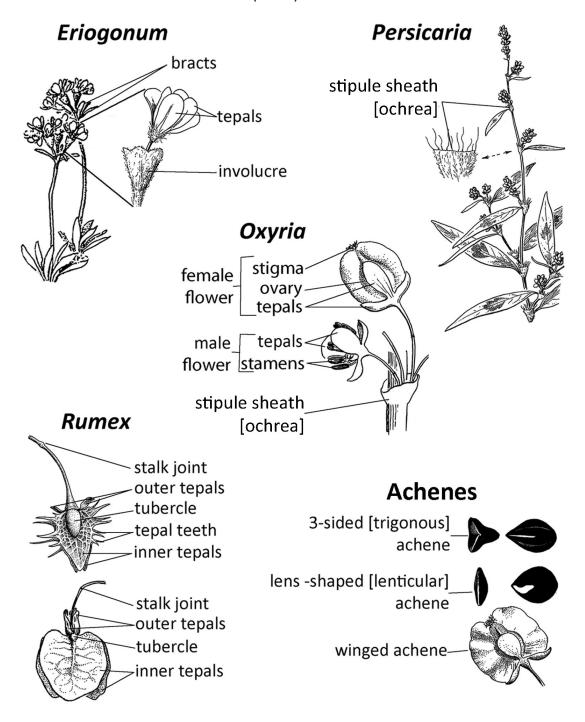
AN ILLUSTRATED KEY TO THE POLYGONACEAE OF ALBERTA

Compiled and written by Lorna Allen & Linda Kershaw

April 2019

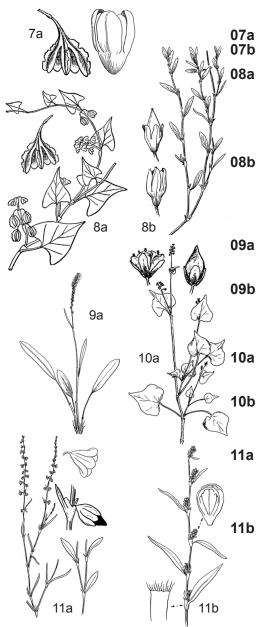
This key was compiled using information primarily from Moss (1983), Douglas et. al. (1999) and the Flora North America Association (2005). Taxonomy follows VAS-CAN (Brouillet, 2015). The main references are listed at the end of the key. Please let us know if there are ways in which the kay can be improved.

The 2015 S-ranks of rare species (S1; S1S2; S2; S2S3; SU, according to ACIMS, 2015) are noted in superscript (^{s1;s2;sU}) after the species names. For more details go to the ACIMS web site. Similarly, exotic species are followed by a superscript X, XX if noxious and XXX if prohibited noxious (^{x; xx; xxx}) according to the Alberta Weed Control Act (2016).



POLYGONACEAE Buckwheat Family

	Buckwheat Family	
1a	Key	y to Genera
	01a	Dwarf annual plants 1-4(10) cm tall; leaves paired or nearly so; tepals 3(4); stamens (1)3(5)
	01b	Plants not as above; tepals 4-5; stamens 3-8
		Plants large, exotic, perennial herbs spreading by creeping rootstocks; flowering stems erect hollow, 0.5-2(3) m tall; flowers with both ♂ and
3a	02b	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
Ja	03a	Flowering stems forming dense colonies and with distinct joints (like bamboo stems) profusely branched, green with red/purple speckles; leaves alternate, in a zig-zag pattern on the stem, 5-15 × 2-10 cm, egg-shaped, with wedge-shaped to squared bases and abruptly
3b	03b	sharp, stiff-pointed tips; leaf stalks 1-3 cm long, not fleshy <i>Reynoutria japonica</i> XXX [Fallopia japonica; Polygonum cuspidatum] Flowering stems 1-few per plant, sparingly branched near the top, often striped o suffused with red or pink; leaves mostly basal leaf blades large, dark-green, heart-shaped to egg-shaped in outline to nearly circular o kidney-shaped, usually >15 cm long (up to 60 cm across) with wavy edges; leaf stalks large (often 30-50 cm long and ≥2 cm thick), fleshy green to red <i>Rheum rhabarbarum</i> X
5a 4a 4b		Leaves without stipules sheathing the stem flower clusters with a whorl of leafy to scale like bracts at base; stamens 9 . <i>Eriogonum</i> Leaves with stipules that encircle/sheath the stem (→) (ocreae); flower clusters without a whorl of bracts; stamens ≤8
→ → → → → → → → → → → → → → → → → → →	05a 05b	Tepals 6; stamens 6, achenes not winged inner tepals usually enlarged in fruit . <i>Rumex</i> Tepals 4-5, stamens 3-8; achenes with o without wings; inner tepals rarely enlarged in fruit (enlarged in some <i>Polygonum</i> o <i>Persicaria</i> species)
	06a	Tepals 4, the inner 2 erect and the outer 2 ben back in fruit; achenes lens-shaped, broadly winged (→); leaves basal (0-1 on the stem) round to kidney-shaped Oxyria digyna
6a ←	06b	Tepals 4-5; achenes unwinged or essentially so; leaves mainly on the stem (mostly basa in <i>Bistorta</i>), variously shaped but not round to kidney-shaped

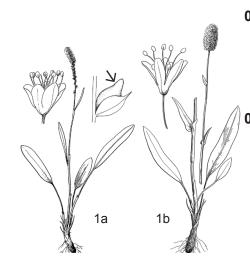


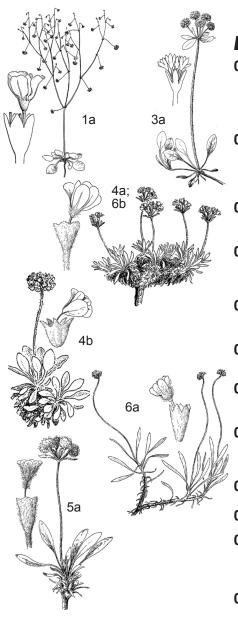
a b	Outer tepals winged or keeled
a b	Stems twining or sprawling; leaves heart-shaped; outer tepals winged (usually keeled in <i>F. convolvulus</i>); stipule sheaths (ocreae) papery and thin but not transparent, tan to brownish, with or without hairs, never 2-lobed near the tip . <i>Fallopia [Polygonum,</i> in part] Stems mostly erect, angled upwards, not twining; leaves rarely heart-shaped; outer tepals keeled; stipule sheaths often nearly transparent, silvery, hairless, 2-lobed near the tip <i>Polygonum</i> (in part)
а	Leaves mostly basal, oblong; flower clusters at stem tips, spike-like; stems unbranched Bistorta [Polygonum, in part]
b	Leaves mostly on the stem, variously shaped; flower clusters at stem tips and in leaf/branch axils (sometimes only in axils); stems branched (rarely unbranched)
а	Tepals not fused; achenes clearly extending beyond the tepals; inner tepals not enlarged with fruiting
b	Tepals fused for up to 2/3 of their length; achenes extending beyond the tepals or not inner tepals enlarged with fruiting or not11
3	Stipule sheaths (ocreae) often nearly transparent, silvery, hairless, 2-lobed near the

(rarely silvery), hairy or not, never 2-lobed near the tip, often tearing with age; tepals 4-5, fused 25-66% of their length; stamens 5-8...

Persicaria [Polygonum, in part]

BISTORTA Bistort





ERIOGONUM Umbrella-plant

01b Plants perennial; stems and flowers not as above; flowers in ± dense, umbrella-shaped clusters (umbels); mainly mountain species (*E. flavum* in mountains and grasslands) . .02

03a Involucre lobes ≥1/2 as long as the tube, usually bent back or spreading.....

03b Involucre lobes usually <1/2 as long as the tube, erect......04

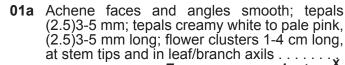
04a Leaves 1-2 cm long; flower clusters branched once; tepals woolly-hairy near the base

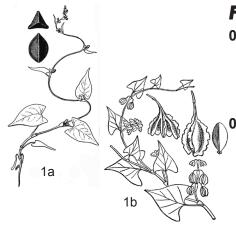
Outer tepals up to twice as wide as the inner ones Eriogonum ovalifoliumOuter tepals similar to the inner ones 06

Of Plowering stems leafy near the base; leaves (2)3-7(9) cm long; tepals whitish-brown to rose coloured; rare in AB, known from Banff NP

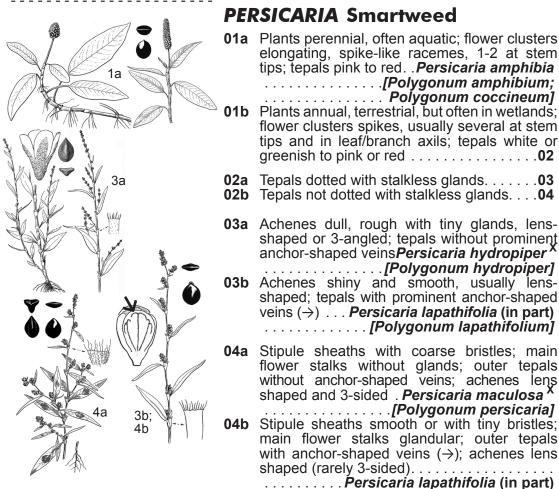
06b Flowering stems leafless; leaves usually (0.5)1-2 cm long; tepals pale yellow, usually tinged with pink; widespread mountain species . *Eriogonum androsaceum* (in part)







FALLOPIA False-buckwheat

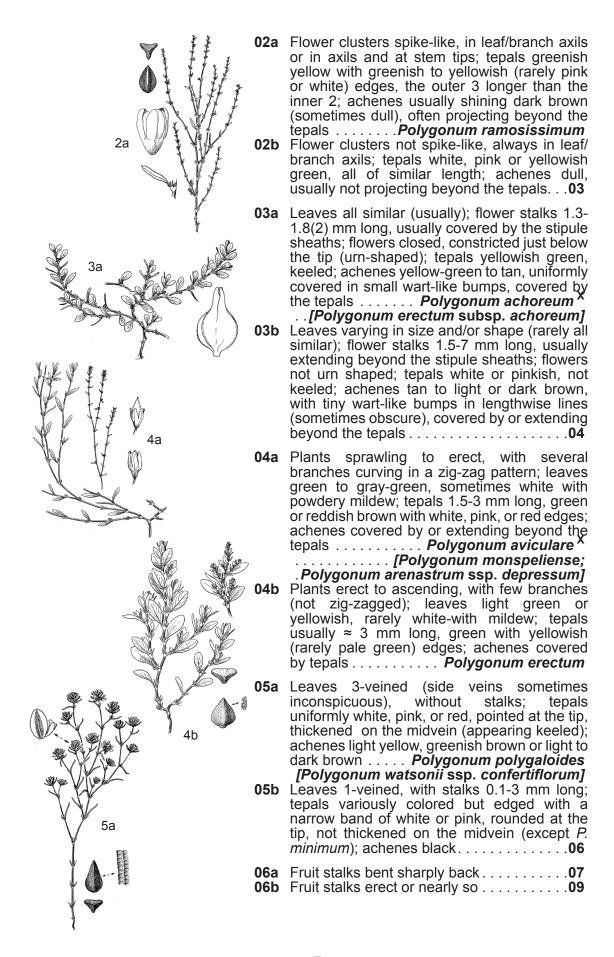


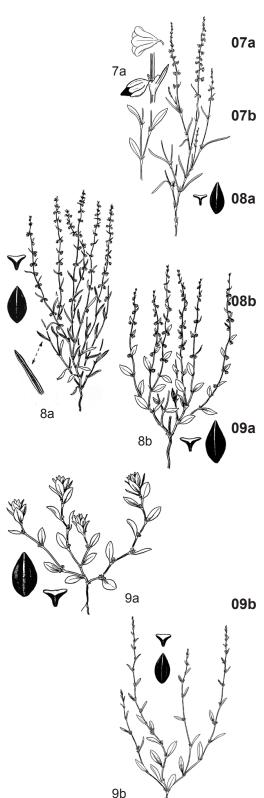


POLYGONUM Knotweed

01a Stems distinctly and ± regularly 8-16-ribbed; leaf veins pinnate, secondary veins conspicuous; anthers whitish yellow.....02
01b Stems 4-sided, with ribs obscure or absent; leaf veins parallel, secondary veins inconspicuous; anthers pink to purple..................05

..... [Polygonum lapathifolium]



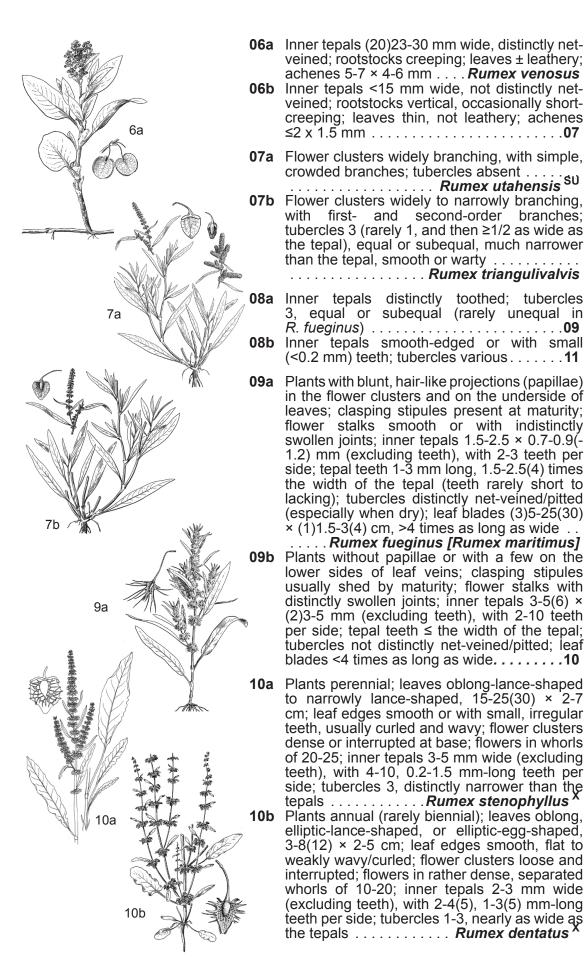


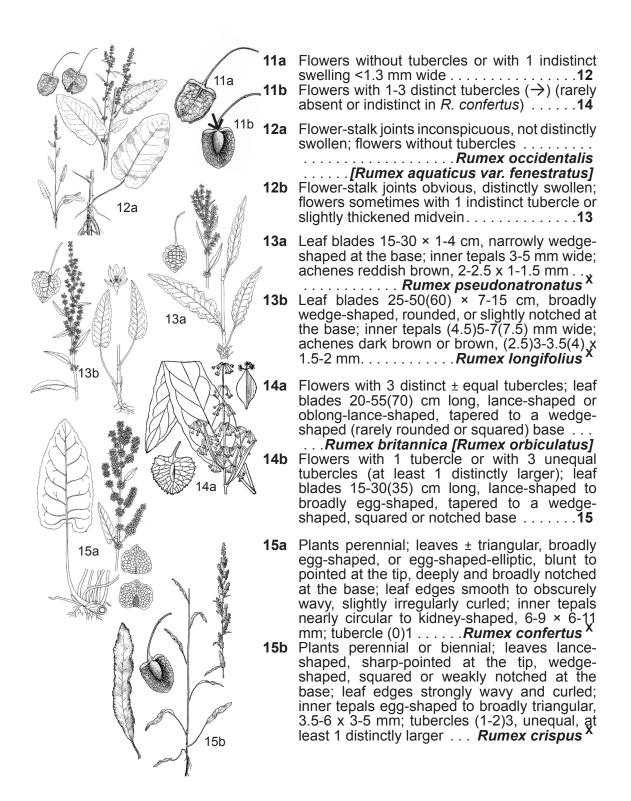
Lower leaves linear to lance-shaped, $10-20(25) \times 1-3(4)$ mm; leaf edges rolled downward, smooth; upper bracts awl-shaped; flowers produced throughout the plant, nearly to the base; achenes projecting beyond the tepals *Polygonum engelmannii* S2

....[Polygonum douglasii ssp. austiniae]

Plants erect to sprawling; stems with tiny, stiff hairs and rounded projections (papillae), 2-10(30) cm long, <1 mm thick, wiry, often zig-zagged; stipule sheaths (ocreae) 1-4 mm long; leaves evenly distributed or crowded at branch tips, only slightly smaller near the branch tips, narrowly elliptic to egg-shaped or almost round, 6-27 mm long, with flat edges; flower clusters broad and flat-topped (cymes) from stem/leaf axils; tepals 1.8-2.5 mm long, fused for 22-29% of their length; achenes 1.8-2.3 mm long . . *Polygonum minimum* **09b** Plants erect; stems smooth, 4-50 cm long, usually >1mm thick, not wiry; stipule sheaths 4-10 mm long; leaves evenly distributed, abruptly reduced to bracts near the branch tips, narrowly oblong to lance-shaped and widest above midleaf, 15-45 mm long, with edges rolled downwards (usually); flower clusters narrow and elongating (racemes) 5-15 cm long, from leaf/stem axils and sometimes at stem tips; tepals (2.5)3-3.5 mm long, fused

ı	RUI	MEX Dock, Sorrel
1a		Sizes and shapes of many plants in this genus vary greatly with varying environmental conditions. The features described in this key reflect characteristics of "normal" plants in their usual habitats.
3 9		Flowers all or most with either \circlearrowleft or \Lsh parts; \circlearrowleft and \Lsh flowers usually on separate plants; flower stalks clearly jointed; leaves arrowhead-shaped and/or plants alpine/subalpine02 Flowers all or most with both \circlearrowleft and \Lsh parts;
1b		flower stalks clearly jointed or not; leaves various, if arrowhead-shaped then plants not alpine/subalpine
	02a	Flower stalks jointed near the top; outer tepals bent towards the inner ones; inner tepals 1.2-1.7(2) mm long, without a free wing (or the wing barely visible); tubercles (small wart-like bumps) absent; leaves with (0)2 spreading
3a	02b	lobes at the base, smooth-edged, rarely with many lobes
2a	03a	Leaves broadly lance-shaped, without basal lobes, gradually tapered to the stalk, 3-7(10) × (0.6)1-3(4) cm; rootstocks thick, vertical, with densely tufted underground stolons
	03b	Leaves (at least some) arrowhead shaped with downward-pointing basal lobes; rootstocks relatively thin and shallow, horizontal or slightly angled upwards
4a	04a	Stipules cut into narrow lobes (especially on middle and upper stem leaves); achenes black to dark brown, shiny; leaves oblong-egg-shaped to lance-shaped, >2.5 times as long as wide
	04b	Stipules smooth-edged (sometimes with narrow lobes near the tip); achenes dark brown to brownish yellow, dull; leaves broadly to oblong-egg-shaped, <2.5 times as long as wide
		Plants without basal rosettes of leaves; stems branched, with leafy shoots or secondary flower clusters from the upper branch/leaf axils; leaf bases wedge-shaped; inner tepals smooth-edged (sometimes indistinctly jagged near the base in <i>Rumex triangulivalvis</i>)06
	05b	Plants with basal rosettes of leaves (sometimes not persistent at maturity); stems unbranched, often several from the base, without shoots or flower clusters in branch/leaf axils; leaf bases notched to wedge-shaped; inner tepals smooth-edged or toothed





References

- Alberta Conservation Information Management System (ACIMS). 2015. List of all Vascular Plant Taxa Confirmed for Alberta as recorded in the ACIMS database October 15 2015. ACIMS, Government of Albert, Edmonton, Alberta.
- Britton, N. L. and A. Brown. 1913. An illustrated flora of the northern United States and Canada. reprinted by Dover Publications in 1970 edition. Dover Publications, Inc., New York, New York.
- Consortium of Wisconsin Herbaria. 2016. Flora of Wisconsin. Wisconsin State Herbaria, Madison, WI. Accessed, 2016. http://wisflora.herbarium.wisc.edu/index.php.
- Douglas, G. W., D. Meidinger, and J. Pojar. 1999. Illustrated flora of British Columbia. Volume 4. Dicotyledons (Orobanchaceae through Rubiaceae). British Columbia Ministry of Forests, Victoria, British Columbia.
- Flora of North America Editorial Committee, editor. 2005. Flora of North America North of Mexico. Volume 5. Magnoliophyta: Caryophyllidae, Part 2. Oxford University Press, New York, NY.
- Hitchcock, C. L., A. Cronquist, M. Ownbey, and J. W. Thompson. 1955-69. Vascular plants of the Pacific Northwest. Volume 5. University of Washington Press, Seattle, Washington.
- Moss, E. H. 1983. Flora of Alberta.2nd edition. University of Toronto Press, Toronto, Ontario.
- Province of Alberta. 2016. Weed Control Act, Office Consolidation. Alberta Regulation 19/2010 with amendments up to and including Alberta Regulation 125/2016. Alberta Queen's Printer, Edmonton, AB.

Scientific Name	Illus. Source	Scientific Name	Illus. Source
Bistorta bistortoides	H&C	Rumex longifolius	LK
Bistorta vivipara	H&C LK	Rumex occidentalis	H&C
Eriogonum androsaceum	H&C	Rumex paucifolius	H&C
Eriogonum cernuum	H&C	Rumex pseudonatronatus	LK
Eriogonum flavum	H&C	Rumex stenophyllus	LK
Eriogonum ovalifolium	H&C	Rumex triangulivalvis	H&C
Eriogonum pauciflorum	H&C	Rumex utahensis	H&C
Eriogonum umbellatum	H&C	Rumex venosus	H&C
Fagopyrum esculentum	BC		
Fagopyrum tataricum	LK		
Fallopia convolvulus	H&C		
Fallopia scandens	B&B		
Koenigia islandica	B&B		
Oxyria digyna	H&C	Key to Illustration Sources	•
Persicaria amphibia	H&C	-	
Persicaria lapathifolia	H&C	B&B = Britton, N. L. and A. E	. ,
Persicaria maculosa	H&C	H&C = Hitchcock, C. L., A. (•
Polygonum achoreum	H&C LK	Ownbey, and J. W. Thompso	on. (1955-69)
Polygonum austiniae	H&C	LK = Linda Kershaw	
Polygonum aviculare	H&C	BC = illustrations from the Illustrated Flora of British Columbia (Douglas et. al., 1999), provided courtesy of the Province of British	
Polygonum douglasii	H&C		
Polygonum engelmannii	H&C	Columbia.	Willoc of British
Polygonum erectum	H&C		
Persicaria hydropiper	H&C		
Polygonum minimum	H&C		
Polygonum polygaloides	H&C		
Polygonum ramosissimum			
Polygonum sawatchense	H&C		
Reynoutria japonica	H&C		
Rheum rhabarbarum	LK		
Rumex acetosa	LK		
Rumex acetosella	H&C		
Rumex britannica	B&B		
Rumex confertus	LK		
Rumex crispus	H&C		
Rumex dentatus	H&C		
Rumex fueginus	H&C		
Rumex lapponicus	LK		

Index	engelmannii 8
Bistorta 4	erectum 7
bistortoides 4	subsp. achoreum. See Polygonum
vivipara 4	achoreum
Eriogonum 3, 5	hydropiper. See Persicaria hydropiper
androsaceum 5	lapathifolium. See Persicaria lapathifolia
cernuum 5	minimum 8
flavum 5	monspeliense. See Polygonum aviculare
ovalifolium 5	persicaria. See Persicaria maculosa
pauciflorum 5	polygaloides 7
umbellatum 5	ramosissimum 7
Fagopyrum 4, 5	sawatchense 8
esculentum 5	scandens. See Fallopia scandens
tataricum 5	viviparum. See Bistorta vivipara
Fallopia 4, 6	watsonii
convolvulus 6	ssp. confertiflorum. See Polygonum
japonica. See Reynoutria japonica	polygaloides
scandens 6	Reynoutria
Koenigia	japonica 3
islandica 3	Rheum
Oxyria	rhabarbarum 3
digyna 3	Rumex 3, 9
Persicaria 4, 6	acetosa 9
amphibia 6	acetosella 9
hydropiper 6	aquaticus
lapathifolia 6	var. fenestratus. See Rumex occiden-
lapathifolium 6	talis
maculosa 6	britannica 11
Polygonaceae 3	confertus 11
Polygonum 4, 6	crispus 11
achoreum 7	dentatus 10
amphibium. See Persicaria amphibia;	fueginus 10
See Persicaria lapathifolia	lapponicus 9
arenastrum	longifolius 11
ssp. depressum. See Polygonum	maritimus. See Rumex fueginus
aviculare	occidentalis 11
austiniae 8	orbiculatus. See Rumex britannica
aviculare 7	paucifolius 9
bistortoides. See Bistorta bistortoides	pseudonatronatus 11
coccineum. See Persicaria amphibia	stenophyllus 10
convolvulus. See Fallopia convolvulus	triangulivalvis 10
cuspidatum. See Reynoutria japonica	utahensis 10
douglasii 8	venosus 10
ssp. austiniae. <i>See</i> Polygonum austiniae	
ssp. engelmannii. See Polygonum	
engelmannii	