LEATHERY LEAVES: EVERGREEN BROAD-LEAVED TREES AND SHRUBS Keys

A KEY TO GENERA DISCUSSED IN THE WORKSHOP

Leaves compound, lobed, spiny or toothed

Leaves compound	Leaves palmate	or with 3 lea	flets						Choisya (p.6)
(several leaflets)	Leaves pinnate,	, at least some	e with more than 3 leafl	ets					Mahonia (p.4)
	Leaves lobed	Leaves pinr	nately lobed						Quercus (p.6)
	Leaves lobed	Leaves paln	Leaves palmately lobed (Fatsia japonica)						
	Leaves	Leaves opp	Leaves opposite						
	obviously	Leaves	Stems with groups of	Stems with groups of 1-7 stipular spines					Berberis (p.4)
	spiny, at least	alternate	Stems lacking	Twigs green or	yellowish; le	eaves 3-10cm			llex (p.8)
	at apex	atternate	spines	Twigs reddish;	leaves 1-2cr	n			Gaultheria (p.8)
			Twigs with ridge or	Leaves with ste	llate hairs				Viburnum (p.9)
			stipules extending	Leaves	Twigs sm	ooth, unridged	(Aucuba japonica)		Aucuba
		Leaves ±	between opposite leaf bases	glabrous	Twigs kno	obbly, wrinkled			Osmanthus (p.8)
Leaves simple		opposite	Twigs without ridge	Stipules or	Leaves alt	ternate, subopp	osite or whorled		Pieris (p.8)
	Leaves	or whorled	between leaf bases, leaves often	stipule scars absent	Leaves opposite			Phillyrea (p.8)	
			subopposite or whorled	Stipules or stipule scars present; leaves clearly opposite					Euonymus (p.6)
			Branches usu. thorny, sometimes spiny at tips					Pyracantha (p.5)	
(not composed of	toothed			Leaves white-felted below (Olearia macrodonta)					Olearia
leaflets)	(sometimes				Twigs stellate-hairy				Quercus (p.6)
	finely and/or with spinulose teeth) or crenate but not lobed	spinulose h) or ate but obed Leaves alternate				Twigs glandular- hairy or	Leaves aromatic, with clear or reddish glands below; buds in leaf-axils		Escallonia (p.9)
							Leaves odourless	Leaves hairless or with sparse orange hairs below; buds usu. above leafaxils	Gaultheria(p.8)
			Branches not spiny or thorny	Leaves not white-felted	Twigs not	bristly-hairy		Leaves always hairless; buds in leaf- axils	Arbutus (p.7)
				willte-reited	stellate-	Twigs hairy, non-glandular (Rhamnus alaternus)		Rhamnus	
					hairy		Stipules absent; leaves coarsely and bluntly toothed in upper half		Pachysandra (p.5)
						Twigs hairless	Stipules present;	Leaves net-veined towards margins; stipules or stipule-scars on twig	Prunus (p.5)
							leaves more finely toothed or ot	Leaves not net-veined; stipules or stipule scars near base of leaf-stalk	Photinia (p.5)
	Leaf margins er	ntire	•		•	•	•		See next page

Leaves simple, margins entire

		Leaves with fimbriat	e (frilly) scales (lens	s)					Elaeagnus (p.6)
	Leaves with	Leaves grey or blu						Quercus (p.6)	
		stellate hairs	Leaves densely w	hite or buff felted					Olearia
				Stipules or	Buds without bud-	-scales			[Cotoneaster]
				stipule-scars present	Buds with 1-several overlapping bud-scales				Photinia (p.5)
					Twigs with stipular spines				Berberis (p.4)
						Leaves usu. >8cm,	±whorled near tip	of twig, sometimes	Rhododendron
						with rust-coloured hairs on underside			(p.7)
							Leaves in lax who	orl-like clusters	Pittosporum (p.9)
			Leaves clearly net-veined	Stipules and stipule-scars absent	Twigs spineless	Leaves usu.	3 1	Twigs never pruinose, leaves bay-scented, acute at tip (Laurus nobilis)	Laurus
Leaves alternate	Tree or tall shrub > 1.2m	Leaves hairless, or with simple or non-stellate hairs		absent		rust-coloured hairs on underside	Leaves spaced along twigs	Twigs pruinose when young, leaves faintly odorous, rounded-acuminate at tip (Bupluerum fruticosum)	Bupleurum
				Leaves grey-felted below, crowded near tips of twigs					Pittosporum (p.9)
				Leaves hairless but with translucent glands					Skimmia (p.6)
				Leaves hairless but glistening-silvery (Atriplex halimus)					Atriplex
			Leaves not, or	Leaves not felted, glandular or glistening-silvery				Sarcococca (p.5)	
			weakly, or obscurely, net- veined	Laguas hairlas-		lliptic to oblanceolate o dark green above, s en below			Daphne (p.7)
				Leaves hairless, neither glandular	Leaves ±elliptic, w	edge-shaped at base	, shiny dark green a	above	Kalmia (p.7)
				nor silvery		ate to orbicular, asym green or variegated ab	•	d at base,	Griselinia (p.9)
						ate or oblong, ±symm		at base, shiny dark	llex (p.8)
	Low shrub usu. <	Stipules or stipule-so	cars present		<u> </u>				[Cotoneaster]
	1.2m	Stipules or stipule-so	•						Daphne (p.7)
Leaves opposite, w	horled or apparently	whorled							See next page

Leaves simple, opposite, whorled or apparently whorled, margins entire

		Leaves with visible translucent secondary veins especially when	Shoots, petioles and young leaves (especially on margins) covered in stellate hairs			Leaves truncate or subcordate at base, to 5(-8)cm, not wrinkled (usu. <i>Correa backhousiana</i> , but consult European Garden Flora for other spp.) Leaves rounded to subcordate at base, to 21cm, strongly wrinkled	Correa Viburnum (p.9)
	Twigs with ridge or stipules extending		Petioles and both hairs; leaves stror	Garrya			
	between	backlit	Leaves glabrous	Leaves ± sessile (stalk < 0.4mm)			Kalmia (p.7)
Leaves opposite	opposite leaf bases; leaves strictly opposite	ives	or, if hairy , then only on	Leaves with	Leaves >3cm long, usu. net-veined	Leaves hairless both sides except for vein axils, smooth	Viburnum (p.9)
			underside, not			Leaves with silvery-silky hairs below	Olearia
			strongly wavy		Leaves 0.5-3cm long		Lonicera (p.9)
			Leaves whitish-ha	Olearia			
			Leaves hairless, o	Veronica			
	Twigs without	Leaves often subopposite	e, 1-3cm long, foetic	Buxus (p.5)			
	ridge between leaf bases	Leaves opposite, at least	ves opposite, at least some >3cm long, not foetid; secondary veins looping towards margins				
Leaves wherled as	New leaf growth	predominantly reddish or b	ronze				Pieris (p.7)
Leaves whorled or apparently whorled	New growth not reddish or bronze					Rhododendron (p.7)	

BERBERIDACEAE

Evergreen Berberis key

	Twigs round or bluntly	Leaves firmly leathery, undu	ulate at margins, up to 11cm lo	ong	B. gagnepainii
Leaves with 6 or more	angled, yellow or reddish	Leaves thinly leathery, ±flat	at margins, up to 7cm long		B. manipurana
teeth per side	Twigs ±7-ridged, yellowish	Leaves with up to 10 spiny t long	ously net-veined, up to 7cm	B. manipurana	
		Leaves with up to 25 teeth	per side, venation obscure, up	to 11cm long	B. julianae
		Spines all 3-partite, leaves f each side; flowers in dense	fully deciduous, not apiculate, clusters	sometimes with a few teeth	B. aggregata
	Leaves strongly net-veined	Spines often simple near twig tip; flowers in less	Leaves narrowly oblanceolar clusters	te, entire, flowers in sparse	B. wilsoniae
	dense clusters or short Leaves more broadly oblan racemes flowers in more dense clus		B. x rubrostilla		
			Leaves elliptic to obovate, to	o 60 x 20 mm, green below	B. glaucocarpa
		Twigs rounded to slightly angled	Leaves linear-oblong, to 35 x 5mm, white-bloomed beneath (for other rare garden spp. with lvs white beneath, see Poland (2020))		B. replicata
Leaves with 0-6 teeth per			Leaves with strongly revolut flowers golden-yellow	B. x stenophylla	
side	Leaves not or weakly net- veined	Twigs 5-9-ridged	Leaves with flat or finely	Twigs densely brown hairy with hairs ≥0.5mm; stem spines 5-6-partite, up to 4mm long; leaves glossy, spine-tipped with 2-3 pairs of teeth near apex	B. darwinii
			revolute margins, greenish below; flowers orange	Twigs with minute hairs c. 0.1mm long; stem spines 3-5-partite, 8-15mm long; leaves dull, apiculate or shortly spine-tipped, usually untoothed otherwise	B. buxifolia

Floral characters

Flowers solitary	B. buxifolia
Flowers in clusters (short or no common stalk)	B. gagnepainii, B. manipurana, B. julianae, B. aggregata, B. wilsoniae, B. x rubrostilla, B. x stenophylla, B. replicata
Flowers in racemes (obvious common stalk)	B. glaucocarpa, B. darwinii
Flowers yellow (outer segments may be red)	B. gagnepanii, B. manipurana, B. julianae, B. glaucocarpa, B. aggregata, B. wilsoniae, B. x rubrostilla, B. x stenophylla, B. replicata
Flowers orange or yellow-orange	B. buxifolia, B. darwinii
Ripe fruit reddish or red	B. wilsoniae, B. x rubrostilla, B. aggregata
Ripe fruit blue, purple or black (sometimes with whitish bloom)	B. gagnepainii, B. manipurana, B. julianae, B. glaucocarpa, B. buxifolia, B. x stenophylla, B. darwinii, B. replicata

Mahonia key

Leaves 30cm or more; inflorescences clusters of	Leaflets 7-19; 4-19 margina	M. japonica or M. sheridaniana		
long (15-30cm),	Leaflets 15-25; 5-11 margin	al spines on each leaflet		M. x media
spreading to erect racemes	Leaflets 25-41; 5-19 margin	M. oiwakensis (inc. M. lomariifolia)		
	Leaflets 9-15, crowded and	often overlapping		M. pinnata
Leaves up to 20cm; inflorescences short (3-	Leaflets 3-9, barely or not	Stems ascending or erect; leaves glossy or somewhat so above	Leaflets 3-9, bright glossy green above, not overlapping Leaflets 5-9, dull and scarcely glossy, slightly	M. aquifolium M. x wagneri
racemes, often clustered	overlapping	Stems sprawling, decumbent; leaves dull green	overlapping at times Leaflets ovate to oblong- lanceolate, with 16-22 teeth Leaflets rounded-ovate, with 16-40 teeth	M. x decumbens M. repens

BUXACEAE Key

±Prostrate plant; leaves spirally arranged, densest at branch tips, toothed	Pachysandra (Carpet-boxes)	Most encountered species: P. terminalis
Erect shrub; leaves alternate becoming subopposite towards branch tips, entire, acute at tip; flowers fragrant; fruit berry-like	Sarcococca	Most encountered species: <i>S. confusa</i> (garden origin), <i>S. hookeriana</i>
Erect shrub; leaves opposite, entire, obtuse, rounded or retuse at tip; fruit a firm capsule with "horns"	Buxus (Boxes)	Most encountered species: B. sempervirens

Buxus key

Leaves 3.5-5.5cm long, 3-5x a capsule 4-5mm	s long as broad, usually yellowish-green; "horns" on	B. balearica
Leaves 1.5-4cm long, 2-3x	Leaves 1.2-2.5cm, elliptical or oblong	B. sempervirens f. sempervirens
as long as broad; dark	Lacroscop to Assa folded according "considered	
green or variegated above;	Leaves up to 4cm, folded over in a "capsized	B. sempervirens f. handsworthiensis
"horns" on capsule 2-3mm	longboat" shape, emarginate at tip	

ROSACEAE

Prunus key

First-year stems and le	eaf-stalks deep red; leaves obviously serrate; racemes aves	P. lusitanica
First-year stems and	Leaves 2.3-4.5cm wide	P. laurocerasus vars. zabeliana, schipkaensis
leaf-stalks green; leaves obscurely crenate or serrate; racemes mostly shorter than leaves	Leaves 5-10cm wide	P. laurocerasus vars. laurocerasus, magnoliifolia

Photinia key

Leaf oblong-lanceolate, dull above, sometimes reddish when young, margins entire; carpels and styles 5	P. davidiana
Leaf elliptic to obovate, rather glossy above, usually bright red when young, margins finely serrate; carpels and styles 2	P. x fraseri

Pyracantha key

Young shoots and young leaf-stalks with rusty hairs; leaves elliptic, oblong or obovate (widest at or above the middle), margin scalloped to serrate; fruit orange to red	P. crenulata
Young shoots with greyish down; leaf-stalks hairy; leaves narrowly ovate- lanceolate (widest below middle), margin slightly scalloped to slightly serrate; fruit orange-red	P. coccinea
Young shoots hairy; leaf-stalks may be hairy at first but soon becoming glabrous; leaves narrowly oblanceolate (widest above the middle), margin shallowly and irregularly scalloped; fruit orange-red to yellow	P. rogersiana

ELAEAGNACEAE

Elaeagnus key

Scrambling shrub	Thorns lacking		E. glabra
with whippy shoots; leaves 4-7 x 1.5- 3.5cm, with brown shining scales beneath, margins not wavy	With a few thorns	E. x reflexa (E. glabra x pungens)	
	Leaves broadly ovate t above, undersides silv	E. macrophylla	
Stiff-branched shrub, leaves predominantly	ves blunt or gradually	Shoots usually with scattered thorns; leaves oblong or ovate, with strongly wavy or crinkly margins and no thin white margin visible from above; midrib with dense brown scales	E. pungens
silvery or whitish beneath, often with some brown scales	and smoothly tapered to a point; often a scattering of brown scales on underside surface as well as on midrib	Shoots mostly thornless; leaves elliptic, with ±wavy edges but not crinkly, usually lacking an obvious white margin seen from above; midrib with frequent to scattered brown scales	E. x submacrophylla (E. macrophylla x pungens)

FAGACEAE

Quercus key

Bark corky, greyish brown, fissuring deeply as it ages, showing red-brown beneath; leaves with up to 6(7) pairs of veins; acorn cups with long spreading scales	Q. suber
Bark hard, dark grey, splitting into small "tiles" as it ages; leaves with 5-10 pairs of lateral veins; acorn cups with appressed scales	Q. ilex

CELASTRACEAE

Euonymus key

Low shrub with stems spreading and often layering at the base; bark rough; leaves not very glossy above, often variegated, shallowly but sharply crenate-serrate	E. fortunei
Shrub or small tree, not layering; bark smooth; leaves glossy above, sometimes variegated, finely and bluntly	E. japonicus
crenate-serrate	L. Jupoliicus

RUTACEAE

Choisya key

Leaves with 3 leaflets; leaflets oblong to obovate, without warty glands, up to 3cm wide; flowers in loose panicles	C. ternata
Leaves with up to 15 leaflets; leaflets linear to narrowly elliptical, with or without warty glands; flowers sometimes solitary	C. x dewitteana
Leaves with up to 15 leaflets; leaflets linear, up to 5mm broad, with warty glands	C. dumosa

Skimmia key

Leaves slightly aromati usually very sweetly so	S. japonica		
Leaves strongly	Flower parts sometime	es in 4s, usually in 5s; fruit red	S. x confusa
aromatic when	Flower parts always	Leaves with up to 20 pairs of veins, stalks up to 3.2cm; flowers	S. laureola
rubbed, with 7-20	in 5s	sweetly scented at first; fruit black	3. Idureold
pairs of obscure veins stalks green or brownish; flowers sweetly scented or not; fruit orange, red or black		Leaves with up to 15 pairs of veins, stalks up to 1.3cm; flowers unpleasantly scented; fruit orange or red	S. anquetilia

THYMELEACEAE

Daphne key

Flowers greenish				D. laureola
	±Prostrate, trailing sub-shrubs			D. cneorum
		Leaves 4-10cm; fruit	Leaves oblanceolate to narrowly ovate, flat, often variegated; winter-flowering, powerfully scented; fruit red	D. odora
Flowers white, pink	Erect shrubs Leaves up to 4cm; fruit unknown	may be present	Leaves narrowly elliptic to oblanceolate, usually with wavy margins; flowering winterspring, scented; fruit black	D. bholua
or purplish			Leaves fully evergreen, decidedly leathery, notched at apex; flowers in isolated terminal clusters; calyx tube up to 7mm, lobes acute	D. x mantensiana
		Leaves semi-evergreen, not very leathery, mucronate to obtuse at apex; flowers in clusters crowded on terminal branchlets; calyx tube c. 10mm, lobes obtuse and/or mucronate	D. x burkwoodii	

ERICACEAE

Arbutus key

Bark dark reddish-brown, fissuring with rectangular flakes; young shoots densely covered with short glandular hairs. Leaves >3x as long as broad. Panicles pendent.	A. unedo
Bark orangey-red, peeling in strips to reveal red, orange or yellowish smooth underbark; young shoots with sparse glandular hairs at most. Leaves usually ≤3x as long as wide. Panicles variable, erect to patent or somewhat drooping.	A. x andrachnoides

Rhododendron Subsection Pontica: a partial key

Ovary hairless	Ovary hairless			R. ponticum	
	Ovary and flower	Leaf undersides hairy maturity; calyx usually	when young, sometimes r≤3.5mm	retaining hair bases at	R. x superponticum
	stalks with glands	Leaf undersides downy / scurfy when young, sometimes retaining this at leaf base when mature; calyx ≥3.5mm			R. maximum
		Ovary cylindric-conical, often truncate at apex, surface not entirely obscured by hairs			R. x superponticum
Ovary hairy	Ovary and flower stalks without glands truncate at apex, surface obscured by hairs		Leaves 1.8-2.3x as long and ±acuminate at apo corolla pink to lilac-pu	ex, rounded at base,	R. catawbiense
		Leaves >2.3x as long as broad, corolla	Leaf apex acute to acuminate, base wedge-shaped; corolla 3-4cm	R. macrophyllum	
			white to pink	Leaf rounded at apex and base; corolla ≤ 2.5cm	R. brachycarpum

Kalmia key

Leaves mostly alternat revolute margins; inflo	K. latifolia	
Leaves mostly opposite or in	Shrub to 150cm; leaves to 60 x 20mm, stalks 4-8 mm, margins flat or slightly revolute, pale green on underside; Inflorescence overtopped by new season's shoot and apparently lateral	K. angustifolia
whorls of 3, ≤20mm wide, obtuse to bluntly acute at tip; flowers ≤ 20mm	Dwarf shrub to 50cm; leaves to 35 x 12mm, sessile, margins revolute, whitish on underside; inflorescence apparently terminal	K. polifolia

Gaultheria L. – Shallons

Gaultheria key

Erect shrub to 2m (but often low-gr rounded to cordate at base; flower	G. shallon	
Erect or sprawling shrub to 1.5m; leaves < 5cm, with terminal spine	Leaves consistently <2cm, spine-tipped; flowers single or in few-flowered racemes in leaf-axils; corolla 2-5mm, white to pink	G. mucronata
or hard acute tip, tapered to truncate at base	Leaves usually >2cm and up to 4.5cm, sharply acute to spine-tipped; flowers mostly in axillary racemes; corolla 4-7mm, white or pink (hybrid between the two preceding species)	G. x wisleyensis
Low-growing undershrub with shoots to 15cm; leaves ≤ 5cm, obtuse to rounded at tip, tapered at base; flowers solitary in leaf axils; corolla 5-10mm, white or flushed pink		G. procumbens

Pieris key

Stems and leaf stalks covered in stiff appressed hairs; leaf teeth ending in conspicuous hairs; corolla with 5 strong ribs and alternating pouches		P. floribunda
Leaf stalks not	Leaf margins entire or shallowly toothed mostly towards tip; corolla weakly 5-ridged	P. japonica
bristly; leaf toothing fine and without		
terminating long hairs; corolla at most weakly ridged	Leaves finely toothed around most of margin; corolla unridged	P. formosa

OLEACAEAE

Osmanthus key

Leaves usually >	Leaves ≤2x as long as broad, entire or with sharp teeth ≤5mm, spaced ≤10mm apart	O. x fortunei
4cm; corolla-tube <2.5mm	Leaves >2x as long as broad, with teeth up to 10mm, 8-20mm apart	O. heterophyllus
Leaves usually 1-	Leaves 0.5-4cm, acute to rounded but with sharp tip	O. delavayi
5cm; corolla-tube 3- 12mm	Leaves 2-5cm, acute or acuminate	O. x burkwoodii

Phillyrea key

Leaves ovate to lanceolate, margins somewhat toothed	P. latifolia
Leaves narrowly lanceolate or narrowly elliptic, margins entire or sparsely toothed	P. angustifolia

AQUIFOLIACEAE

Ilex selected species: identification notes

Leaves dark glossy green, 5-12cm x 3-6cm, ±flat to strongly undulate at margins, often scalloped at margins, often with a spine at tips and otherwise entire, and often with spines all along margins (often with two extremes on same plant), stalks unwinged; flowers white, sometimes pink-tinged; petals 2-2.5mm; berries usually red, yellow in some cultivars	I. aquifolium
Leaves dark glossy green, 6-13 x 3-7cm, margins entire with apical spine or with a few teeth in the apical half, occasionally with sparse teeth all along margin; stalks unwinged; flowers white and pink- or green-tinged, petals 2-	I. x altaclerensis
3mm; fruit red, orangey- or brownish-red	n x undererensis
Leaves mid to dark green, variably glossy and firm, up to 16 x 11 cm (small in subsp. <i>azorica</i>), not strongly undulate, apiculate at tip and entire or with a few short marginal spines; stalks often with narrow wings; flowers white, petals 2-3mm; berries usually deep red	I. perado
Leaves dark, variably glossy green, 3-8 x 2-4cm, often shield-shaped, usually not undulate, with a strong spine at tip and often two lateral spines of similar length, occasionally with lower marginal spines; stalks unwinged; petals yellowish-white, 3-4mm; berries red, or rarely yellow in cultivars	I. cornuta

ESCALLONIACEAE

Escallonia key

Leaves up to 8 x 4cm, sticky-glandular and resin-scented; inflorescence a terminal raceme or panicle; corolla-claws	E. rubra var.
longer than lobes, forming an apparent tube, deep red or sometimes white or pink	macrantha
Leaves c. 2 x 1cm, less glandular and sticky; few-flowered clusters of flowers in upper leaf axils; corolla claws shorter	E. x langleyensis
than lobes, not forming an apparent tube, usually pale pink	

ADOXACEAE

Viburnum key

Laguage and a state of	Leaves with 3 conspicuous subparallel main veins, impressed above, prominent beneath; flowering summer		V. davidii
Leaves smooth or raised only between three main veins	Leaves with 4-7(-12) pairs of main veins,	Evergreen; vein pairs up to 8, exceptionally 12; flowering winter – early spring	V. tinus
	curving upwards	Semi-evergreen; vein pairs usually 4-5; flowering summer	V. x hillieri
Leaves wrinkled	Leaves glabrous on upper side, strongly wrinkled		V. rhytidophyllum
Leaves wrinkled	Leaves with few to many stellate hairs on upp	per side, moderately to weakly wrinkled	V. x rhytidophylloides

CAPRIFOLIACEAE

Lonicera key

Plant usually >1m high; leaves mostly 6-16mm and ovate, rounded to ±cordate at base, without raised midrib on upper surface	L. nitida
Plant rarely >1m high; leaves mostly 12-32mm and elliptic-lanceolate, wedge-shape to subacute at base, with raised midrib on upper surface	L. pileata

GRISELINIACEAE

Griselinia key

Leaves 2.5-11cm, ±symmetrical at base; panicles 2.5-7.5cm	G. littoralis
Leaves 7.5-20cm, often highly glossy (but beware the very glossy <i>G. littoralis</i> cv. Green Horizon), conspicuously	G. lucens
asymmetrical at base; panicles 7.5-15cm	G. IUCEIIS

PITTOSPORACEAE

Pittosporum key

Leaves entirely hairless, up to 7cm long, strongly wavy at margins, net-veined, often variegated or coloured	P. tenuifolium
Leaves with whitish or buff-coloured hairs beneath and some hairs on upper side when young, up to 10cm long,	P. crassifolium
slightly undulate and with recurved margins, not net-veined, sometimes with creamy-white margins	