羊非法贸易的法制管理。野生动物已经不单纯是一个生物学问题，它涉及到社会、经济、文化等各方面。除了藏羚羊的生态学之外，刘务林先生在书中还介绍了藏羚羊分布区的社会、人口、经济等方面的内容。除了关注那里的自然保护区建设，他也十分关注藏羚羊分布区的民生和社会发展。在《西藏藏羚羊》的最后部分，他坦率地提出了藏羚羊保护中的种种问题，也提出藏羚羊的合理利用问题。

《西藏藏羚羊》是一部来自西藏的作品，是一部出自工作在野生动物管理第一线的仁者的作品。作者在繁忙的工作之余，写作了这部著作。相信广大读者开卷有益，能从中了解藏羚羊，了解西藏的野生动植物，了解西藏的生态环境，了解西藏的人文地理。

蒋志刚

注：蒋志刚先生是中国科学院动物研究所著名动物学教授，  
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2008年2月20日



# 前言

藏羚羊是青藏高原上特有的哺乳动物，其实在我国的文字记载中早已有了藏羚羊这个吉祥、珍稀物种的记录。在中国古代神话图书《山海经》中记载有一种动物，名曰“羴羊”，从图形看，牛眼睛，马嘴巴，胸腹尾尖有须毛，腿健而偶蹄，尤其是所绘的一双角，直而长，生长于额顶，角有明显的环棱，角尖稍稍向前弯曲。这一切描绘与现代藏羚羊形象非常近似。同时，其名“羴羊”的“羴”（Ling）字与羚羊同音。所记动物的分布区，从汉水上游西行180km以西，就能见到。元明清时期，经常有大臣经青海到西藏，他们也曾亲眼所见奔跑的藏羚羊，并做了记录，称其为“独角兽”，给皇帝的奏章中描述到奇兽藏羚羊，并称其为瑞兆祥兽，出自中国西部的吉祥之物。藏语译音称藏羚羊为“佐”，藏医早在公元前几个世纪，就已发现藏羚羊某些器官入药的作用，对藏羚羊也有详细的记载与描述。大约从公元前2000年开始到中古，动物形纹饰一直是草原民族传统的艺术主题。在已发现的西藏早期岩画中，西藏西部日土县乌江乡境内塔康巴岩画上就已雕刻着藏羚羊的图像。

藏羚羊真正被社会更高度的认识大概也就是近30年来的短暂时间。我有幸在这20年内与藏羚羊结上了不解之缘，总感到有一股无形的动力推动着我，每年都想见到藏羚羊。它们现在生活、生存中每一个环节，每一项涉及生存环境的因素会对它们怎么样，所有与藏羚羊有关的事件时常自然而然地萦绕在我的脑际里，这也许

是与它们的感情太深所致。

由于西方有钱的人发现了藏羚羊绒的特殊功能，近20年以来给藏羚羊带来了厄运。从一个在世界屋脊上生存了数百万年，种群达百万只以上的庞大群体，一度几乎落入物种生存安全岛的谷底，仅有几万只。也算是因祸得福，这个高原精灵在世人的关爱下，一举被捧入北京奥运会的福娃内，现在人们真正认识到藏羚羊的价值，更重要的是她的科学、文化价值。

我深感幸运，交往20年的朋友一举成为“名人”，顿感过去几十年在辽阔的藏羚羊家乡——羌塘高原，所遭遇的每一次惊险都成为美好的记忆。回味与藏羚羊结伴相处的日子，的确是人生中最美好的时光。我亲身体会了作为一个藏羚羊相伴物种的美妙：夏季的一天，我艰难地步行在羌塘大地上，沐浴着灿烂的阳光，尽情呼吸着一尘不染的空气，清风带过我的耳际，宁静而空寂的大地送来阵阵泥土和嫩草的清香。在这里我看到过一对热恋中的棕熊情侣静卧在碧蓝的湖边窃窃私语；观察过精灵的藏狐在耐心地等待着出洞的猎物——鼠兔；欣赏过山麓的几头野牦牛在无忧无虑地吃草；羡慕过藏羚羊母子群体就在眼前喂奶、嬉戏和起舞；目送过远方列队的西藏野驴，鱼贯而行，穿越走过我视线能及的大草原；看着胡兀鹫在蓝天白云下翱翔，我和雄鹰与洁净的雪山为衬景，以天空和大地为家园，沐浴在同一片吉祥的阳光下，尽情地享受着大自然的和谐之缘。

想起1987年的一个夏天，我与同事们初次进入藏



羚羊的家乡，经过多次陷车后，又遇到一阵冰雹的“洗礼”，我们身体上凡是暴露在外面的部分，都被豌豆大的冰雹击出红肿。不多一会雨过天晴，太阳的光辉就又撒向了大地。考察队员们正在体会和议论着高原瞬息变化的天气，此时，从我们视野的低洼处冒出一群约20多只矫健的公藏羚羊，他们像一队整齐的骑士，高举头顶的利剑，列队从我们几十米远的侧旁跃过。这是我第一次见到这样雄健的高原珍兽，除了一位藏族驾驶员外，也是我们所有考察队员的第一次。队员们个个为见到藏羚羊而兴奋，更羡慕能够自由驰骋在这块辽阔大地上的生灵。打这以后，我与藏羚羊相伴了20年。在这“短暂”的20年内，我记录了它们的“吃、住、行、恋、舞、愁、苦、难、病、痛”。在这块世界屋脊的高原上，藏羚羊确实有着它们自己社会的情结与同伴和敌害的恩仇。它们的确是羌塘大地上生态系统中的重要组成部分，被世人称之为羌塘三大家族（藏羚羊、野牦牛、西藏野驴）之一。它们在这辽阔、空寂的大地上，随不同季节时而组成数万只的群体，时而分成一列小队，时而组成一个温馨的家庭，时而又单打独斗。有藏羚羊的存在，生动地体现了羌塘大地的活力，吸引了全世界人们关注藏羚羊和它们所生活的高原生态。

我研究藏羚羊，无法分开的是以藏羚羊为主的一系列生态生物链接。包括那里的自然环境和生物同伴，人类经济社会对藏羚羊与它生存环境的影响，人类保护生态与藏羚羊时的动机……。藏羚羊成为认识羌塘大地自然生态和人类经济活动的一把钥匙。同时，藏羚羊的价值已迅速被人类社会注入了更深刻的内容，它不仅有其昂贵的经济价值，更重要的是社会、文化、科研价值。

藏羚羊在生活需求中，爱好的是海拔5000m的宽阔草原，灿烂的阳光，稀薄的氧气，明镜般的湖泊，纯洁的雪域，羌塘的自然环境正是它们生活的乐园。但是这种生存环境对我们人类而言，就大不一样。那里仅有平原地区一半的氧气，强烈的紫外线和呼啸而过的寒风。

的确，羌塘几乎是我们平原地区人们生活的禁区。在研究藏羚羊的每个年头，我的同事们都要克服无数次的陷车、挖车、惊险、零下30多度的寒冷以及缺氧、头痛、憋气、面部表皮暴裂和断粮的熬煎。但是，20年来与我合作过一批又一批的同事们，没有在中途退却、放弃工作。在我的记忆里，想到的是每一个见到藏羚羊的人都为此而兴奋，他们的敬业精神无不使我保留住一生的崇敬之情。参与过西藏藏羚羊研究的同事们，虽然大部分我已在本书后记里一一提到，在此，我再次表示崇高的敬意。

西藏藏羚羊研究得到了国家林业局及野生动植物和自然保护区管理司王伟副司长的大力支持以及西藏藏羚羊分布区当地各级政府部门和业务管理部门的大力支持；每年的野外作业都是在当地林业或畜牧业管理部门和森林公安干警们的密切配合下完成的；美国新一代研究院资助了本书的出版资金。在此，我对20年来参与、协作、配合、支持西藏藏羚羊研究和出版此书的领导和朋友们表示衷心的感谢。

《西藏藏羚羊》一书的出版，为进一步认识研究西藏藏羚羊的生物生态学提供了基础和线索，为保护和发展西藏藏羚羊提供了可靠的信息。此书的问世，也可作为有关教育、研究、生物学、生态学、保护管理以及发展藏羚羊、关心藏羚羊和对藏羚羊生存环境需要再认识的人们，提供科学的依据。该书是各类社会人群可读的作品。由于我们的认识水平和研究工作还有待进一步深入和完善，书中不足之处在所难免，诚心欢迎各位读者批评指正。

刘务林

2007年11月11日





# PREFACE

The Tibetan antelope, or Chiru, a mammal unique to the Tibet-Qinghai Plateau, appears in China's early historical records as a rare, precious and auspicious creature. The ancient mythological text *Shan Hai Jing*, known as 'The Classic of Mountains and Rivers', mentions an animal called the *Lingyang*. An illustration shows a creature with the eyes of a cow, the mouth of a horse, strong legs, cloven hooves, long hair on its chest, stomach and tail, and distinctive straight horns growing from the forehead, with the tips leaning slightly forwards and clear spiral markings – features very similar to those of the modern Tibetan antelope. Moreover, the character *Ling* used for the *Lingyang* described in 'The Classic of Mountains and Rivers' has the same pronunciation as the character *Ling* in the modern Chinese name of the Tibetan antelope, and the animals' habitat is said to begin 180 kilometres westwards up the river from Hanshui. During the Yuan, Ming and Qing dynasties, senior officials often travelled to Tibet by way of Qinghai, and saw Tibetan antelopes. They sent memorials to the emperor reporting sightings of a unique and auspicious creature in the Western part of China, which they described as 'unicorns'.

In the Tibetan language, the Tibetan antelope is called the *Zuo*, and the animal is described in Tibetan medical texts which record the discovery of medical uses for some of its organs several hundred years before Christ. From about 2000 BC the animal appears in decorative patterns in the traditional art of the peoples of the grasslands. Carved images of the Tibetan antelope have been found in cave paintings discovered in the *Ta Kang Ba* caves in *Ritu* County, *Wujiang* township, in Western Tibet.

Nevertheless, it is only in the short period of the past thirty years that the Tibetan antelope has been given the close attention it deserves. I have been fortunate enough to have been involved with these animals for two decades, and I have always felt there was an invisible force pushing me to visit them each year. I have been preoccupied with every aspect of their lives, and the environmental factors affecting their survival. I have deep feelings towards them.

The discovery by rich Westerners of the unique properties of Tibetan antelope hair in the past twenty years has brought great misfortune on the species. Having lived on the roof of the world for countless thousands of years, the huge flock of more than a million Tibetan antelopes was reduced at its lowest point to only a few tens of thousands and the species came close to extinction. The "spirit of the high plains" was saved from near-disaster when the world's attention was drawn to its plight by the selection of the Tibetan antelope as one of the five mascots of the Beijing 2008 Olympic Games. Now people recognize its true value, and its scientific and cultural worth.

I feel extremely lucky that my friends of the past twenty years have become so famous. Suddenly, over the past ten years, every visit to the Tibetan antelope's home on the vast plains of the *Qiangtang* High Plateau has been an adventure with beautiful memories. My days spent with the Tibetan antelopes have brought the deepest joy of my life. I have personally experienced the wonder of living with these animals. One summer day I was trudging across the *Qiangtang* High Plateau in the glorious sunshine, taking deep breaths of pristine air as the breeze wafted past my ears carrying the fragrance of the earth and grass. We saw a pair of brown bears lying beside a deep blue lake, seeming to whisper to each other like lovers, while a bright-eyed Tibetan fox waited patiently for its prey to leave its burrow. Several wild yaks were grazing placidly on the mountainside, and right in front of me was a group of Tibetan antelopes, mothers and calves, playing and dancing together. In the distance, a herd of Tibetan wild donkeys followed each other in single file, the line stretching as far as I could see across the grassland. Vultures beating their great wings swooped through the air against a background of deep blue sky, white clouds and snow-capped mountains. I was actually there, myself a part of the great miracle of nature, enjoying the harmony of the universe under the bright sunshine.

In the summer of 1987, my colleagues and I went to the Tibetan's antelopes' home territory for the first time.



Our car got stuck many times, and we were "baptized" by a hailstorm which left every exposed part of our body covered with red marks left by hailstones the size of soya beans. Soon afterwards, the sky cleared and the sun shone across the land. Even as the members of the exploration team were remarking on how quickly the weather can change on the high plateau, a herd of about twenty vigorous male Tibetan antelopes appeared, with their horns held high like the swords of a column of marching knights. They strode past us only a few dozen metres away. It was the first time I had ever seen this precious creature of the high plains, and among the entire exploration team, only one Tibetan driver had ever seen a Tibetan antelope before. Everyone on the team was excited by the sight, and envious of the free spirits which can roam across these vast high plains. Since then I have been involved with Tibetan antelopes for twenty years, observing and recording their lives, the way they eat, move, and love, their frolicking and their anxieties, their difficulties, illnesses and pain.

Living on the high plains of the roof of the world, they definitely have their own social system, and know feelings of both love and hatred. They are certainly an important part of the ecological system of the Qiangtang Plateau, and make up one of the three major families of the plateau (Tibetan antelopes, wild yaks and wild donkeys). In these wide open spaces, according to the seasons they sometimes gather in large herds tens of thousands strong, other times they live in small groups. Sometimes they live as a cosy family, at other times, they struggle on alone. The existence of the Tibetan antelope, vividly demonstrating the life-giving power of the Qiangtang Plateau, has attracted the whole world's concern for the species and their high-altitude environment.

Studying the Tibetan antelope, I find no way to separate the species from the whole chain of the ecological system in which it plays a central part. This includes the natural habitat and its animal species, as well as the impact of human economic activity and human being's motives for protecting the environment and the Tibetan antelope. Studying the Tibetan antelope has become a key to understanding the natural environment of the Qiangtang Plateau and human economic activity. At the same time, the Tibetan antelope is now given a deeper value by human society. This means not only economic value but also social, cultural and research value.

For the Tibetan antelope, the grasslands above 5000 metres, where there is very bright sunshine, thin air, clear lakes, and pure snow, are a paradise which meets their every

need. This is very different from the ideal environment for us human beings. The air contains half the oxygen of the atmosphere of the lowlands, there is fierce ultra-violet light and howling cold winds. The Qiangtang Plateau is almost a no-go zone for us lowlanders. Every year while we are studying the Tibetan antelopes, my colleagues have to overcome the dangers and miseries of countless car breakdowns, temperatures of thirty degrees below zero, lack of oxygen, headaches, breathlessness, skin lesions and food shortages. However, among group after group of colleagues who have worked with me over the past twenty years, not one has ever withdrawn or given up on this work. All I remember is their excitement on first seeing the Tibetan antelope, and their professionalism, which has earned my lifetime respect. Even though I have acknowledged each of the colleagues involved in Tibetan antelope research by name in the afterword of this book, here I want to express my deepest respect once more.

Tibetan antelope research has received support from the National Forest Bureau, as well as strong support from Wang Wei, Deputy Director of the Wild Animal and Plant Conservation Area Management Department, and from government departments and institutions at all levels in the Tibet Antelope Habitat Area. Every year's field work is carried out with the cooperation of the local forestry and livestock management departments, and members of the forest police department. The Next Generation Foundation of the United States gave financial support for this book. Here I express my deep gratitude to all of the leaders and friends who have participated in and supported Tibetan antelope research for the past twenty years, and given support for the publication of this book.

"Tibetan Antelopes" is intended to provide a foundation and framework for further research into the ecology and biology of the Tibetan antelope, and to provide reliable information for the protection and development of the species. Publication of this book can also provide a scientific basis for education and research in biology and ecology, as well as a resource for further education of people dealing with protection, management, development, and care of the Tibetan antelope. It is suitable for general readers. Since there is still room for improvement in our level of knowledge and research, this book will inevitably contain some inadequacies. I welcome comment and criticism from all readers.

*Simu Lin*

November 11 2007







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