

Flora and Fauna of China

China, a country that occupies a vast territory with a diverse climate, varied topography and great variety of flora and fauna, is situated in the southeastern Asia. Its land extends from longitude 73° E to 135° E, a stretch of over 3,200 miles. From north to south, it spans from latitude 53° N to 4° N, covering a distance of 3,400 miles. The varied climate crosses frigid, temperate, subtropical, and tropical zones from north to south. Within a total area of 9.6 million km^2 , about one third of it is mountainous, with plateaus and high mountains dominating the west, while lower lands and plains lace the eastern region. As a result of this tilting topography, principle rivers flow from west to east, including the renowned Yangtze (Chang Jiang) and Yellow (Huang He) rivers, both emptying into the Pacific Ocean.

Numerous complex habitats exist in China. In general, forests are more characteristic of the east and south, while grasslands, deserts and plateaus dominate the landscape in the north and west. The forests can be divided into boreal (taiga), coniferous, deciduous broadleaf, evergreen broadleaf, tropical and mangrove forests. The grasslands and deserts include the steppes of northern China, high mountains of Qinghai and Tibet, grasslands of northeast and deserts of northwest. China is considered to be one of the megadiversity countries in the world. Overall, an estimated 32,000 species of flowering plants inhabit in China. The abundance of vegetation supports animal life of great diversity as well. More than 6,200 species of vertebrates exist across the land, accounting for ten percent of the world's total. This wildlife is made up of many endemic and relic species, including some of the most well-known and rare animals: the giant panda, golden-haired monkey, Chinese alligator, South China tiger, red-crowned crane, brown-eared pheasant and Yangtze dolphin.

With a population of 1.3 billion in the year 2000, China is also the most populated country on Earth. The pressure to provide for such a large population has resulted in unfortunate overuse of arable land, air pollution, ground water contamination, degradation of natural resource and species extinction. The double digit annual GDP growth since 1982 has lifted millions of people out of poverty and improved the country's living standard; but it has come at the cost of the environment and wildlife. If China expects to continue its success, sustainable management of its flora and fauna must be achieved in decades to follow.

Tropical Forests of Hainan and Yunnan

In proportion to its total landmass, China has a relatively small area of tropical forests, including rain forests and seasonal rain forests, mainly distributed in the southern regions of Guangdong, Hainan, Guangxi, Yunnan and the southeastern fringe of Tibet. Seasonal rain forests occupy the margins of the tropical zone, where climate oscillates between a warm, wet summer and a mild, dry winter. Hainan, the second largest island off of China's coast, is located in the tropic zone in the South China Sea. Subtropical evergreen forests are found along the coastal plains where annual rainfall is more evenly distributed

across the four seasons. The Monsoon forests spread throughout the interior upland and dome mountains where a significant drought stress exists during the pre-Monsoon season. With an annual rainfall of 1,000 to 2,000 mm and warm temperatures during most of the year, Hainan supports a diverse flora and fauna. Among 4,200 plant species, 630 are listed as endemic to Hainan. Some notable plants include the guest tree, sea hibiscus, Chinese persimmon, and an acacia-like legume called *Albizzia procera*. Among the 98 mammal species are the Asiatic black bear, black gibbon, Hainan mole, Hainan moonrat, thamin, and Hainan flying squirrel. The last four are all endemic to the Island. There are 291 bird species found on the island, including the Hainan partridge, the ratchet-tailed treepie, the Hainan leaf warbler and white-eared night heron, all endemic to the island.

Due to its unique geography and climate, Yunnan province contains the richest biodiversity in China. The province is decorated with spectacular virgin forests, tropical rain forests, abundant flora and fauna, as well as ethnic minority groups. About 8,000 species of flowering plants have been identified and many more remain to be named. Among many rare plants are ancestors of several cultivated crops including wild rice, wild lychee, wild cocklebur-like amomum and wild oil tea camellia. Yunnan is home to 290 mammal species, approximately 50% of the total mammal species found in China. Some spectacular mammals include the leopard, tiger, golden cat, concolor gibbon, golden monkey, and Asian elephant. Many insects, amphibians and reptile species live here, including some species unique only to this region. The Xishuangbanna Biosphere Reserve, located at the southwest tip of Yunnan, is referred to as “A green gem in the imperial botanical crown.” Xishuangbanna enjoys a global fame for its unique wildlife, marvelous tropical rain forests, colorful ethnic groups and the breath-taking scenery. It attracts millions of scholars and layman tourists alike from all over the world.

Mangrove Swamps of Southern Coast

China's mangrove forests cover a very small area of about 20,000 hectare. They are found along the coast of the South China Sea, primarily on Hainan Island and along the coast of Guangdong, Guangxi, Taiwan, and southern Fujian. Of the 80 mangrove plant species known world-wide, 38 have been observed in China, including red and black mangrove trees, ferns and palms. Mangroves are vital for the well-being of wildlife; they not only provide essential habitats for many species of animals but also serve as the refueling stop for thousands of migratory birds. Managed by the World Wildlife Federation, Hong Kong's famous Mai Po Mangrove and Wildlife Reserve is home to 330 species of birds, 400 species of insects, and 90 species of marine invertebrates. Notable animals include otters, leopard cats, herons, egrets, spoonbills and whistling ducks. Large populations of migratory birds make their winter home here and feed on the bounty of fish, shellfish, shrimp and sea worms. Unfortunately, the recent rise of aquaculture at various other mangroves has led to much loss of the forests, which has resulted in declining wild fisheries and shorebird populations.

Coniferous Forests

The coniferous forests in China consist of temperate coniferous forest and subtropical/tropical coniferous forest. The former is mainly distributed in the north and northeast of China and certain parts of the Tibet plateau. Manchuria, a vast plain bracketed by two mountain ranges (the Da Xingan to the west and the Xiao Xingan to the east) contains China's richest and most accessible timber resources. Belts of coniferous forest include Korean pine, spruce and Siberian larch. Some broadleaf trees include ash, basswood, birch, oak, poplar, Manchurian walnut, Mongolia oak, Manchurian elm and willow. Found on the forest floor is a valuable medicinal plant, Chinese ginseng. Among various mammals are several large and endangered species: the leopard, sable, Sika deer and Siberian Tiger. The Hengduan Mountain coniferous forests in central and southwest China are considered subtropical and tropical coniferous forests. Among plants endemic to these forests are Chinese yew, Chinese cedar, dawn wood and Manglietia. Several rare mammals are found here, including the Asiatic black bear, clouded leopard, Chinese stump-tailed macaque, Indian muntjac, jungle cat and red panda. The giant panda - found only in the dense bamboo and coniferous forests in the mountains of central China, is the most magnificent mammals of all.

Deciduous Forests

Deciduous forests are distributed in the temperate zone above the tropical forests and below the coniferous forests. Because almost all of China is in the temperate zone, the country was once covered with continuous deciduous forests. However, due to the fertility of the soil, most of the deciduous forests in China have been cleared for agriculture since 4-5 thousand years ago. Today, only a few traces of the original forest remain. The residual forests are scattered in southwest, central, and northeast China. The Northeast China Plain deciduous forest and the Manchurian mixed forest are two examples. The natural vegetation here includes deciduous broadleaf species such as oak, ash, maple, lime, beech and birch, mixed with pine and spruce. Other plants include Daurian birch, Manchurian elm, Manchurian walnut and Mongolian oak. The fauna is typical of temperate woodland: deer, foxes, badgers, gray squirrels, mice, raccoons, salamanders, snakes, robins, frogs and numerous types of insects including mosquitoes. Large mammal population has been decimated or exterminated entirely in most areas.

High Mountains of Qinghai-Tibet

The region is recognized as the most extensive plateau in the world, often referred to as the "roof of the world" due to its exceptionally high elevation. The average elevation is between 13,000 and 20,000 feet above sea level, with many ranges and individual peaks higher than 20,000 feet. Along its southern border lies the mighty Himalayas, with Mount Everest peaking at 29,028 feet. This plateau covers a total of one quarter of all China; however, because of its high elevation and frigid climate, it supports less than 1% of China's population. Except in the middle gorges of the southwest, much of the Plateau

is uninhabitable rocky desert, containing on average five people per square mile. In general, the land cover is poor and dominated with *Rhododendron* species and many alpine genera. Regional wildlife include highly distinct species of snow leopard, rodents, Tibetan antelope, wild Ass. In addition, it is home to bearded vulture, a rare and endangered species, and wild yak, a species endemic to this plateau. This plateau is also rich in minerals and other natural resources.

Taiga Forests

Also referred to as boreal forests, these occupy the extreme north of Manchuria in a permafrost region that covers parts of Heilongjiang, Inner Mongolia and the autonomous district of Orogen. Thriving in long and cold winters, needle leaf coniferous trees dominate the landscape. China's boreal forests are part of the continuous taiga forests that run along the northern border of the Mongolia Republic and southern Russia. A given taiga forest is named after its most dominant species, including pine, larch, spruce, fir and Sabina forests. Major tree species include Daurian larch, Mongolian pines, Manchurian spruce, birch and Manchurian alder. Fur-bearing animals make up the bulk of the regional fauna. Large mammals characteristic of Siberia are found here: brown bear, moose, red deer, Siberian Musk Deer, mountain goats, Arctic Hare, lynx, wolverines, mink, etc. Bird species include wood warblers, finches, ravens, sparrows and Hazel Grouse. The taiga forests are also home to some endangered species including the Siberian tiger and sable.

Steppes of Northern China and Mongolia

Steppes are found in temperate semi-arid regions in northern China and the east regions of northwestern China, such as the Qinghai-Tibet Plateau, Ordos Plateau in Northern Xingjiang, Inner Mongolian plateau and the southern extension of Da Xingan Mountains. They extend into the Mongolian Republic for a total area of more than 400 million hectares. Dominant plant species are perennial xeric herbs. The type of vegetation is mainly determined by the latitude and altitude. The montane grasslands in the foothills are primarily bluegrass and fescue grass, while in the mid-elevation are belts of coniferous forests consisting of Siberian larch, Siberian fir and spruce. At even higher slopes are alpine meadows of sedge with spaced dwarf birch.

The massive Hulun Buir Meng grasslands extend into southeastern Mongolia, forming a vast open habitat for both wildlife and domesticated herds. This grassland on the Chinese side alone covers nearly one million square km. With its temperate climate, respectable annual precipitation (150-500 mm from west to east) and fertile soil, the region supports diverse grassland communities with some unique wildlife species. The grass grow so well that the locals describe "when the wind blows, the grasses bow down, and groups of cows and sheep emerge to the sight." Feather grass is the single most dominant species. The grasslands that border the Gobi Desert also supports desert steppe with dominant drought resistant grasses, forbs and spiny shrubs. Wildlife includes some of the

threatened mammals such as Bactrian camel, snow leopards, and Asiatic Wild Ass. The Endemic species include the Mongolian gazelle. The brown-eared pheasant is the sole endemic bird species here.

Deserts of Northwestern China and Mongolia

Vast desert covers the northwestern region of Inner Mongolia, extending into much of the Mongolian Republic, southern Xinjiang including the Ala Mountain plateau, the Junggar and the Tarim desert basins and the Altai and Tian Mountains. To the south lies the Kunlun mountain range and ranges of Tibet, and to the west beyond Kashi (Kaxgar) are more ranges of high mountains as parts the Tadzik and Kirgiz. The desert within China's border covers a total of 20% of the country's landmass, including the well-known Gobi Desert. The climate is very arid, with extreme fluctuations of temperature between day and night. All plants and wildlife here are adapted to arid and harsh climate. Drought-adapted shrubs include gray sparrow's saltwort, gray sagebrush, Saxaul and low grasses such as needle grass and bridle grass. The almost leafless woody shrub Saxaul "trees" form numerous "Saxaul forests" that cover more than ten million acres of Southern Mongolia. Growing to between 6 and 12 ft tall, these Saxaul plants play an important ecological role in the desert. They hold the sand and provide shelter and breeding grounds for wildlife. Notable animals include the Asiatic wild Ass, Asiatic ibex, the black-tailed gazelle, wild camel, wild horses (Takhi), Jerboa, Gobi wolf, Golden eagle, leopards and lizards. Gobi bear is one of the world's most endangered animals with a total population of less than fifty individuals.

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