

Identification of Balsam poplars - 1

Poplars (*Populus* spp.) can be split into four groups:

1. ***Populus tremula*** (Aspen)
2. ***Populus alba*** (White Poplar) and its hybrid with *P. tremula*, ***P. x canescens*** (Grey Poplar)
3. ***Populus nigra*** (Black Poplar), **its cultivars, and cultivars of its hybrid with *P. deltoides* (*P. x canadensis*)** (Hybrid Black-poplar)

These have:

- leaf petioles which are distinctly laterally flattened (similar to Aspen), especially near to the junction with the leaf lamina.
- Leaves green on both sides, slightly paler below.
- Not or only slightly balsam-scented.

4. **Balsam poplars**

These have:

- leaf petioles rounded in cross-section, or only very slightly flattened.
- Leaves very pale below, with strongly contrasting green veins.
- Buds and young leaves strongly balsam-scented, particularly in spring.

Identification of Balsam poplars - 2

These slides detail vegetative ID features of the five Balsam poplar taxa known to occur in my local area (Cairngorms, vc95 and vc96). These taxa are:

Populus balsamifera (Eastern Balsam-poplar)

Populus trichocarpa (Western Balsam-poplar)

Populus 'Balsam Spire' (*P. balsamifera* x *trichocarpa*)

Populus x *jackii* (*P. balsamifera* x *deltoides*)

Populus maximowiczii (Doronoki)

One additional taxon, illustrated at the end of this account, has only been tentatively named.

The BSBI Willows and Poplars Handbook (Meikle 1984) only includes *P. trichocarpa* and *P. x jackii*, the latter under the name *P. candicans* (*P. x gileadensis*). *P. balsamifera* and *P.* 'Balsam Spire' were first included in Stace's flora (1991, 1997 and 2010), though *P. balsamifera* was only included in the key in the 2nd and 3rd editions.

Records of *P. balsamifera* from sites across Great Britain, dating from before publication of Stace's Flora, may be suspect. In her Flora of vcs 95 and 96, McCallum Webster (1978) puts all Balsam poplar records under the name *P. gileadensis*. These, and other older records of 'Balsam poplars' may not have been accurately identified, and warrant reviewing.

Identification of Balsam poplars - 3

- Scans of leaves and description of hairs, eg on petioles, refer to average sized leaves on main branches, or average sized leaves picked up off of the ground in autumn. Do NOT try to identify trees from leaves on suckers or from epicormic growth on the lower trunk, or atypically large leaves. Such leaves may be a completely different shape with different hairs.
- Petiole hairs of three of the five taxa are extremely small, c. 0.05mm in length, not visible to the naked eye (even if you are short-sighted), and this is one of the few times that a x20 hand lens (rather than the usual x10) is a distinct advantage. Petiole hairs of these taxa are best examined with transmitted light under a stereo microscope at c. x30. The fourth taxon, *P. x jackii* has much longer, thicker petiole hairs that are visible to the naked eye and very obvious at x10. Petiole hairs of *P. maximowiczii* are also visible to the naked eye, though less obvious than those of *P. x jackii*.
- For each taxon, scans of one or more sets of leaves collected in October, (sometimes with close-up details), and photographs of whole trees are given. Where more than one page of leaf scan are shown, they come from different trees (except for *P. maximowiczii*). Photographs of twigs and features of leaves are given where useful for ID. ID features are summarised.
- ID features are based on examination of a limited number of specimens, from a restricted geographic area. Further testing and feedback is welcomed.

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Acknowledgements

Stewart Taylor and Ian Green helped locate many Balsam poplars and collected leaves. Richard Jinks discussed separation of *P. balsamifera* from *P. trichocarpa* and confirmed my ID of *P. maximowiczii*.



Populus balsamifera (Eastern Balsam-poplar)



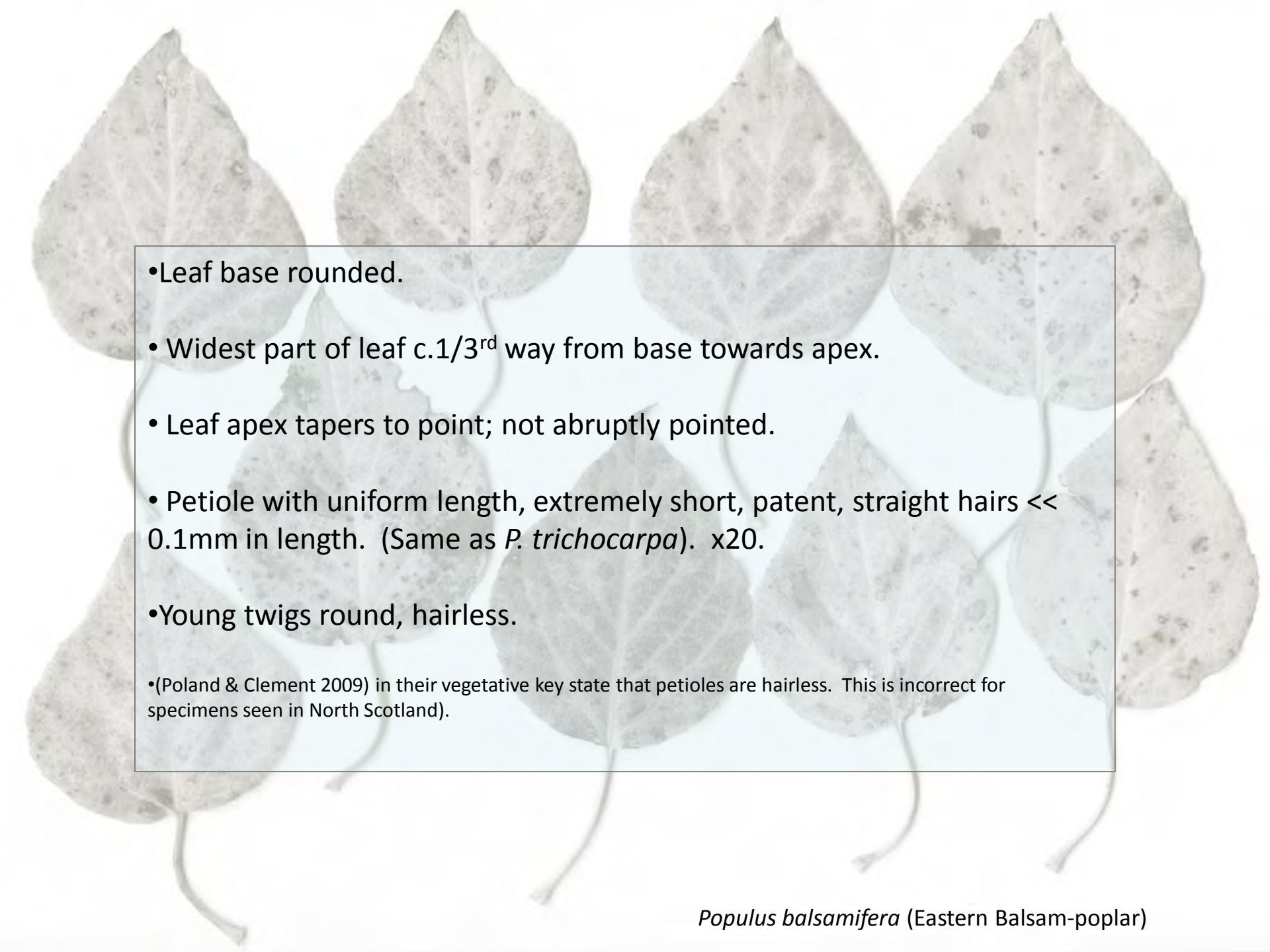
Populus balsamifera (Eastern Balsam-poplar)



Populus balsamifera (Eastern Balsam-poplar)



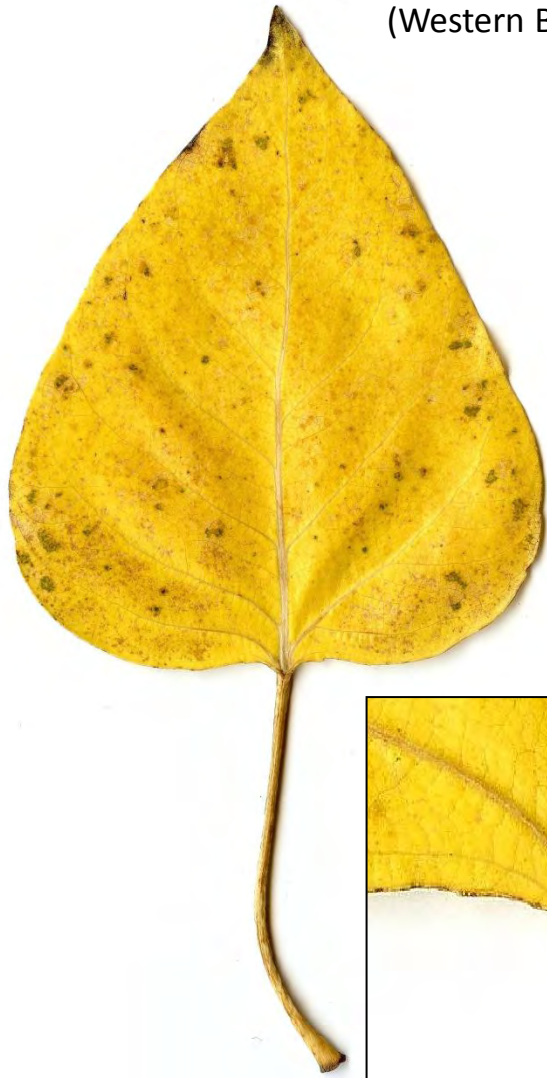
Populus balsamifera (Eastern Balsam-poplar)

- 
- Leaf base rounded.
 - Widest part of leaf c. 1/3rd way from base towards apex.
 - Leaf apex tapers to point; not abruptly pointed.
 - Petiole with uniform length, extremely short, patent, straight hairs << 0.1mm in length. (Same as *P. trichocarpa*). x20.
 - Young twigs round, hairless.
- (Poland & Clement 2009) in their vegetative key state that petioles are hairless. This is incorrect for specimens seen in North Scotland).



Populus balsamifera (Eastern Balsam-poplar)

Populus trichocarpa
(Western Balsam-poplar)



Populus trichocarpa
(Western Balsam-poplar)



Populus trichocarpa
(Western Balsam-poplar)

- Leaf isosceles triangular, with truncate base, and abruptly pointed apex.
- Leaf lamina slightly, but distinctly decurrent at junction of petiole with lamina.
- Widest part of leaf c. 1/5th way from base towards apex.
- Petiole with uniform length, dense, extremely short, patent, straight hairs << 0.1mm in length. x20.
- Young twigs distinctly angled.





Populus trichocarpa (Western Balsam-poplar)



(Main stem broken)



Populus trichocarpa (Western Balsam-poplar)

(Atypically large leaves on epicormic shoots growing from collapsed trunk)



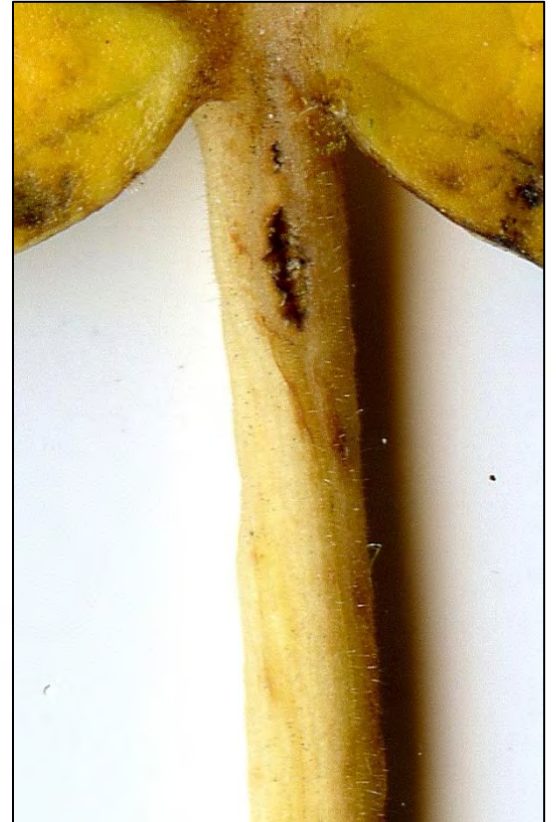
Populus trichocarpa (Western Balsam-poplar)

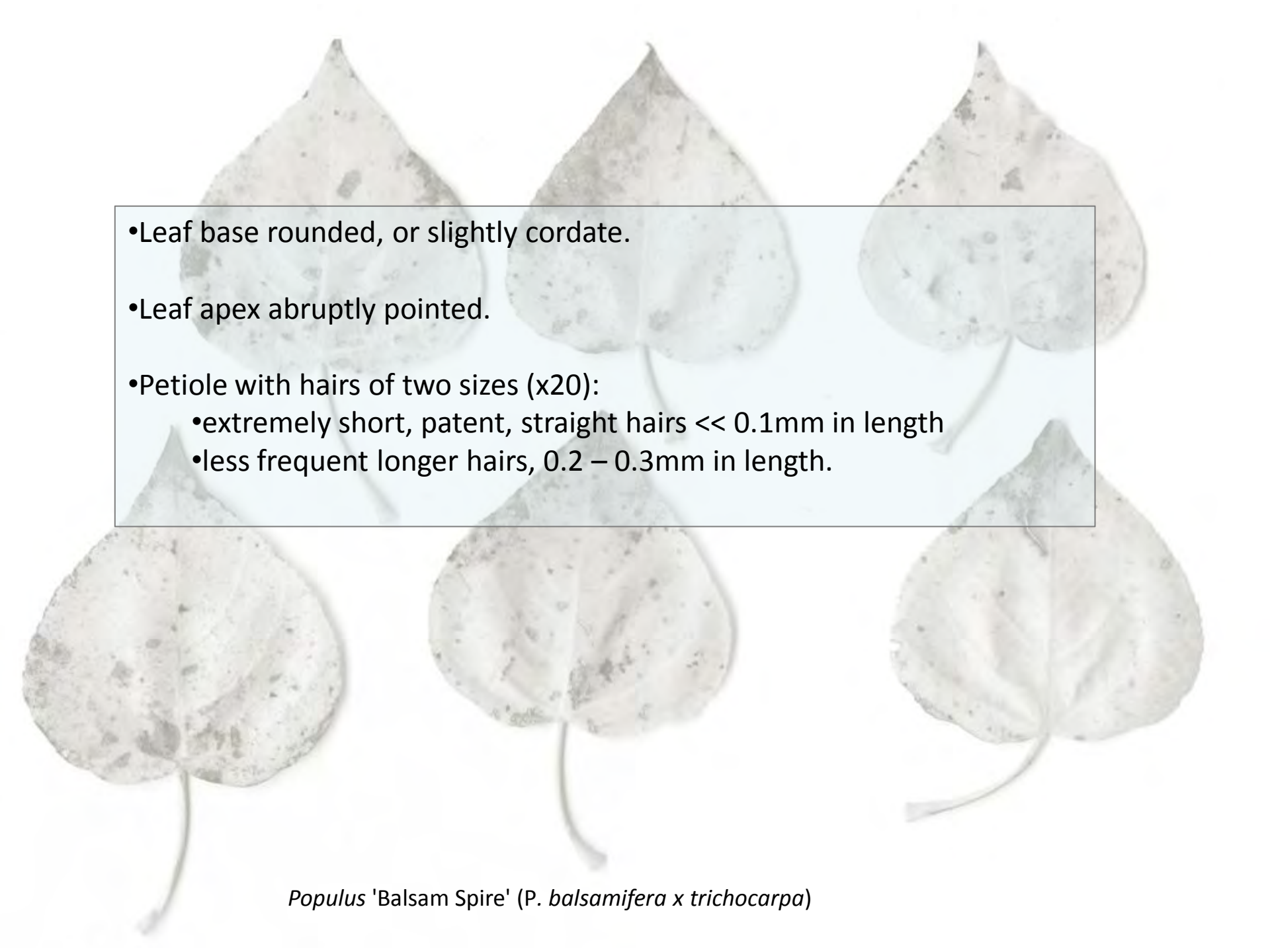


Populus 'Balsam Spire' (*P. balsamifera* x *trichocarpa*)



Populus 'Balsam Spire' (*P. balsamifera* x *trichocarpa*)



- 
- Leaf base rounded, or slightly cordate.
 - Leaf apex abruptly pointed.
 - Petiole with hairs of two sizes (x20):
 - extremely short, patent, straight hairs \ll 0.1mm in length
 - less frequent longer hairs, 0.2 – 0.3mm in length.

Populus 'Balsam Spire' (*P. balsamifera* x *trichocarpa*)

Populus 'Balsam Spire' (*P. balsamifera* x *trichocarpa*)



- Tree with sub-fastigate outline
- branches rising at 45°

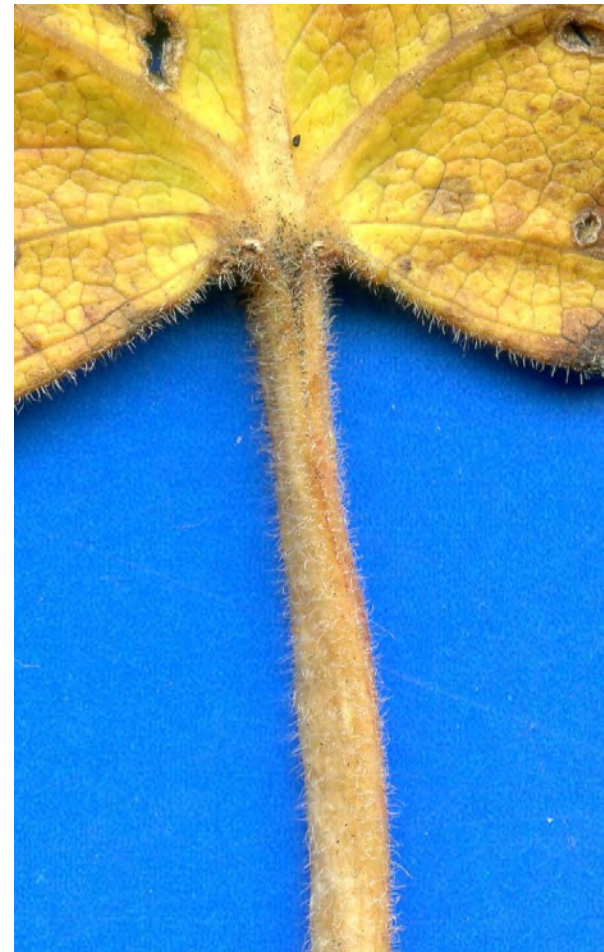


P. 'Balsam Spire'

P. trichocarpa



Populus x jackii
(*P. balsamifera* x *deltooides*)



Populus x jackii
(*P. balsamifera* x *deltooides*)

- Petiole with dense, long hairs (mean 0.3mm), some slightly curved, appearing bearded or woolly. Visible to the naked eye.
- Very prominent glands at junction of petiole and lamina.
- Lamina with very short patent hairs on both sides, but especially below; leaf feels velvety to the touch when dry.
- Leaf margin with relatively obvious, hooked teeth; especially obvious on suckers.
- Leaf cordate at base, with fairly abruptly pointed apex.



Populus x jackii (*P. balsamifera* x *deltoides*)



Atypically shaped, large leaves on suckers at tree base



Populus x jackii (*P. balsamifera* x *deltoides*)



Populus x jackii (*P. balsamifera* x *deltoides*)



Populus maximowiczii





Populus maximowiczii



Populus maximowiczii



Abruptly downturned & twisted leaf apex

Populus maximowiczii



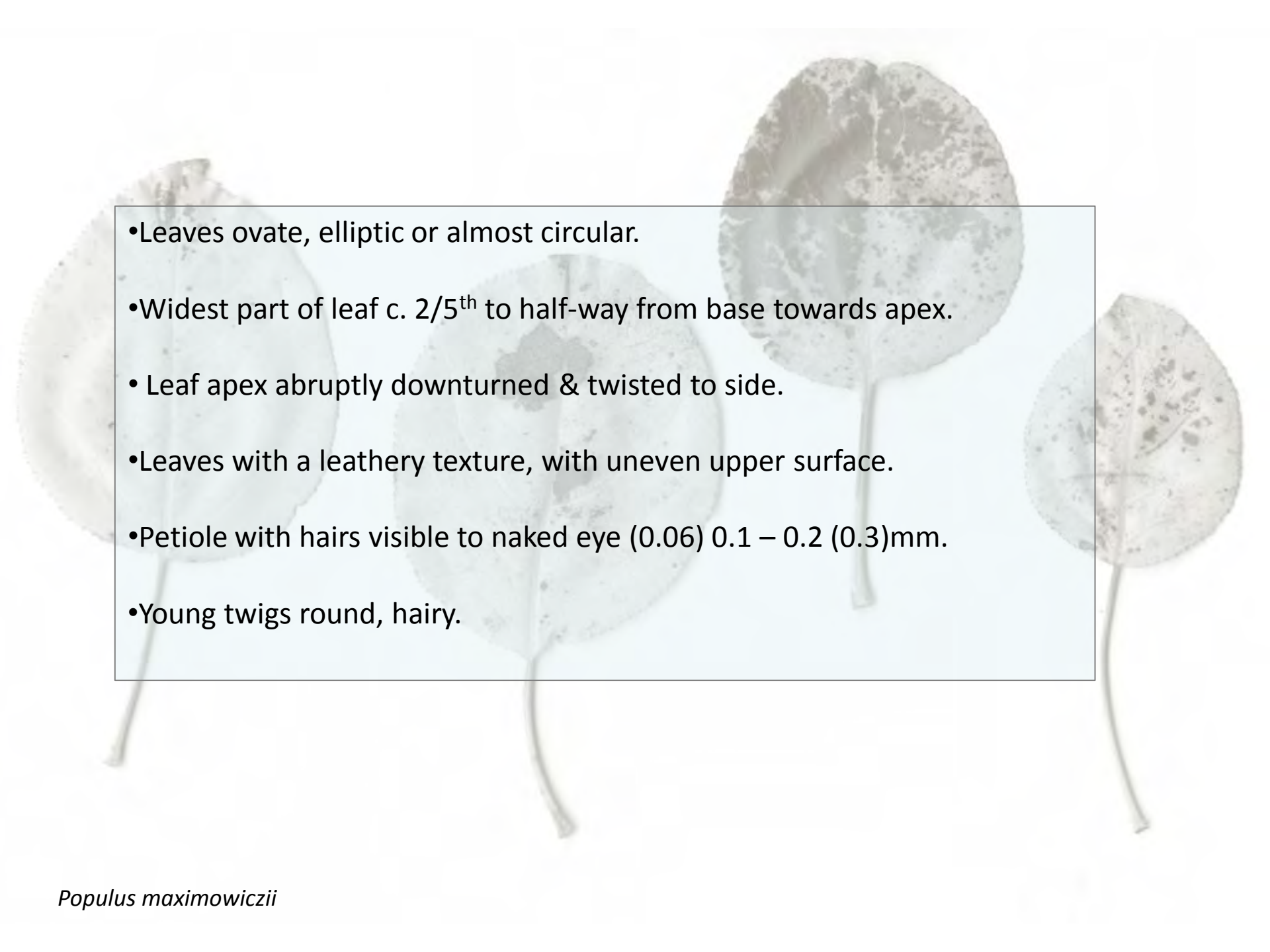


Leaf surface texture

Populus maximowiczii



Populus maximowiczii

- 
- Leaves ovate, elliptic or almost circular.
 - Widest part of leaf c. 2/5th to half-way from base towards apex.
 - Leaf apex abruptly downturned & twisted to side.
 - Leaves with a leathery texture, with uneven upper surface.
 - Petiole with hairs visible to naked eye (0.06) 0.1 – 0.2 (0.3)mm.
 - Young twigs round, hairy.

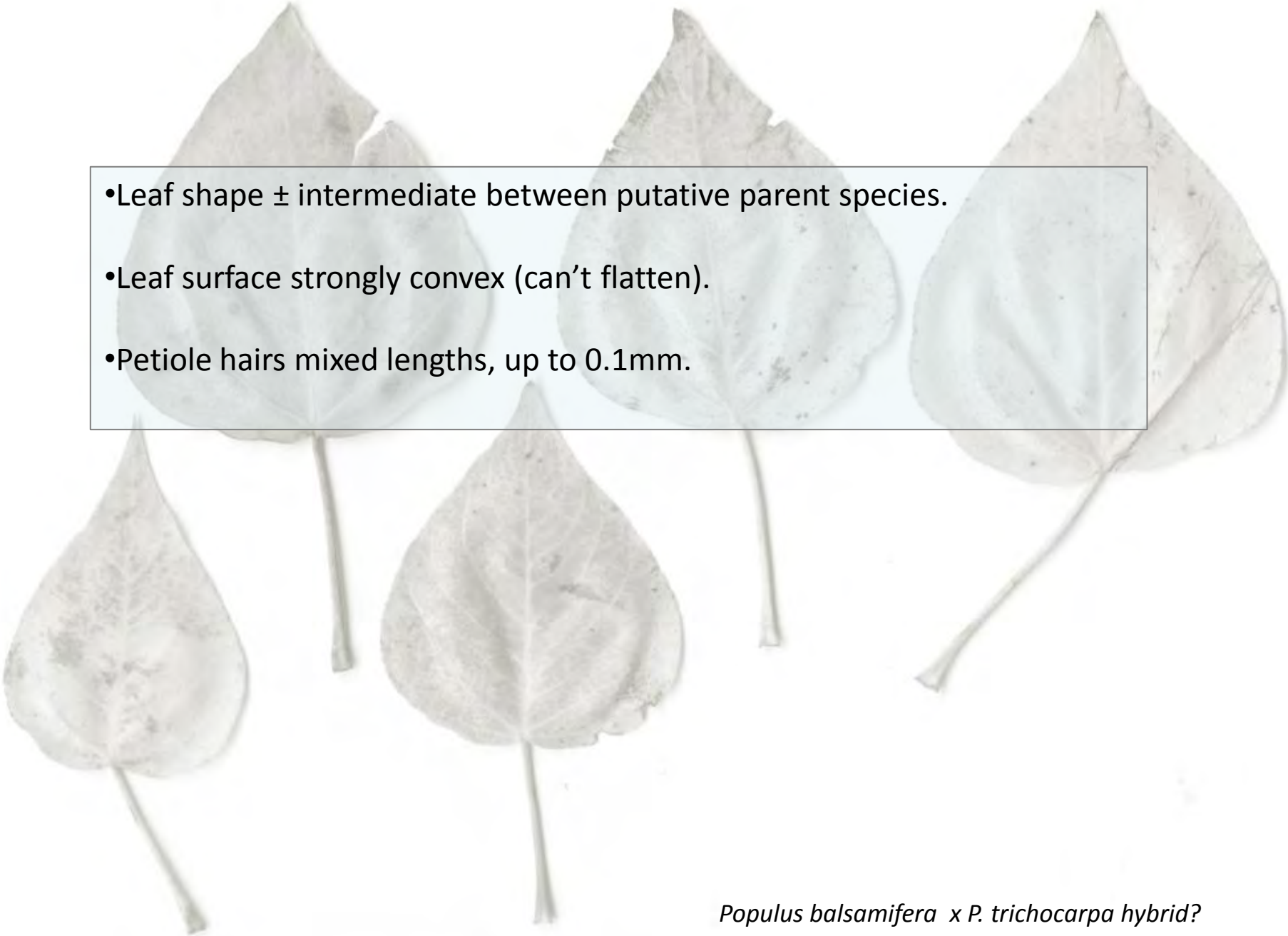
Un-named taxon



Populus balsamifera x *P. trichocarpa* hybrid?



Populus balsamifera x *P. trichocarpa* hybrid?

- 
- Leaf shape \pm intermediate between putative parent species.
 - Leaf surface strongly convex (can't flatten).
 - Petiole hairs mixed lengths, up to 0.1mm.

Populus balsamifera x *P. trichocarpa* hybrid?