

Lophozia s.lat. in Switzerland

Lars Söderström



This booklet includes all species of the genus *Lophozia* sensu Schuster that occur in Switzerland. The aim is to enhance the identification of the species, not to make a monograph or a systematic revision of the genus.

Key

1. Leaves 2-lobed (single 3-lobed leaves can occur) 2
 - Leaves 3-4-lobed..... 40
2. Underleaves large, bilobed *Barbilophozia kunzeana*
 - Underleaves absent or small and unlobed..... 3
3. Leaf lobes obtuse to rounded, sinus gibbous *Lophozia obtusa*
 - Leaf lobes obtuse to acute..... 4
4. With gemmae (Search! Some specimens may have lost much of them, especially on older collections)..... 5
 - Without gemmae..... 20
- 2-lobed with gemmae
5. Gemmae yellow to green 6
 - Gemmae red to brown..... 14
6. Stem wide, often flattened, sometimes almost fleshy, leaves sometimes dentate, oil bodies many (> 20), gemmae smooth or stellate 7
 - Stem narrower, leaves never dentate, oil bodies fewer (<20), gemmae never smooth..... 10
7. Gemmae spherical to ellipsoid, rare *Lophozia laxa*
 - Gemmae angular 8
8. Stem purplish ventrally, leaves never dentate *Lophozia grandiretis*
 - Lacking secondary pigmentation, leaves often dentate 9
9. Leaf with few teeth, base 2-4-stratose, stem very fleshy, perianth entire or with 1-celled teeth *Lophozia opacifolia*
 - Leaf often with teeth, base 1-2-stratose, stem fleshy, perianth with 1-3-celled teeth *Lophozia incisa*
10. Shoots erect to suberect, leaves longer than wide *Lophozia ascendens*
 - Shoots prostrate..... 11
11. Leaves concave, cupped, shallowly lobed with lunate sinus *Lophozia wenzelii*
 - Leaves flat or slightly concave, lobed to 1/3 or more with acute sinus 12
12. Leaves as wide as long or wider than long *Lophozia ventricosa*
 - Leaves longer than wide 13

13. Cells with bulging trigones and with 5-12 oil bodies formed by small spherules	<i>Lophozia longiflora</i>
– Cells with moderately bulging trigones and with 15-24 mostly spherical, biconcentric oil bodies	<i>Lophozia silvicola</i>
14. Gemmae brown on top of small attenuate shoots	<i>Leiocolea heterocolpos</i>
– Gemmae shoots not attenuate	15
15. Shoots erect to suberect, leaves longer than wide	<i>Lophozia longidens</i>
– Shoots prostrate.....	16
16. Gemmae orange-brown with 1(-2) large, persistent oil body	<i>Lophozia perssonii</i>
– Gemmae red to brownish, oil bodies not persistent.....	17
17. Cell walls equally thick-walled, bracts dentate	18
– Cell walls thin or with distinct trigones	19
18. Perianth mouth ciliate, leaves without bleached margins.....	<i>Lophozia bicrenata</i>
– Perianth mouth crenulated, leaves brownish with a bleached marginal zone, Shoots julaceous.....	<i>Lophozia decolorans</i>
19. Cells thin-walled without or with small trigones.....	<i>Lophozia excisa</i>
Cells with distinct trigones, leaves somewhat cupped.....	<i>Lophozia sudetica</i>
<u>2-lobed, no gemmae</u>	
20. Shoots julaceous. Cell walls equally thick-walled, bracts dentate	<i>Lophozia decolorans</i>
– Leaves not appressed to the stem. Cell walls thin or with distinct trigones	21
21. Shoots erect to suberect (almost always with gemmae)	22
– Shoots prostrate.....	23
22. Female bracts dentate.....	<i>Lophozia longidens</i>
– Female bracts undentate.....	<i>Lophozia ascendens</i>
23. Perianth smooth below, abruptly contracted, often to a short beak. Often with small underleaves.....	24
– Perianth plicate (at least partly), mostly tapering towards the mouth and never with a beak	29
24. Without underleaves	25
– With underleaves	26
25. Leaves slightly decurrent. Cells with trigones.....	<i>Leiocolea badensis</i>
– Leaves not decurrent. Cells without trigones.....	<i>Leiocolea turbinata</i>
26. Paroicious.....	<i>Leiocolea gillmannii</i>
– Dioicious.....	27
27. Cells with large bulging trigones	<i>Leiocolea heterocolpos</i>
– Cells without or with small trigones	28

28. Leaf lobes rounded to obtuse. Sinus lunate *Leiocolea bantriensis*
 – Leaf lobes acute to acuminate. Sinus angular *Leiocolea collaris*
29. Leaves concave, shallowly bilobed 30
 – Leaves not concave, mostly bilobed 1/4 or more 31
30. Leaves widest above the middle *Lophozia wenzelii*
 – Leaves widest at or below the middle *Lophozia sudetica*
31. With distinct underleaves (at least at shoot apex) *Lophozia elongata*
 – Underleaves lacking 32
32. Leaves dentate, often bluish green. Lacking secondary pigmentation 33
 – Leaves not dentate. Often with secondary pigmentation 34
33. Leaf with few teeth, base 2-4-stratose, stem very fleshy, perianth entire or with 1-
 celled teeth *Lophozia opacifolia*
 – Leaf often with teeth, base 1-2-stratose, stem fleshy, perianth with 1-3-celled teeth
 *Lophozia incisa*
34. Stem wide, often flattened, sometimes almost fleshy, oil bodies many (> 20) 35
 – Stem narrower, oil bodies fewer (<20) 36
35. Cells 40-50 µm in leaf middle. Oil bodies homogenous *Lophozia laxa*
 – Cells 60-80 µm long in leaf middle. Oil bodies mostly segmented *Lophozia grandiretis*
36. Leaf cells thin-walled without or with very small trigones *Lophozia excisa*
 – Leaf cells thin-walled with distinct to bulging trigones 37
37. Leaves longer than wide 38
 – Leaves as wide as long or wider 39
38. Leaf cells with large, often confluent trigones, and 5-10 composed oil bodies
 *Lophozia longiflora*
 – Leaf cells with distinct to bulging but not confluent trigones and 15-25
 biconcentric oil bodies *Lophozia silvicola*
39. Leaves shallowly bilobed (<1/4) with a wide, rounded to obtuse sinus
 *Lophozia sudetica*
 – Leaves bilobed to 1/4 or more with an obtuse to angular sinus
 *Lophozia ventricosa*
- Leaves 3-4-lobed
40. Leaves mostly 4-lobed 41
 – Leaves at most 3-lobed, occasionally with some large teeth 44
41. Leaves deeply lobed, underleaves large, bilobed *Barbilophozia quadriloba*
 – Leaves less deeply lobed, underleaves small 42

42. Leaf lobes mucronate, leaf margins curved	43
– Leaf lobes not mucronate, leaf margins straight.....	<i>Barbilophozia barbata</i>
43. With red gemmae (sometimes sparse)	<i>Barbilophozia hatcheri</i>
– Lacking gemmae.....	<i>Barbilophozia lycopodioides</i>
44. Leaves dentate.....	45
– Leaves not dentate	46
45. Leaf with few teeth, base 2-4-stratose, stem very fleshy, perianth entire or with 1- celled teeth	<i>Lophozia opacifolia</i>
– Leaf often with teeth, base 1-2-stratose, stem fleshy, perianth with 1-3-celled teeth	<i>Lophozia incisa</i>
46. With attenuate shoot apices	47
– Without attenuate shoot apices	48
47. Attenuate part of shoot abruptly formed.....	<i>Barbilophozia attenuata</i>
– Attenuate part of shoot gradually formed	<i>Barbilophozia atlantica</i>
48. Underleaves large, bilobed and ciliate	<i>Barbilophozia floerkei</i>
– Underleaves smaller, unlobed and/or hidden in the rhizoids.....	49
49. Cells large (>22 µm).....	<i>Barbilophozia atlantica</i>
– Cells smaller (<22 µm)	<i>Barbilophozia attenuata</i>

Barbilophozia* Loeske subgen. *Barbilophozia

Large species with mostly 4-lobed leaves with appendages of elongate cells at the base or lacking. Leaves sub-longitudinally attached. Underleaves mostly hidden in the rhizoids, unilobed to bilobed, usually with cilia.

sect. *Lycopodioideae* R.M.Schust.

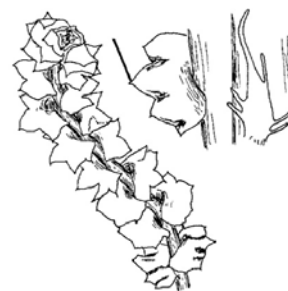
Ventral leaf margin with thread-like appendages of elongate cells. Leaf lobes mucronate. *Barbilophozia rubescens*



***Barbilophozia lycopodioides* (Wallr.) Loeske**

Rather large, shoots 3-5 cm long and 4 mm wide. Light green to yellowish green. **Leaves 4-lobed with curved sides and also curved lobe sides, lobes mucronate. Without gemmae.**

Epigeic, on litter, soil covered boulders, etc.



***Barbilophozia hatcheri* (A.Evans) Loeske**

Rather large, shoots 1-5 cm long and 3-4 mm wide. **Similar to *B. lycopodioides* but almost always with red gemmae and with less curved and mucronate leaves.**

On boulders and cliffs, more rarely epigeic.



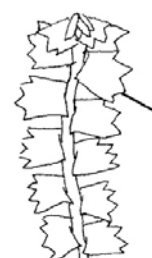
sect. *Barbilophozia*

Ventral leaf margin without thread-like appendages. Leaf lobes not mucronate.

***Barbilophozia barbata* (Schmid.) Loeske**

Large, shoots 3-8 cm long and 2-5 mm wide. **Leaves almost quadratic with straight sides, 4-lobed.** Lobes also with straight sides. Differ from all other 4-lobed species on the leaf shape.

Epigeic, on litter, soil covered cliffs, etc.

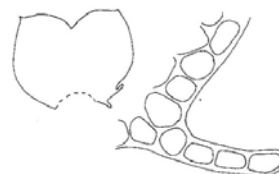


***Barbilophozia* subgen. *Orthocaulis* (H.Buch) R.M.Schust.**

Large to intermediate sized species with 2-4-lobed leaves (mostly 3-lobed). Leaves sub-transversely attached. Lobes not mucronate.

sect. *Kunzeana* (C.E.O.Jensen) R.M.Schust.

2-3-4-lobed leaves. Underleaves large and bilobed with cilia. Leaves with appendages of quadratic cells at the base



***Barbilophozia quadriloba* (Lindb.) Loeske**

Shoots erect or ascending, slender, 1.5-4 cm long and 1-1.5 mm wide. Characteristic by its **brownish black or dark olive green colour. Leaves deeply 4-lobed with recurved edges and a strongly reflexed sinus. Underleaves large and 2-lobed.** Small alpine forms (var. *glareosa* (Jørg.) Lammes) are 2-3-lobed and may resemble other *Barbilophozia* species but the colour is darker.

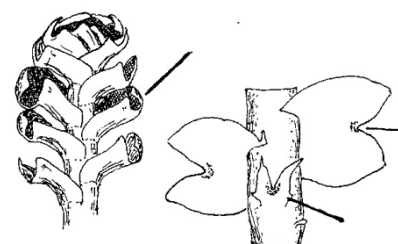
In moist places, wet cliffs, etc.



***Barbilophozia kunzeana* (Hübener) Müll.Frib.**

Yellowish brown. Shoots 2-5 cm long and 1-2 mm wide. **Leaves 2-lobed** (rarely 3-lobed) with **wide obtuse lobes and usually recurved margins.** Gemmae rare, mostly brownish. **Underleaves large and 2-lobed** which distinguish it from all other 2-lobed species.

In wet places like wet cliffs, fens, stream margins, etc.



***Barbilophozia floerkei* (F.Weber & D.Mohr) Loeske**

Yellowish green to dark green. Shoots prostrate or ascending to almost erect. **Leaves 3-lobed with short obtuse lobes. Underleaves large, 2-lobed almost to the base.** Gemmae rare, red brown.



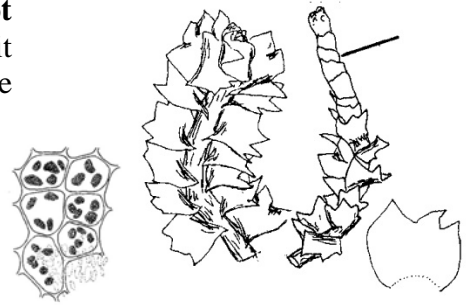
sect. *Orthocaulis*

Leaves 3-lobed. Underleaves absent or small. Leaves with appendages of quadratic cells at the base. *Barbilophozia binsteadii* ((Kaal.) Loeske is a northern species belonging in the section

***Barbilophozia attenuata* (Mart.) Loeske**

Green. Shoots mostly ascending to erect. Leaves 3-lobed. Without underleaves. **Almost always with attenuate shoot apices with gemmae. Lacking trigones** which separates it from *B. atlantica*. The latter may have somewhat attenuate gemmae shoots but they are not as distinct as in *B. attenuata*.

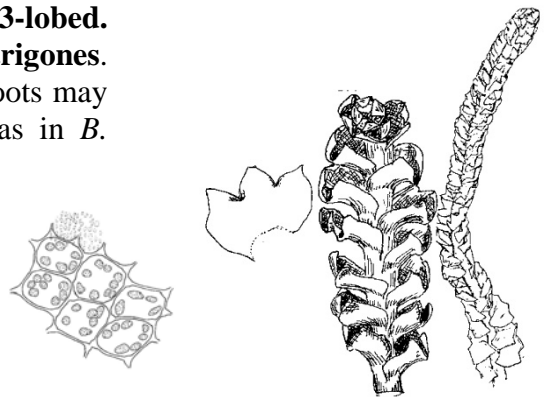
On boulders and decaying logs.



***Barbilophozia atlantica* (Kaal.) Loeske**

Dark brown. Shoots ascending to erect. **Leaves 3-lobed. Without underleaves. Cells are large with large trigones.** Often with red gemmae. Shoot apices on gemmae shoots may be attenuate but they are not as distinctly formed as in *B. attenuata*.

Shaded boulders and cliffs, moist heath land.



***Lophozia* (Dumort.) Dumort.**

A heterogeneous group of mostly bilobed species. Section delimitations are preliminary and the genus will in the future be split into several genera. Some elements may even go to *Barbilophozia*. The delimitation and structure here is basically traditional but the most obvious new data is included.

subgen. *Lophozia*

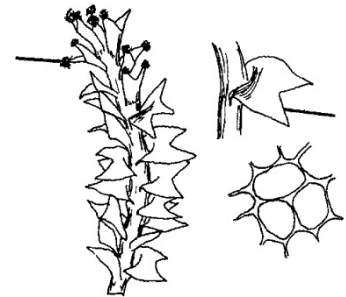
Bilobed species. Cells thin-walled with or without trigones. Oil bodies mostly few (<20) per cell.

sect. *Longidentatae* R.M.Schust.

Plants erect or suberect. Leaves almost transversely attached to stem. Perianth mouth laciniate to dentate.

***Lophozia longidens* (Lindb.) Macoun**

Green to dark green, erect. **Leaves 2-lobed, squarrose, longer than wide, with straight margins.** Almost always with **red gemmae** in the lobe apices of younger shoots. Cells with large trigones and 4-12 oil bodies per cell. Perianth mouth lobulate and dentate with 3-6-celled teeth.

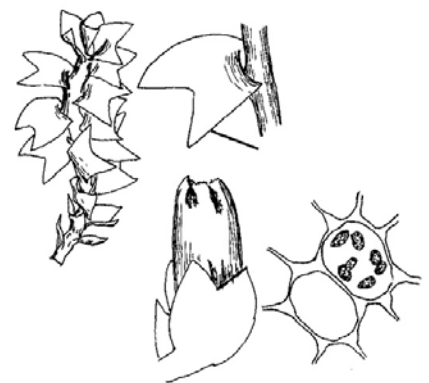


Differs from all other bilobed species with red gemmae on the leaf shape.

On decaying logs, tree bases and cliffs.

***Lophozia ascendens* (Warnst.) R.M.Schust.**

Light yellowish green. Shoots erect. **Leaves almost transversely attached, 2-lobed, horned-like, longer than wide, with straight margins. Almost always with yellowish gemmae in the shoot apex.** Cells with large trigones and 6-10 compound oil bodies. Perianth mouth lobulate with 2-5-celled teeth.



Differs from all other species with yellowish gemmae on the erect shoots and the leaf shape.

On decaying wood.

sect. *Lophozia*

Here is included elements related to (or resembling) *Lophozia ventricosa*. They are characterized by bilobed leaves, lacking underleaves and producing yellowish, angular gemmae. Recent floras (e.g. Damsholt 2002) distribute them in several sections.

Lophozia ventricosa (Dicks.) Dumont.

Green to yellowish green. Shoot procumbent to ascendant. Leaves **2-lobed, wider than long with curved margins**. Almost always with yellowish gemmae. Cells with **moderately large trigones and 10-16 homogenous oil bodies**. Perianth lobulate with 1-2-celled teeth.

Differs from *L. silvicola* in the leaf form (wider than long vs. longer than wide) and oil bodies (homogenous vs. biconcentric). Differs from *L. longiflora* on the leaf form (wider than long vs. longer than wide) and the trigones (moderately large vs. bulging). Differs from *L. wenzelii* in having flatter leaves.

On moist boulders, cliffs and bare soil, often at the margin of roads or paths.



Var. ventricosa

The “normal” thing.

Var. uliginosa Breidl.

Plants large (2.5-4 mm wide), some leaves 3-lobed with gibbous sinus. Often more carmine than var. *ventricosa*.

Damsholt (2002) describe the variety as “1) having conduplicate, somewhat canaliculate and often 3-lobed leaves, 2) often having deep reddish perianths, bleached at the mouth, 3) often having reddish leaves, 4) having 3-5-lobed female bracts, 5) rarely developing gemmae and 6) having larger spores”. It is thus a larger version of *L. longiflora* without the ciliate perianth mouth.

The nomenclature is complex. This taxon was earlier named *L. longiflora* but ?Schljakov? showed that this name belonged to another taxon. Thus, the name *L. longiflora* (or *L. ventricosa* var. *longiflora*) means this taxon in all literature between 1900

and c. 1980 (in some cases even later) while it means what was earlier named *L. porphyroleuca* or *L. guttulata* in modern nomenclature. The name should be rejected due to its confusing use but unfortunately this is not done.



Var. confertifolia (Schiffn.) Husn.

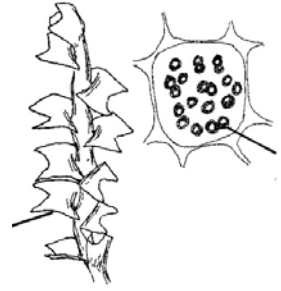
A problematic taxon often included in *L. wenzelii*. However, *L. wenzelii*, *L. ventricosa* and the present taxon seems to be closely related.

Leaves dense, somewhat cupped, almost always with yellowish gemmae.

***Lophozia silvicola* H.Buch**

Green to yellowish green. Shoots procumbent to ascendant. **Leaves 2-lobed, longer than wide and obliquely attached.** Almost always with yellowish gemmae. Cells with moderately large to bulging trigones and 15-20 **biconcentric oil bodies** per cell. Perianth mouth with 1-2-celled teeth.

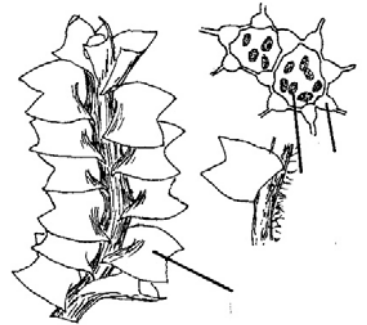
On decaying wood and on boulders, less often on soil.



***Lophozia longiflora* (Nees) Schiffn.**

Green to purple. The leaf base and stem is almost always carmine red. **Leaves 2-lobed, longer than wide and almost transversely attached to the stem. Cells with large, bulging, in leaf lobes often confluent trigones and 3-10 homogenous oil bodies** per cell. Gemmae infrequent, yellowish. **Perianth often reddish except for the whitish mouth, mouth lobulate with 3-4-celled cilia.**

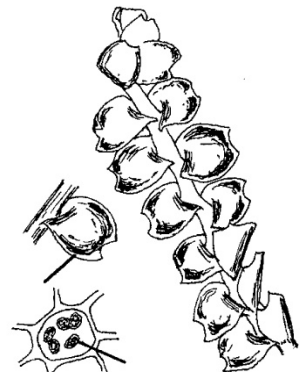
On decaying logs. Reports from peat should be confirmed.



***Lophozia wenzelii* (Nees) Steph.**

Green, leaf bases often reddish brown. **Leaves shallowly 2-lobed with rounded sinus, wide and cupped so that they are impossible to flatten without breaking them.** Gemmae yellowish. Cells thin-walled with trigones and 4-9 oil bodies. Perianth mouth lobulate with 1-celled teeth.

On wet to moist ground.



Var. *litoralis* (Arnell) Bakalin

What is this? Bakalin gives it for Switzerland.

sect. *Sudeticae* Schljakov

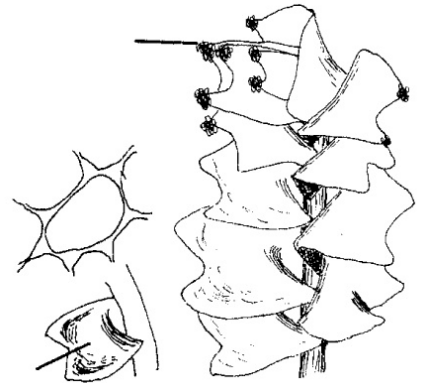
Lophozia sudetica seems to be closely related to *Barbilophozia* while *L. wenzelii* that is often included here is related to *L. ventricosa*.

Lophozia sudetica (Huebener) Grolle

Dark green to reddish brown. **Leaves** obliquely attached, broad, concave and widest below the middle, **shallowly bilobed** with rounded sinus. Cells small with large trigones and 6-8 oil bodies. **Almost always with reddish gemmae**. Perianth mouth with 1-2-celled teeth.

Leaf shape may resemble *L. wenzelii* but gemmae are red. Differs from other red gemmae species by the wide leaf and cells with distinct trigones.

On soil and rocks.



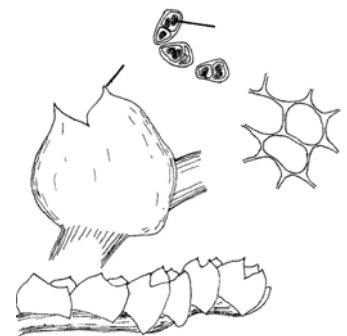
sect. *Excisae* (C.E.O.Jensen) H. Buch

The elements here do not fit anywhere. *L. perssonii* is something of its own, perhaps deserving recognition as a genus.

Lophozia perssonii H. Buch & S.W. Arnell

Small. Green. Leaf lobes often ends in an apex of 1-2 cells. Cells with thin walls, large trigones and 3-5 oil bodies. Characterized by its abundant **reddish yellow to red brown gemmae with 2 large** (and often some smaller) **persistent oil bodies**. Perianth with 2-5-celled teeth

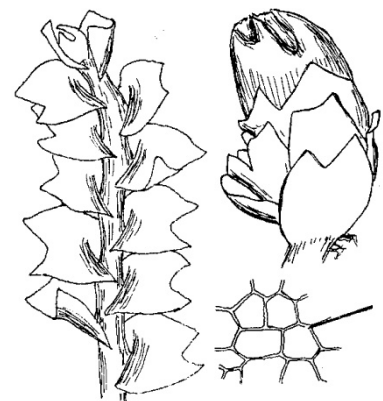
On bare, calcareous soil and soil covered cliffs.



Lophozia excisa (Dicks.) Dumort.

Small. Green, often reddish in shoot apex. Leaves as wide as long, rounded, bilobed with wide, rounded sinus. Cells with **thin cell walls and with very small trigones** and 9-20 oil bodies. **Gemmae red**. Perianth somewhat lobed with small teeth.

On sandy soil or soil covered cliffs. Tolerate more calcareous ground than most *Lophozia* species and of the species with red gemmae only *L. perssonii* occur on base rich substrates.



Lophozia subgen. *Schistochilopsis* Kitag.

Sometimes, probably correctly so, recognized as a genus of its own, especially in the Russian literature. However, some elements here seems to be best excluded.

Cells thin-walled, rarely with trigones. Oil bodies many, 20-50 per cell.

sect. *Incisae* (C.E.O.Jensen) H.Buch

Gemmae angular. Stem stout and fleshy. Leaves often dentate, sometimes 2-3-lobed.

Lophozia grandiretis (Kaal.) Schiffn.

Mesium to small. **Stem fleshy, purple** at least on ventral side. Leaves wide, bilobed. **Cells large, thin-walled with small trigones** and 35-50 oil bodies. **Gemmae abundant, pale green**, stellate. Perianth mouth subentire

Among other species on base rich peat, in rich fens and on base rich rocks.



Lophozia incisa (Schrad.) Dum.

Small to medium sized. Dark green. **Stem fleshy. Leaves mostly 2-lobes, sometimes 3-5-lobed, often densely dentate.** Cells thin-walled without trigones and with 17-35 oil bodies. Almost always with light green gemmae. Perianth mouth with 1-3-celled teeth.

On decaying wood, moist peat, moist cliffs, etc.

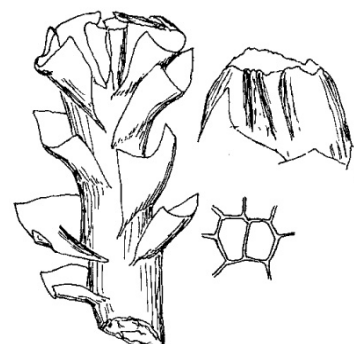


Lophozia opacifolia Culm.

Small to medium sized. Dark green. **Similar to *L. incisa* but less dentate leaves and with leaves 2-3-layered at base.** Cells with 25-45 oil bodies. Perianth mouth subentire.

Often regarded as a subspecies of *L. incisa* (subsp. *opacifolia* (Culm.) R.M.Schust. & Damsh.).

On sandy or peaty soil in the mountains. On more base rich soil than *L. incisa*.



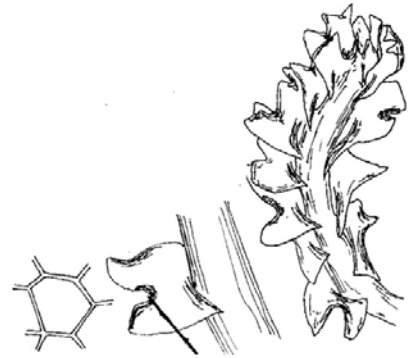
sect. *Heterogemma* Jørg.

Gemmae 1-celled, spherical to ovoid, smooth. Stem often wide and “fleshy”.

Lophozia laxa (Lindb.) Grolle

Small to medium sized. **Light green with more or less purple stems and sometimes leaves.** Leaves wide, bilobed with decurrent margins and sinus. Cells thin-walled without trigones and 30-60 oil bodies. Perianth mouth with 1-2-celled teeth.

On peat or *Sphagnum* cushions in poor fens.



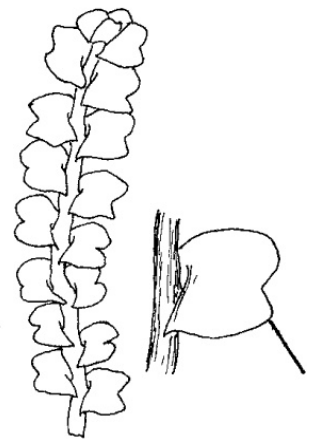
sect. *Obtusae* R.M.Schust.

Probably best placed in its own genus, *Obtusifolium*.

Lophozia obtusa (Lindb.) A.Evans

Medium sized. Green to yellow green, stem often reddish on the ventral side. Leaves almost longitudinally attached, **bilobed with rounded lobes and decurrent sinus.** Cells thin-walled with 15-50 oil bodies. Gemmae greenish, rare. Perianth long-exserted, mouth with 1-3-celled teeth.

Epigeic. Single shoots or small patches among other bryophytes.



subgen. *Protolophozia* R.M.Schust.

Lophozia elongata Steph

Small to medium sized. Deep green. **Leaves polymorphic, bilobed with a marginal tooth that often can be like a 3rd lobe.** Cells thin-walled with small trigones and 12-30 oil bodies. **Underleaves distinct, lanceolate.** Without gemmae. Paroicious. Perianth mouth lobulate with 1-2-celled gemmae.

In bogs and fens.



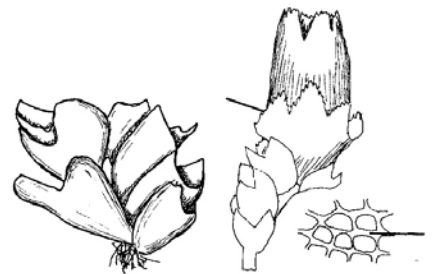
Lophozia subgen. *Isopaches* (H. Buch) R.M.Schust.

Probably worth recognizing at genus level. Cells thick-walled without trigones.

Lophozia bicrenata (Hoffm.) Dumort.

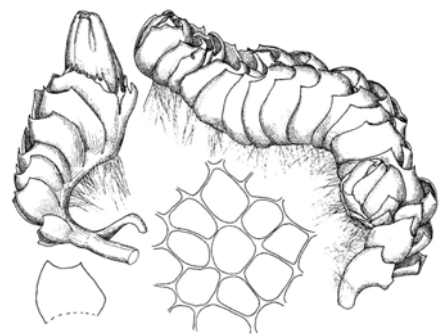
Small, fleshy, green to reddish brown. **Cells thick-walled with 6-12 oil bodies. Always with reddish gemmae.** Paroicious, often with perianths. **Female bracts dentate.** Perianth mouth with 3-4-celled teeth.

On sandy or clayey soils, ditches, soil covered boulders, cliffs, etc.



Lophozia decolorans (Limpr.) Steph.

Small, whitish or yellow-green. **Leaves shallowly bilobed with lunate sinus, strongly imbricate so the shoots looks julaceous. Leaf margin decolorate.** Cells with thick walls without trigones and 6-8 oil bodies. Gemmae angular, redbrown.



***Leiocolea* Müll.Frib.**

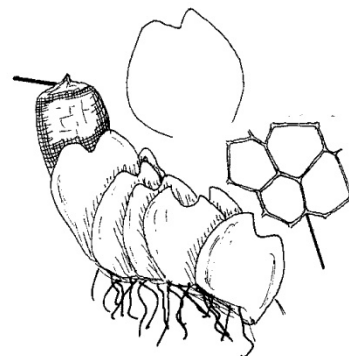
Perianth smooth below, abruptly contracted above with a short beak. Underleaves mostly present. Gemmae lacking in all but one species.

Not related to Lophoziaceae. Closer related to Jungermanniaceae but perhaps best placed in Mesoptychiaceae.

***Leiocolea badensis* (Gottsche) Jørg.**

Small. Yellowish green to light green. **Leaves shallowly bilobed, lobes obtuse and sinus mostly acute. Underleaves lacking.** Cells large with thin walls and **no or minute trigones.** Oil bodies 2-5 per cell.

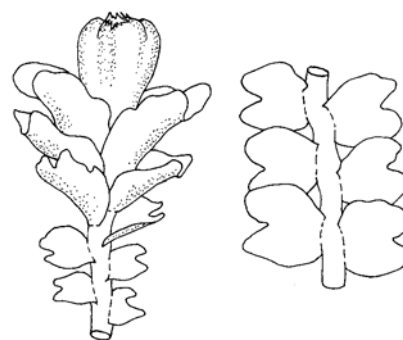
Among other bryophytes on shaded calcareous cliffs.



***Leiocolea turbinata* (Raddi) H.Buch.**

Small. **Leaves shallowly narrowly inserted, not decurrent,** bilobed, Lobes obtuse. Cells with thin walls without trigones and 3-9 oil bodies. Underleaves absent.

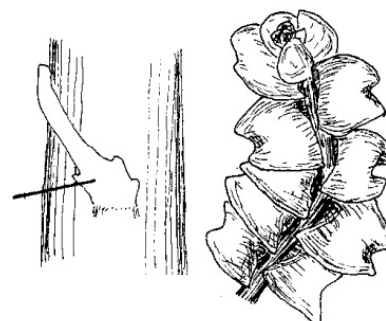
Pioneer species on calcareous soil.



***Leiocolea gillmannii* (Aust.) A.Evans**

Medium sized to small. Leaves rounded to somewhat longer than wide, not decurrent ventrally. Underleaves small but distinct. Paroicious and often with perianth with a long beak.

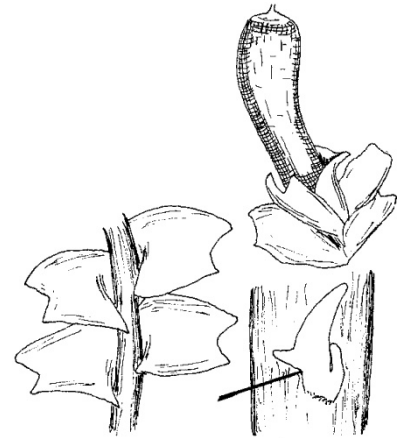
Sterile difficult to separate from other *Leiocolea* species but cells are intermediate between *L. bantriensis* and *L. collaris*.



***Leiocolea bantriensis* (Hook.) Jørg.**

Small to medium sized. Leaves shallowly (-1/5) bilobed with lunate sinus, lobes rounded to acute. Trigones small. 2-8 oil bodies per cell. Without underleaves. Perianth unbeaked. Without gemmae.

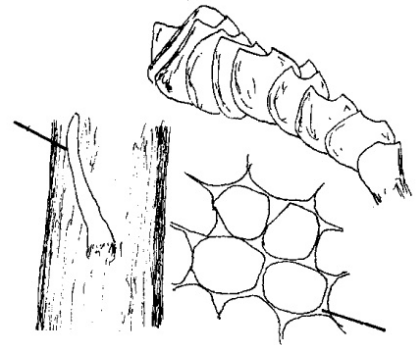
In rich fens, springs and shores.



***Leiocolea collaris* (Nees) Schljakov**

Small. Leaves shallowly bilobed (-1/4) with angular sinus. Lobes acute to acuminate. Cells small (25-30 μm in the middle) with small trigones. Gemmae lacking.

On dryer, shaded, basic cliffs and calcareous soil.



***Leiocolea heterocolpos* (Hartm.) H.Buch**

Small. Often with attenuate gemmae shoots with brown gemmae. Cells thin-walled with distinct to large trigones. With small underleaves.

