

BETULA

1. *Betula pendula* / *B. pubescens*

The taxonomy of the genus *Betula* is disputed, and opinions differ as to the extent of hybridisation. Intermediates between *B. pendula* and *B. pubescens* are, however, common and widespread. They are intermediate in leaf-shape, pubescence, bark of trunk and twigs, habit, and fruiting catkins. Most intermediates seem fully fertile and probably back-cross, since the intermediates are not always clearly separable from the parent species. When collecting material please include catkins and mature leaves, and if possible, photograph the tree to show bark and shape. Seedlings of both species are hairy.

To deal with the problem of intermediates, Atkinson & Codling (1986) developed a discriminant function, using three easily measured leaf characters, which has been adopted in Stace's *New Flora* and is not repeated here. Although hybrids undoubtedly exist in natural and semi-natural populations (Brown *et al.* 1982), they are probably very uncommon. The hybrid is similar in morphology to

B. pubescens and a description is given by Kennedy & Brown (1983). The parental species are distinct in chromosome number (*B. pendula* $2n=28$ and *B. pubescens* $2n=56$). The F1 hybrid has 42 chromosomes although some of the hybrids discussed by Brown *et al.* (1982) appear to be back-crosses as they have a range of chromosome numbers.

- 1 Bark at first shiny and red-brown, later pinkish-white with horizontal, broad, pale-grey bands and some dark-grey scaling patches, finally white with large, black diamonds, often deeply-fissured at the base into small, black, knobby plates; young twigs glabrous, slender and pendent, with numerous peltate, non-odorous resin glands or warts; leaves usually sharply biserrate with prominent primary teeth, glabrous; nutlet glabrous; total width of nutlet with wings 3-5 mm, the upper edge of the wings surpassing the stigmas; fruit scales with broad lateral lobes curving towards the base

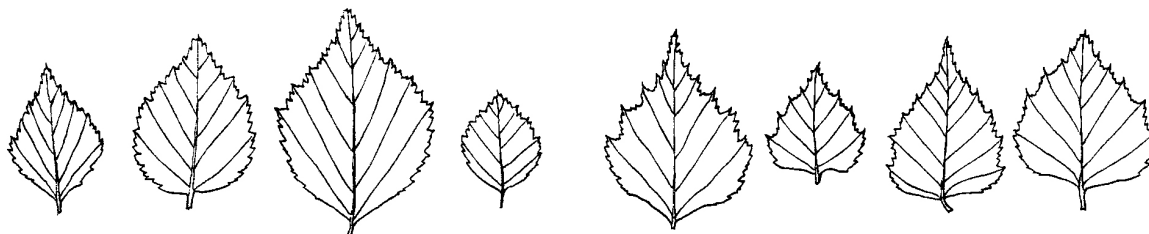
B. pendula Roth (*B. verrucosa*)

- 1 Bark at first red-brown as in *B. pendula*, becoming smooth, greyish-white, variably banded horizontally grey or brown (sometimes with fine, grey lacework patterns), often remaining brownish until mature, but never with black diamonds; young twigs usually \pm pubescent, spreading or ascending, with or without resinous glands; leaves irregularly-serrate, without prominent primary teeth, usually hairy, at least on the veins beneath; nutlet puberulent at apex; nutlets with narrower wings (total width 2-4 mm), the upper edge of the wings not or hardly surpassing the stigmas; fruit scales with lobes straight or curving towards the apex

2

- 2 Tree usually with a single stem; young twigs usually conspicuously pubescent; buds not viscid; leaves 3-4 cm **B. pubescens** Ehrh. subsp. *pubescens*
- 2 Shrub or small tree, often with several stems; young twigs glabrescent, covered with brown, sticky, resinous, pleasantly-smelling glands; buds viscid; leaves often less than 3 cm long. Most readily distinguished in spring when the unfolding buds have a pleasant, resinous smell

B. pubescens subsp. *tortuosa* (Ledeb.) Nyman



B. pendula

B. pubescens

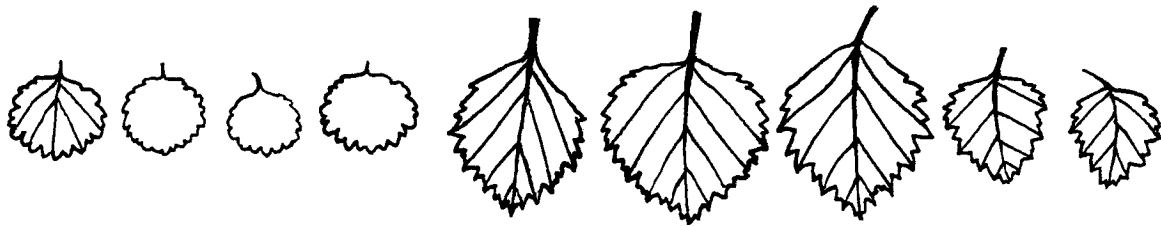
Plant Crib

- References** Atkinson, M. D. (1992). *Journal of Ecology* **80**: 837-870.
Atkinson, M. D. & Codling, A. N. (1986). *Watsonia* **16**: 75-87.
Gardiner, A. S. (1984). *Proc. Royal Society Edinburgh* **85B**: 13-26.
Kennedy, D., Brown, I. R. & Williams, D. A. (1982). *Watsonia* **14**: 133-145.
Kennedy, D. & Brown, I. R. (1983). *Watsonia* **14**: 329-336.

Authors M. J. Wigginton & G. G. Graham (1981); updated M. D. Atkinson, December 1997.

2. *Betula* × *intermedia* (*B. pubescens* × *B. nana*)

This hybrid is probably under-recorded in Scotland. On the whole the leaves look like a small *B. pubescens* Ehrh., but are quite variable between populations, and plants seem largely sterile.



B. nana L.

B. × intermedia Thomas ex Gaudin

Reference De Groot, W. J., Thomas, P. A. & Wein, R. W. (1997). *J. Ecology* **85**: 241-264.