

## A KEY TO THE FERNS FOUND AROUND THE BOYLE RIVER LODGE

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This key is based on one made in 1982 during the annual Inter-Secondary School Field Excursion to the Boyle Lodge, sponsored by the Canterbury Science Teachers' Association and the Canterbury Botanical Society. The present revised version, compiled with help from Colin Burrows, should still be regarded as interim because more fern species probably occur in the Boyle and Lewis Valleys and, like all keys, it needs field trials to ensure that it works well.

### TERMS USED IN THE KEY

- |                              |   |
|------------------------------|---|
| <b>frond</b>                 | - the complete leaf of a fern consisting of a stalk plus a lamina.  |
| <b>lamina</b>                | - flattened, photosynthetic leaf blade.   |
| <b>midrib</b>                | - thickened central "vein" of pinna.  |
| <b>pinna</b> (plural pinnae) | - a segment of a once-divided lamina.   |
| <b>pinnate</b>               | - a frond where the lamina is divided, to the stalk, into alternate or opposite pairs of pinnae, giving a feather-like appearance.<br>[bipinnate - the pinnae themselves are divided once into pinnules; tripinnate- the pinnules are also divided] |
| <b>pinnule</b>               | - a segment of a twice-, or thrice-divided lamina.  |
| <b>rhizome</b>               | - the more or less horizontal stem of a fern, usually above or just below the ground.   |
| <b>sorus</b> (plural sori)   | - the clusters of sporangia (= spore-bearing organs) of a fern.   |
| <b>stalk</b>                 | - the stem of a fern frond consisting of a lower section (stipe) without leafy parts and an upper section (rachis) on which are the leafy parts.  |

## KEY

\* Note - the key refers to fronds that are always present; fertile fronds quite different in appearance (with very narrow, brown pinnae and continuous marginal sori) are present, in season, on *Blechnum* species.

- |       |   |                                 |
|-------|---|---------------------------------|
| 1     | Fronds simple, strap-like   | 2                               |
|       | Fronds pinnate.   | 3                               |
| 2     | Fronds hairless; short creeping rhizome.  | <i>Grammitis magellanica</i>    |
|       | Fronds hairy; long creeping rhizome.  | <i>Grammitis patagonica</i>     |
| 3     | Fronds with primary pinnae only   | 4                               |
|       | Pinnae twice or thrice divided.   | 7                               |
| 4     | Fronds less than 15 cm long.  | 5                               |
|       | Fronds more than 15 cm long.  | 6                               |
| 5 (a) | Fronds leathery, pinna margins smooth, pinnae narrow at the tip, wider and joined at the base.                    | <i>Blechnum penna-marina</i>    |
| (b)   | Fronds leathery, pinna margins smooth or toothed, pinnae oblong, separate, each with a short stalk.               | <i>Asplenium trichomanes</i>    |
| (c)   | Fronds softer, pinnae fan-shaped, separate, with a toothed margin.  | <i>Asplenium flabellifolium</i> |
| 6 (a) | Pinnae separate, leathery, oblong, the upper ones and end of lamina with pointed tips.                            | <i>Blechnum procerum</i>        |
| (b)   | Whole frond shaped like a lance-head, distinctly whitish beneath. Pinnae leathery, blunt-pointed, joined at base. | <i>Blechnum discolor</i>        |
| (c)   | Whole frond parallel-sided. Pinnae shortly oblong or elliptic, tip rounded, joined at base.                       | <i>Blechnum fluviatile</i>      |

- 7 Sori continuous, inside a flap along margin of pinna or pinnule 8  
 \* Note - excludes *Blechnum*, species of which have distinctive fertile fronds.
- Sori distinctly separate, sometimes near pinna margin, often nearer pinna midrib. 9
- 8 (a) Fronds up to 30 cm long, yellowish-green, tripinnate, pinnules fine, close together. *Paesia scaberula*
- (b) Fronds often 1 m or more long, pale green, bipinnate, pinnules relatively wide. *Histiopteris incisa*
- (c) Fronds often 1 m or more long, dull green, tripinnate, pinnules leathery, narrow, distant, with blunt tips. *Pteridium esculentum*
- 9 Fronds less than 15 cm long. 10  
 Fronds more than 15 cm long. 11
- 10 (a) On ground; fronds pale-green, pinnae well apart, pinnules blunt-tipped. *Cystopteris tasmanicum*
- (b) On ground or tree-trunks; stalk hairless, pinnae close together, pinnule margin toothed. *Hymenophyllum multifidum*
- (c) On trees; stalk distinctly hairy pinnae close together, pinnule margin smooth. *Hymenophyllum villosum*
- 11 Sori short, linear, arranged *en echelon* on underside of pinnae (on pinna margin in some species). 12  
 Sori rounded, in parallel rows often near midrib. 13
- 12 (a) Frond dull-green, leathery, hanging from trees; bipinnate (sometimes with primary pinnae only), pinnules narrow, joined at base, sharp-pointed. *Asplenium flaccidum*
- (b) Frond dark green, erect, on rock; tripinnate, pinnules stalked, sori very short. *Asplenium richardii*

- (c) Frond medium green, erect, on ground, sometimes *Asplenium terrestre* on rock, tree bases; tripinnate, pinnules stalked, sori longer.
- 13 Plants form large "tussocks"; fronds feel harsh; stalk covered in large scales. *Polystichum vestitum*
- Plants are usually smaller; fronds feel soft stalks with few to many hairs. 14
- 14 (a) Stalks red-brown below, yellow-brown above, with red-brown or pale-brown bristly hairs; colourless hairs on veins and midribs; longer, brownish hairs on pinnule midribs; sori partly covered by green flap. *Hypolepis ambigua*
- (b) Stalks red-brown below, yellow-green above, with colourless or pale-brown bristly hairs; scattered colourless hairs on pinnule midribs; sori partly covered (or not) by green flap. *Hypolepis millefolium*
- (c) Stalks purplish-red or red-brown, with dense red-brown, granular and bristly hairs; pinnules with brown bristly hairs on margin and colourless and brown hairs on both surfaces; sori not covered. *Hypolepis rufobarbata*

### Additional Ferns

Other fern species expected to be present in the Boyle-Lewis River Valleys include: *Blechnum chambersii*, *Ctenopteris heterophylla*, *Grammitis poeppigiana*, *Hymenophyllum rarum*, *H. revolutum*, *Leptopteris hymenophylloides*, *Ophioglossum coriaceum*.

### References

- Brownsey, P.J., Smith-Dodsworth, J.C. 1989. New Zealand Ferns and Allied Plants. David Bateman, Auckland.
- Molloy, B. 1983. Ferns in Peel Forest: A Field Guide. Department of Lands and Survey, Christchurch.