
Ferns
of Norfolk
Norfolk & Norwich
Naturalists' Society

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Data for maps courtesy of Norfolk Biodiversity Information Service (NBIS)
Based on data received to 20.10.20.

Bibliography

A Flora of Norfolk – Gillian Beckett, Alec Bull (1999)

Flora Britannica – Richard Mabey (Sinclair-Stevenson 1996)

Britain's Ferns – James Merryweather (**WILD***Guides* 2020)

Key to maps

Latest record: ☐ **1961-1980** ■ **1981-2000** ■ **2001-2020**

Cover photograph – Polypody on woodland bank, Booton Common (David Richmond)

Revision date 2.11.20

Ferns of Norfolk

There are 22 species of fern in Norfolk, excluding casual garden escapes, hybrids and an introduced species of water fern.

Life cycle

Ferns are the most primitive of the vascular plants, reproducing from spores in a complex two-stage process.

The adult fern produces vast numbers of single-celled spores on the underside of the fronds, which are released from late summer to early winter.

Those few spores which fall on suitably damp ground and which successfully germinate, will each grow into a flimsy green disc called a prothallus.

This disc subsequently produces male and female reproductive cells, which must swim to reach one another in a film of water to bring about fertilisation. It is this phase of the life cycle which ties ferns to damp habitats. The new fern grows from these united cells.

Ferns also spread vegetatively from underground runners, thus a hillside of bracken might have spread from just a single plant.

Many species of fern stay green over winter. In others the fronds die back but none so spectacularly as bracken which turns yellow then brown. In spring the new growth is coiled like a bishop's crosier, but soon unravels into the familiar spreading fronds of the mature plant.

Where to look for ferns

Ferns are widespread across Norfolk exploiting a wide range of damp and shady habitats.

Look on north-facing walls of old buildings or the brickwork of bridges where you may find Hart's-tongue and Black Spleenwort, or more rarely Wall Rue and Maidenhair Spleenwort.

Partially shaded banks and ditches along woodland edges or country lanes may harbour Polypody, Male Fern and Shield Ferns.

Bracken is common on heathlands while Broad Buckler Fern prefers some woodland cover.

Fens can yield Marsh Fern or, in East Norfolk, the rarer Crested Buckler Fern.

There is much overlap between habitats, and as with all natural history recording, success comes with experience as the student learns to recognise particularly favoured niches of a target species.

Frond structure

Fronds which are regularly divided into pairs of leaflets are called **pinnate.** Where these paired leaflets are themselves subdivided along their central axis, then the frond is described as **2-pinnate**. Further division can also occur creating **3-pinnate** leaves *(see below).*

1-pinnate

The spore bearing pinnules are supported directly by the midrib of the frond.

eg: Polypody, Hard Fern

2-pinnate

Here the spore bearing pinnules are supported along side branches of the midrib.

eg: Male Fern, Lady Fern, Shield Fern

3-pinnate

The spore bearing pinnules are supported by tertiary branches of the frond.

eg Bracken, Broad Buckler Fern

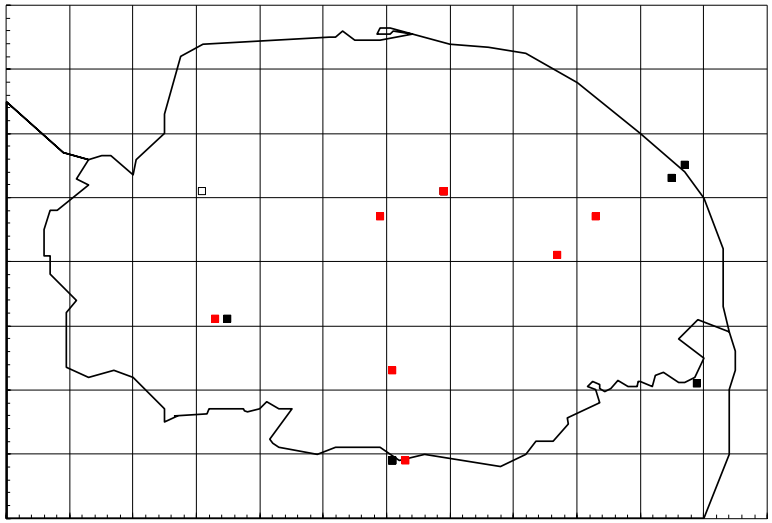
Adder's Tongue

Ophioglossum vulgatum L.

An uncommon fern, found in a wide variety of undisturbed habitats, including woods, marshes, old commons, chalk pits, sand dunes and fens.

It is just a few inches high and difficult to spot among grasses and the emergent leaves of ground vegetation. It is best searched for in May and June before it becomes lost in longer vegetation. It dies back over winter.

This species is significantly under-represented in the NBIS dataset when compared with the distribution maps in A Flora of Norfolk.



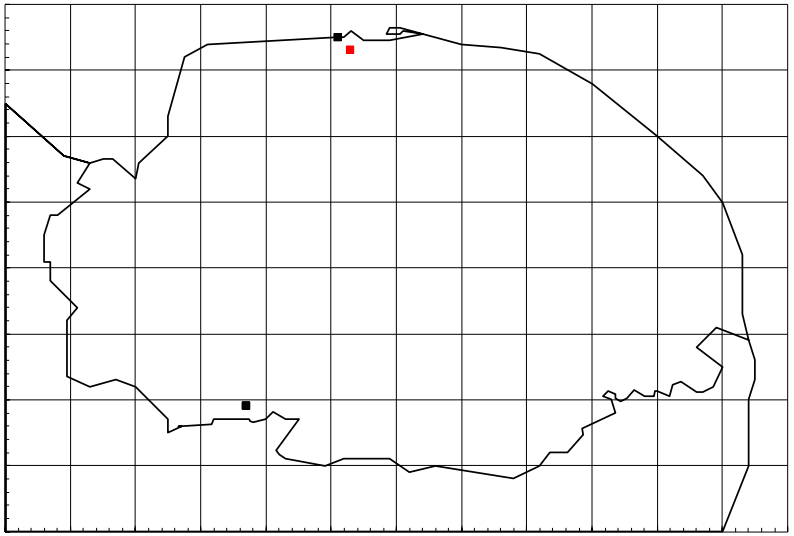
David Richmond – photographed in Scotland

Moonwort

Botrychium lunaria (L.) Sw.

A rare fern, found in just two parts of the county during survey work for the most recent Flora of Norfolk. Nationally it occurs in dry grassy places including old meadows, heaths, moors, mountains and dunes; and also in dune slacks, as at Wells-next-the Sea, one of its Norfolk locations.

The plant dies back over winter and is not visible between September and April.

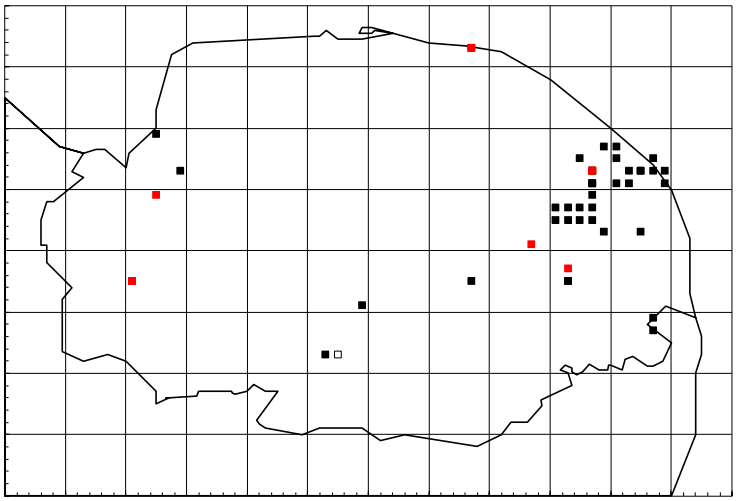


Royal Fern

Osmunda regalis L.

A large fern, mainly restricted to the Broads where it is found in deep, wet, acid soils and on coastal sand dunes, as at Winterton.

Fronds can grow to well in excess a metre. The central leaves are so thickly encrusted with spores in summer that they turn golden-brown resembling a flower spike. The green leaves die back between December and April.



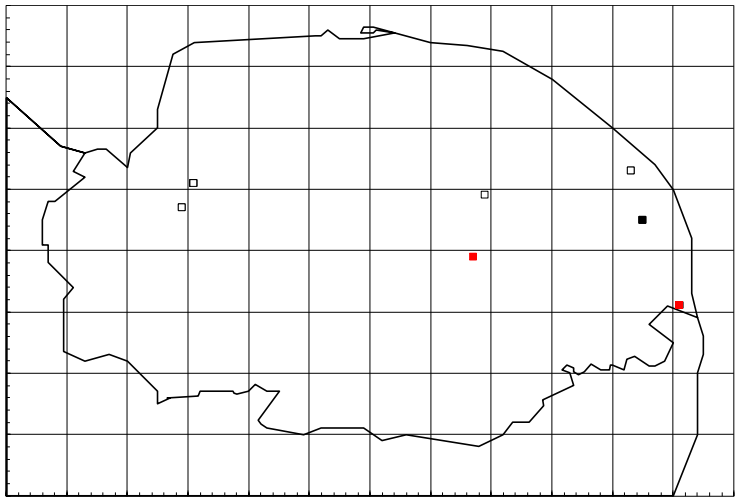
Pillwort

Pilularia globulifera L.

A rare fern in Norfolk, forming dense swards of simple, cylindrical fronds on pond margins. The distinctive spherical spore cases are brown and scaly when mature *(see bottom left of photo).*.

The only recent records are from Colney, Rollesby and Lound Waterworks.

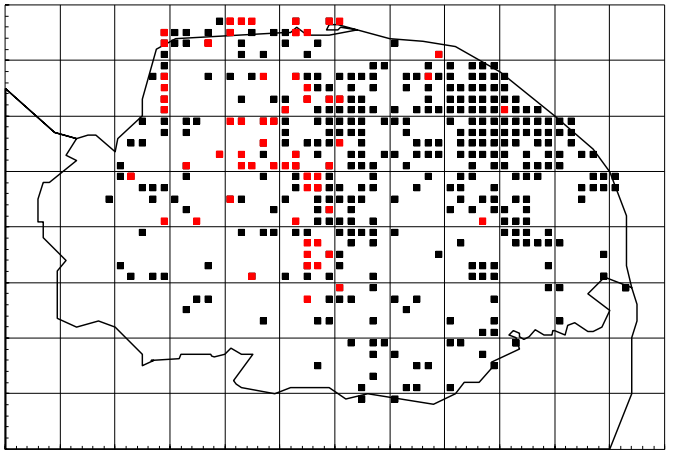
Open squares relate to the period 1901-1960.



Common Polypody

Polypodium sp.

There are two species of Polypody in Norfolk, *P.vulgare* and *P.interjectum.* It used to be thought that they could be distinguished by the shape of the fronds, but it is now realised that this distinction is unreliable, and that it is essential to use spore characteristics. Both species are winter-green and are equally widespread across the county. The map shows the combined distribution of the two species.



It is common in woods where it will grow on mossy tree trunks, and on walls.

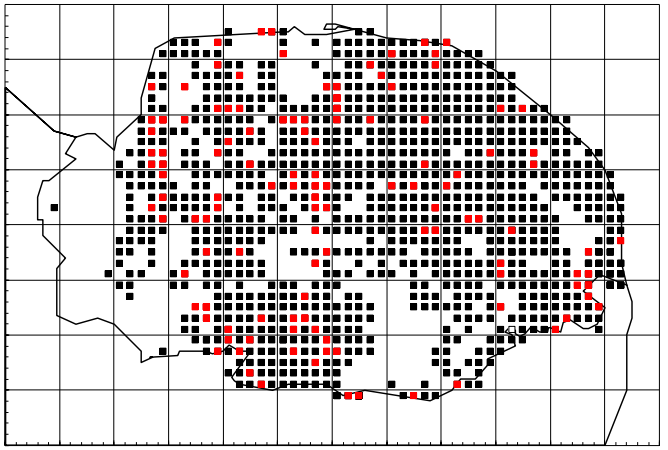
1-pinnate

Bracken

Pteridium aquilinum (L.) Kuhn

Ubiquitous except in the Fens, Broads and areas of intensive agriculture. It spreads from a creeping underground rootstock to create extensive closed communities which are difficult to eradicate. It dies back in winter, persisting as a copper-brown ground litter.

Young fronds emerge in April and are coiled like a shepherd's crook. It is most successful where there is partial shade from trees offering protection from late frosts.



Tony Howes

3-pinnate

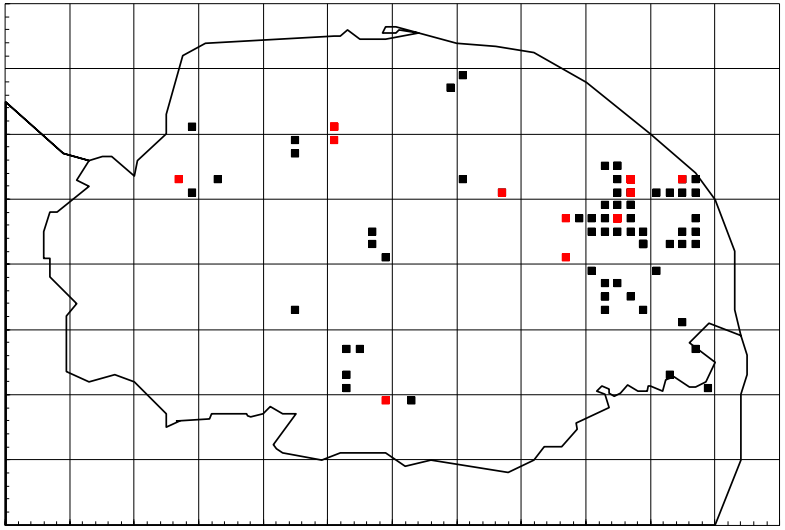
Marsh Fern

Thelypteris palustris Schott

A nationally scarce species which can be found on peat in open marshes and carr, particularly in the Broads area.

It can be distinguished by the fronds which grow singly from a creeping underground rootstock.

Fronds die back in winter.

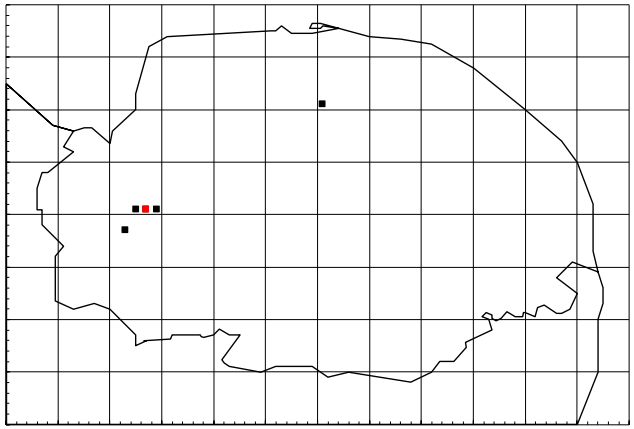


Lemon-scented Fern

Oreopteris limbosperma (Bellardi ex All.) Holub

A species of northern and western Britain which is rare in Norfolk. being confined to acid woodland at Shouldham, Wormegay and Runcton Holme; and to Swanton Novers Great Wood.

It has yellowish-green fronds with unstalked pinnules, which have a distinctive lemon scent when crushed. Note the distinctive black spore cases.

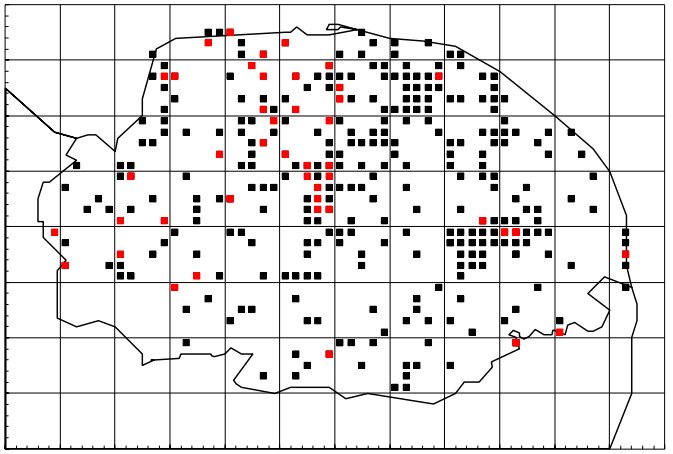


2-pinnate

Hart’s-tongue

Phyllitis scolopendrium (L.) Newman

Uniquely identified by its winter-green, strap shaped leaves, it is a common fern of walls and banks.



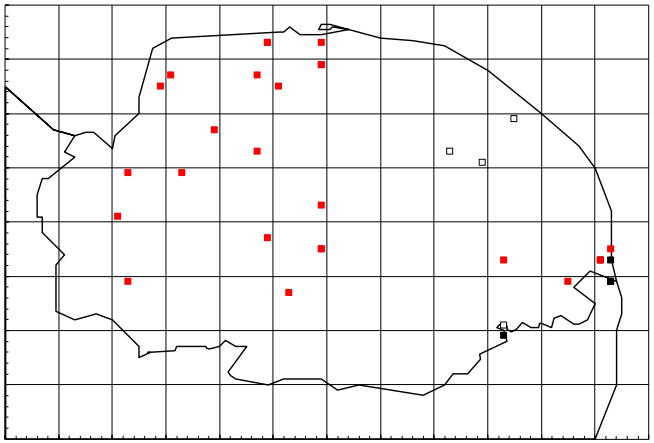
non-pinnate

Black Spleenwort

Aspenium adiantum-nigrum L.

Black Spleenwort has shiny triangular fronds, typically 10-20 cms long. The spore cases on the underside of the leaves are *linear.* The stem is dark brown or black at the base.

It is most usually found on walls or bridges, but can occur on damp shady banks.



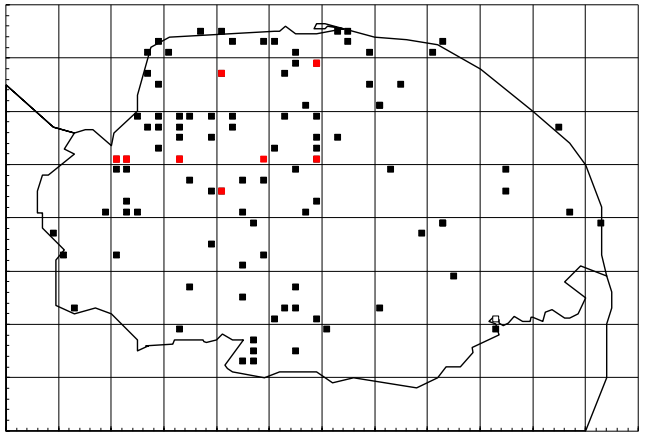
This species is significantly under-represented in the NBIS dataset when compared with the distribution maps in A Flora of Norfolk.

2-3 pinnate

Maidenhair Spleenwort

Aspenium trichomanes L.

Uncommon in Norfolk and generally confined to walls, particularly on ancient monuments. The delicate, evergreen fronds have a distinctive black midrib with oblong or rounded leaflets arranged in pairs.

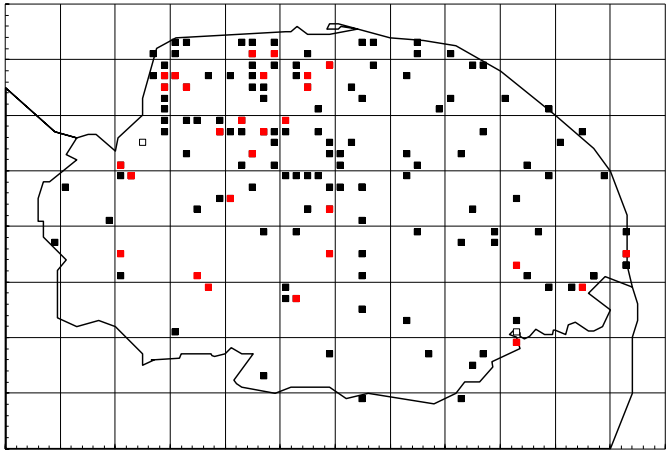


1-pinnate

Wall Rue

Aspenium ruta-muraria L.

A small fern, sometimes only 2-5 cm high, and confined to walls or bridges. It is more common in the west of the county than the east.



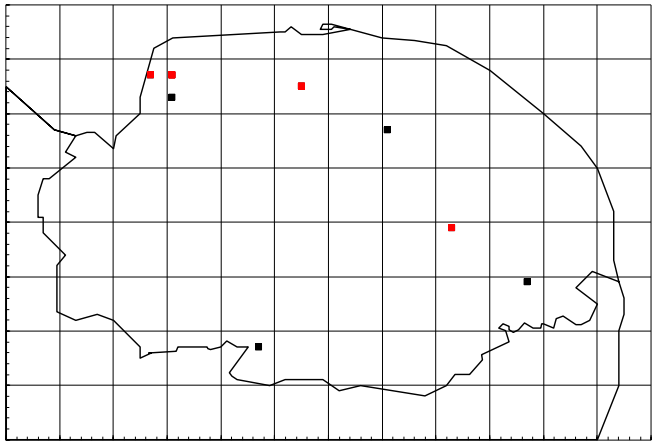
2-pinnate

Rusty-back Fern

Ceterach officinarum Willd.

A fern of southern and western Britain which is rare in Norfolk. A Flora of Norfolk reported it from only 8 sites – Heacham, Sedgeford, Shernborne, Great Snoring and Croxton in the west; and Heydon, Norwich riverside and Loddon in the east. All sites are on walls.

The undersides of the leaves are initially silvery, but become encrusted with russet scales as the season progresses.



pinnately lobed

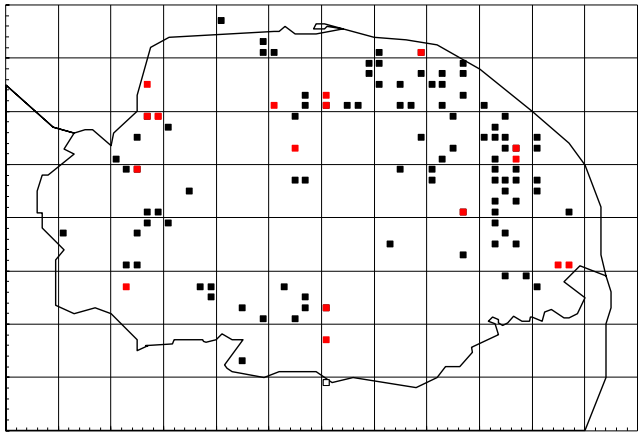
Lady Fern

Athyrium filix-femina (L.) Roth

A large tufted fern up to 150 cm tall. It is similar to Male Fern but is more graceful because of its gently arching fronds and the more frizzy, less austere look, of its pinnules.

It is found in shady woods and moist sites, especially on acid soils.

The fronds die back in winter.



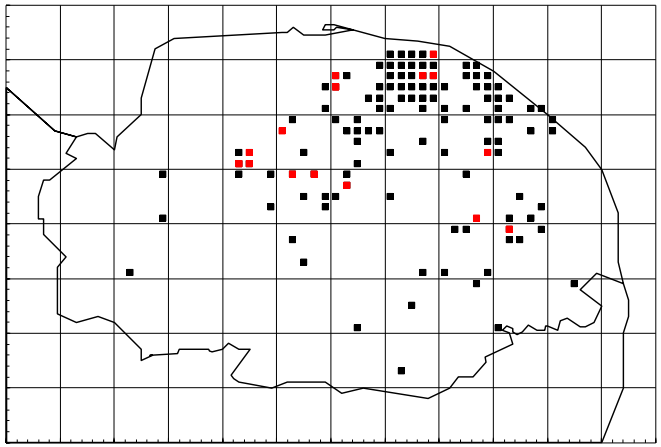
2-pinnate

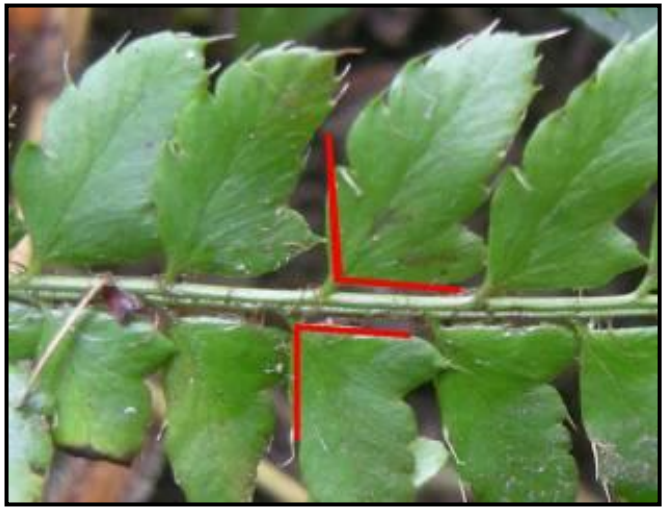
Soft Shield Fern

Polystichum setiferum (Forssk.) T.Moore ex. Woyn

A winter-green fern which is most common on the acid soils in the north-east of the county. The fronds are narrower than those of Male Fern, which it superficially resembles, but note the spiny tips to the stalked pinnules. It can be distinguished from Hard Shied Fern by its softer feel and more indented pinnules, the bottom margins of which meet at right angles.

Look for it in woods and along ditches and hedge banks.





Bottom margins of the pinnules of Soft Shield Fern meet at right angles. Those of Hard Shield Fern in the main meet at acute angles.

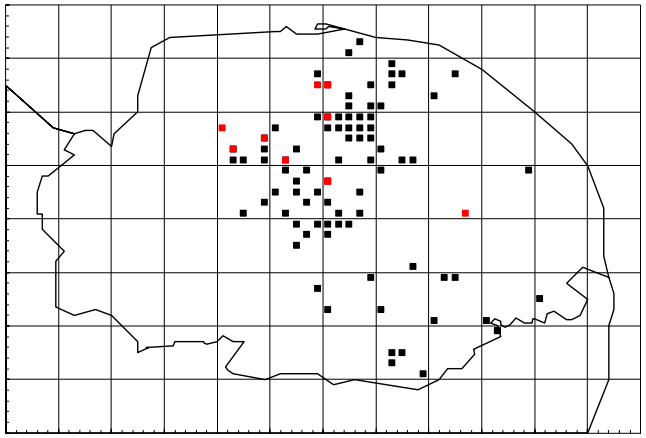
2-pinnate

Hard Shield Fern

Polystichum aculeatum (L.) Roth

A winter-green fern which is most common on the clay soils of central Norfolk. It is sometimes called Prickly Shield Fern because of the spiny outer edges of the pinnules nearest the central stem. The fronds are said to be more leathery than those of Soft Shield Fern, though this is perhaps subjective.

Look for it in ditches and on hedge banks.



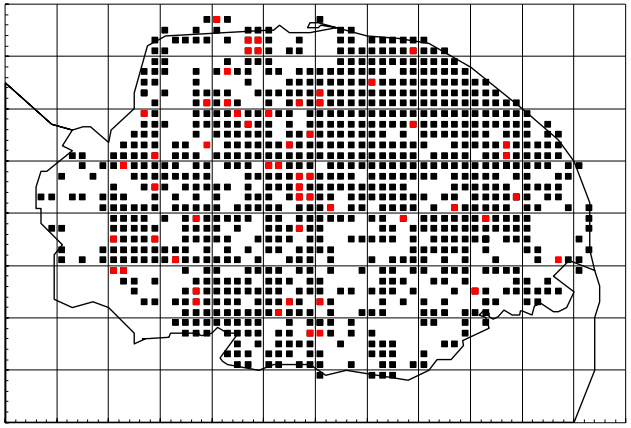
2-pinnate

Male Fern

Dryopteris filix-mas (L.) Schott

Widely distributed across Norfolk in a wide range of habitats, including both damp and dry woodland, hedgerows and dunes.

Pinnules are straight-edged or moderately indented, the lobes being more or less triangular. Stalks have pale brown scales and grow from a single crown on each rootstock.



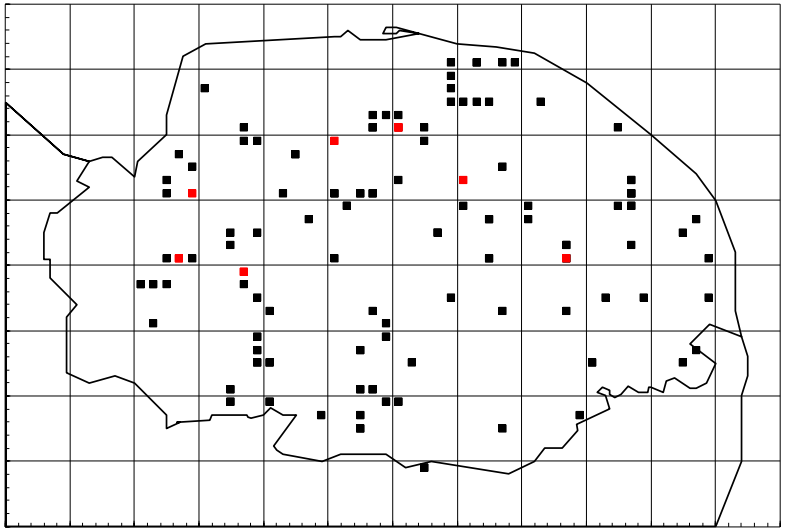
2-pinnate

Scaly Male Fern

Dryopteris affinis (Lowe) fraser-Jenk.

Sparsely distributed across Norfolk, with one subspecies *affinis* seemingly confined to ancient woodland, and another *borreri* occurring more widely in moist shady sites.

It is distinguished from Male Fern by the golden-brown scales extending along the whole length of the midrib.



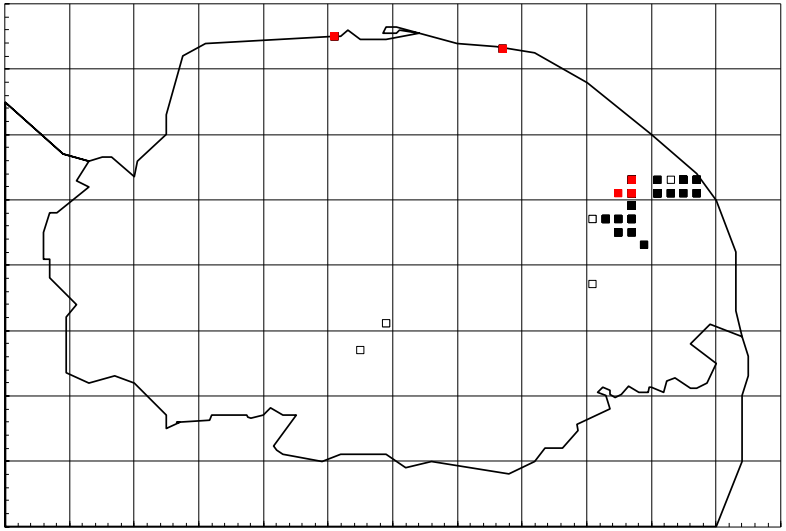
Crested Buckler Fern

Dryopteris cristata (L.) A. gray

A red data book species, which in Norfolk is more or less confined to the Broads area, particularly on acid soils where sphagnum mosses are present.

Its distinguishing feature is that the pinnae do not lie in a flat plane like other ferns, but are angled and partially overlapping.

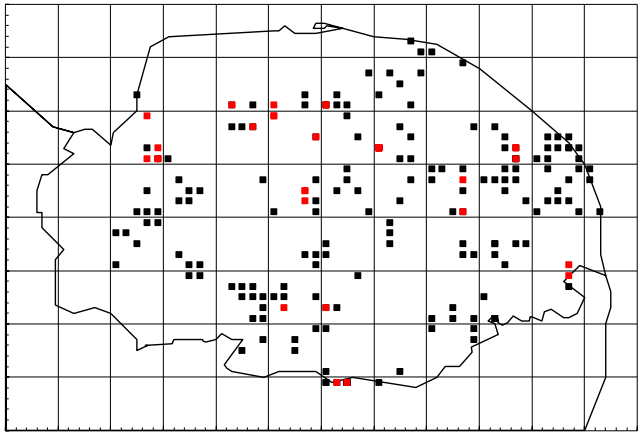
Note also the black spore cases.



Narrow Buckler Fern

Dryopteris carthusiana (Vill.) H.P. Fuchs

A deciduous perennial of damp shady areas in marshes and woods. It differs from Broad Buckler Fern in having narrower 2-pinnate leaves. Scales on the stem are pale brown without the distinctive dark centres of Broad Buckler.

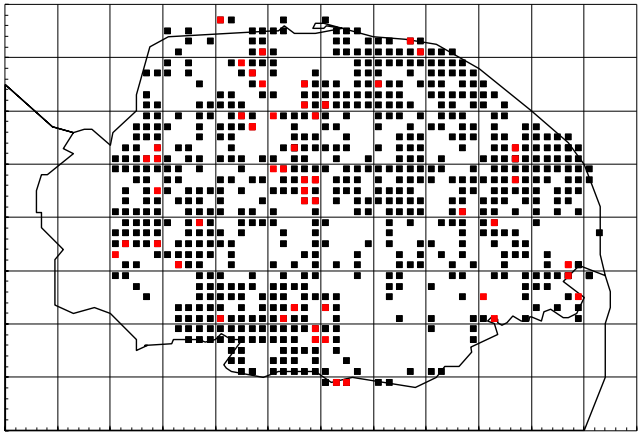


Broad Buckler Fern

Dryopteris dilatata (Hoffm.) A. Gray

A deciduous perennial occupying a wide range of habitats, including woods, hedge banks, coniferous plantations and sand dunes.

It has broad, spreading, triangular leaves up to 150 cms long. Lowest leaflets are 3-pinnate. Scales on the stems are dark centred.

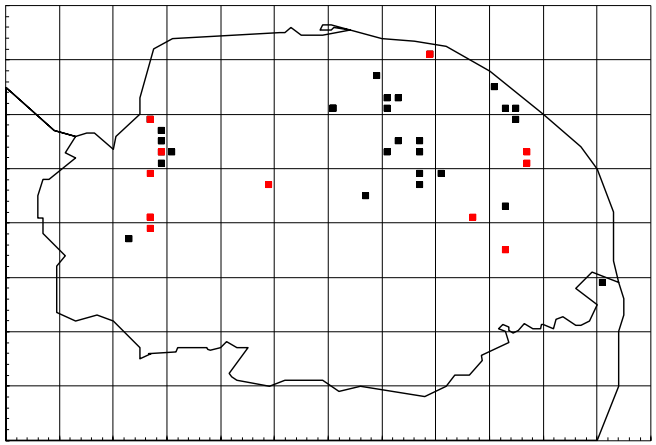


Hard Fern

Blechnum spicant (L.) Roth

Uncommon in central and eastern England. In Norfolk it is found on wet heaths and in damp woods on acid soils, especially along ditch sides.

It has low, spreading, outer leaves with broad, close-set pinnae, contrasting with erect, fertile fronds which have distinctive, widely-spaced, much narrower pinnae.



1-pinnate