Many species of hard fern are hardy but only a few are widely grown. Tim Pyner has trialled a broad range in his garden and discusses those that are valuable additions to the palette of evergreen ferns.

Blechnum provide some of the best-known and most useful ferns in cultivation. Commonly known as hard or water ferns, the tough, evergreen fronds are architecturally pleasing and create an effective background to the often colourful young croziers. Only a handful of species are well known but a wider selection is grown by enthusiasts. Many of these lesser known species make attractive garden plants.

In this article I will discuss the most worthwhile species that I have found to be winter hardy over a number of years in coastal Essex, plus a few others grown elsewhere.

Classification and morphology

With around 200 species, Blechnum is the largest genus in the family Blechnaceae. Most species occur in the southern hemisphere. The family includes 7 or 8 other genera, Woodwardia and Doodia being frequently cultivated. Recent molecular studies have placed
Blechnaceae is a group of families that includes Thelypteridaceae, Onocleaceae (Schuettpelz & Pryer 2008) and Athyriaceae (Christenhusz et al. 2011). Blechnum itself requires further study and generic changes are certain to occur in the future (Smith et al. 2008, Christenhusz et al. 2011).

The stems of Blechnum are woody rhizomes, creeping or erect, sometimes forming trunks. The fronds are pinnate or pinnatifid. The frond stalk (stipe) is scaly to some degree as is the frond midrib (rachis). The leaflets (pinnae) can be stalked or sessile (adnate). The spores are borne on specialized fronds known as fertile fronds (the normal fronds are referred to as sterile fronds). The sterile and fertile fronds can be similar in appearance (monomorphic) or differ (dimorphic). Most of the hardy species bear dimorphic fronds.

In this article I have attempted to group the species discussed using characters that show natural relationships. However, in some cases the characters are superficial. Unless stated, frond descriptions refer to the sterile fronds.

Blechnum chilense group
These species have strong and creeping rhizomes, robust and fully pinnate dimorphic fronds, and pinnae that are shortly stalked, strongly veined and toothed. The first four species have the lowest pinnae on the frond not or hardly shorter than those above. The other two species have lower pinnae that decrease in size down the frond.

The various species range throughout temperate regions of the southern hemisphere. They are among the most useful ferns for gardens, being of moderate to large size with tough evergreen foliage, colourful new growth and easily cultivated. Many of these species have previously been classified as B. capense, but this name is now restricted to African plants. Plants from South Africa are supposedly in cultivation, but the vast majority in gardens will be one of the following.

Blechnum chilense (syn. B. cordatum)
This well known species is deservedly one the most popular garden ferns. It is unfortunate that two names are in current use. Blechnum cordatum has priority but there is some doubt regarding its conspecificity with B. chilense. I have chosen to use B. chilense, not least because Australasian species in this group have been subject to careful revisions that have resolved their taxonomy and recognized additional species. Recent authors (e.g. Kessler et al. 2007) consider a detailed study of the species complex in South America is required. Blechnum chilense in the narrow sense is native to temperate South America and can be abundant in high rainfall areas.

In ideal conditions this magnificent species can produce fronds reaching 150cm long and 30cm wide. The new fronds are reddish, maturing to dark green. The stipes are clothed with broad, brown scales and the pinnae tend to have strongly wavy margins. In large gardens old plants of B. chilense can form impressive colonies that dominate extensive areas.

Blechnum wattsii
This species, native to eastern Australia, is surprisingly hardy. It superficially resembles B. chilense but is lower growing, with fewer, flat pinnae. The young fronds are

All photographs by Simon Garbutt unless stated otherwise

Blechnum chilense is one of the largest of the cultivated species and can form extensive colonies
reddish and even mature fronds retain a brownish tint. This is an elegant fern with fronds up to 60cm long that is useful in smaller gardens where *B. chilense* may be too vigorous.

**Blechnum procerum**
Native to New Zealand this is a superb garden fern. The sterile fronds have few, rather short, broad pinnae that are dark, bronze-green during the growing season. In winter they take on a glorious orange-brown hue which lights up the area where it grows. The fertile fronds are erect to around 40cm, contrasting with the strongly spreading sterile fronds.

**Blechnum montanum**
This fern resembles *B. procerum*, but the fronds, to 50cm, are more glossy with curved and tapered pinnae. I have not noticed any marked change in frond colour in winter. It is endemic to New Zealand at relatively high altitudes and I have found it rather slow-growing compared to other species in the group.

**Blechnum novae-zelandiae**
Until recently, this and the previous species were confused with *B. capense*. Chambers & Farrant (1998) resolved the taxonomy of the group in New Zealand and this species was circumscribed to include the endemic lowland plants of that country.

It is hardy in Essex but remains small, with fronds of 30–40cm, but with greater humidity it is much larger, up to 120cm. Even small plants produce some of the most colourful fronds of any hardy *Blechnum*. Bright light is required to develop the pigments which can range from bright pink to deep orange.

**Blechnum minus**
This is a very attractive species that is native to southeast Australia. It is unclear whether similar plants in New Zealand are conspecific. Despite the epithet, *B. minus* can get quite large and old plants often form short trunks. The rhizomes spread slowly and the fronds are glossy, and orange to pink when young. The fronds are less resistant to cold than other members of the group, but many colourful new fronds are quickly produced in the spring.

**Blechnum magellanicum group**
This group contains some of the largest and most beautiful hard ferns. They can form massive trunks, sometimes 3–4m high in the wild. These large plants may be centuries old and can form magnificent colonies. Plants grown in the UK are smaller but still form striking plants.

The fronds are dimorphic, and the sterile pinnae are adnate to the rachis with only the lowest ones stalked. Rudimentary pinnae reduced to small flanges flank the stipes. The pinnae margins are entire.

**Blechnum magellanicum**
This is the hardiest of the trunked species, thriving in most of the UK.
The trunk is stout, reaching 2m in the wild. The fronds are large, glossy, pale and rather whitish below, and usually 50–80cm in cultivation but up to 150cm in the wild. The dense blackish scales on the rhizome and stipes are stiff and have been compared to pig bristles. The fronds are often coated in stalked glands making them sticky to the touch, the fertile fronds particularly so.

**Blechnum magellanicum** is a highly impressive fern and seeing a group of large plants gives a primeval atmosphere in sheltered gardens. It is hardly conceivable that, in the past, this and *B. chilense* have been treated as a single species as they differ substantially.

**Blechnum tabulare**
The least hardy member of the group, young plants of this species will struggle to survive an average UK winter without protection. Even large plants lose their fronds through moderate winters and are slow to recover. With protection, young plants grow quickly but will not produce trunks for many years. However, trunkless specimens make extremely handsome ferns with 60cm fronds.

Compared to *B. magellanicum*, the pinnae are broader, fewer and more widely spaced. The fertile fronds also have fewer pinnae, and the scales are ginger rather than black. In the past, plants as diverse as *B. chilense* and *B. magellanicum* have been included in *B. tabulare*. This is perplexing as the plants are clearly morphologically and geographically distinct. The name is now restricted to plants from Africa and islands in the Indian Ocean.

**Blechnum cycadifolium**
This species is endemic to the Juan Fernández Islands off the west coast of Chile. Large plants there form magnificent colonies at higher altitudes, both in shade and in the open. It has recently become available in horticulture and is proving to be fairly hardy in sheltered gardens. Ensoll & Hughes (2007) describe its cultivation at Royal Botanic Garden Edinburgh and at Logan Botanic Garden on the west coast of Scotland. A plant in my garden in Essex is slow and remains small, so higher rainfall and humidity may be beneficial.

This species resembles *B. magellanicum* but has shorter fronds to 100cm. The young fronds are densely scaly on the lower surfaces and the scales are bright golden-brown. If this species proves to be consistently hardy it will become a wonderful addition to British gardens.

**Blechnum palmiforme**
Very recently introduced, this exciting species from Tristan da Cunha and nearby islands in the southern Atlantic Ocean is showing great promise in Scottish gardens. It has proved cold-hardy through recent winters in Scotland.
Taggart (2009) gives an excellent account and description of the fern, including details of its native habitat and introduction to Scotland. It resembles B. cycadifolium but has shorter pinnae and blunt fronds reaching 80cm in length.

**Blechnum nudum group**
Species in this group are medium-sized ferns native to Australia and New Zealand that can produce short trunks in humid habitats. In the UK, trunked crowns are liable to be killed in hard winters but new crowns regrow from the base.

**Blechnum nudum**
This species is native to eastern Australia. The fronds can reach 1m but are usually no more than half this length. The undersides of the sterile fronds are pale green and the stipes and lower part of the rachis are blackish. The fertile fronds have crowded narrow pinnae that are not expanded at the base. The scales on the fertile fronds are broad, pale and rather sparse.

It is a very attractive species producing many fronds each summer that are only lost in the harshest winters. In the UK plants tend to form large clumps, but in more favoured areas huge colonies can develop, as for example in the Parque da Pena, Sintra, Portugal.

**Blechnum discolor**
This the New Zealand counterpart of B. nudum; both have been confused in the past although they are quite distinct. Blechnum discolor forms well-defined shuttlecocks and the frond lower surface is very pale, sometimes almost whitish. The sterile pinnae are broader and their apices are more obtuse. The fertile fronds are even more distinctive: the lower pinnae being basally expanded at the rachis giving a unique and readily recognized appearance. The ginger scales on the fertile fronds are hair-like and relatively abundant.

When well-grown this is one of the most beautiful ferns. However, it can lose fronds in moderate winters and this will prevent plants reaching their full potential.

**Blechnum spicant**
This beautiful evergreen species often carpets woodlands, stream banks and rocky gorges in the west and north of the UK. Even in the drier southeast it grows well in sheltered woodland. It is native throughout Europe and western Asia, and also western North America. Hard fern makes a wonderful garden plant given sheltered, acidic, conditions and can eventually form large clumps.

The fronds are dark green and up to 5cm wide, while the fertile ones are longer than the sterile, reaching about 45cm in length.

**Blechnum niponicum**
This Japanese species is closely related to B. spicant but has broader sterile fronds, up to 10cm wide and 40cm long. The new fronds are heavily tinged pink and mature a paler green than those of B. spicant. This is a very attractive species but remains small in my garden.
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**Blechnum australe**

Species in this group occur in South Africa and South America. They have creeping rhizomes that can form substantial colonies. The fronds reach about 40cm in length and are pinnate at the frond base with the pinnae gradually becoming adnate towards the apex. The pinnae are falcate, basally expanded and gradually reduce in size towards the frond base. The pinnae margins are minutely denticulate.

The close relationships between the species can cause problems with identification. Typical *B. australis* and *B. hastatum* are distinct, however *B. australis* subsp. *auriculatum* is somewhat intermediate.

**Blechnum australis**
The typical subspecies, subsp. *australe*, is native to southern Africa. The fronds are dimorphic, and it is the most attractive fern in this group as the young fronds are tinged with pink and orange.

The South American variant, subsp. *auriculatum*, is found in eastern South America from south Brazil to Argentina. It approaches *B. hastatum* in some characters but the fronds are somewhat dimorphic. It is not as attractive as subsp. *australe* because the new fronds are green.

**Blechnum hastatum**

This species is from western South America, mainly Chile but also Argentina. The most obvious difference from *B. australis* is the almost monomorphic fronds: the fertile ones have broad areas of sterile tissue bordering the indusia. The new fronds are green and the broad pinnae help create an attractive ground cover. This species seems hardier than *B. australis* and the fronds remain wintergreen at low temperatures.

**Blechnum penna-marina**

These species are low-growing with strongly creeping rhizomes forming large patches. The narrow fronds are strongly dimorphic, sparsely scaly and taper towards the base. The pinnae are sessile.

**Blechnum penna-marina**

This species is well-known in cultivation and widely available. It occupies a cool temperate range in the southern hemisphere. Its taxonomy has recently been revised (Chambers & Farrant 1996) and divided into four geographical subspecies, two of which are commonly grown.

*Blechnum penna-marina* subsp. *penna-marina* is native to South America and some South Atlantic islands. It has pinnae that tend to overlap and the stipe is dark purplish-black with this colour extending into rachis. This subspecies tends to be one of the tallest, with fronds to 30cm long. They are less glossy than those of subsp. *alpinum* and the pinnae are usually rounded at the apex.

*Blechnum penna-marina* subsp. *alpinum* occurs throughout most
of the range of the species and is the only subspecies found in Australasia. Its pinnae tend not to overlap and the stipe is dark reddish brown at the base and greenish below the rachis. It is low growing and quite dwarf. The fronds are 10–20cm long, have a glossy sheen, and the pinnae tend to be shortly pointed.

Both subspecies make attractive groundcover with reddish or purplish young fronds but can be invasive, especially on peaty soil.

■ **Blechnum microphyllum**  
*syn. B. gayanum*  
Chambers & Farrant (1996) consider this to be a subspecies of *B. penna-marina*. However, in cultivation it is very distinct and I prefer to treat it as a species. It is a delightful, well-behaved, miniature species, slow growing with short rhizomes and orange new fronds. The pinnae are narrowed at the rachis and strongly toothed. The fronds are usually no more than 15cm long.

■ **Blechnum mochaenum**  
This quietly attractive rhizomatous species from south Chile and Argentina slowly creeps among other plants. The rhizomes do not form dense mats and tufts of fronds will arise, scattered around the original planting. The fronds, purplish when young, taper towards the base where the lowest pinnae form semi-circular flanges along the rachis. The pinnae are strongly adnate. The fertile pinnae are long, narrow and strongly falcate. The species seems hardy although fronds can be scorched in winter. Two varieties are recognised and both are in cultivation.

**Blechnum mochaenum** var. *mochaenum* is from mainland South America. Its fronds are rather thick and glossy and reach 35cm in length. The stipe is relatively stout and at least 1mm in diameter.

**Blechnum mochaenum** var. *fernandezianum* is from the Juan Fernández Islands. The fronds are smaller, to 15cm long, and of a thinner texture. The stipe is under 1mm in diameter.

### Other species

■ **Blechnum chambersii**  
The rhizome of this species is erect, giving rise to a rosette of sterile fronds to 35cm in length that spread horizontally. The pinnae are slightly falcate, strongly veined and sharply toothed. The fertile fronds are erect, around the same length as the sterile ones, with very narrow pinnae.

It is native to forested areas of southeast Australia and New Zealand. Subtly attractive, the dark green, glossy fronds stand out among other ferns. It is particularly suited to damp, shaded areas.

■ **Blechnum fluviatile**  
This wonderful species is a personal
The unfurling fronds of Blechnum fluviatile are caterpillar-like and it will slowly form a colony growing in ideal conditions. Acid to neutral soils are essential and plentiful organic content is beneficial. Most species prefer shade, however those with colourful new growth often produce more intense tones in bright light. Most species remain wintergreen above -5°C. Some will lose their fronds at lower temperatures but generally recover quickly the following summer. Dead and damaged fronds are best removed in the spring to allow colourful new growth to be clearly visible. Exposed trunks of some species are vulnerable to drought in summer and cold in winter. A mulch around exposed trunks is beneficial under both conditions.

Propagation by spores can be slow or erratic (Olsen 2007). Species with creeping rhizomes can be easily divided in spring or early summer.

**Conclusion**

Blechnum display a combination of dramatic, colourful young fronds against a backdrop of dark green mature foliage. This allows them to be considered an essential component of gardens where structure, form and foliage effect is a priority.

My selection of species here is inevitably rather subjective and additional species are certainly grown in British gardens. I would be grateful to receive further information on their performance.

Tim Pyner is a keen plantsman, particularly interested in ferns and trialling tender plants outdoors. email: t.pyner@btinternet.com

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**REFERENCES & BIBLIOGRAPHY**


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