

# 4. GENERAL KEY No 1 to PTEROPSIDA

1. Aquatic plants.
    2. Plants floating. Leaves small, simple or bilobed . . . . . **Salviniaceae**
    2. Plants rooted in earth or on rocks. Leaves larger, more divided.
      3. Leaves 4-partite. Sporocarps attached to stipes. . . . . **Marsileaceae**
      3. Leaves not 4-partite. Sporangia singly or in sori on lower surface of lamina.
        4. Sporangia borne singly, protected by reflexed edges of narrow lamina . . . . . **Adiantum Group**
        4. Sporangia grouped in sori, on lower surface of lamina, not protected by reflexed edges.
          5. Fern of stream-beds in deep shade. Fronds pinnatifid, sori without indusia **Polypodiaceae**
          5. Fern of open swamps. Fronds bipinnatifid, sori indusiate. . . . . **Thelypteris Group**
  1. Land plants or epiphytes.
    6. Epiphytes.
      7. Fronds simple, not over 2 mm wide, with a single vein, or with a few simple lateral soriferous veins close to the main vein . . . . . **Vittaria Group**
      7. Fronds branched, or if simple with a more complex venation.
        8. Lamina one cell thick apart from midribs of segments . . . . . **Hymenophyllaceae**
        8. Lamina throughout more than one cell thick.
          9. Sporangia embedded in slender cylindrical appendages attached to surface of frond. . . . . **Ophioglossaceae**
    9. Sporangia not so arranged.
      10. Sori not indusiate (sometimes otherwise protected).
        11. Sporangia not acrostichoid.
          12. Sori superficial (not in pockets or grooves).
            13. Fronds simple, pinnatifid or pinnate; if pinnate, pinnae not articulate to rachis.
              14. Veins much anastomosing . . . . . **Polypodiaceae**
              14. Veins not or slightly anastomosing.
                15. Frond and stipe  $\pm$  hairy; spores trilete . . . . . **Grammitidaceae**
                15. Frond and stipe not hairy; spores monolete . . . . . **Polypodiaceae**
            13. Fronds pinnate, pinnae articulate to rachis.
              16. Pinnae entire . . . . . **Polypodiaceae**
              16. Pinnae lobed . . . . . **Nephrolepis Group**
          12. Sori in pockets or grooves (which are sometimes marginal).
            17. Sori in pockets or depressions,  $\pm$  circular.
              18. Veins anastomosing; or, if free, fronds not hairy . . . . . **Polypodiaceae**
              18. Veins free, fronds more or less hairy . . . . . **Grammitidaceae**
            17. Sori elongate, in grooves.
              19. Grooves all evenly oblique to costa . . . . . **Polypodiaceae**
              19. Grooves marginal or parallel to margin, or uneven in direction, sometimes anastomosing.
                20. Scales entirely opaque, usually brown . . . . . **Grammitidaceae**
                20. Scales nearly black, strongly clathrate, lumina of cells translucent **Vittaria Group**
        11. Sporangia acrostichoid, covering entirely part or whole of a frond.
          21. Veins much anastomosing; spores without perispore . . . . . **Polypodiaceae**
          21. Veins free or slightly anastomosing near edge; perispore present . . . . . **Lomariopsis Group**
    10. Sori indusiate.
      22. Sori elongate along veins . . . . . **Asplenium Group**
      22. Sori otherwise.
        23. Sori elongate along edge of lamina.
          24. Pinnae articulate to rachis . . . . . **Nephrolepis Group**
          24. Pinnae (if any) not articulate to rachis.
            25. Rhizome protostelic . . . . . **Lindsaea Group**
            25. Rhizome with more complex vascular system . . . . . **Davallia Group**
        23. Sori otherwise.
          26. Fronds articulate to rhizome.
            27. Sori at ends of veins, near edge of lamina.
              28. Pinnae (if present) not jointed to rachis. . . . . **Davallia Group**
              28. Pinnae jointed to rachis . . . . . **Nephrolepis Group**
            27. Sori close to costa of the simple frond . . . . . **Nephrolepis Group**
          26. Fronds not articulate to rhizome . . . . . **Nephrolepis Group**
6. Terrestrial plants, or climbers starting from the ground, or rock-plants.
  29. High-climbing rhizome starting from the ground.
    30. Rhizome dorsiventral; veins anastomosing in a narrow series of costal areoles (seen at apex of pinna) . . . . . **Pteris Group**
    30. Rhizome dorsiventral; veins either free or much anastomosing . . . . . **Lomariopsis Group**
  29. Terrestrial or rock plants.

31. Caudex massive, erect; stipes succulent, with stipule-like outgrowths at their bases; bases of pinnae swollen . . . . . Marattiaceae
31. Not these characters.
32. Lamina one or two cells thick apart from midribs of segments of lamina; no stomata.
33. Sporangia attached to elongating slender receptacles in funnel-shaped pockets at ends of veins. Hymenophyllaceae
33. Sporangia attached to surface of veins . . . . . Osmundaceae
32. Lamina throughout more than two cells thick; stomata present.
34. Caudex or rhizome at apex, and bases of stipes, hairy or bristly (no flat scales) or apparently naked.
35. Rootstock massive, erect (in a few cases tree-like) or more or less decumbent, radially organized, its apex above ground, bearing a close group of fronds.
36. Fronds simply pinnate; apex of caudex not densely hairy.
37. Aerophores at bases of stipes (sometimes also at bases of pinnae) Plagiogyria Group
37. Aerophores lacking . . . . . Osmundaceae
36. Fronds more amply divided; apex of caudex densely hairy . . . Dicksonia Group
35. Rootstock otherwise, usually entirely below ground.
38. Fertile part of frond not leaf-like, erect and attached to base of leafy part Ophioglossaceae
38. Fertile part of frond leaf-like, sometimes reduced in size as compared with sterile.
39. Fronds palmately divided; leaflets 3 or 5; veins anastomosing . . . Marattiaceae
39. Fronds otherwise.
40. Veins much anastomosing, with free veins in the areoles . . . . . Polypodiaceae
40. Veins in most cases free; where anastomosing, no free veins in areoles.
41. Sori quite superficial, on lower surface of lamina, or in a marginal groove.
42. Sori indusiate; fronds fan-shaped or slender and trailing . . . Matoniaceae
42. Sori not indusiate.
43. Fronds repeatedly pseudo-dichotomous, with a dormant apex between each pair of branches . . . . . Gleicheniaceae
43. Fronds otherwise . . . . . Adiantum Group
41. Sori at ends of veins or on special appendages.
44. Sporangia on special appendages which are at ends of veins of leaflets or attached near apex of frond or of its branches . . . . . Schizaeaceae
44. Sporangia in sori at ends of single veins or uniting ends of several veins, not on special appendages . . . . . Dennstaedtia Group
34. Caudex or rhizome at apex, and bases of stipes (at least when young) scaly.
45. Sporangia acrostichoid.
46. Rhizome dorsiventral, creeping on rocks.
47. Veins free, or if anastomosing the free veins almost all pointing outwards; spores with perispore . . . . . Lomariopsis Group
47. Veins much anastomosing with free veins in areoles pointing all ways; no perispore. Polypodiaceae
46. Rhizome not dorsiventral, often massive, bearing a tuft of fronds at its apex.
48. Only the upper pinnae fertile; veins much anastomosing, no free veins in areoles. Pteris Group
48. Whole frond fertile; in sterile frond veins free or anastomosing otherwise.
49. Veins free in sterile fronds, or a single row of costal areoles present.
50. Fertile frond simply pinnate . . . . . Blechnum Group
50. Fertile frond bipinnate . . . . . Tectaria Group
49. Veins much anastomosing in sterile fronds . . . . . Tectaria Group
45. Sporangia not acrostichoid.
51. Sorus along edge of lamina, continuous or nearly so.
52. Edge of lamina reflexed, protecting sori.
53. Rachis grooved on upper surface, groove open to admit groove of midrib of pinna. Pteris Group
53. Rachis not so grooved (if grooved, edge of lamina may be decurrent on edge of groove). Adiantum Group
52. Edge of lamina not reflexed; sorus protected by indusium attached below it, opening towards edge of lamina . . . . . Lindsaea Group
51. Sorus otherwise.
54. Sorus elongate, continuous along each side of costa of pinna . . . Blechnum Group
54. Sorus otherwise.
55. Sporangia on surface of reflexed marginal lobes . . . . . Adiantum Group
55. Sporangia not on such lobes.
56. Sorus along veins (at least some of them).
57. Sorus indusiate.

- 58. Sorus symmetrically divided by line of vein.
  - 59. Rachis grooved, groove open to admit groove of branch; scales lacking superficial hairs . . . . . **Dryopteris Group**
  - 59. Rachis somewhat grooved, groove not open to admit groove of pinna; scales with superficial hairs . . . . . **Thelypteris Group**
- 58. Sorus asymmetric, or on one side of vein.
  - 60. Sori along outer veins of costular or costal areoles . . . . . **Blechnum Group**
  - 60. Sori otherwise.
    - 61. Two strands in stipe, uniting upwards to form a single X-shaped strand. **Asplenium Group**
    - 61. Two strands in stipe, uniting upwards to form a single U-shaped strand. **Athyrium Group**
- 57. Sorus not indusiate.
  - 62. Sori spreading along all veins of lower surface.
    - 63. Slender unicellular hairs present on frond and on scales . . . . . **Thelypteris Group**
    - 63. Slender unicellular hairs lacking . . . . . **Adiantum Group**
  - 62. Sori not spreading along all veins.
    - 64. Several vascular bundles in stipe . . . . . **Tectaria Group**
    - 64. Two vascular bundles at base of stipe, uniting upwards.
      - 65. Waxy powder on lower surface of lamina . . . . . **Adiantum Group**
      - 65. No waxy powder present . . . . . **Athyrium Group**
- 56. Sori not along veins.
  - 66. Sori at ends of veins, at or close to edge of lamina, each in the base of a cup, or protected by an indusium attached below it or by the reflexed edge of the lamina.
    - 67. Sori each in the base of a cup . . . . . **Dennstaedtia Group**
    - 67. Sori protected by indusia or by edge of lamina.
      - 68. Sori protected by indusia opening outwards.
        - 69. Pinnae articulate to rachis . . . . . **Nephrolepis Group**
        - 69. Pinnae not articulate . . . . . **Lindsaea Group**
      - 68. Sori protected by reflexed edge of lamina.
        - 70. An inner indusium also present; rachis grooved, groove open to admit groove of midrib of pinna . . . . . **Pteris Group**
        - 70. An inner indusium lacking; rachis not grooved, or if grooved, edge of pinna decurrent on edge of groove . . . . . **Adiantum Group**
  - 66. Sori not at ends of veins, or if so not close to edge of lamina.
    - 71. Rhizome dorsiventral.
      - 72. Sori without indusium.
        - 73. Fronds lacking dormant apices . . . . . **Polypodium Group**
        - 73. Fronds always having some dormant apices . . . . . **Gleicheniaceae**
      - 72. Sori indusiate.
        - 74. Fronds simple . . . . . **Nephrolepis Group**
        - 74. Fronds pinnately branched . . . . . **Davallia Group**
    - 71. Rhizome not dorsiventral.
      - 75. Fronds simple and jointed at base, or pinnate with pinnae jointed to rachis. **Nephrolepis Group**
      - 75. Fronds otherwise.
        - 76. Tree-ferns; sporangia with complete oblique annulus; many vascular bundles in stipe . . . . . **Cyatheaceae**
        - 76. Not tree-ferns; annulus vertical, interrupted; vascular bundles in a simple ring (except *Pleocnemia*).
          - 77. Rachis grooved, groove open to admit groove of branch-rachis or pinna.
            - 78. Several vascular bundles in stipe . . . . . **Dryopteris Group**
            - 78. Two bundles, joining to form one of U-shape . . . . . **Athyrium Group**
          - 77. Rachis not grooved, or if grooved groove not open to admit groove of branch.
            - 79. Hairs (if present) multicellular; scales lacking superficial hairs or glands.
              - 80. Several vascular bundles in stipe . . . . . **Tectaria Group**
              - 80. Two bundles, joining to U-shape . . . . . **Athyrium Group**
            - 79. Hairs unicellular; scales bearing superficial hairs or glands **Thelypteris Group**