



Bulletin of the *Cupressus* Conservation Project

No 23

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Cover photo: *Cupressus torulosa* in one of its native habitat in Nepal, Kali Gandaki valley at high altitude (cf. p. 29). © J.-P. Charpentier, France.

The lectotype locality of *Cupressus torulosa*

The Himalayan *Cupressus* species was described by D. Don in 1824. The types were designated in the following manner:

Habitat in Indiâ Orientali (Roxburgh), in Bhotaniâ. W. S. Webb.

In 1968, Franco chose to lectotypify the following collection (see Fig. 2 & 8):

Sooreh, alt ca. 1500 m, 12 Jan. 1818, *Wallich 6046 A* p. p.¹,
leg. W. S. Webb (K; **lectotypus propositus**)

And added a second specimen as a syntype:

— in montibus ad boream Oude, *Wallich 6046 C*,
ex herb. Roxb. (K; syntypus).

It is impossible to locate precisely the syntype (see Appendix A), but the information on the lectotype is worthy of investigation as there is no place called “Sooreh” in India: Sooreh is the local vernacular name of this cypress (like Tsenden for instance for the cypresses in Bhutan). Another source of confusion is the name “Bhotaniâ”, too often mistaken for the independent country of Bhutan because of the name similarities². Silba (1981: 399) copies Franco (without mentioning him):

Type: India, Kumaon, Sooreh, 1500 m, 12 Jan 1818, *Wallich 6046A* (K, Holotype);
Kumaon, Sooreh, ann. 1832, *Wallich 6046B* (NY).

Unfortunately the date, the altitude, the supposed locality and even the Uttarakhand Division (Kumaon) are nowadays wrong. Farjon on a label at Kew ([K000088110](#), *R.Blinkworth 6046B* – which is not an isolectotype, nor even a paratype – see Appendix A) writes after Franco, insisting on Sooreh:

Cupressus torulosa D.Don in Lamb.
Wallich Herb. No. 6046 A (coll. W.S. Webb in
Sooreh) was selected as the lectotype by
Franco (1968): 189, being a sheet in K-W^[3]
containing a mixture (with sterile *Juniperus*)
Det. A. Farjon/Utrecht 24 October 1991

And in his *Cupressaceae Monograph* (2005) Farjon mentions again (cf. Fig. 9 for the isolectotype):

Type: India. Himalaya: [“Sooreh”], *W.S. Webb W 6046A* (lectotype K-W, see Franco, 1968; isolectotype P).

In his Curtis’ article on *C. torulosa*, Farjon (2013) states:

It is based on specimens collected by W. S. Webb on June 12, 1818 in ‘Sooreh’ in the western Himalaya, a locality I have not been able to identify with a modern place name, so it is absent from the map.

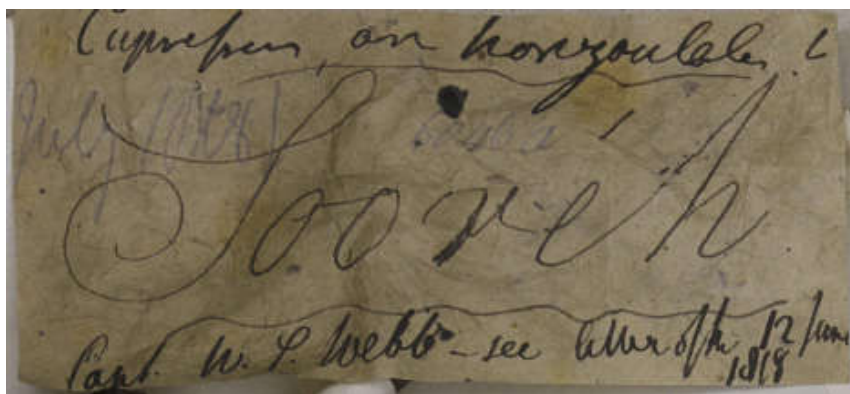


Fig. 1: K00618039 (extract).

Thus trying again to acknowledge a locality name which does not exist.

The name “Sooreh” is written in big letters on the label of the lectotype (see Figs 1 & 8), right under the Latin name of *C. horizontalis* which was the tentative identification by Webb (see Webb 1820: 65, and below p. 7). If unsure of the scientific name, it is wise

¹ p.p. = pro parte, in part; meaning that only one part of the herbarium sheet is being considered.

² Hence the mistaken name of Bhutan Cypress (from D. Don’s “Bhotan Cypress”) for the English name of *C. torulosa*.

³ “W” for Wallich herbarium.

to report the local common name, which Webb did. As often the common name can appear with different spellings, especially when transcribing from a non-latin script like Hindi. In a 1988 article by P.B.Bao, the common name for this cypress is written “surai” which does not differ greatly from “sooreh”. In the abstract of that article we find:

Quercus floribunda Lindl. (tilonj oak), a late successional species, and *Cupressus torulosa* D.Don (surai), a nearly successional species, were compared in terms of seed germination and seedling growth.

Then the name is mentioned five times in the abstract and is commonly used throughout the article instead of the Latin name⁴.

This cypress is so impressive by its size and wood quality, and so different from the other conifer species of India that it had to have a vernacular name, but nowhere did Farjon try to inquire of it. As common names (2005: 223), he gives “gubrai” and “gulla” which are Nepalese names⁵ and “xi zang bai mu” which is a Chinese name (Xizang Cypress = *C. austrotibetica*), when *C. torulosa* does not grow wild in China, although it was obvious that Webb did not make its collection in either of those countries when he was appointed Surveyor of Kumaon.

There are different options to try to find the collection locality at the condition to be aware of history and the way the United Kingdom ruled India. We have the information about who collected the samples and the date. Thanks to D.Don (1824: 18 & 1825: 55) we have another indication on the lectotype: “*Habitat* [...] in Bhotaniâ” and “*Hab. in Bhotaniae alpibus.*” First, it is important to note Webb did not go to Bhutan, and *C. torulosa* does not grow in that country. The next step is to look for the documents available to D.Don in 1824 when he published his diagnosis. Then the dates and localities when and where Webb was active as Surveyor of Kumaon are circumscribed and the sources of information are not difficult to find. Especially as on the label of the lectotype, there is: “Capt. W.S. Webb – see Moorcroft” (Fig. 1). All this information points to:

- articles of *Asiatic researches or, transactions of the society instituted in Bengal for inquiries into the history and antiquities, the arts, sciences and literature of Asia*, 1818;
- articles of the *Quarterly Journal of Literature, Science and Arts*, 1819-1820.

which contain some details of Webb’s activities and travels during that period.

These documents serve to confirm the collection’s locality, for the place where Webb collected his specimen is clearly given (see also Appendix A, Fig. 8, p. 11):

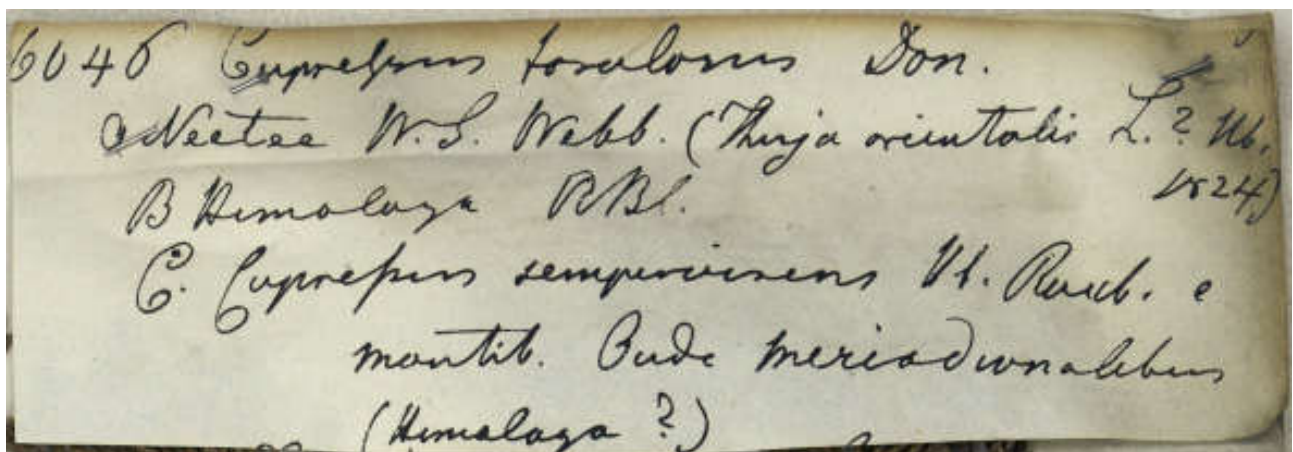
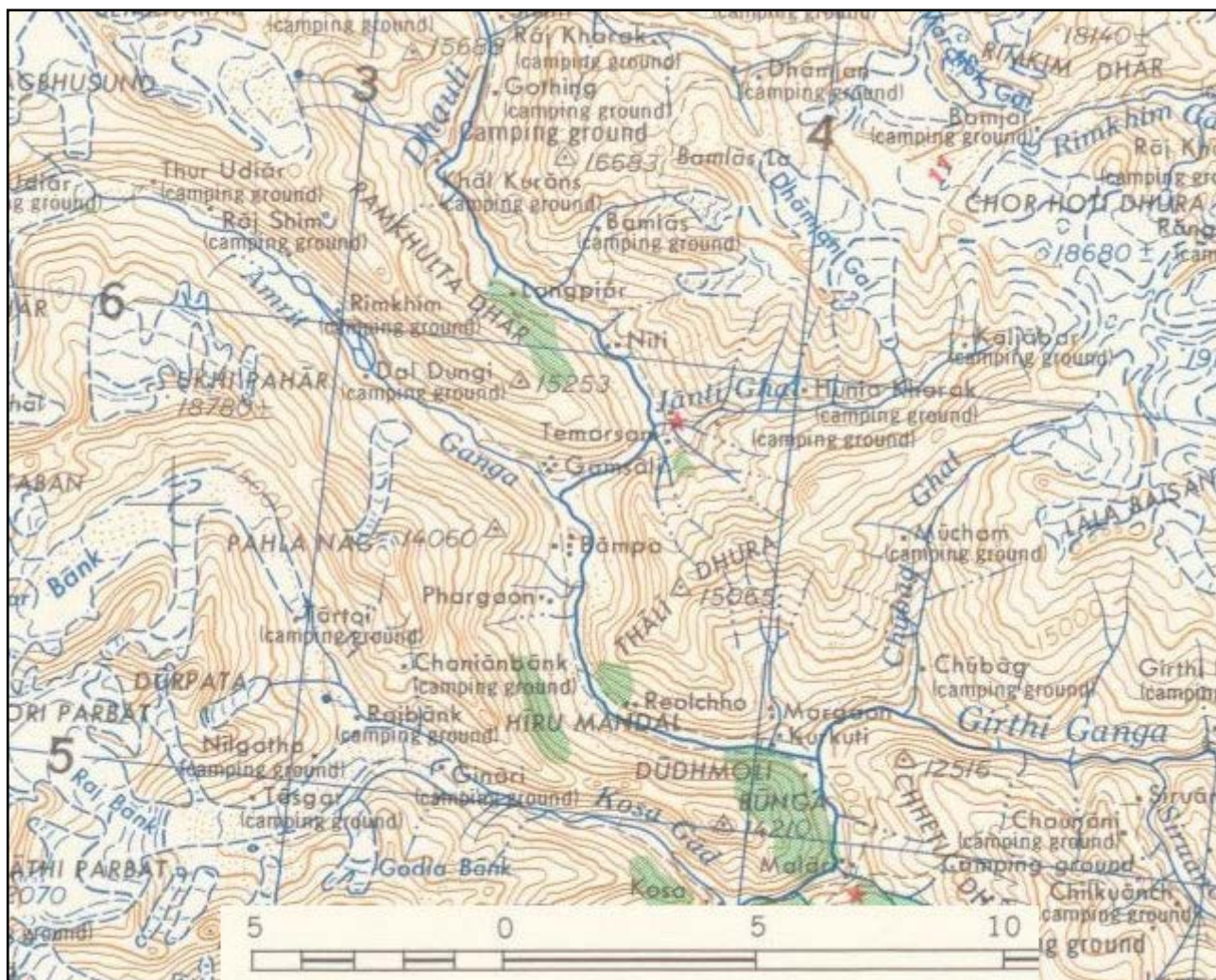


Fig. 2: From Wallich’s catalogue, the numbers 6046 A to C.

Webb’s collection #6046A is listed under “Neetee”. This gives the alternative modern spelling of “Niti”. Is this a locality name? If yes, where is it situated? Indeed it is possible to find it easily on both old and modern maps (see Maps 1 & 2).

⁴ The name “surai” can be found in other Indian articles on *C. torulosa* (Singh & Singh 1986 for instance) or internet sites like on the Wikipedia entry for [Nainital Lake](#) or the Australian [National Trust Database](#) accessed on the 2021-05-01. For the mentions of the local name in the conifer literature, see Appendix B.

⁵ Or around Simla (Gordon – cf. p. 15). See also <https://www.gbif.org/species/2683955> accessed 2021-05-01.



Map 1: Extract of the map “Dhauliganga and Rashiganga Valleys”. Scale on map: km; original scale: 1:250,000. Source: [Dhauliganga River](#), accessed 2021.05.01.

And also on the map published in Moorcroft (1818) – see Map 2.

Map 2: Extract of the map “Plan of a tour to Chinese Tartary, 1812” (Moorcroft 1818).



On the 1812 map, the area immediately south of Niti bears the name of “*BHUTANT*”. And there are several instances in Moorcroft’s report where the region’s name is acknowledged under the varying spelling of “But’hant” or “Bootan” (1818: 411, 414, 423). Webb (1819) tells us too about the “province of Bootan” (35), the inhabitants (the “Booteas”, 36) and about a “district bordering on Bootan” (37). Thus, referring to the available information in 1824, everything matches and the details given by D.Don as well as the village name provided on Wallich’s catalogue are explained and allow to determine the place (the valley) of the lectotype collection.

The locality of the material sampled by Webb in 1818 is thus:

Niti valley, Joshimath Tehsil, Chamoli District, Garwhal Division⁶, Uttarakhand State, India; with the geocoordinates of the Niti Village: **30°46'39.10"N, 79°50'27.15"E**. The altitude of the forest facing Niti (see Figs 3 to 7) starts at 3400 m⁽⁷⁾ and seems to go up several hundreds of metres; a survey will be necessary to verify the highest altitude reached by the cypresses in that valley.

These cypresses were first spotted by Moorcroft (1818) in 1812. Several passages of his *Journey to the Lake Manasarovara in Undes* describe them. On his map (Map 2) right under the “Bhutant” name (south of Niti), it reads: “*Forests of Firs, Cedars & Rhododendrons*”.

Here is a review of the meaningful passages on cypresses by both explorers, Moorcroft and Webb (emphases added).

Moorcroft 1818: 383-384.

At half past eleven reached the town of *Baragaon*; and not finding shade went on higher, above three quarters of a mile, without being much more successful.

The cultivated lands, in the middle of which is the village of Baragaon, run half way up the hill, where the forest region begins with small trees, becoming thicker and higher as it ascends ; and the very summit is fringed with pines, and the majestic and fine overtopping cedar [...].

[May] 27th. – In the afternoon the *Negi* came to say that on the following morning he would have people to take our baggage to Tapóban, a village about three cós distant, from whence we should proceed onwards the following day.

28th. – Resume our journey, leaving our ground at 6^h 30' therm. sunrise 58°. Pass by a *Sanga* over the *Dauli*, and at 3696 paces reach our ground, a little below the almost deserted village of *Tapóban*, placed on the brow of a hill surmounted by woods of pine, cedar and **cypress** [...].

Moorcroft 1818: 391.

[May 31st] In descending the mountain a grand view opened from the S.E., consisting of a vista formed by two sides of mountain composing a glen, down which ran a large stream.—One slope was enriched by a forest which reached to the clouds ; the other covered by scanty pasturage for about 400 yards ; when it was overhung by a steep face of barren rock of immense height, and the upper part of the vale was shut up by a peak of still higher mountain, the base of which was sprinkled with **cypress**, and the top whitened with snow.

After a tedious march of two hours more, through a forest of cedars and **cypress** [...], of which many would have been large enough for main-masts of first rates, I came to a *Sanga* across the stream which ran down the valley.

Moorcroft 1818: 393-394.

June 1st.-Commenced our march at 7-30. At 2345 paces the river becomes a succession of rapids, and has its channel diminished to about 90 yards in breadth. At 3407 paces we pass two caves, a small and a large one. The *Daulí* about eighteen yards broad. At 10,971 paces come to some cedars [...] and halt. The *Daulí* much reduced.

⁶ And not the Kumaon Division. Kumaon under the British rule was administered directly by the colonisers, hence the survey under the direction of Captain Webb.

⁷ And not 1500 m as stated by Silba (1981: 399). Silba also places Blinkworth’s collection (Wallich 6046B) at “Kumaon, Sooreh, ann. 1832” when the locality of this specimen is untraceable.

[...]

On the top of a high mountain, thinly sprinkled with worm-wood, dwarf **cypresses** [...], and a kind of furze, blocks of marble and hard stones were scattered about in every direction, which seemed to contain minerals ; and I am much deceived, if I did not see some veins of silver [...] in strata of quartz. I had no instruments to break stones with, nor did I see any small fragments which I could with convenience place in my girdle. I was obliged therefore rather to leave this point unsettled, than to expose myself to the suspicion of coming into the country in search of precious metals. [...]

The scenery of this day has always been wild, and in some places most imposingly majestic ; especially from the side of the mountain where we halted. On every side the view is bounded by summits of mountains peaked, rounded, broken into ascending and descending lines, with abrupt ragged dips, and a few soft hollow sweeps, but all covered with snow. The declivities in some parts thickly covered with cedars and **cypresses** [...], in others thinly sprinkled, and in others diversified by bare patches of rock or sand.

Moorcroft 1818: 511.

September 23d. – After breakfast we set off accompanied by a farmer, who said that he thought it likely we should find wild hogs, bears, deer, and pheasants, if we would go up to the top of a high wooded mountain to the left, which formed part of the great *Túgasí* range. We ascended a steep ridge and passed through a forest of fir, cedar, and **cypress**, [...] with sycamore, horse-chesnut, walnut and yew trees, the latter are called *Túnér*. The cedars were of enormous size ; one measured 18 cubits in girth at 4 feet from the ground, and was about 180 feet high ; another that had fallen down was 159 feet in length: and trees of this size were not uncommon.

And here is the passage where Webb describes his contact with the cypresses.

Webb 1820: 64-65:

Of the route to Niti, and thence onward to the frontier, you already know enough from Moorcroft's *Narrative*.—You will observe—that in editing that account, Mr. Colebrooke doubts whether the forest trees called **cypress** and cedar were really observed, and it is probable that he was staggered by the enormous dimensions assigned to the cedar. I found, however, plenty of both, though the cedar is of dwarf size; and there is another species which I conclude to be the creeping cedar. The **cypress** appears to me to be the *Cupressus horizontalis*. The pines are the *Strobus*, (mistaken by Moorcroft for the *longifolia**, which I did not meet with once); the Deodar, (mistaken for the cedar, as no other tree is found of the dimensions quoted by Moorcroft,) and another species., the leaves of which are a good deal like the Yew, but I know not its botanical name. The berry-bearing Yew, is itself of very frequent occurrence.

* It is incumbent on me to say, that the error respecting *Pinus longifolia*, as well as that concerning *Pinus Deodar*, (if here likewise any mistake have arisen,) is my own; as Mr. Moorcroft had not furnished those botanical names. My surmise was founded on the knowledge, that both these species of *Pinus* are found in the contiguous but lower mountains or the same range; and the absence of any botanical information at that time, concerning the trees in question, (**cypresses** and cedars,) which Captain Webb's subsequent visit has now supplied. I presume his cedars are species of *Juniperus*. H.T.C.

Knowing that the type of *C. torulosa* is from northern Uttarakhand State is very important and useful information. Two new taxa (*C. karnaliensis*, *C. karnaliensis* subsp. *mustangensis*) were described by Silba from Nepal. New observations and analyses can now be made to confirm or not the validity of those taxa. The cypresses of Nepal were first acknowledged as *C. torulosa* by D. Don (1825) in his work on that country and then by Farjon. New research becomes possible (cf. Maerki 2020) now the type locality of *C. torulosa* has been accurately determined.

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Fig. 3: Recent view of Niti village. © [Himalayan Wings](#).





Fig. 4: *C. torulosa* in the Dhaulī River valley above Niti, the road being at c.3500 m. The slope with the cypresses faces north-east. In the background the cypresses are not present any more.

Photo of Fig. 4: © Dinesh Pundir. **Photos of Figs 5 & 6:** © Hemwant Rawat.

Fig. 5: *C. torulosa* in the Dhaulī River valley below Niti, from the road at some 3400 m. The trees are on the right slope of the river with an east-northeast aspect (left of the photo).





Fig. 6: Path to Paing village in the Niti valley in Chamoli district. Cypressess are on both sides of the valley, but very scattered on the most exposed slope.

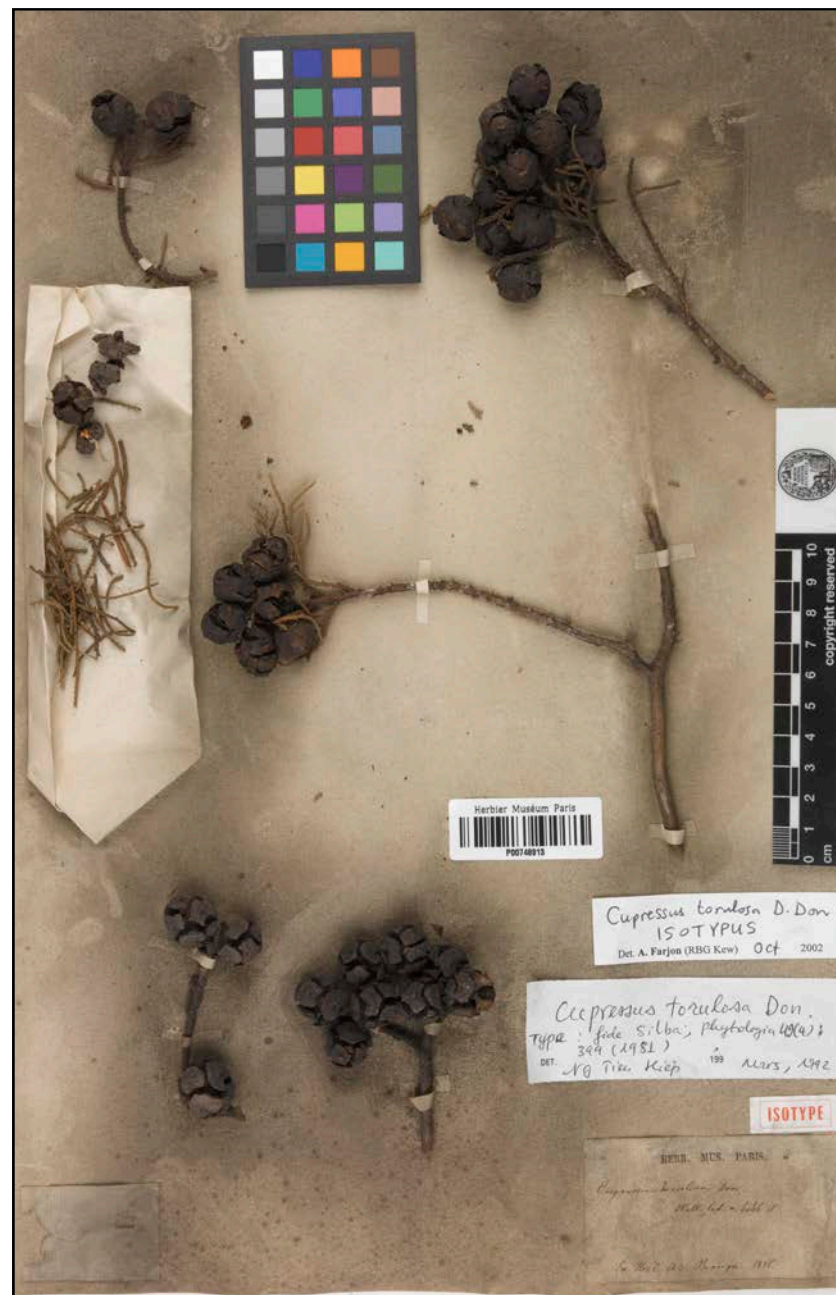


Fig. 7: Painting of Niti village in 1812 by Hearsey, during the expedition to Tibet with Moorcroft.



Fig. 8:
Lectotype of
C. torulosa
designated by
Franco (1968).
© Kew
Herbarium
([K000618039](#)).

Fig. 9:
Isolectotype of
C. torulosa.
© MNHN Paris
([P00748913](#)).



Appendix A: On Wallich 6046 collections.

There are three different collections by three different collectors under Wallich catalogue #6046 (see Fig. 2, p. 4). These collectors are:

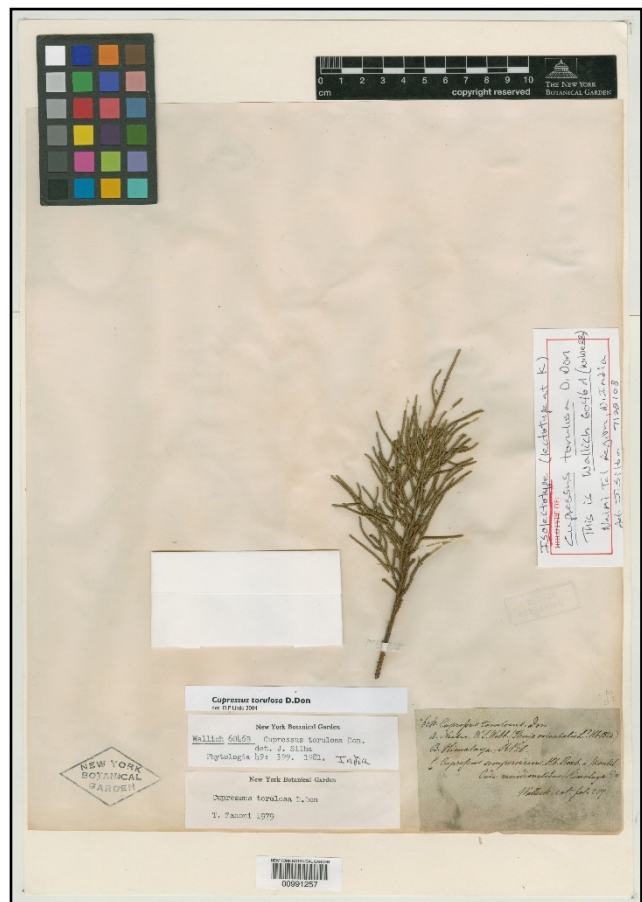
- *W.S.Webb 6046A*, 1818.06.12, Niti [“Neetee”], Uttarakhand, India; lectotype (see p. 3-11);
- *R.Blinkworth 6046B*, 1932.00.00, locality unknown;
- *W.Roxburgh 6046C*, date unknown, but before 1815; exact locality unknown; syntype.

When D.Don (1824) described *C. torulosa*, only 6046A and 6046C were available to him. For 6046A, Franco (1968) and Silba (1981) gave only Kew for the presence of Webb’s collection, while Farjon gave also the presence of an isoelectotype in Paris (see Figs 8 & 9, p. 11). There are two more isoelectotypes in Geneva (G) and New York (NY), although there may be some doubt about the NY specimen. Here are the two herbarium sheets (Figs 10 & 11).

Fig. 10: *W.S.Webb 6046A*, © CJB Geneva.
(No catalogue number yet.)
Isoelectotype.



Fig. 11: *W.S.Webb 6046A* (?), © New York.
([NY00991257](#)).
Isoelectotype (?)



On the NY herbarium sheet one typewritten label says 6046B (referencing Silba 1981: 399), while the catalogue entry and Silba (1991.08.21) acknowledge 6046A. The catalogue also does not give the collection date and indicates as the locality: Nainital, India, from Silba on his handwritten label. Although also in Uttarakhand, Nainital (1950 m, over headed by the China Peak 2630 m) comes from nowhere and is some 155 km from Niti on the first hills of the Himalaya. Furthermore, the sample is poor: a small shoot without cone compared to the lectotype and the other isoelectotypes, all with several cones. The presence in NY of another sheet 6046B is not evidence that the NY00991257 sheet is 6046A, as the R.Blinkworth material also exists as two sheets in Kew and in Geneva (see below Figs 13-14 & 19-20).

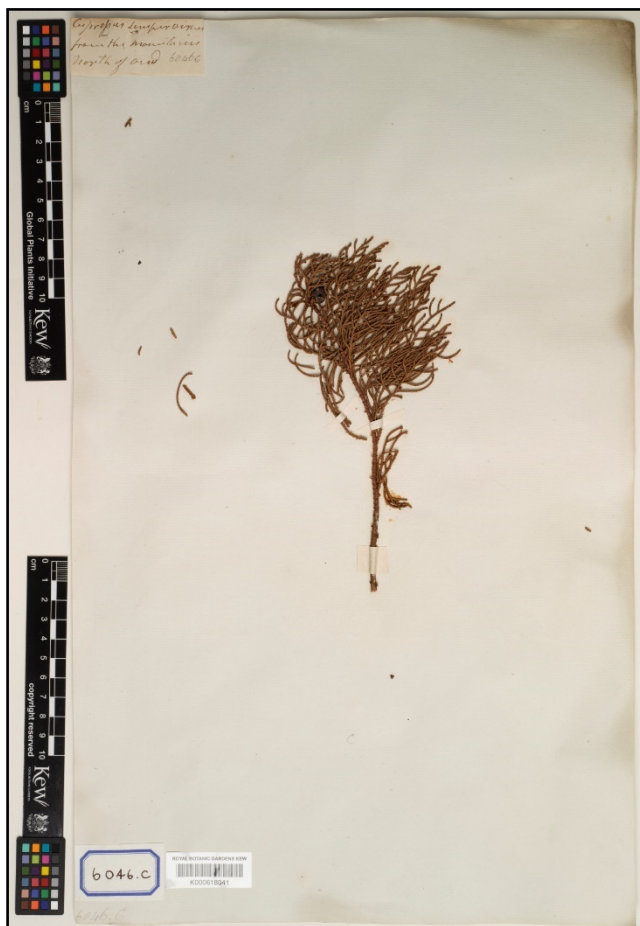


Fig. 12: *W. Roxburgh 6046C*, © Kew.
([K000618041](#)). Syntype.

Franco established the second collection mentioned by D. Don as a syntype: *W. Roxburgh 6046C*. Only two samples are known, one at Kew (K000618041 – cf. Fig. 12) and the second at Meise (BR0000013217914 – cf. Fig. 23, p. 15). The date is unknown and the information in Wallich's catalogue is confusing as the locality reads (cf. Fig. 2): “Montib. Oude meridionalibus (Himalaya?)”, which does not make sense, as Oude (or Oudh, a princely state south of Nepal before its annexion by the British in 1856) is a plain country with altitudes mostly below 200 m. The label on the herbarium sheet then must be correct: “from the mountains North of Oud”. This can mean either Nepal (an independent country) or Uttarakhand (partly under British control). Before D. Don's description, an identification as *C. sempervirens* is not surprising. The material consists of a small shoot with an immature cone. The Kew record does not mention the collector's name.

R. Blinkworth's collection listed under 6046B in 1832 is the most complete collection of *C. torulosa* in Wallich's catalogue with respectively two samples at Kew, two in Geneva, one in Paris (wrongly recorded as “isotype” following N.T. Hiep), one in London (BM), one in New York, one in Stockholm (cf. Figs 13 to 20) and one in Meise, Belgium (BR – Fig. 24, p. 15). The records at Kew mention the 1824 date which is nowhere to be found on any sheet's label.



Fig. 13:
R. Blinkworth
6046B,
© Kew
([K000618040](#))



Fig. 14:
R. Blinkworth
6046B,
© Kew
([K000088110](#))



Fig. 15: *R. Blinkworth* 6046B,
© MNHN Paris ([P00748914](#)).



Fig. 16: *R. Blinkworth* 6046B,
© NY Herbarium ([NY01104498](#)).

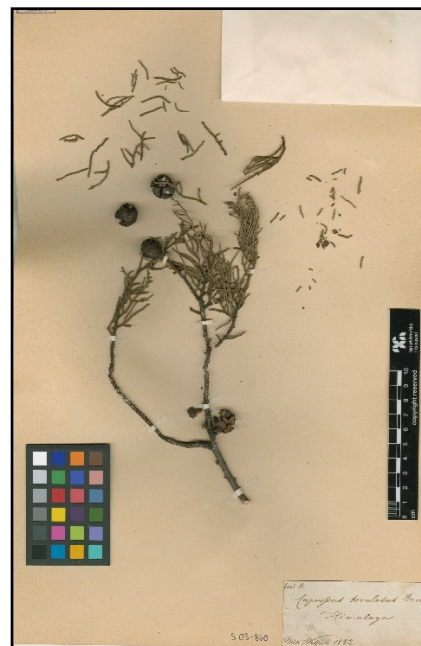


Fig. 17: *R. Blinkworth* 6046B,
© Stockholm Herbarium ([S03-860](#)).

Fig. 18: *R. Blinkworth* 6046B,
© BM Herbarium ([BM000949996](#))

Fig. 19: *R. Blinkworth* 6046B,
© CJB Geneva (no # yet).

Fig. 20: *R. Blinkworth* 6046B,
© CJB Geneva (no # yet).



Figs 21 & 22: Details of the cones on Fig. 20.





Fig. 23:
W. Roxburgh 6046C,
© Meise BG.
([BR0000013217914](https://br0000013217914)).
Isosyntype



Fig. 24:
R. Blinkworth
6046B,
© Meise BG.
([BR0000013217921](https://br0000013217921)).

On the sheet of Fig. 23, there is no reference to Wallich's catalogue and its number. But the original label is the same as the one in Kew: "*Cupressus sempervirens* from the mountains N. of Oud." The cones have then same degree of immaturity, so that it is possible to conclude that this material is another W. Roxburgh 6046C. This series of herbarium sheets from Wallich's catalogue number 6046 presented here does not pretend at exhaustivity as there are still

several herbaria where the collections are not yet available online or not completely digitalised, the best example being the G herbarium which hosts no less than three #6046 specimens and among them a third isoelectotype.

Appendix B: Supplementary evidence for the local names of *C. torulosa*.

Searching for references of the local names of *C. torulosa*, a lot of evidence is found in some of the classic works on conifers or cypresses.

Gordon's *Pinetum* is one of the first monographs (after Lambert's) on conifers and the author wrote in his supplement (1862: 26-27) about *C. torulosa*:

This tree is called "Gulla," "Gulrai," and "Kullain" by the mountainers about Simla [Himachal Pradesh], all variations in their vernacular for Divine Tree, and according to Royle, is called "Shuj-rur-ulhueyut" (tree of life), and that its berries and branchlets are said to be a cure for all diseases, but that the profanation of its divine timber by any one to a useful purpose of economy would be sure to bring down upon the individual sudden death. [...] The Bhotiyas also hold it sacred, and call it "Surroo," or "Soorah-vyu" (name divine), while on the other hand the people of Kumaon, who seem to look more to temporal than spiritual things, do not appear to hold this Cypress in much religious veneration, but, on the contrary, use its timber freely in their house building, where it is considered very durable, but too flexible for any position where it has to sustain a heavy weight.

Then there is the information provided by A. Camus on the local names, quoting Carrière (1867: 153) quoting Gordon and adding some new sources:

Noms vulg. [local names]: [...] *Gulla*, *Gulrai*, *Kallain* (SIMLA); *Leauri* (JAUNSAAR); *Raisalla* (NAINI TAL); *Sarai* (KUMAON); *Devi diar* (RAVI); *Galla* (SUTLEY); *Deodar*, *Surai*, *Raisal* (GARHWAL, KUMAON, INDE, d'ap. BRANDIS); *Surroo*, *Surin* (INDE d'ap. JAMESON); *Soorahvyh* (d'ap. CARRIÈRE); *Sarru*, *Surah vyu* (TIBET d'après WATT).

Thus, the different spellings of "Sooreh" were known already in the second half of the 19th century thanks to Gordon.

Another report by H. Stacey (1848: 105) from a journey through Kumaon in 1846 mentions:

Cypress (*Cupressus torulosa*), by the Khasias called *Saro*, by the Bhôteas *Tangshin*, a name which in other districts I understand they apply indiscriminately to any tree of the Fir or Pine species.

In the “Catalogo sistematico delle specie e varietà nel bosco sperimentale di Moncioni”, Gaeta (1892: 171) followed Gordon for the local names: “Surroo o Soorahwty nome di une Divinità indiana.”

Supplementary bibliography for Appendix B:

Gaeta, G. (1892). Conifere. *Bull. Reale Soc. Tosc. Ort.* Serie 2.a, 7(6): 167-174.

Camus, A. (1914). *Les cyprès (genre Cupressus) : monographie systématique, anatomie, culture, principaux usages*. Lechevalier, Paris, France.

Strachey, H. (1848). Narrative of a Journey to Cho Lagan (Râkas Tal), Cho Mapan (Mánasarówar), and the valley of Pruang in Gnari, Húndés, in September and October 1846. *J. Asiat. Soc. Bengal*. 19: 98-120.

Gordon, (1862). *A supplement to the Gordon's pinetum*. Bohn, London, UK.

Appendix C: *Cupressus lusitanica* specimens misidentified as *C. torulosa*.

In the herbarium of the Meise Botanic Garden are several specimens listed under *C. torulosa*. Some of them were collected in Tropical Africa, where no *Cupressus* species grows wild. Two of these cultivated plants were identified as *C. torulosa* by Farjon (1989.04.13). They are typical *C. lusitanica*. The cones on Fig. 25 have scales opening widely at maturity, long mucros and short pollen cones, all details which do not fit *C. torulosa*. The sample of Fig. 26 was collected soon after pollination and the seed cones are still undeveloped, but again showing fewer scales and with large mucros. In both specimens the foliage pattern also does not correspond to the Asiatic cypress. The correct identifications are confirmed by M.P. Frankis.

Fig. 25: F. Malaisse 12735, Malawi, 1984.04.05.

© Meise BG ([BR00000020265151](https://br00000020265151)).

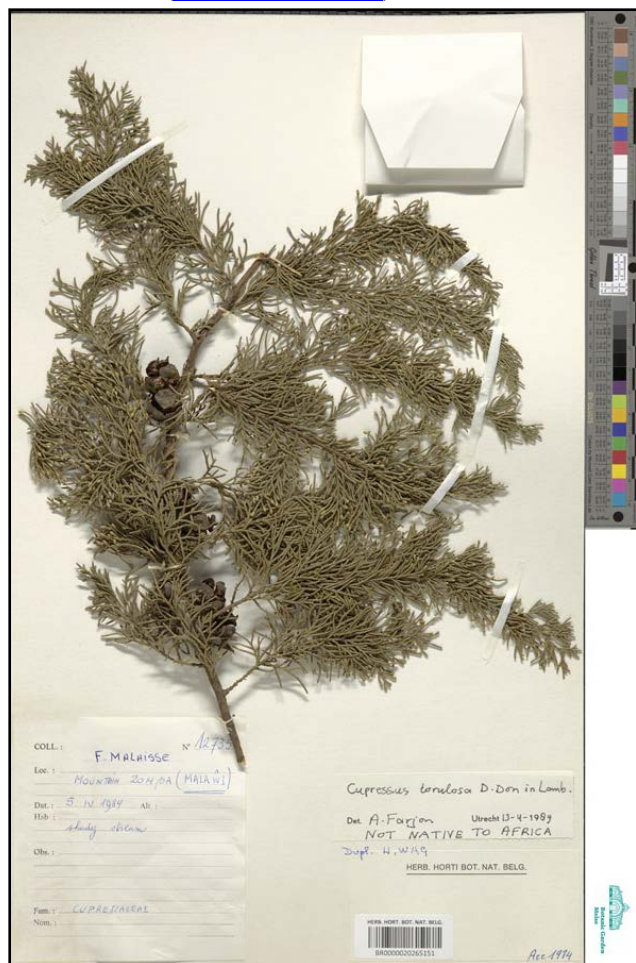
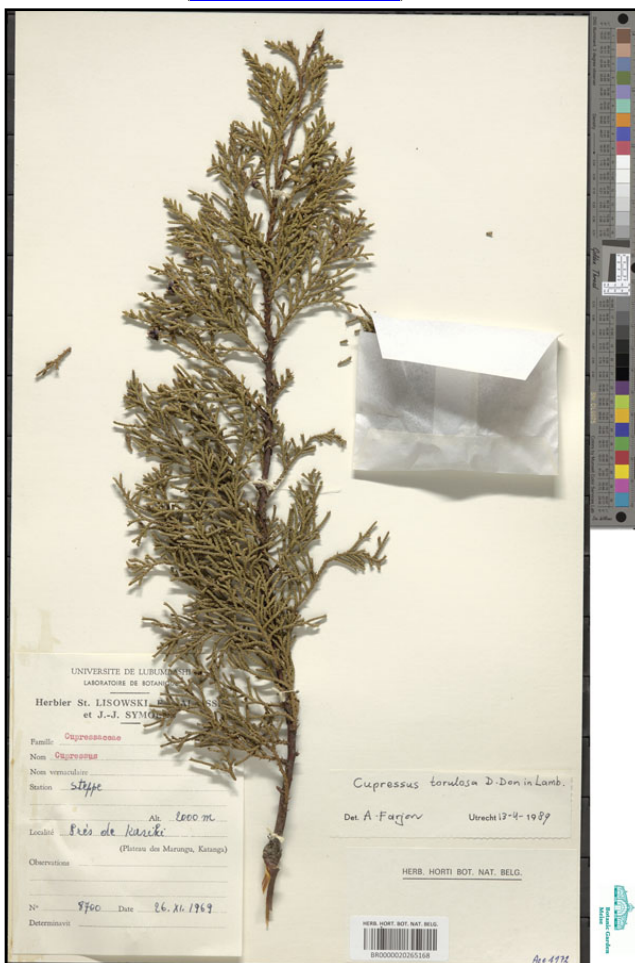


Fig. 26: S. Lisowski, F. Malaisse F. & J. Symoens 8700, Kasiki, Katanga, DR Congo, 1969.11.26.

© Meise BG ([BR00000020265168](https://br00000020265168)).



Cupressus torulosa in Uttarakhand, India – Photo gallery

Uttarakhand, India. All photos © [Francesco Pettinà](#).

Fig. 1: Sacred grove above Wan village (see details p. 18). **Fig. 2:** Seed cones are visible on the foliage.



Figs 1 to 14 (p. 17-25): Most photos were taken above Wan village, Dunda Tehsil of Uttarkashi District, Kumaon Division in Uttarakhand State, India; especially they represent a sacred grove of majestic *C. torulosa* surrounding [Lathu Maharaj](#); the trees are visible on satellite images at: 30°12'27.40"N, 79°36'58.97"E; altitude: 2500 m.

Fig. 3: Sacred grove of *C. torulosa*.

Fig. 4: Towering trunk with light brown bark.



Fig. 5: Estimated height of some trees: 50 m. They could easily be 500-600 years old.

Fig. 6: Estimated girth of some specimens from 7 to 10.5 m at 1.3 m.



Fig. 7: The foliage is shade intolerant; the first branches can be several metres high inside a grove.



Fig. 8: View on one slope of the Wan valley; the altitude of the cypress stands is about 2700-2800 m, and they reach almost 3000 m.

Fig. 9: Massive trunk of *C. torulosa*.

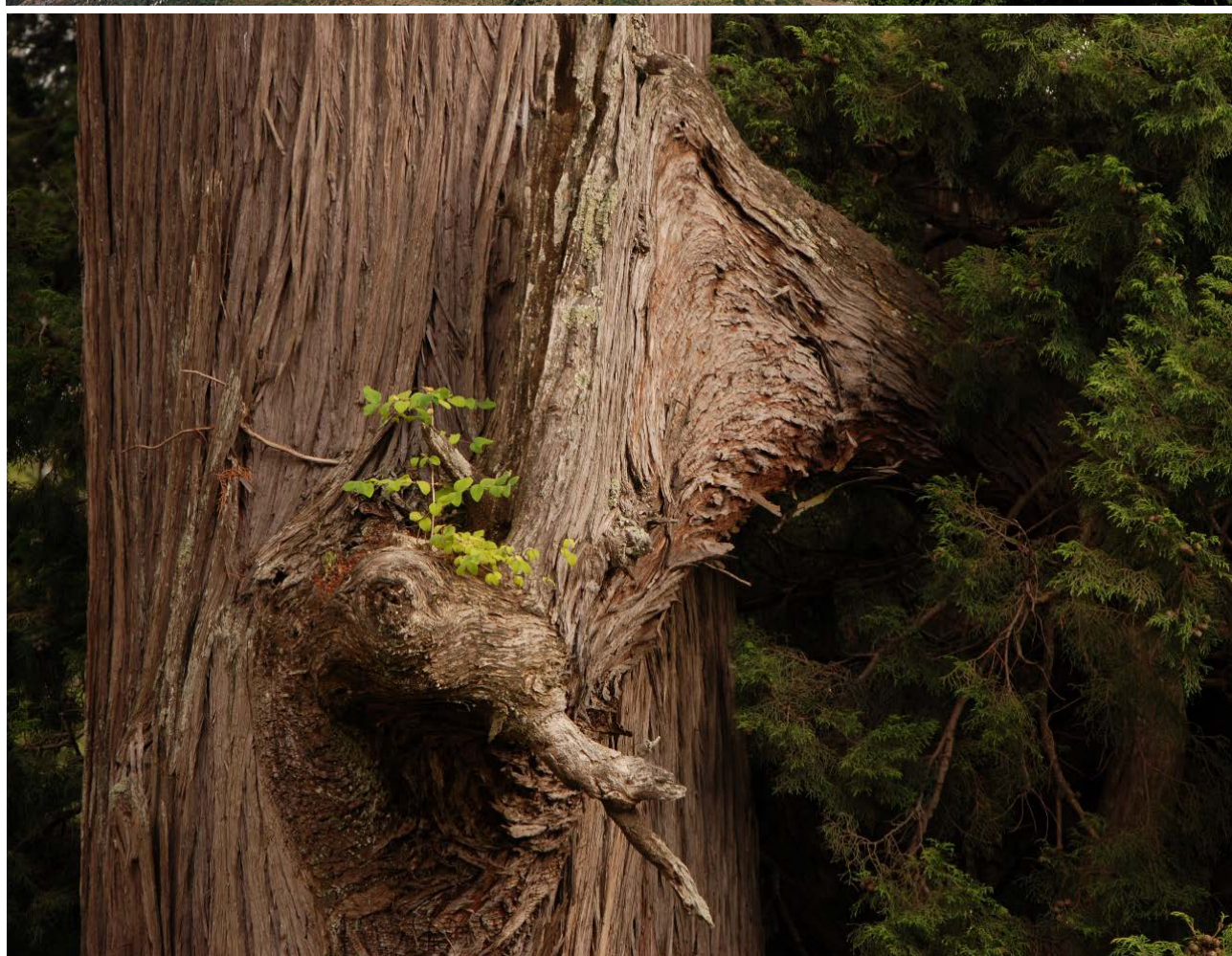


Fig. 10: Another view of this sacred grove.



Fig. 11: Massive light grey trunk.



Fig. 12: See Fig. 11 for the base of the trunk.



Fig. 13: View from inside the sacred grove of *C. torulosa*.



Fig. 14: Another impressive trunk.



Figs 15 to 17: *C. torulosa*, two trees in Urgam village, Joshimath Tehsil of Chamoli District, Kumaon Division in Uttarakhand State, India; it is situated in a secondary valley of the Alaknanda river; altitude ~2000 m; ~30°32'4.26"N, 79°27'40.95"E. **Fig. 15:** One of the big trees growing on the right side of the valley. **Fig. 16 (bottom):** This right side of the valley has a less steep slope with more villages than the left side where the small village of Bheta Chak Urgam is visible in the background on the left of the cypress. **Fig. 17 (p. 27):** Note the different crown shapes of the different trees.





Fig. 18: In Uttarakhand, like in Bhutan or Sichuan and other places, sacred cypresses overhang the village.



Cupressus torulosa, Nepal – Photo gallery

One year after his description of *Cupressus torulosa*, D. Don (1825) published his monograph on the flora of Nepal and thus extended the distribution of this species to that country. The type material was collected in Uttarakhand in India, a region controlled by the British. In 1994, Silba described a new species from Central Nepal: *C. karnaliensis*. The data provided, based solely on herbarium sheets, are insufficient to carry conviction. Most cultivated Himalayan Cupresses do not have any trace of their origin, and no systematic analysis exists comparing the different origins of that species, the way it is currently circumscribed. Thus, further studies (on morphology, phenology, physiology, DNA) are necessary to confirm or to discard a separate taxon.

Cover photo & Fig. 1: Relict population in the Kali Gandaki valley in Mustang (Central Nepal). This grove shows no regeneration, all trees having the same age. These trees are considered as sacred and every one of them has been named individually. They are thus protected and it is forbidden to cut foliage, branches or bark, contrary to what happens to *Juniperus* species or other cypresses heavily exploited for animal feeding and fire (see p. 32-35).

The cover photo allows to estimate the height of the tree to about 23 m, and the diameter at 1 m to ~1.34 m.

Figs 2 & 3 (p. 29): Views of the Kali Gandaki valley (Mustang, Central Nepal) with many *C. torulosa* trees on the shores of the river at Kokhethanti, Nepal; 2016.03.07. Geo-coordinates: [28° 40' 18.55" N, 83° 35' 44.14" E](#).

On the original photos, light coloured cones are visible on the foreground trees.

Fig. 2 points upstream, while Fig. 3 points downstream the Kali Gandaki. © [Anuja Sharma](#)

Fig. 1: Sacred grove of *C. torulosa*. © J.-P. Charpentier.





Figs 2 & 3: Views of the Kali Gandaki river with *C. torulosa*.



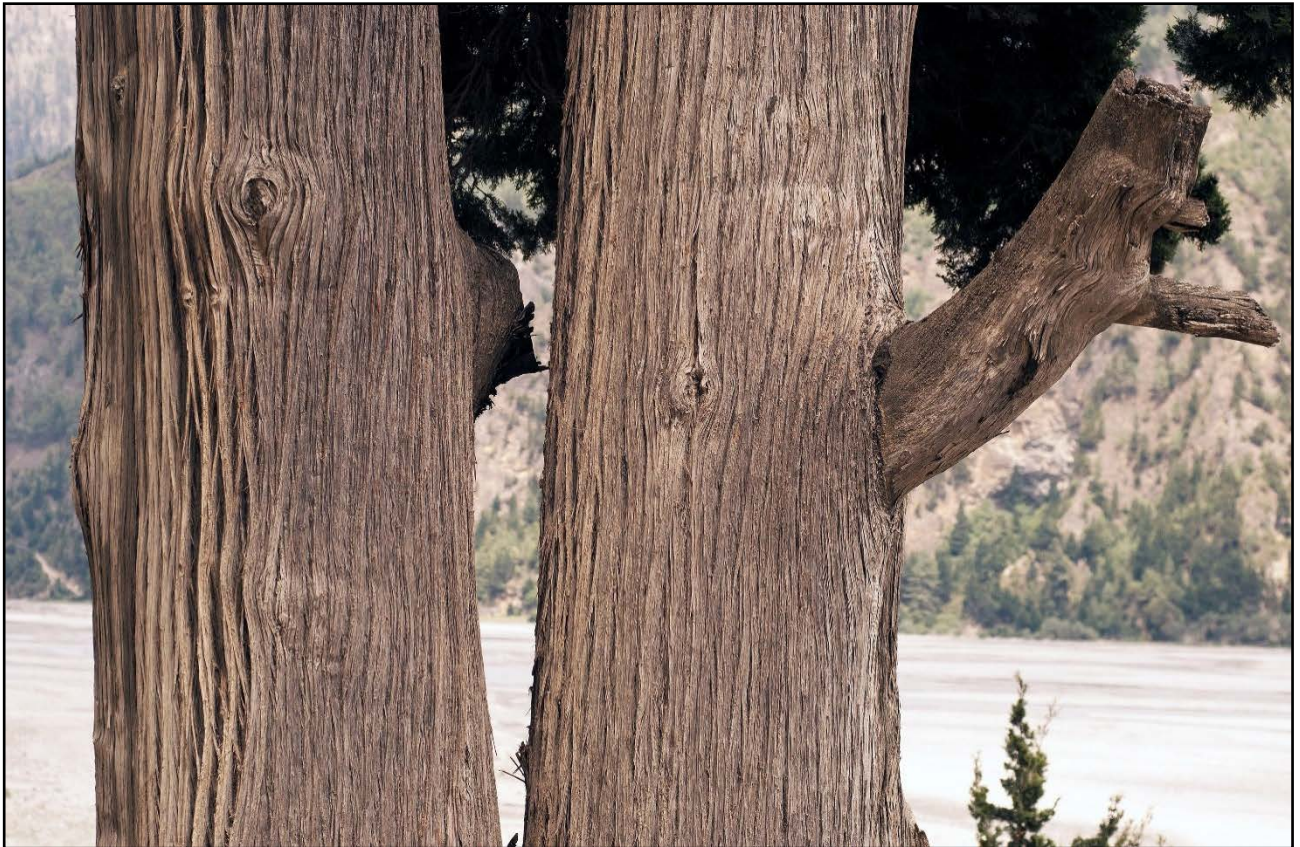


Fig. 4: Trunks of Himalayan Cypress, *C. torulosa*, in Kali Gandaki valley, near Larjung, Mustang, Central Nepal. 2007.05.17. © [Kaj Halberg](#).

Fig. 5: Seed cones of *C. torulosa* collected in the Kali Gandaki valley by A. Golinelli. Scale: 1x.

Fig. 6: Same cones as the ones on Fig. 5, second row, viewed from another side. Scale: ~2.1x.

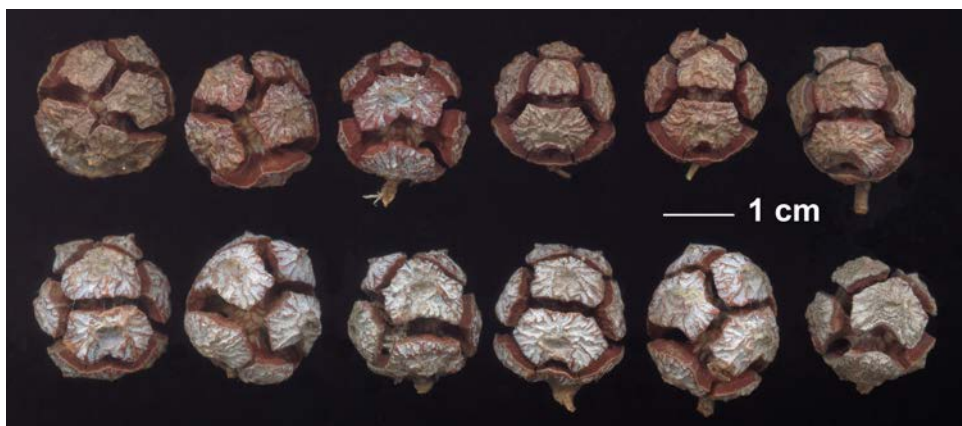


Fig. 7: Cones of *C. torulosa* from the Pallanza tree (cf. p. 39-43). The seed cones of the second row are still displaying their wax coating. Scale: 1x.

Scans: © CCP.

Cupressaceae in the Kali Gandaki valley, Nepal – Photo gallery

Fig. 1: Old specimen of *Juniperus indica* growing between 3000 and 3500 m on the western slopes of the Kali Gandaki river, Mustang, Nepal.





Figs 2 & 3: *J. indica*, twisted trunks and branches as a result of man exploitation for fire and for food for animals.





Fig. 4: *J. indica* - Heavily mutilated tree. Notice the stump on the right foreground.



Fig. 5: *Cupressus torulosa* with the foliage of an angiosperm shrub at the right. Above Jomson in the Kali Gandaki valley, Nepal. June 2000.

Fig. 6 (p. 35): Same tree as Fig. 5. This tree with its unusual shape was also massively exploited by the inhabitants of the valley.

In Morocco, the cypresses are also used for many purposes like wood for building and foliage for animal food. The trees are trimmed and shaped according to these goals (see Maerki, D. & T. Lamant (2014). *Cupressus atlantica*, a critically endangered species, a trip report. *Bull. Cupressus Conservation Proj.* 3: 78-96.)

Photo credits:

Figs 1-4: © J.-P. Charpentier

Figs 5 & 6: © C. Basset.



Juniperus recurva in eastern Nepal – Photo gallery

Fig. 1: An old *J. recurva*, above Ghunsa, Ghunsa valley, E Nepal. The flowers are *Primula strumosa*.





Fig. 2: An old *Juniperus recurva* above with a massive trunk in a rain forest, Ghunsa, Ghunsa Valley, E Nepal; ~3000 m. In the background are shrubs of *Rhododendron campanulatum*. The size of the trunk is given by the man standing at its side.
Figs 1 & 2: 2013.05.16.

Fig. 4 (p. 38): Old, moss-covered *Juniperus recurva*, Pole, Ghunsa Valley, E Nepal. 2013.05.17

All photos © [Kaj Halberg](#).

Fig. 3 (below): Forest of *Juniperus recurva*, with *Betula utilis*, and on the forest floor a species of primrose, *Primula strumosa*, between Kambachen and Ghunsa, Ghunsa Valley, E Nepal. 2013.05.15.





The fall of a large *Cupressus torulosa* in Italy

On 12 August 2019, a tornado hit the shores of the Lago Maggiore at Pallanza in northern Italy and again a majestic, more than one century old cypress was uprooted. Already in 2006 the giant *Cupressus tortulosa* of Isola Madre on the same lake was brought down by a similar meteorological event, but fortunately could be brought back to position and secured with cables. This was not the fate of the Pallanza tree. Here are a few photos of this beautiful tree when it was still standing on the shore of the lake.



Fig. 1: *C. torulosa*, Pallanza, Italy. 2007.11.04.



Fig. 2: Typical fibrous bark of a mature *C. torulosa*. 2007.11.04.

Fig. 3: Although it resisted winds for more than a century, the pavement around the trunk likely limited the growth of the roots to anchor firmly this cypress in the soil. 2007.11.04.





Fig. 4: This tree produced a heavy crop of cones and fertile seeds every year. 2007.11.03.



Fig. 5: Surroundings of the tree showing the limited place for the roots, reducing their anchor. 2007.11.03.

Fig. 6: On several *C. torulosa* it is possible to observe such lateral branches taking an ascending growth on the side of the main crown. 2007.11.04.





Fig. 7: Still image of the dramatic fall of the tree, filmed during the tornado (2109.08.12). The author of the video is unknown. The original video is available [here](#) or [here at a reduced size](#). © VCO Azzurra TV

Fig. 8 & 9: The top of the tree was broken during the fall (8). Uprooted tree laying on the soil (9). Still images of the video recorded the next day. The author is unknown. The original video is available [here](#) or [here at a reduced size](#). © Tripilare Travel from home



Abies bracteata A trip report

On October 29, 2019, I visited Cone Peak, in Monterey County which rises directly above the Pacific Ocean to a height of 1,571 m (5,153 feet) above sea level, the highest point in California on the immediate coastline. The area contains some of the most extensive stands of the rare Santa Lucia Fir (*Abies bracteata*). These may be accessed by taking Nacimiento-Fergusson road, east from California Highway 1. When you reach the summit, turn north on Forest Route 22S05, making your way up the ridge through groves of *Sequoia sempervirens*, *Pinus coulteri*, and *Pinus sabineana* for about 8 km (5 miles) until you reach the trailhead (cf. Map 1, p. 51). The 2 mile trail to the summit offers sweeping views of the Pacific Ocean, 1,500 m (5,000 feet) below to the west. The trail climbs up the southwest side of the mountain, which is mostly brush covered, after several fires have swept over the mountain. The fir trees are not seen until nearly reaching the summit, growing mostly on steep, rocky, north facing slopes, which for the most part have been spared from fires. In the last fire to affect the mountain, only a few trees on the edges of the stand were burned. Cone Peak also contains the only population of *Pinus lambertiana* in the central Coast Range of California. For those who are not up to making the 3.2 km (2 mile) climb to the top of the mountain, a nice population can be seen by continuing another mile to the end of Forest Route 22S05. A short trail leads you through a beautiful stand of *Abies bracteata* and *Pinus lambertiana*, on the north side of Cone Peak. Several years of drought from 2012-2016 caused many of the trees to die. The winter of 2016-2017 brought near record rainfall to the area, followed by another wet winter in 2018-2019, which seems to have stopped the mortality for the time being. However 2019-2020 is wrapping up to be another year of considerably below normal precipitation. With rising global temperatures, causing the forest to dry earlier in the summer season, it remains to be seen how future fires will affect these amazing trees.

Fig. 1: Southwest side of Cone Peak, seen from the Cone Peak trail.





Fig. 2: One of the few trees growing on the west side of the mountain.

Fig. 3: Looking south along the Pacific Ocean

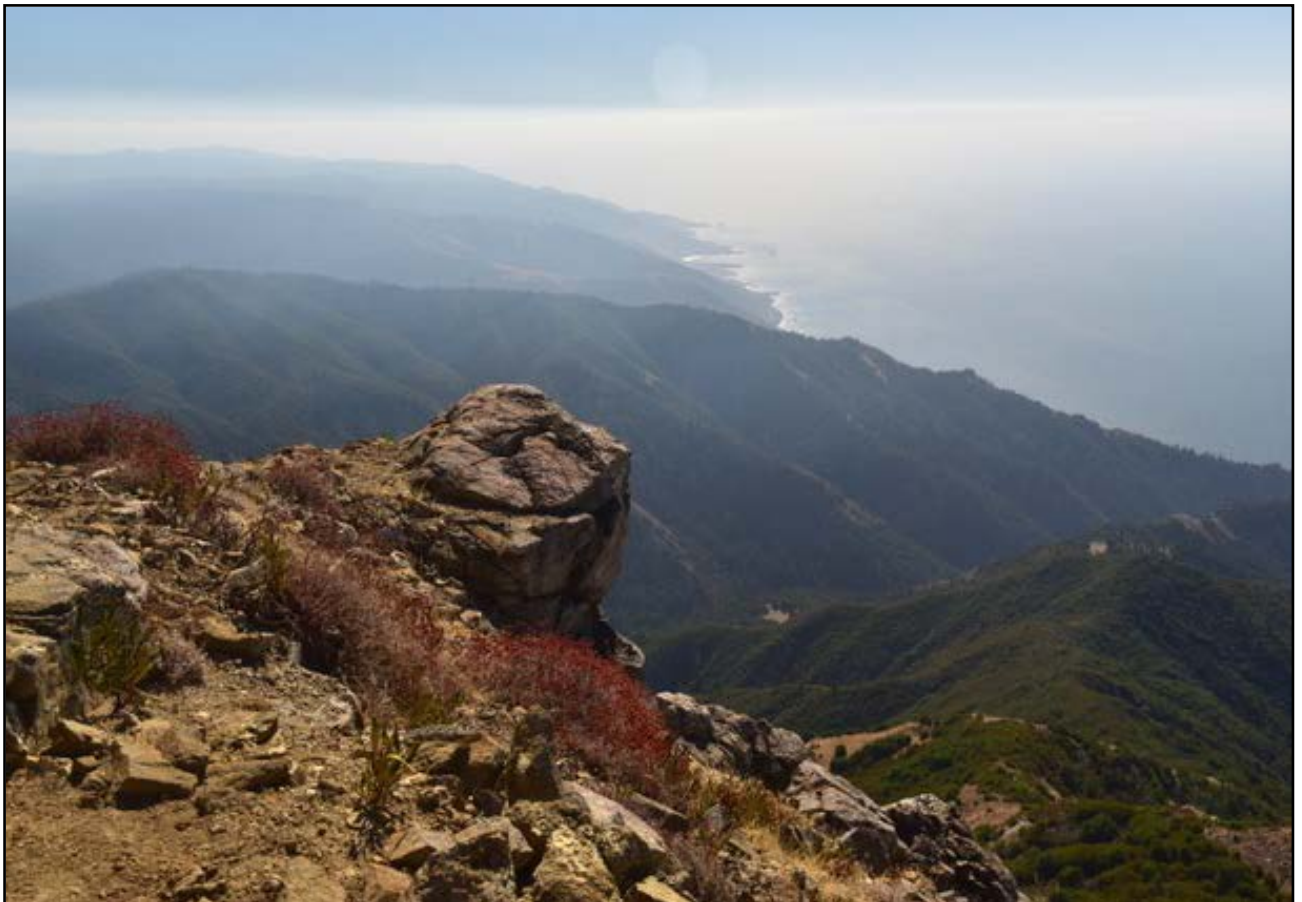




Fig. 4: From the top of Cone Peak, looking north through stands of *Abies bracteata*.

Fig. 5: Dito.





Fig. 6: Contrast between north and south facing slopes. North slope containing mixed forest of *Pinus lambertiana* and *Abies bracteata*.

Fig. 7: Rocky slopes of Cone Peak which provide some Protection from wildfires.



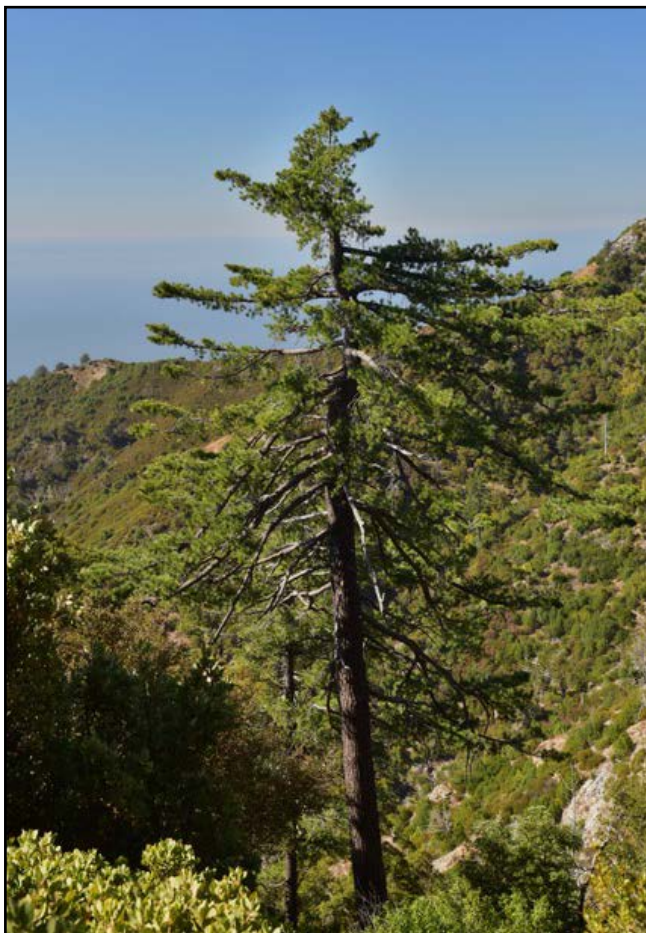


Fig. 8: *Pinus lambertiana*.

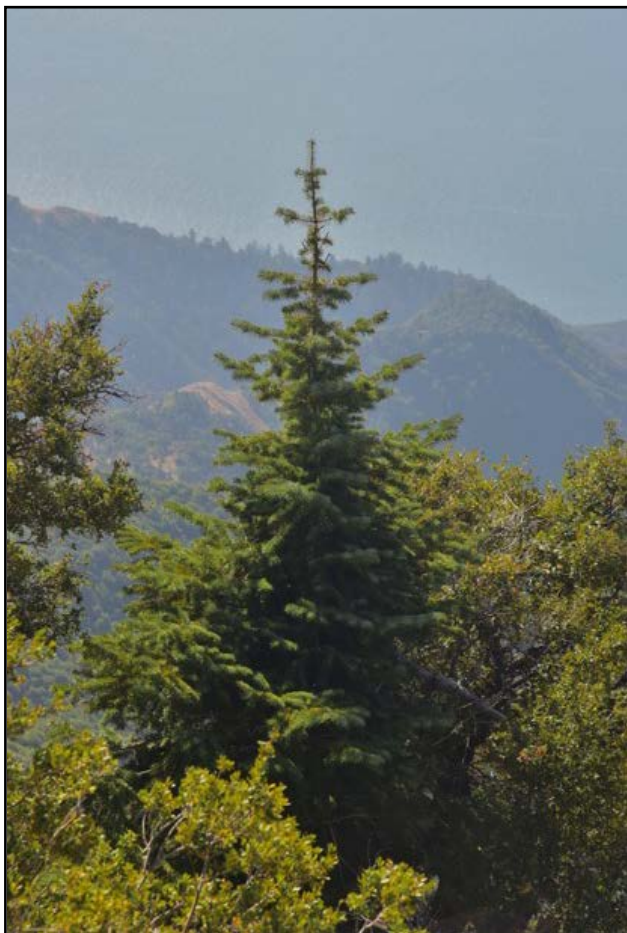


Fig. 9: *Abies bracteata*.

Fig. 10: Tree top full of cones.

Fig. 11: *Abies bracteata* below steep north face of Cone Pk.





Fig. 12-18: *Abies bracteata* with different crown shapes
Fig. 14.

Fig. 13.
Fig. 15.





Fig. 16.
Fig. 18.



Fig. 17.

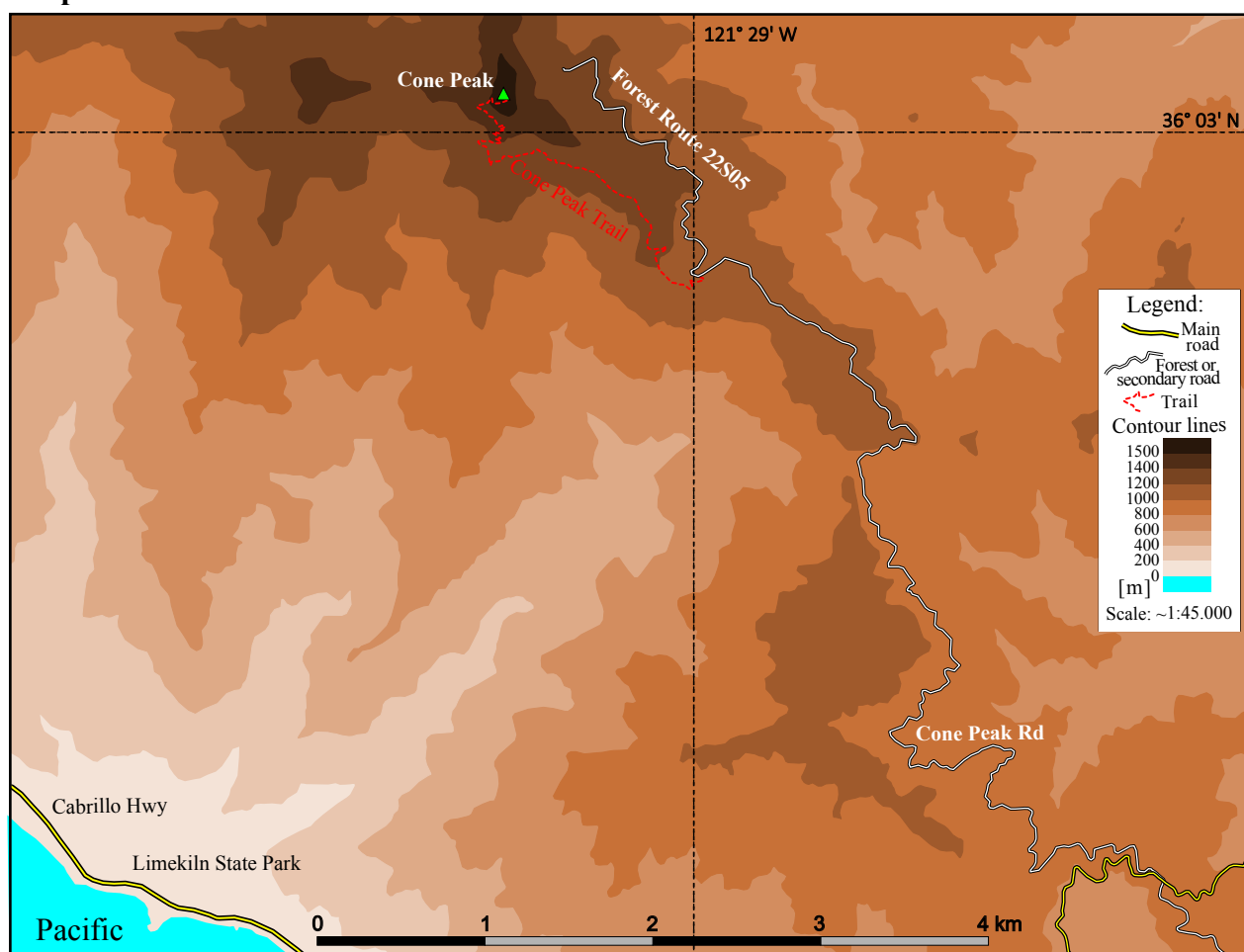
Fig. 19 below: One of the tallest *Abies*
bracteata, which can be seen a very short walk from the end of Forest Route 22S05.





Fig. 20: Top of Cone Peak, looking northwest with the Ocean in the background.

Map 1: Access to Cone Peak 1571 m above the Pacific.



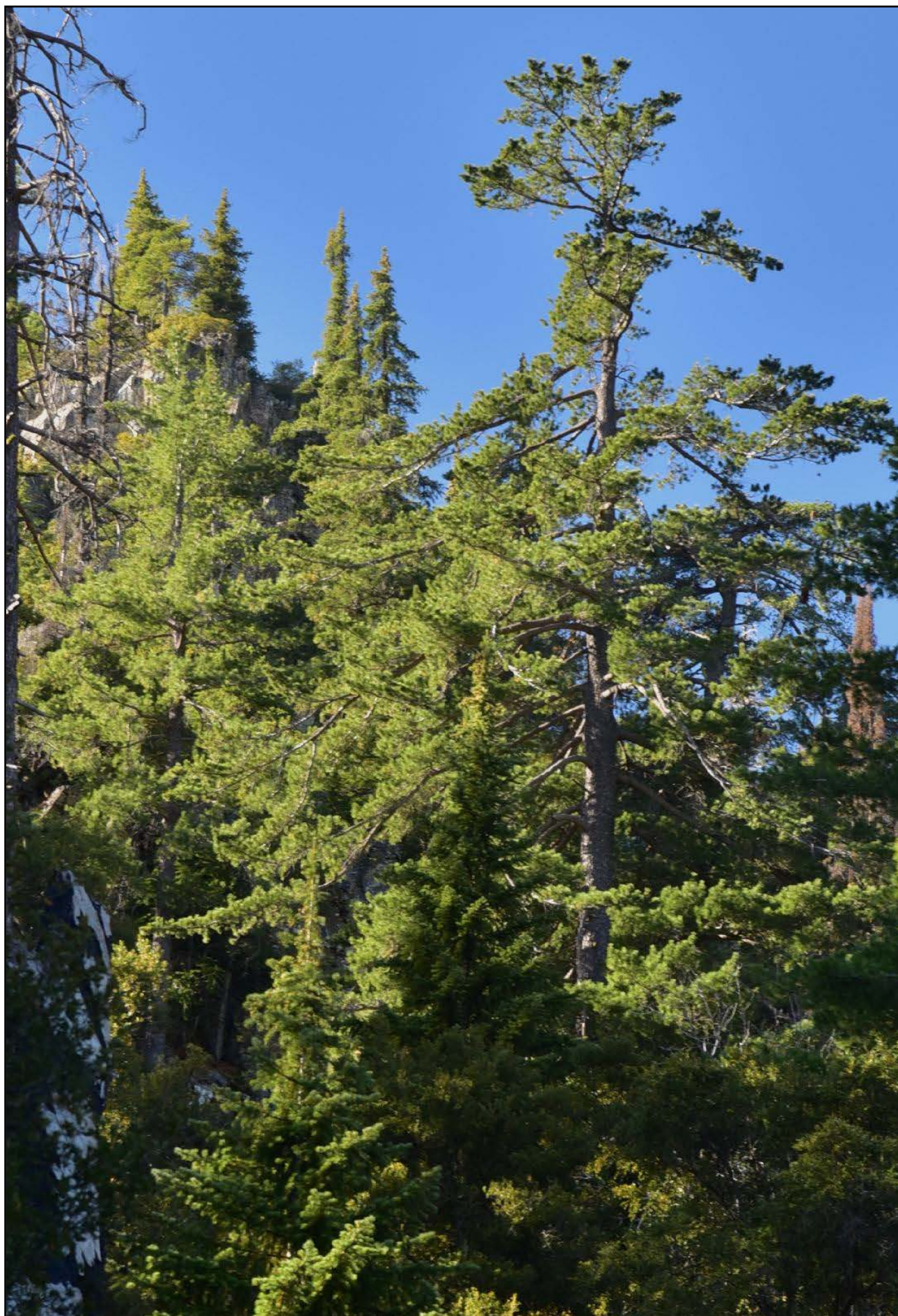


Fig. 21: *Pinus lambertiana* surrounded by *Abies bracteata*.