



## **Pinaceae Lindl.**

*Abies* Mill.

*Cathaya* Chun & Kuang

*Cedrus* Trew

*Keteleeria* Carrière

*Larix* Mill.

*Nothotsuga* H.H.Hu ex C.N.Page

*Picea* Mill.

*Pinus* L.

*Pseudolarix* Gordon

*Pseudotsuga* Carrière

*Tsuga* (Endl.) Carrière

### **VEGETATIVE KEY TO SPECIES IN CULTIVATION**

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(29 July 2015 - 29 January 2016)

## Vegetative identification key.

### Introduction:

This key is based on vegetative characteristics, and therefore also of use when cones are absent.

- Use a 10x hand lens to evaluate stomata, bud, leaf scar, leaf apex and pubescence in general.
- Look at the entire plant and especially the most healthy shoots.  
Young specimens, shade, coning, top crown and strong shoots give an atypical view.
- Beware of hybridisation, especially with plants raised from seed other than wild origin.

Taxa treated in this key: see page 5.

Names referred to synonymy: see page 5.

Misapplied names: see page 5.

### References:

- JDL herbarium
- living specimens, in various arboreta, botanic gardens and collections
- literature:

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### Acknowledgments:

I am particularly grateful to Wolfgang Bopp, Koen Camelbeke, Dan Crowley, Dirk De Meyere, Tom Hudson, David Jewell, Dan Luscombe, Joke Ossaer and Paul Reader for extra help with constructive comments and specimens.  
Also thanks to the responsible persons of various arboreta, botanic gardens and collections where I could collect herbarium specimens since 1982.

**My explicit thanks for support goes to Arboretum Wespelaar, Bedgebury National Pinetum, Ghent University Botanical Garden, Hillier Gardens and Arboretum, Plantentuin Meise, Royal Botanic Garden Kew/Wakehurst Place and Westonbirt National Arboretum.**

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<http://www.plantentuin.ugent.be>

<http://www.arboretumwespelaar.be/EN>

## KEY TO GENERA

- 01 a Needle base(s) surrounded by a sheath (sometimes caducous, evaluate young growth).  
Needles in fascicles per (1-)2, 3 or 5 (-8). ..... → [key to the genus PINUS](#)
- b Needle base without sheath. Needles solitary or in pseudo-whorls of many needles. .... 02
- 02 a Plant deciduous. .... 03
- b Plant evergreen. .... 04
- 03 a Short shoot length 5-35 mm. Needle 30-60 mm long AND 2-3 mm wide.  
genus *Pseudolarix* ..... *P. amabilis*
- b Short shoot length ≤15 mm. Needle shorter AND/OR +/- 1 mm wide.  
..... forthcoming key to genus *Larix*
- 04 a Shoots strongly dimorphic: long shoots with needles spirally and remotely arranged,  
short shoots with (15-)20-45 needles in pseudo-whorls. .... genus *Cedrus*: see page 3
- b Shoots monomorphic or weakly dimorphic, with needles spirally arranged on long  
shoots. .... 05
- 05 a Leaf scar disk-like (10× LENS). .... 06
- b Leaf scar not disk-like, a pulvinus remaining on the shoot after abscission of the leaf  
(10× LENS). .... 08
- 06 a Leading shoot end bud predominantly with secondary buds. Needle rows with needles of  
clearly different length. .... → [key to the genus ABIES](#)
- b Leading shoot end bud predominantly solitary (secondary buds lower along shoot).  
Needles +/- equal-sized. .... 07
- 07 a Needle US midvein raised (10× LENS). .... genus *Keteleeria*: see page 3
- b Needle US midvein grooved (10× LENS). .... genus *Pseudotsuga*: see page 3
- 08 a Shoot with pulvini strongly developed. .... → [key to the genus PICEA](#)
- b Shoot with pulvini weakly developed. .... 09
- 09 a Shoot glabrous AND needle Ø flat AND stomatal lines present on both surfaces.  
genus *Nothotsuga* ..... *N. longibracteata*
- b Not this combination. .... 10
- 10 a End bud 5-8 mm. Needles Ø flat AND spirally arranged. genus *Cathaya* .... *C. argyrophylla*
- b End bud predominantly ≤3 mm. Needles Ø flattened and +/- pectinate, OR Ø +/- thick and  
spirally crowded around shoot. .... genus *Tsuga*: see page 4

genus *Cedrus*

- 01 a Short shoot needle length 20-45 mm. .... *C. deodara*  
b Short shoot needle length 5-25(-30) mm. .... 02
- 02 a Short shoot needles (20-)35-45/pseudo-whorl. Needle at apex with a long hyaline tip (10× LENS). .... *C. atlantica*  
b Short shoot needles 10-35/pseudo-whorl. Needle at apex with a short hyaline tip (10× LENS). .... *C. libani*  
- Short shoot needles rather numerous: 20-35/pseudo-whorl. .... *C. libani* var. *libani*  
- Short shoot needles rather scarce: 10-20(-25)/pseudo-whorl. .... *C. libani* var. *brevifolia*

genus *Keteleeria*

- 01 a Needle length ≤40 mm. .... *K. fortunei*  
b Needle length at least in part of the foliage 40-80 mm. .... 02
- 02 a Shoot pubescent, needle US without stomata lines near midrib (10× LENS!!!).  
..... *K. davidiana*  
b Shoot glabrous or weakly pubescent, needle US with a few (interrupted) stomata lines near midrib (10× LENS!!!). .... *K. evelyniana*

genus *Pseudotsuga*

- 01 a Needle apex always obtuse to acute (10× LENS!!!). .... 02  
b Needle apex at least in part of the foliage slightly to clearly emarginate (10× LENS!!!). . 03
- 02 a Needle apex predominantly acute (10× LENS). .... *P. macrocarpa*  
b Needle apex predominantly obtuse (10× LENS). .... *P. menziesii*  
- Bruised foliage emits remarkably fruity scent. .... *P. menziesii* var. *menziesii*  
- Bruised foliage emits no or faint scent. .... *P. menziesii* var. *glauca*
- 03 a Needle length up to 50 mm. .... *P. forrestii*  
b Needle length ≤35 mm. .... 04
- 04 a Shoot glabrous (10× LENS!!!). .... *P. japonica*  
b Shoot at least in part of the foliage pubescent in the grooves (10× LENS!!!). ... *P. sinensis*

genus *Tsuga*

- 01 a Needle with stomata on both sides. .... ***T. mertensiana***  
     - Short shoots apparent. .... ***T. mertensiana* var. *mertensiana***  
     - Short shoots less distinct. .... ***T. mertensiana* var. *jeffreyi***  
     b Needle with stomata on LS. .... 02
- 02 a Needle apex often emarginate (10× LENS). .... 03  
     b Needle apex obtuse to rounded or acute, not or rarely emarginate (10× LENS). .... 05
- 03 a Shoot pale yellowish/greyish-brown. Needle length 10-35 mm. .... ***T. chinensis***  
     b Shoot orange-brown. Needle length predominantly ≤18 mm. .... 04
- 04 a Shoot clearly pubescent (10× LENS). .... ***T. diversifolia***  
     b Shoot predominantly glabrous (10× LENS). .... ***T. sieboldii***
- 05 a Smaller needles often with LS exposed. .... ***T. canadensis***  
     b All needles predominantly with US exposed. .... 06
- 06 a Shoot pubescent with long hairs (10× LENS). .... ***T. heterophylla***  
     b Shoot glabrescent or if pubescent then with short hairs (10× LENS). .... 07
- 07 a Needle length ≤20 mm, apex obtuse to rounded (10× LENS). .... ***T. caroliniana***  
     b Needle length 10-35 mm, apex obtuse to acute (10× LENS). .... ***T. dumosa***

## Taxa treated in this identification key.

*Abies* → [key to the genus](#)

*Cathaya argyrophylla*

*Cedrus atlantica*

*Cedrus deodara*

*Cedrus libani*

- var. *brevifolia*

- var. *libani*

*Keteleeria davidiana*

*Keteleeria evelyniana*

*Keteleeria fortunei*

*Larix* (forthcoming key)

*Nothotsuga longibracteata*

*Picea* → [key to the genus](#)

*Pinus* → [key to the genus](#)

*Pseudolarix amabilis*

*Pseudotsuga forrestii*

*Pseudotsuga macrocarpa*

*Pseudotsuga menziesii*

- var. *glauca*

- var. *menziesii*

*Pseudotsuga sinensis*

*Tsuga canadensis*

*Tsuga caroliniana*

*Tsuga chinensis*

*Tsuga diversifolia*

*Tsuga dumosa*

*Tsuga heterophylla*

*Tsuga mertensiana*

- var. *jeffreyi*

- var. *mertensiana*

*Tsuga sieboldii*

## Names referred to synonymy in this identification key.

*Pseudotsuga caesia* = *P. menziesii* var. *glauca*

*Pseudotsuga flahaultii* = *P. menziesii* var. *glauca*

*Pseudotsuga guinieri* = *P. menziesii* var. *glauca*

*Pseudotsuga rehderi* = *P. menziesii* var. *glauca*

*Tsuga ×jeffreyi* = *T. mertensiana* var. *jeffreyi*

*Tsuga yunnanensis* = *T. dumosa*

## Misapplied names.

*Tsuga forrestii* does not seem to be in cultivation fide 'New Trees', plants in collections usually are *T. dumosa*.

