1. Costa in transverse section lacking guide cells, with a median layer of connected or disconnected small green cells or stereid cells..... 2

1. Costa in transverse section nearly always with large guide cells, without a median layer of green cells or stereid cells..... 4

2. Alar cells clearly inflated; costal green cells in a median band, enclosed dorsally and ventrally by larger, thick-walled, hyaline cells or sometimes interspersed among the dorsal hyaline cells; annuli not developed..... ..... 27. *Paraleucobryum*

2. Alar cells not much differentiated; costal green cells in a group of disconnected median stereids, enclosed dorsally and ventrally by large, thin-walled, hyaline cells; annuli well developed..... 3

3. Costa generally narrower, less than $^{1}/_{3}$ the leaf base width, with a few ventral stereids in the middle of costa; peristome teeth divided; plants usually green or yellowish brown when dry; brood bodies absent; leaf apex serrulate..... 8. *Campylopodiella*

3. Costa generally broader, more than ½ the leaf base width, without ventral stereids in the middle of costa; peristome teeth undivided; plants usually grayish green when dry; brood bodies common; leaf apex smooth ..... 6. *Brothera*

4. Neck of capsules well developed, broad or very long..... 5

4. Neck of capsules none, rarely very short and narrower..... 7

5. Neck of capsules very long and narrow, at least as long as the urn..... 31. *Trematodon*

5. Neck of capsules short and generally broad, rarely as much as ½ the total length of the urn..... 6

6. Opercula and peristome teeth none; setae very short; leaves sheathing at base, gradually narrowed to a short or long subula..... 7. *Bruchia*

6. Opercula and peristome teeth well developed; setae elongate; leaves not sheathing at base, gradually acuminate with obtuse apices..... 32. *Wilsoniella*

7. Alar cells not or not noticeably differentiated..... 8

7. Alar cells clearly differentiated in a group, usually inflated..... 22

8. Upper laminal cells mammillose or papillose..... 9

8. All laminal cells smooth..... 12

9. Peristome teeth absent; capsules 8-ribbed when dry; laminal cells pluripapillose..... 1. *Amphidium*

9. Peristome teeth well developed; capsules smooth or furrowed when dry; laminal cells mammillose or conically to coarsely papillose..... 10

10. Capsules furrowed when dry; leaves narrowly lanceolate, mostly acute at the apex, keeled; laminal cells often coarsely papillose..... 11. *Cynodontium*

10. Capsules smooth when dry; leaves broadly lanceolate or oblong-ligulate, broadly acute to rounded at the apex, subtubulose; laminal cells mammillose or conically papillose..... 11

11. Peristome teeth forked, papillose..... 12. *Dichodontium*

11. Peristome teeth not forked, smooth..... 25. *Oreoweisia*

12. Peristome teeth absent; stems julaceous; leaves broad, oval to oblong-ovate, rounded-obtuse or broadly acute at the apex..... 13

12. Peristome teeth present; stems not julaceous; leaves narrow, lanceolate, gradually narrowed to a sharp acute apex or

abruptly narrowed from a strongly sheathing base to a subulate apex..... 14

13. Dioicous; leaves oval, broadly acute, sharply bent to one side at the tips; costa percurrent; apical laminal cells irregular hexagonal or rhombic..... 2. *Aongstroemia*

13. Autoicous; leaves oblong-ovate, rounded-obtuse, straight at the apex; costa excurrent; apical laminal cells oblong-rectangular to rhomboidal..... 3. *Aongstroemiopsis*

14. Capsules deeply 8-ribbed when dry; leaves oblong-lanceolate, slightly narrowed upward, sharply acute at the apex..... 29. *Rhabdoweisia*

14. Capsules smooth or irregularly furrowed when dry, not ribbed; leaves narrowly to linear-lanceolate, abruptly narrowed from a strongly sheathing or nonsheathing base, subulate at the apex..... 15

15. Setae curved or cygneous when moist..... 16

15. Setae straight or sometimes flexuose when moist..... 18

16. Autoicous; peristome teeth entire or slightly perforate, vertically striate throughout; leaf margins bistratose ..... 24. *Oreas*

16. Dioicous; peristome teeth divided to the middle, vertically striate only at the base; leaf margins unistratose 17

17. Capsules with stomata in the neck; spores finely papillose..... 9. *Campylopodium*

17. Capsules without stomata in the neck; spores warty..... 21. *Microcampylopus*

18. Leaves strongly crispate when dry; upper laminal cells short, subquadrate to short-rectangular..... 19

18. Leaves not crispate or contorted when dry; upper laminal cells elongate, narrowly to oblong-rectangular..... 20

19. Capsules curved, distinctly strumose ..... 23. *Oncophorus*

19. Capsules erect, not strumose..... 30. *Symblepharis*

20. Autoicous; calyptrae very large, longer than capsules; peristome teeth divided to the base..... ..... 5. *Atractylocarpus*

20. Dioicous; calyptrae shorter than capsules; peristome teeth irregularly divided only to the middle.... 21

21. Capsules globose, erect, symmetric; peristome teeth short, simple or irregularly split only at the tips..... .....22. *Microdus*

21. Capsules subglobose to oblong-cylindric, asymmetric; peristome teeth elongated, clearly divided about halfway down or to the base..... 13. *Dicranella*

22. Costa very broad, more than $^{1}/_{3}$ the leaf base width..... 23

22. Costa narrow, less than $^{1}/_{3}$ the leaf base width..... 24

23. Capsules usually deeply furrowed when dry; annuli compound; calyptrae often fringed at the base; peristome teeth divided only to the middle; leaves not conspicuously setaceous..... 10. *Campylopus*

23. Capsules smooth when dry; annuli none; calyptrae often entire at the base; peristome teeth divided nearly to the base; leaves conspicuously long-setaceous..... 14. *Dicranodontium*

24. Margins distinctly bordered by linear cells, usually hyaline near the leaf base; inner laminal cells differentiated..... 25

24. Margins not clearly bordered; inner laminal cells usually not differentiated from marginal cells..... 26

25. Laminal cells coarsely compound-papillose..... 20. *Leucoloma*

25. Laminal cells smooth..... 15. *Dicranoloma*

26. Upper laminal cells rounded or isodiametric, strongly incrassate; perichaetial leaves with markedly elongated, convolute sheaths enfolding the setae and extending $^{1}/_{3}$ – $^{2}/_{3}$ the seta length..... 18. *Holomitrium*

26. Upper laminal cells rectangular or elongate, moderately thick-walled; perichaetial leaves with short sheaths enfolding the setae only at the base..... 27

27. Leaves crispate when dry..... 28

27. Leaves falcate-secund, not crispate when dry..... 29

28. Peristome teeth undivided or only slightly divided at the tips, without vertical striate, smooth or papillose throughout..... 16. *Dicranoweisia*

28. Peristome teeth divided in the upper half or lower, with vertical striate nearly throughout..... ..... 26. *Orthodicranum*

29. Autoicous; costa in cross section lacking stereid band or with only a few poorly developed stereids; peristome teeth undivided or variously divided to the middle or less..... 30

29. Dioicous; costa in cross section with 2 stereid bands; peristome teeth divided in the upper ½ –$^{2}/_{3}$, sometimes the teeth poorly developed or lacking..... 31

30. Setae 3–6 mm long, stout; capsules erect, obovoid, nearly symmetric, contracted below the mouth, tapered to the base when dry; peristome teeth irregularly divided in the upper half or less..... 4. *Arctoa*

30. Setae 7–16 mm long, slender; capsules suberect to inclined, oblong-cylindric, curved, sometimes strumose, not contracted below the mouth or tapered to the base when dry; peristome teeth clearly bifid halfway down..... 19. *Kiaeria*

31. Peristome teeth absent; capsules erect; plants often yellowish green..... 28. *Pseudochorisodontium*

31. Peristome teeth well developed; capsules curved, suberect, horizontal or inclined; plants often bright green or brownish green..... 17. *Dicranum*