

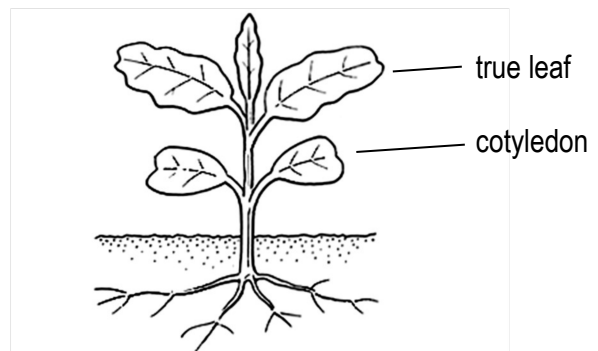
# Common Weed Seedlings of Southern Idaho

by  
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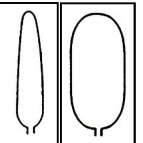
**Kimberly Research  
and  
Extension Center  
Kimberly, Idaho**

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## Cotyledon Shapes

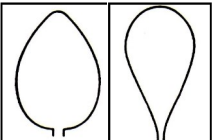
**Type 1: Linear, Oblong**



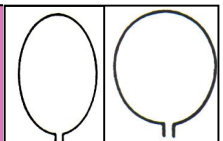
**Type 2: Lanceolate**



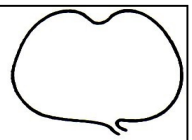
**Type 3: Ovate, Obovate**



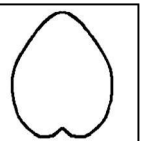
**Type 4: Oval, Round**



**Type 5: Kidney-shaped**



**Type 6: Heart-shaped**



**True Leaf Characteristics— see p. 48**

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  - Redroot pigweed
- C. Obovate First True Leaf p. 14
  - Common purslane
  - Prostrate knotweed
  - Prostrate pigweed
- D. Heart-shaped First True Leaf p. 17
  - Wild buckwheat
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  - Henbit
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    Common mallow

## Type 1: Linear, Oblong Cotyledons A. Linear First True Leaf

Kochia  
*Kochia scoparia*



- Annual
- Hypocotyl reddish in color
- Cotyledons oblong and join cup-like at the base
- First true leaves obovate, stalkless, and covered with soft hairs
- Successive pairs of leaves quickly emerge and the seedling leaves appear to be in a whorl.

**Type 1: Linear, Oblong Cotyledons**  
**A. Linear First True Leaf**

**Meadow salsify**  
*Tragopogon pratensis*



- Annual or biennial
- Cotyledons linear, grass-like, fold at midvein
- Young leaves long and narrow; with successive leaves form a basal rosette
- Leaves contain a milky juice
- Blades are keeled with parallel veins.

**Type 1: Linear, Oblong Cotyledons**  
**A. Linear First True Leaf**

**Russian thistle**  
*Salsola tragus*



- Annual
- Cotyledons linear
- First true leaf linear
- Leaves fleshy, narrow, dark green, about one inch in length
- Stems highly branched with red stripes.

**Type 1: Linear, Oblong Cotyledons**  
**B. Ovate First True Leaf**

**Common lambsquarters**  
*Chenopodium album*



- Summer annual
- Cotyledons linear and taper to a stalk
- Leaves dull green with mealy cast on upper surface and bright magenta undersides
- First true leaves ovate and stalked.

**Type 1: Linear, Oblong Cotyledons**  
**C. Ovate First True Leaf**

**Common cocklebur**  
*Xanthium strumarium*



- Summer annual
- Cotyledons linear, smooth, waxy; may protrude from the bur
- First true leaves ovate to triangular and stalked
- Leaf margins slightly toothed with prominent veins.



**Type 1: Linear, Oblong Cotyledons  
C. Ovate First True Leaf**

**Common groundsel  
*Senecio vulgaris***



- Annual
- Hypocotyl reddish tinged.
- Cotyledons oblong with short stalks
- First true leaves oval and stalked
- Leaf margins have shallow teeth arranged in a step-like fashion.

**Type 1: Linear, Oblong Cotyledons  
C. Ovate First True Leaf**

**Cutleaf nightshade  
*Solanum triflorum***



- Summer annual
- Cotyledons linear
- First true leaf oval
- Gland-tipped hairs form sparsely on midveins, margins, and stalks
- All leaves have long stalks.

**Type 1: Linear, Oblong Cotyledons**  
**C. Ovate First True Leaf**

**Redroot pigweed**  
*Amaranthus retroflexus*



- Annual
- Cotyledons linear, hypocotyl reddish tinged
- First true leaf ovate, with notched leaf tips
- Stems smooth to hairy, reddish toward base
- Second leaves have prominent veins
- The hypocotyl, underside of the leaves, and leaf petioles are reddish tinged.

**Type 1: Linear, Oblong Cotyledons**

**Common purslane**  
*Portulaca oleracea*



- Summer annual
- Cotyledons are oblong to linear and taper to plant stem;
- First true leaf obovate
- Fleshy, succulent, and maroon in color
- Blade smooth, green, oblong, broadest and rounded at apex
- Maroon tinged or maroon on underside of leaf.



**Type 1: Linear, Oblong Cotyledons  
D. Obovate First True Leaf**

**Prostrate knotweed  
*Polygonum aviculare***



**Type 1: Linear, Oblong Cotyledons  
D. Obovate First True Leaf**

**Prostrate pigweed  
*Amaranthus blitoides***



- Annual
- Cotyledons linear with visible midribs
- First true leaves obovate with notched tips and taper to short stalks
- Hypocotyls, leaf undersides, and leaf stalks crimson tinged
- Leaf veins prominent underneath.

- Annual
- Cotyledons linear and join at the base
- A crimson, membranous sheath encloses base of seed leaves, from which first true leaf emerges
- First true leaves obovate and taper to a papery sheath at the base.

**Type 1: Linear, Oblong Cotyledons**  
**E. Heart-shaped First True Leaf**

**Wild buckwheat**  
*Polygonum convolvulus*



- Annual
- Cotyledons linear and somewhat pointed
- First true leaf heart-shaped with stalk
- Leaves pointed and arrowhead-shaped
- Leaf and stalk often purple-tinged
- Prominent and branched leaf midveins
- True leaf appearance similar to field bindweed.

**Type 1: Linear, Oblong Cotyledons**  
**F. Pinnately Lobed First True Leaf**

**Bur buttercup**  
*Ranunculus testiculatus*



- Winter annual or annual
- Cotyledons oblong to linear, somewhat pointed, and stalkless
- First true leaves fleshy and three lobed
- Middle lobe is rounded and the outer lobes pointed
- Emerges late winter to early spring.



**Type 1: Linear, Oblong Cotyledons  
F. Pinnately Lobed First True Leaf**

**Flixweed**  
*Descurainia sophia*



- Winter annual
- Cotyledons oblong and taper to a stalk
- First true leaves have three to five lobes and
- Long stalks
- Fine hairs cover the leaves and stalks.

**Type 1: Linear, Oblong Cotyledons  
F. Pinnately Compound First True Leaf**

**Puncturevine**  
*Tribulus terrestris*



- Annual
- Cotyledon leaves oblong to oval with distinctive midrib
- First true leaves pinnately compound
- Leaflets ovate to oblong and hairy along margins.



**Type 2: Lanceolate Cotyledons**  
**A. Ovate First True Leaf**

**Hairy nightshade**  
*Solanum sarrachoides*



- Annual
- Cotyledons lanceolate with short stalks
- First true leaves broadly ovate, hairy, and often tinged bluish purple
- White hairs cover the leaf stalks.

**Type 3: Ovate, Obovate Cotyledons**  
**A. Lanceolate First True Leaf**

**Common sunflower**  
*Helianthus annuus*



- Annual
- Cotyledons fleshy round to oblong, joined at the base, smooth
- First true leaves opposite, ovate to lanceolate
- Margins weakly rounded, toothed
- Has short bristly hairs that are rough to the touch.

**Type 3: Ovate, Obovate Cotyledons  
B. Pinnately Lobed First True Leaf**

**Mayweed chamomile  
*Anthemis cotula***



- Annual
- Cotyledons obovate, thick, and often hairy underneath
- First true leaves have five lobes with pointed tips and a few transparent hairs.

**Type 4: Oval, Round Cotyledons  
A. Obovate First True Leaf**

**Annual sowthistle  
*Sonchus oleraceus***



- Annual
- Cotyledons oval and taper to the stem
- Cotyledons and young leaves have a whitish powdery coating
- First true leaves rounded to egg shaped with long stalk and irregularly toothed margins
- First few leaves alternate in a basal rosette
- Leaves exude a milky juice when cut or broken.



**Type 4: Oval, Round Cotyledons  
A. Obovate First True Leaf**

**Spiny sowthistle**  
*Sonchus asper*



- Annual
- Cotyledons ovate to round with short stalks; margins crimson tinged
- First true leaves oval and taper to a broad stalk
- Margins slightly toothed with delicate prickles
- Leaves pale and powdery green underneath.

**Type 4: Oval, Round Cotyledons  
A. Obovate First True Leaf**

**Prickly lettuce**  
*Lactuca serriola*



- Annual or biennial
- Cotyledons oval to ovate; taper to a short stalk
- First true leaves obovate and taper to a broad, short stalk
- Young leaves have spines on margins and on midvein underneath
- Leaves exude a milky juice when cut or broken.

**Type 4: Oval, Round Cotyledons  
B. Ovate First True Leaf**

**Blue mustard**  
*Chorispora tenella*



- Winter annual
- Cotyledons oval and taper to a stalk with short, thick hairs on margins
- First true leaves oval and taper to a pinkish tinged stalk
- Short, stout, sparse hairs cover the leaf surfaces and margins
- All leaves look warty or bumpy.

**Type 4: Oval, Round Cotyledons  
B. Ovate First True Leaf**

**Field pennycress**  
*Thlaspi arvense*



- Winter annual
- Cotyledons oval and long stalked
- First true leaves oval, succulent, and taper to a stalk
- Leaves yellowish green.



**Type 4: Oval, Round Cotyledons  
B. Ovate First True Leaf**

**Henbit**  
*Lamium amplexicaule*



- Annual
- Cotyledons oval with an indented base
- First true leaves oval with coarsely toothed margins
- Young leaves have distinctly crinkled upper surface
- Stalks have coarse hairs and are sometimes purple tinged.

**Type 4: Oval, Round Cotyledons  
B. Ovate First True Leaf**

**Shepherd's-purse**  
*Capsella bursa-pastoris*



- Annual or winter annual
- Cotyledons oval, narrowed at base
- Hypocotyl often tinted purple
- Seedling leaves deeply lobed forming a rosette
- Short, fine, star-like hairs cover the leaf surface.

**Type 4: Oval, Round Cotyledons  
D. Lanceolate First True Leaf**

**Canada thistle**  
*Cirsium arvense*



- Perennial
- Cotyledons oval
- First true leaf lanceolate and toothed with bristly hairs
- Smooth stems and upper leaf surfaces
- Plants re-growing from roots have no cotyledons.

**Type 4: Oval, Round Cotyledons**

**Tumble mustard**  
*Sisymbrium altissimum*



- Annual
- Cotyledons oval and taper to a long stalk
- First true leaves obovate, pointed, and stalked with irregularly toothed margins
- As rosette forms, leaves are lobed nearly to the midrib, similar to dandelion.



## m mType 5: Kidney-shaped Cotyledons

**Velvetleaf**  
*Abutilon theophrasti*



- Summer annual
- Cotyledons heart-shaped with sometimes rounded tips and covered with short soft hairs
- Seedlings have one heart-shape and one round leaf
- First true leaves alternate, heart-shaped, hairy on both surfaces with toothed margins.

## Type 5: Kidney-shaped Cotyledons B. Arrowhead-shaped First True Leaf

**Field bindweed**  
*Convolvulus arvensis*



- Perennial
- Cotyledons kidney with notched tips
- First true leaves arrowhead-shaped with lobed bases
- All leaves have prominent venation
- Stems climbing or twining
- Plants re-growing from roots have no cotyledons.

## Type 6: Heart-shaped Cotyledons

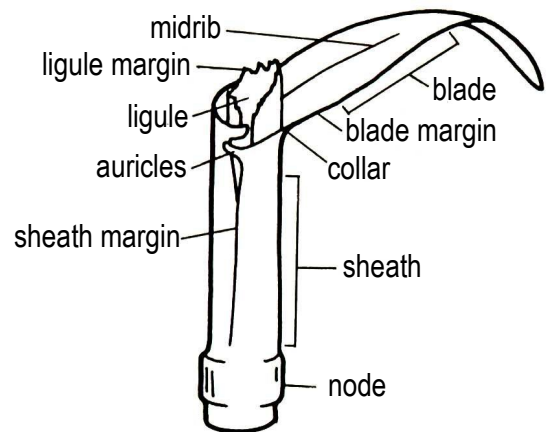
### A. Round First True Leaf

Common mallow  
*Malva neglecta*

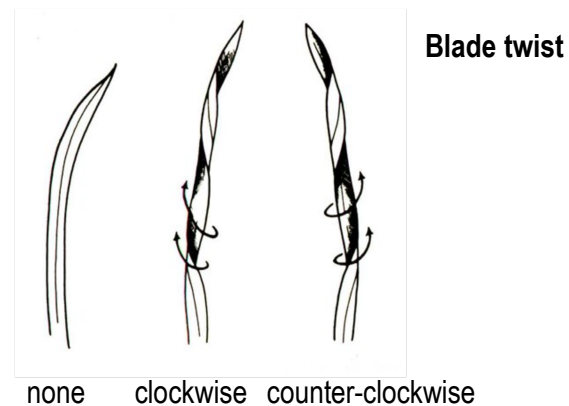
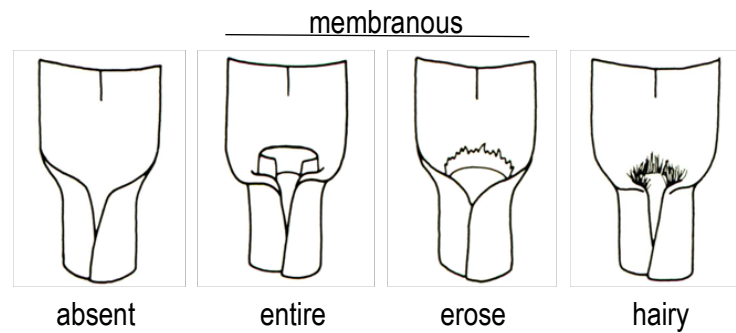


- Annual or biennial
- Cotyledons heart-shaped
- All leaves have long stalks
- First true leaves alternate, round, and have irregularly toothed margins and palmate venation
- Leaves mostly hairy.

## Grass Identification

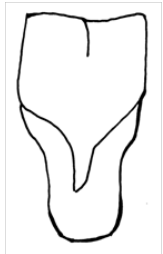


### Ligule types

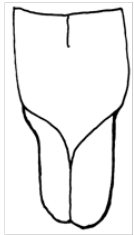




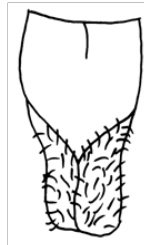
### Sheath types



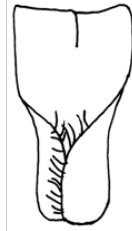
open



closed

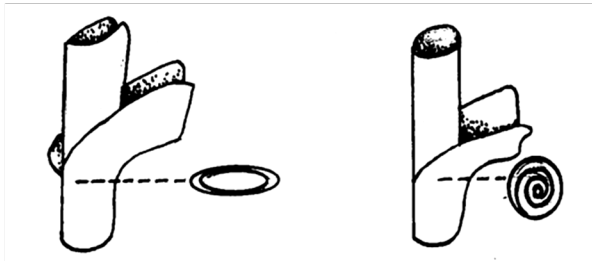


hairy  
sheath  
surface



hairy  
sheath  
margin

### Sheath shapes

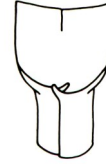


flattened

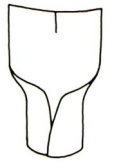
round

Sheath shape can be determined by rolling the sheath between your thumb and index finger. A round sheath will not be perfectly round. A flattened sheath will definitely have two sides to it.

Type 1: Auricles present  
(see below)



Type 2: Auricles absent  
(go to page 40)



Type 1: Auricles present  
A. Ligule membranous and erose  
Jointed goatgrass  
*Aegilops cylindrica*



- Winter annual with hairs on the blade margin and near the auricles.
- Sheath hairless and round.
- Genetic relative to wheat.

Type 1: Auricles present  
B. Ligule membranous and entire



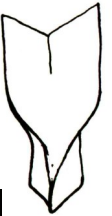
Quackgrass  
*Elymus repens*



- Perennial, reproducing by seed and rhizomes.
- Leaf blade feels rough, no hairs present.
- Short hairs on lower portion of sheath and hairless on upper sheath.

Type 2: Auricles absent  
A. Ligule absent

Barnyardgrass  
*Echinochloa crus-galli*



- Summer annual usually with no hairs on the blade, but some biotypes have hairs.
- Sheaths are flattened. When rolling between fingers, it is obviously two-sided.

Type 2: Auricles absent  
 B. Ligule hairy  
 1. Sheath flattened



Yellow foxtail  
*Setaria pumila*



- Summer annual with flat blades and long hairs at the base of the leaf blade and base of sheath.
- Hairy ligule can sometimes be difficult to see because of hairs on base of flattened sheath.

Type 2: Auricles absent  
 B. Ligule hairy  
 2. Sheath round and blade rough, but hairless



Green foxtail  
*Setaria viridis*



- Summer annual with hairless, but rough blade surface.
- Hairy ligule is fairly short and can be hard to see separation of hairs. Easy to mistake as membranous.
- Sheath also has fine closely spaced hairs on the margin.

Type 2: Auricles absent

B. Ligule hairy

3. Sheath round and dense, rigid hairs on sheath and leaf blades

Witchgrass  
*Panicum capillare*



- Summer annual with hairs on top and below the blades.
- Sheath is somewhat flattened and covered with hairs.
- Leaf blades also have a conspicuous white midvein.

Type 2: Auricles absent

C. Ligule membranous and toothed or jagged.

1. Hair on top of and below leaf surface.

a. Hairs somewhat long and scattered above and below leaf surface.



Large crabgrass  
*Digitaria sanguinalis*



- Summer annual that typically begins emerging later than other summer annual grasses.
- Sheaths are split and somewhat flattened in seedlings.
- The plant tends to spread out as it grows, and can root at the enlarged nodes.

Type 2: Auricles absent

C. Ligule membranous and toothed or jagged.

1. Hair on top of and below leaf surface.

b. Hairs dense and short above and below giving leaf a downy appearance.



Downy brome  
(*Bromus tectorum*)



- Winter annual or annual that matures in early June.
- Leaves are erect and blades twist clockwise.
- Sheaths are partially split and may be reddish tinged.

Type 2: Auricles absent

C. Ligule membranous and toothed or jagged.

2. Hairs evenly spaced on leaf margins.

a. Leaves of seedling twist counter-clockwise



Wild oat  
(*Avena fatua*)



- Annual or sometimes winter annual.
- Sheaths are round, open at the top, and smooth or occasionally hairy.



Type 2: Auricles absent

C. Ligule membranous and toothed or jagged.

3. Hairless leaf blades and prow-like leaf tips.



Annual bluegrass  
(*Poa annua*)



Photo courtesy of Carol Witham



- Annual or winter annual reproducing by seed.
- Annual bluegrass can become a short-lived perennial with mild winter temperatures.
- Sheaths are round.

## Leaf Arrangements



alternate



opposite



whorled

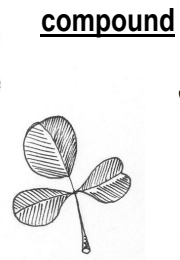
## Leaf Types



simple



pinnate



trifoliate



palmate

compound

## Leaf Margins



entire



dentate



sinuate



pinnatifid

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**Notes**

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