

A NEW SPECIES OF **CUPRESSUS** L. FROM TIBET (**CUPRESSACEAE**),

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The distribution of the genus **Cupressus** in the Himalayas and western China seems to be the least known geographical area of the genus. The distribution of **Cupressus** in Tibet in particular seems to be the least known. Until recently, some species were only known from cultivated trees in the more populated cities or villages.

Franco (1969) in his review of the Sino-Himalayan **Cupressus** species listed several herbarium collections under separate species names. However, his interpretation leaves species with disjunct distributions. Notably in the case of **Cupressus duclouxiana** Hickel and **C. chengiana** Hu (or **C. fallax** Franco), species which are not in fact native to Tibet. One collection cited by Franco (1969), under his **C. fallax**, was later described as a new species as **C. gigantea** Cheng et Fu. A few other herbarium collections of Ludlow, Sherriff and Elliot from Tibet cited by Franco (1969) under **C. duclouxiana** are here described as a new species.

CUPRESSUS DUCLOUXIANA Hickel

Cheng et Fu (1978) only recently described the true distribution of **C. duclouxiana** in China. This species was formerly only known from cultivated trees in Yunnan, mainly near Kunming. However, Cheng et Fu (1978) list true **C. duclouxiana** as native to middle and west-northern Yunnan and west-southern Szechuan at 1400-3300 m. altitude. The species is further noted as being dispersed in dry and warm slopes, or forms small pure stands in Li-Chang and Hsueh Shan. A recent herbarium collection from Yunnan as **Sino-American Expedition No. 1580** Lunan Xian, Changu (Long Lake) 1850-2000 m. (A, PE, US), probably represents a wild population.

CUPRESSUS GIGANTEA Cheng et Fu

Cheng et Fu (1978) list this species from the Tsangpo River region. The type collection was from Lang Xian at 3000 m. altitude, **Qing-Zang 3318** (Holo-PE). The species had been collected earlier by Ludlow, Sherriff and Elliot. Namely, **Ludlow, Sherriff & Elliot 13345** (BM, E) from Kongbo, Nye at 3000 m., and had been included by Franco under his **C. fallax** (or more correctly **C. chengiana**).

Interestingly, **Cupressus gigantea** appears to be the highest altitude species of the genus **Cupressus**. On the **Ludlow, Sherriff & Elliot 13345** specimen is a note by the collectors that this species grows up to 3658 m. elevation on the Kongbo Nga La in Tibet.

CUPRESSUS CHENGIANA Hu (**C. fallax** Franco)

Cheng et Fu (1978) list **Cupressus chengiana** from western and northern Szechuan province (Mao Hsien; Wen-Chuan; Li Hsieh; Ta-Chin; Hsiao-Chin on the upper part of the Min Chiang region) and southern

Kansu province (Chou-Chu; Shih-Men and Wu-tu) at 1200-2900 m., on dry and sunny mountain slopes. Franco (1969) had listed **Ludlow, Sherriff & Elliot 13345** from Kongbo, Tibet under his **C. fallax**.

Cupressus chengiana Hu has flattened branchlets systems with elongated fish-tail like seasonal branchlets, and leaves with an active dorsal gland leaving a whitish dot on the leaves. This is more apparent in young trees. **Cupressus gigantea** has much more thickened branchlets which are some what twisted or contorted. The leaves of **C. gigantea** are more obtuse and the glands are conspicuous, but do not leave a whitish dot as conspicuously as **C. chengiana**.

CUPRESSUS TORULOSA Don

Franco (1969) listed true **Cupressus torulosa** only from north India and western Nepal at 1500-3300 m. altitude. The species has also been listed as native to Sikkim, Bhutan and southern Tibet by various authors.

Cupressus in Bhutan is yet another species, **C. himalaica** Silba (Silba, 1987). **Cupressus himalaica** was previously only known from cultivated trees. Whether this species or an allied species is also native in Sikkim is still not yet fully understood.

Cheng et Fu (1978) describe **C. torulosa** from limestone regions in eastern and southern Tibet, India, Nepal, Bhutan and Sikkim. However, the **Cupressus** species in south and east Tibet is well outside the geographical range of typical **C. torulosa** of north India and western Nepal. Certainly, this would be quite a disjunct distribution with two other species, namely **C. himalaica** and **C. gigantea** distributed between the eastern Tibetan and Nepal-India populations.

Herbarium collections cited by Franco (1969) from Tibet near the junction of the Po Tsangpo and Yigrong Chu are here described as a new species. This appears to be the undetected species described by Cheng et Fu (1978) as **C. torulosa** from eastern and southern Tibet.

Cupressus austro-tibetica J. Silba, species nova.

Arbor ad 20-60 m. alta. Ramulis multum tenuioribus, gracilibus. Folia acuta vel obtusiuscula, 1.2-1.5 mm. longis, glandula mediana rotunda bene impressa. Strobilis ovulatis 1.2-1.6 cm. longis, squamis 10-12.

Type: **Ludlow, Sherriff & Elliot 12141**, Tibet, Trulung, Pome, 2134 m., more numerous up the river, in mixed forest (Holo-BM, Iso-E); **Paratypes:** **Ludlow, Sherriff & Elliot 12130**, Tibet, Trulung, Pome, 1981 m. (BM, E); **Bailey s.n.**, Tibet, upper part of Tsangpo Tsangden, Yigung, 2286 m., June-Sept. 7, 1913 (E).

A tree 20-60 m. tall. Branchlets divided into thin, thread-like segments, or some-what flattened. Leaves bluntly acute, 1.2-1.5 mm. long; glands apparent but obscure, with a small pit. Female cones globose or subglobose, dark brown, 1.2-1.6 cm. long, with 10-12 scales, inner scales dark brown, umbos inconspicuous. Seeds dark brown, subglobose, with rounded wings, ending in an acuminate point at the end opposite the hilum.

Cupressus austro-tibetica is similar to ***C. duclouxiana*** in its thin, thread-like branchlets. However, ***C. austro-tibetica*** has leaves with obscure glands with a less deep pit than ***C. duclouxiana***, and much smaller globose female cones which lack the deep reddish inner scales of the latter species.

The distribution of ***C. austro-tibetica*** is little-known. It is known from eastern and southern Tibet at 1981-2286 m. altitude. Reports indicate that this species may well occur at much higher altitudes and may represent the highest altitude species of the genus ***Cupressus***.

Chang (1982) lists a Lichen species growing on a cypress tree (species not specified) in Quandu County, Tibet at 4300 m. altitude. Chang (1982) further lists the Lichen (***Lethariella sinensis***) distributed in Riwoque County, Tibet.

Wei et Jang (1982) record two Lichen species growing on a high altitude cypress tree (species not specified) in Tibet. One species, ***Lethariella sinensis*** Wei et Jiang is listed from cultivated forests at Chang-Tu, Ta-Roa-Ka, Tibet at 4300 m., **W.C. Li 7695-1** (PE); also distributed in Lei-Wu-Chi (Ri-Wo-Que) Tibet at 4200 m., **Y.C. ZONG & Y.Z. LIAO 260** (PE). The latin description lists the lichen as having a ***Thuja*** (species not specified) as its host. However, the Chinese name translates to mean the name "cypress tree". Perhaps, the flattened branchlets of ***Cupressus*** are here mistaken for ***Thuja***, as ***Thuja*** or ***Platycladus*** is not native to Tibet (Cheng et Fu, 1978).

A second Lichen species listed by Wei et Jiang (1982) as ***Lethariella cashmeriana*** Krog is described as growing on its host the cypress tree (species not specified) in several areas in Tibet. ***Lethariella cashmeriana*** is recorded from the cypress forests at Chang-Tu, Ta-Roa-Ka, Tibet, 4300 m., **W.H. Li 76-95** (PE); Lei-Wu-Chi, 4000 m., **Y.C. Zong & Y.Z. Liao 255** (PE); Jan-Wu, Tibet, 4300 m., **Y.C. Zong & Y.Z. Liao 477** (PE); Tso-Kung, Tibet, 4400 m., **Y.C. Zong & Y.Z. Liao 493** (PE).

Krog (1976) describes a lichen species, ***Lethariella cladonioides*** (Nyl.) Krog (Parmeliaceae) from Szechuan as **H. Smith 14017** (UPS) from Dongsergo, Huang-lung-Sse, in Rhodendron-***Juniperus*** forest at 4000-4300 m. altitude.

Cheng et fu (1978) record the genus ***Juniperus*** (under ***Sabina*** Mill.) occurring in Szechuan and Tibet as high as 4600-4900 m. altitude. It seems more likely that the Lichen species described

from Tibet by Wei et Jiang (1982) and Chang (1982) are probably associated with a **Juniperus** species, as it is also associated in Szechuan (Krog, 1976). However, it may be possible that **Cupressus austro-tibetica** also occurs at much higher altitudes than the Ludlow, Sherriff and Elliot collections were discovered.

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