W22
Prunus spinosa-Rubus fruticosus scrub

Synonymy
Scrub *auct. angl. p.p.*; Scrub associations Tansley 1911; Cliff Scrub Nodum Malloch 1970 *p.p.*; *Primula vulgaris-Prunus spinosa* Association (R. Tx 1952) Birse 1980.

Constant species
Prunus spinosa.

Physiognomy
Prunus spinosa is a frequent and locally abundant species in the *Crataegus-Hedera* scrub but, in this community, it is the sole woody constant and almost always an overwhelming dominant in a consistently more species-poor canopy. Indeed, it is usually the only tree or shrub present, though *Ulex europaeus* is occasional on more base-poor soils and *Corylus avellana* and *Ligustrum vulgare* can occur on the more base-rich. The height of the canopy is rather variable, but generally quite low, well-grown *Prunus* in sheltered situations typically attaining no more than 4 m and scrub in very exposed places, as on some sea-cliffs, having a cover often less than 1 m. Usually the canopy is closed or almost so, being especially dense where the trees are wind-pruned.

Undershrubs are not numerous, though there is often some *Rubus fruticosus* agg., growing sparsely beneath the *Prunus* or, more obviously, forming a thick tangled fringe. *R. idaeus* also occurs occasionally and can be locally abundant and there can be some roses, usually *Rosa canina* with *R. dumalis*, *R. tomentosa* and *R. sherardii* recorded more rarely (Birse 1980). Woody sprawlers and climbers are uncommon, but *Lonicera periclymenum* is occasional and, to the south-west, *Rubia peregrina* may be found.

The field layer of the *Prunus* scrub is characteristically species-poor and often rather sparse, especially in denser stands, where it is limited to a patchy cover beneath the trees themselves and a marginal belt. *Pteridium aquilinum* is the commonest species throughout, though it is only locally abundant and often reduced to scattered fronds. *Urtica dioica* and *Galium aparine* also occur frequently, the latter often sprawling in some abundance up the scrub fringes. Then, there are often some grasses, though the species represented vary somewhat in the different sub-communities. *Poa trivialis* and *Holcus mollis* are among the commonest but *H. lanatus* and *Agrostis capillaris* occur throughout and there can also be some *Brachypodium sylvaticum*, *Festuca rubra* and *Dactylis glomerata*. A further quite frequent component, though less universally prominent here than in the *Crataegus-Hedera* scrub, is a ground carpet of *Hedera helix*.

Herbaceous dicotyledons can be quite numerous, though none is more than occasional overall. *Silene dioica* is fairly common, though less frequent on more base-rich soils; *Viola riviniana* is likewise represented throughout, though it shows the reverse edaphic trend. Other species encountered at low frequencies include *Moehringia trinervia*, *Digitalis purpurea*, *Teucrium scorodonia* and *Stachys sylvatica* with, showing some obvious preference to the different sub-communities, *Hyacinthoides non-scripta*, *Mercurialis perennis*, *Veronica chamaedrys*, some maritime herbs and a variety of low-frequency associates detailed below. Ferns can be found in some stands with *Dryopteris filix-mas*, *D. borreri* and *Phyllitis scolopendrium* recorded occasionally.

Bryophytes are few, though they can have high local abundance. *Eurhynchium praelongum*, *Plagiomnium undulatum* and *Brachythecium rutabulum* are the commonest species with *Eurhynchium striatum*, *Thuidium tamariscinum*, *Atrichum undulatum* and *Lophocolea bidentata s.l.* occurring more sporadically.

Sub-communities

***Hedera helix-Silene dioica* sub-community:** Cliff Scrub Nodum Malloch 1970 *p.p.*; *Primula vulgaris-Prunus spinosa* Association (R. Tx. 1952) Birse 1980 *p.p.* Dense and quite low covers of *Prunus* are characteristic here with occasional *Ulex*. *Rubus fruticosus* agg. occurs fre-

quently and it can be locally abundant sprawling up and over the scrub margins and sometimes forming a sparse underscrub. *Lonicera* is occasional.

The most obvious feature of the field layer is usually a ground carpet of *Hedera* and this can extend, as a thin cover, beneath quite dense canopies, together with a patchy mat of *Poa trivialis* and *Holcus mollis* and scattered clumps of *Urtica*. *Hyacinthoides*, though only occasional, is preferential to this sub-community and, when present in abundance, can give stands a distinct vernal aspect. In more open places and around the fringes of the scrub, the herbaceous component thickens up considerably and, among the patches of *Pteridium*, *Urtica* and *Galium aparine*, there is frequently some *Silene dioica* along with scattered plants of community occasionals like *Digitalis* and *Teucrium scorodonia*. Bryophytes are usually few and represented by the common community species.

***Viola riviniana-Veronica chamaedrys* sub-community:** *Primula vulgaris-Prunus spinosa* Association (R. Tx. 1952) Birse 1980 *p.p.* The woody cover of this sub-community is generally taller and a little more open than usual, though still invariably dominated by *Prunus* with scarce *Corylus*. *Rubus fruticosus* agg. is only occasional here but *Rosa canina* agg. is weakly preferential.

However, the major distinctive features are to be seen in the field layer. *Pteridium*, *Urtica* and *Galium aparine* are all still common but *Hedera* is much reduced in frequency and there is a variety of preferentials characteristic of somewhat moister and base-rich soils. The most obvious of these are *Viola riviniana* and *Veronica chamaedrys* but *Oxalis acetosella*, *Geranium robertianum*, *Primula vulgaris*, *Filipendula ulmaria* and *Geum urbanum* occur occasionally and, in some stands, there are prominent patches of *Mercurialis perennis*. There are also some weakly preferential bryophytes, *Eurhynchium striatum* and *Thuidium tamariscinum* occurring more commonly here than elsewhere.

***Dactylis glomerata* sub-community:** Cliff Scrub Nodum Malloch 1970 *p.p. Prunus*, occasionally with some *Ulex*, typically forms a rather open, patchy canopy here which, in the exposed situations characteristic of this sub-community, is low and wind-pruned. In extreme situations, the *Prunus* cover can be less than 50 cm high with herbs growing through it: sparse *Pteridium* fronds can emerge from the canopy and Malloch (1970) reported some peculiar examples of coastal scrub which had tussocks of *Armeria maritima* resting on top of the *Prunus* branches and rooted in the soil below.

Among the bushes, grasses are often conspicuous, with *Dactylis glomerata* constant and *Brachypodium sylvaticum*, *Festuca rubra*, *Holcus lanatus* and *Agrostis capillaris* occuring occasionally. *Pteridium* and *Galium aparine* (though not *Urtica*) can form patches of more luxuriant vegetation with scattered *Silene dioica* and, preferential here, *Rumex acetosa* and *Plantago lanceolata*. On sea-cliffs, there can also be some obviously maritime plants like *Armeria maritima* and *Silene vulgaris* ssp. *maritima*.

Habitat

The *Prunus* scrub is most characteristic of mesotrophic mull soils of moderate base-status in the lowland parts of Britain. Typically, it develops from grasslands where grazing has been relaxed and theoretically it is a sub-climax vegetation, seral to certain types of high forest. In exposed sites, however, it may represent a local climatic climax and it can persist, too, along woodland margins as a more or less permanent fringing vegetation.

The environmental conditions here overlap quite considerably with those of the *Crataegus-Hedera* scrub but there are two particular features of the habitat which may favour the overwhelming predominance of *Prunus spinosa* over what is a fairly similar range of field layers. One is edaphic, because this tree seems to fare best on soils that are deep, moist and fairly nutrient-rich. In so far as the profiles have been investigated here, mull brown earths seem to be the characteristic type (Coombe & Frost 1956, Géhu 1964, Malloch 1970, Birse 1980) and, though some of the soils are quite base-rich and calcareous, this community is typically absent from oligotrophic and excessively-draining rendzinas, on to which the *Crataegus-Hedera* scrub can extend as the *Viburnum* sub-community, where *Prunus* itself is noticeably scarce. On the other hand, the *Prunus* scrub does not extend far on to markedly acid soils: *Ulex europaeus* occurs here occasionally but usually the community is replaced on such profiles by the *Ulex-Rubus* scrub where, again, *Prunus* is rare. Few field-layer species are common enough to be said to match *Prunus* in its edaphic responses though the fairly frequent occurrence of *Pteridium* is another good indicator of the combination of appreciable soil depth and moderate moisture content. Topographically, the soil preferences of the community are often marked by the fact that it picks out accumulations of colluvium or more stabilised areas of softer deposits, like drift or head, on steep slopes.

The other environmental situation where *Prunus* may have an edge on some other common scrub dominants like *Crataegus monogyna* or *Sambucus nigra* and from which saplings of woodland canopy trees are probably excluded, is in more exposed places. On sea-cliffs, for example, though the community is scarce and local in very wind-blown situations, it is very common and abundant where there is a modicum of shelter but perhaps sufficient exposure to prevent vigorous growth of other woody species (Malloch 1970). In such places, the *Prunus* canopy looks quite healthy, though it is here

that the shortest and most wind-pruned covers are seen.

As with the *Crataegus-Hedera* scrub, this community develops only where there is an opportunity for natural succession to proceed. It can colonise open ground directly, provided the edaphic conditions are suitable, whether these are natural or artificial. However, though it can appear on newly-exposed soft materials like slumping clay or drift, it very often develops from existing herbaceous vegetation where grazing has been relaxed. In these situations, its eventual dominance may depend partly on the chance availability of seed but the great ability of *Prunus* to sucker once established probably plays an important role in the development of the characteristically impoverished and dense canopy here.

The heavy shade cast by the woody cover is undoubtedly responsible in large measure for the often sparse or localised and species-poor nature of the field layer in the community, which is rarely continuous and well developed only in more open places and around ungrazed fringes. More specifically, shade restricts the abundance of *Pteridium* and a *Rubus* underscrub here, both of which could be potentially very abundant on these soils, and limits the expression of any woodland flora until the canopy begins to open up as the *Prunus* is shaded out by any overtopping trees: these may never colonise or emerge, of course, in very exposed situations.

The differences between the various sub-communities are partly related to the maturity of the scrub. On sea-cliffs, the *Dactylis* sub-community, with its more discontinuous and wind-pruned cover of *Prunus* and its prominent remnants of a maritime grassland flora, probably represents the seaward limit of scrub development, where salt-spray influence is low but where exposure to wind curtails canopy closure. In more sheltered situations, the *Hedera-Silene* sub-community represents an advancement with canopy closure and the ground carpet of ivy typical of a more or less continuous shrub cover and gloomy interior. The *Viola-Veronica* sub-community may be more mature still: here the canopy is a little more open and there are elements of a woodland field layer.

However, soil differences probably also play some part in floristic variation here, with the *Hedera-Silene* sub-community being characteristic of drier and perhaps marginally acid profiles, the *Viola-Veronica* sub-community occurring on more base-rich and sometimes heavier soils and the *Dactylis* sub-community typical of fairly moist mulls.

Zonation and succession

The *Prunus-Rubus* scrub is typically found in zonations and mosaics with grasslands, underscrubs and woodlands, sometimes representing active successions on wasteland, in neglected farmland or in coppice plots and clearings, in other cases in more stabilised sequences in exposed situations or along wood margins and rides, by hedges and in field corners.

Most often, the associated grasslands are ranker, mesotrophic swards, among which various kinds of *Arrhenatheretum* figure prominently or, on somewhat moister soils, the *Holco-Juncetum* or *Holcus-Deschampsia* grassland. The former are very common where the *Prunus-Rubus* scrub is colonising drier pasture or where it constitutes the core of hedges, where the *Hedera-Silene* sub-community is typical; the latter occur with the community in ill-drained pastures or where scrub is spreading into rides and clearings within woodlands on heavy and especially trampled soils and here the *Viola-Veronica* sub-community is more frequent. Less commonly, the *Prunus-Rubus* scrub occurs among somewhat more calcifugous grasslands and heaths, as where the community is invading neglected commons. Frequently, the transition from the scrub to the grassland is marked by an untidy fringe of the *Rubus-Holcus* or *Pteridium-Rubus* underscrubs.

The kinds of woodland most frequently associated with the *Prunus-Rubus* scrub are the *Quercus-Pteridium-Rubus* woodland on more base-poor soils and the *Fraxinus-Acer-Mercurialis* on heavier, more base-rich soils and the community grades floristically to these forest types through their *Hedera* sub-communities. More locally, towards the south, the *Prunus-Rubus* scrub can be found with the *Fagus-Rubus* woodland and, around flushes, it can pass to the *Alnus-Fraxinus-Lysimachia* woodland. Although successions have not been followed, it seems likely that the community can develop into any of these woodland types where saplings of the canopy trees are able to invade and overtop the *Prunus*: although forming a dense canopy, *Prunus* is readily shaded out once trees have begun to emerge. The most usual climax woodlands would seem to be the *Quercus-Pteridium-Rubus* and *Fraxinus-Acer-Mercurialis* woodlands and stands of the *Prunus-Rubus* scrub can quickly spring up in stretches of these communities where rides are neglected or areas cleared and left.

However, although complete zonations from grasslands, through underscrub and the *Prunus-Rubus* scrub to woodland can be seen, the community often occurs in broken or abbreviated zonations where succession has been halted for one reason or another. It is common, for example, as a narrow static fringe along woodland rides and around wood margins. Many hedgerow stands have a similar appearance, with a linear stand of the scrub and a much-compressed zone of underscrub and grassland maintained by mowing or grazing.

On sea-cliffs with more mesotrophic soils, the *Prunus-Rubus* scrub often terminates the sequence of vegetation types on the unenclosed cliff top, the *Hedera-Silene* sub-community occurring in more sheltered situations, the *Dactylis* sub-community in more exposed places, and

giving way below to maritime grassland, usually some type of *Festuca-Holcus* grassland. Sometimes there is an intervening zone of the *Pteridium-Rubus* underscrub and, on moister soils, the *Festuca-Hyacinthoides* grassland beyond this, *Prunus* and then *Rubus* and *Pteridium* petering out as one moves seawards. In other places, these communities can be replaced by the *Arrhenatheretum* in this transitional zone.

Distribution

The *Prunus-Rubus* scrub is of widespread distribution through the British lowlands.

Affinities

Although the community to some extent replicates the field-layer variation found within the *Crataegus-Hedera* scrub, it seems best to retain it as a separate unit characterised by the distinctly impoverished canopy. Similar scrubs have been described from northern France (Géhu 1964), from The Netherlands (Doing 1962, Westhoff & den Held 1969) and from Germany (Ellenberg 1978) and are usually placed in the alliance Rubion subatlanticum in the Prunetalia.

Floristic table W22

	a	b	c	22
Prunus spinosa	V (7–10)	V (8–9)	V (5–10)	V (5–10)
Rubus fruticosus agg.	IV (1–5)	II (1–5)	II (2–4)	III (1–5)
Rubus idaeus	I (3–6)	I (1–5)		I (1–6)
Corylus avellana	I (4)	I (1–4)		I (1–4)
Ulex europaeus	II (1–7)		II (1–4)	II (1–7)
Lonicera periclymenum	II (2–3)		I (4)	I (2–4)
Rosa canina agg.		I (1–4)		I (1–4)
Hedera helix	III (4–10)	I (8)	I (1–4)	II (1–10)
Silene dioica	III (1–6)	I (1–3)	II (2–3)	II (1–6)
Hyacinthoides non-scripta	II (1–8)	I (1–5)		I (1–8)
Stellaria media	II (2–4)			I (2–4)
Viola riviniana	I (1–4)	III (1–4)	I (3)	I (1–4)
Veronica chamaedrys	I (1)	III (1–2)		I (1–2)
Mercurialis perennis	I (1–2)	II (1–8)		I (1–8)
Eurhynchium striatum	I (5)	II (2–6)		I (2–6)
Oxalis acetosella	I (1–2)	II (1–8)		I (1–8)
Thuidium tamariscinum	I (1)	II (1–8)		I (1–8)
Geum urbanum	I (4)	II (1–6)		I (1–6)
Filipendula ulmaria	I (3)	II (1–5)		I (1–5)
Geranium robertianum		II (1–3)	I (1)	I (1–3)
Primula vulgaris		II (1–5)		I (1–5)
Dactylis glomerata			V (2–5)	II (2–5)
Brachypodium sylvaticum		I (1)	II (2–4)	I (1–4)
Festuca rubra		I (1)	II (2–6)	I (1–6)
Rumex acetosa	I (1)		II (1–4)	I (1–4)
Agrostis capillaris	I (1–3)	I (4)	II (2–3)	I (1–4)
Holcus lanatus	I (4)	I (1–3)	II (2–3)	I (1–4)
Plantago lanceolata			II (1–4)	I (1–4)
Silene vulgaris maritima			II (2–4)	I (2–4)
Armeria maritima			I (2–5)	I (2–5)
Achillea millefolium			I (2–3)	I (2–3)

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Pteridium aquilinum	III (1–6)	III (1–4)	III (1–4)	III (1–6)
Galium aparine	III (1–7)	III (1–6)	II (2–4)	III (1–7)
Eurhynchium praelongum	II (2–6)	II (1–7)		II (1–7)
Plagiomnium undulatum	II (2–7)	II (1–6)		II (1–7)
Poa trivialis	II (1–4)	II (1–6)		II (1–6)
Holcus mollis	II (1–7)	II (1–6)		II (1–7)
Urtica dioica	II (2–5)	II (3–5)		II (2–5)
Moehringia trinervia	II (1–3)	II (2–3)		I (1–3)
Brachythecium rutabulum	II (1–6)	II (1–5)		I (1–6)
Digitalis purpurea	I (1–3)	I (1)	I (1)	I (1–3)
Teucrium scorodonia	I (2–4)		I (5)	I (2–5)
Phyllitis scolopendrium	I (1–4)	I (4)	I (2–4)	I (1–4)
Dryopteris filix-mas	I (1–4)	I (2–3)		I (1–4)
Stachys sylvatica	I (1–2)	I (1–4)		I (1–4)
Dryopteris borreri	I (1)	I (1–2)		I (1–2)
Cardamine flexuosa	I (1–2)	I (1–2)		I (1–2)
Atrichum undulatum	I (1–4)	I (1–2)		I (1–4)
Lophocolea bidentata s.l.	I (1–4)	I (1–2)		I (1–4)
Number of samples	22	8	19	49
Number of species/sample	12 (4–31)	26 (11–38)	10 (7–14)	14 (4–38)
Shrub height (m)	2 (1–4)	4 (3–5)	1 (0.2–2)	2 (0.2–5)
Shrub cover (%)	92 (70–100)	85 (75–95)	78 (25–90)	85 (70–100)
Herb height (cm)	63 (10–150)	45 (10–75)	no data	58 (10–150)
Herb cover (%)	56 (30–100)	59 (20–80)	no data	57 (20–100)
Altitude (m)	51 (4–244)	145 (91–213)	28 (4–54)	57 (4–244)
Slope (°)	15 (0–75)	11 (1–20)	18 (0–45)	16 (0–75)

a *Hedera helix-Silene dioica* sub-community
b *Viola riviniana-Veronica chamaedrys* sub-community
c *Dactylis glomerata* sub-community
22 ***Prunus spinosa-Rubus fruticosus*** **scrub (total)**

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