

SD16

Salix repens-*Holcus lanatus* dune-slack community

Synonymy

Braunton Damp Pasture Willis *et al.* 1959; *Salix repens*-*Holcus lanatus* nodum Jones 1992; *Festuca rubra*-*Brachythecium rutabulum* nodum Jones 1992.

Constant species

Carex flacca, *Festuca rubra*, *Holcus lanatus*, *Lotus corniculatus*, *Salix repens*.

Physiognomy

In the *Salix repens*-*Holcus lanatus* dune-slack community, *Salix repens* is generally dominant in a bushy canopy that can be several decimetres tall. Its most frequent associates are *Holcus lanatus* and *Festuca rubra*, the abundance of which often give a rank grassy aspect to the sward among the willow. *Agrostis stolonifera* and *Poa pratensis* are at least occasional throughout but also common among the associates are *Carex flacca* and a range of dicotyledonous herbs including *Lotus corniculatus*, *Euphrasia officinalis* agg., *Hieracium pilosella*, *Senecio jacobaea*, *Prunella vulgaris*, *Leontodon autumnalis* and *Epipactis palustris*. *Ononis repens* is also quite frequent overall but rather patchy in its representation among the various sub-communities and not consistently abundant.

Bryophytes are not typically a prominent element in the vegetation but *Bryum pseudotriquetrum* is occasional and there is sometimes patchily prominent *Calliergon cuspidatum* and *Campylium stellatum*.

Sub-communities

***Ononis repens* sub-community.** *Ononis repens* is at its most frequent and abundant here with preferentially common *Carex arenaria*, *Hypochoeris radicata* and *Galium verum*. Young shrubs and trees are quite frequent too, with bushes or saplings of *Salix caprea*, *Betula pubescens* and *Quercus robur*.

***Rubus caesius* sub-community.** *O. repens* and saplings of the above woody species remain occasional to sparse

here but *Rubus caesius* is constant with occasional *Potentilla anserina*.

***Prunella vulgaris*-*Equisetum variegatum* sub-community.**

Campylium stellatum-*Salix repens* species-rich nodum, dry sub-type Jones 1992 *p.p.* This is the most species-rich type of *Salix*-*Holcus* vegetation in which *Poa pratensis* and *Prunella vulgaris* have a peak in their frequency but where especially distinctive is the common occurrence of *Equisetum variegatum*, *Pyrola rotundifolia*, *Trifolium pratense*, *Fragaria vesca* and the bryophytes *Brachythecium rutabulum*, *Amblystegium serpens*, *Eurhynchium praelongum* and *Lophocolea bidentata* s.l. Thalloid liverworts like *Pellia endiviifolia*, *Riccardia chamaedryfolia* and *Moerckia hibernica* occur occasionally.

***Agrostis stolonifera* sub-community.** Here, *F. rubra* is replaced by *A. stolonifera* as the commonest grass in the vegetation and preferentials of the other sub-communities are almost all very sparse. Distinctive here are *Hydrocotyle vulgaris*, *Juncus articulatus*, *Leontodon taraxacoides* and, less frequently, *Carex serotina*, *Anagallis tenella*, *Ranunculus flammula* and *Dactylorhiza incarnata*. Particularly scarce but striking are *Samolus valerandi*, *Parnassia palustris* and *Petalophyllum ralfsii*.

Habitat

The *Salix*-*Holcus* community is characteristic of older and drier dune slacks, rarely flooded to any great extent, even in wetter winters, and often accessible to grazing stock and rabbits throughout the year.

Little systematic information is available about the flooding regime which helps sustain this kind of vegetation but data from Ranwell (1972) and Jones (1992) suggest that the water table is from 50 cm down to 2 m below the surface in the summer months, that is, beyond capillary contact with the rooting zone in the growing season. Winter flooding is rare and generally brief so the soil profile is almost never in a reducing state. Such con-

ditions are what give more mesophytic species an opportunity to contribute substantially to the sward, even where *S. repens* remains abundant, and limit the extent of a mat of moisture-demanding bryophytes and many of the herbs typical of wetter slacks. Only in the *Agrostis stolonifera* sub-community does this last aspect of the vegetation become more conspicuous.

The community occurs commonly on dune systems where grazing occurs and stock, or rabbits where they exist, can play some part in keeping this vegetation more open and diverse. Where grazing is reduced, this kind of dune slack is always susceptible to invasion of shrubs and trees, a process already in train in the *Ononis* sub-community.

Zonation and succession

The *Salix-Holcus* community is a widespread type of slack vegetation occupying the older dry slacks in large and complex dune systems and sometimes comprising the bulk of cover between stable dune ridges. Through the *Agrostis* and *Poa* sub-communities, it can grade to wetter slack vegetation in areas where the water-table breaches the surface in winter but often it occupies the entire area of individual slacks, the most obvious zonation being to the *Festuca-Galium* grassland on grazed dune ridges. With the shift to drier ground, the dominance of *Salix repens* declines and a mixture of grasses and smaller dicotyledons assumes dominance. Where the *Prunella-Equisetum* sub-community of the *Salix-Holcus* slack gives way to the *Prunella* type of *Festuca-Holcus* sward or the *Ononis* and *Rubus* sub-communities of the former pass to Typical *Festuca-Holcus* grassland, the shift can be quite gradual apart from the loss of *Salix repens*. Where grazing is less intensive, the *Salix-Holcus* slack can give way to *Ammophila-Arrhenatherum* grassland.

The *Salix-Holcus* community is a later stage in the development of slack vegetation, probably succeeding the *Sagina-Bryum* vegetation quite quickly where inundation ceases, replacing wetter slack communities more slowly as the surface dries. The lowering of the ground water table can play an obvious part in such a process but trapping of sand by *S. repens* and upbuilding of a mat upon which grasses can root may also be important. Where the canopy is a little more open, invasion of bushy *Salix* spp. and *Betula pubescens* can initiate the development of woodland. Where *Hippophae* occurs locally, it can supervene in such successions.

Distribution

The *Salix-Holcus* community is widespread and common and appears to be the most extensive kind of slack vegetation around the Welsh and English coasts and in south-east Scotland.

Affinities

Van der Maarel & Westhoff (1964), and London (1971) characterised a variety of communities from southern Dutch dunes where *S. repens*, *H. lanatus* and *F. rubra* are the dominants whose affinities seem partly with the Caricion davallianae, partly with the Elymo-Rumicion. As Jones (1992) points out, there are also strong links with the Festuco-Plantaginion swards of the *Festuca-Galium* grassland. However, the prominence of *Pyrola rotundifolia* in Welsh stands of the *Salix-Holcus* slack community led Jones (1992) to equate at least some of this vegetation with the *Pyrolo-Salicetum*, a very heterogeneous syntaxon in Continental descriptions. On balance, it seems sensible to locate this community among the scrubs of sandy substrates in the Salicion repentis arenariae Tüxen 1952.

Floristic table SD16

	a	b	c	d	16
<i>Salix repens</i>	V (1–10)	V (2–10)	V (4–10)	V (4–9)	V (1–10)
<i>Holcus lanatus</i>	IV (1–7)	V (1–8)	V (3–8)	III (1–6)	IV (1–8)
<i>Lotus corniculatus</i>	IV (2–9)	III (1–7)	IV (1–5)	V (1–5)	IV (1–9)
<i>Festuca rubra</i>	IV (1–7)	IV (2–9)	IV (1–9)	I (3–5)	IV (1–9)
<i>Carex flacca</i>	II (2–5)	III (1–5)	V (1–6)	V (1–6)	IV (1–6)
<i>Ononis repens</i>	IV (1–8)	II (1–5)	III (1–6)	I (1)	III (1–8)
<i>Carex arenaria</i>	IV (1–8)	II (2–9)	II (1–4)	II (2–5)	III (1–9)
<i>Hypochoeris radicata</i>	III (1–4)	II (1–4)	I (3)	I (2–3)	II (1–4)
<i>Salix caprea</i>	III (1–7)	I (1–5)	I (1–4)		I (1–7)
<i>Betula pubescens</i> sapling	II (1–8)	I (6)	I (1)		I (1–8)
<i>Galium verum</i>	II (1–5)	I (3–5)	I (3)		I (1–5)
<i>Quercus robur</i> sapling	II (1–4)	I (1)			I (1–4)
<i>Rubus caesius</i>	II (1–6)	IV (1–8)	II (1–5)	I (3–5)	II (1–8)
<i>Potentilla anserina</i>	I (4)	II (1–7)	I (3)	I (1–5)	I (1–7)
<i>Juncus maritimus</i>		I (1–8)			I (1–8)
<i>Juncus inflexus</i>		I (1)			I (1)
<i>Poa pratensis</i>	III (1–8)	III (2–7)	V (1–6)	I (1–4)	III (1–8)
<i>Prunella vulgaris</i>	II (2–5)	II (2–4)	IV (1–5)	III (1–4)	III (1–5)
<i>Leontodon hispidus</i>	II (1–7)	I (1)	IV (1–7)		II (1–7)
<i>Equisetum variegatum</i>	I (1–4)	I (3–4)	IV (1–5)	II (2–6)	II (1–6)
<i>Brachythecium rutabulum</i>	I (2)	I (1–3)	IV (2–10)		I (1–10)
<i>Pyrola rotundifolia</i>	I (1–8)	I (1–4)	III (1–7)	I (1–4)	I (1–8)
<i>Trifolium pratense</i>	I (4)	I (3–5)	III (2–7)	I (4)	I (2–7)
<i>Amblystegium serpens</i>		I (1)	III (1–4)	I (4–5)	I (1–5)
<i>Eurhynchium praelongum</i>		I (2)	III (1–7)		I (1–7)
<i>Fragaria vesca</i>	I (3–4)		III (1–6)		I (1–6)
<i>Lophocolea bidentata</i> s.l.			III (1–6)		I (1–6)
<i>Pulicaria dysenterica</i>		I (1–3)	II (1–8)	I (2)	I (1–8)
<i>Rhinanthus minor</i>	I (3)	I (1–4)	II (1–4)	I (1–2)	I (1–4)
<i>Sonchus arvensis</i>	I (1)		II (1–5)		I (1–5)
<i>Riccardia chamaedryfolia</i>			II (1–3)	I (4)	I (1–4)

<i>Luzula campestris</i>	I (1–4)		II (1–4)	I (1)	I (1–4)
<i>Pellia endiviifolia</i>			II (1–4)	I (1)	I (1–4)
<i>Moerckia hibernica</i>			I (1–3)		I (1–3)
<i>Agrostis stolonifera</i>	II (2–5)	II (2–7)	II (1–4)	V (3–7)	II (1–7)
<i>Hydrocotyle vulgaris</i>		II (1–5)	II (1–6)	III (1–6)	II (1–6)
<i>Juncus articulatus</i>	I (1–4)	I (3)	I (2–4)	III (2–6)	I (1–6)
<i>Leontodon taraxacoides</i>	I (1–2)	I (1–4)		III (1–5)	I (1–5)
<i>Carex serotina</i>	I (1)	I (3)	I (1–3)	II (2–5)	I (1–5)
<i>Dactylorhiza incarnata</i>	I (3)	I (3)	I (1)	II (1–4)	I (1–4)
<i>Anagallis tenella</i>		I (7)	I (3)	II (2–6)	I (2–7)
<i>Ranunculus flammula</i>		I (1–3)	I (1)	II (1–3)	I (1–3)
<i>Samolus valerandi</i>				I (1–3)	II (1–3)
<i>Petalophyllum ralfsii</i>				I (2–3)	I (2–3)
<i>Parnassia palustris</i>				I (1–4)	I (1–4)
<i>Euphrasia officinalis</i> agg.	III (1–6)	II (1–6)	III (1–4)	I (1–4)	II (1–6)
<i>Hieracium pilosella</i>	III (2–5)	I (2–4)	III (1–4)	I (1–3)	II (1–5)
<i>Bryum pseudotriquetrum</i>	II (2–5)	I (1)	II (1–7)	II (1–9)	II (1–9)
<i>Epipactis palustris</i>	II (1–8)	II (1–8)	I (1–4)	II (1–4)	II (1–8)
<i>Leontodon autumnalis</i>	II (3–4)	I (1)	II (1–4)	I (1–4)	I (1–4)
<i>Senecio jacobaea</i>	II (1–4)	I (1–4)	II (1–4)		I (1–4)
<i>Anthyllis vulneraria</i>	II (2–5)	I (5)	II (1–9)	I (2)	I (1–9)
<i>Mentha aquatica</i>		II (1–5)	II (1–4)	I (1–3)	I (1–5)
<i>Ranunculus repens</i>	I (3)	II (1–8)	II (1–3)	I (1)	I (1–8)
<i>Plantago lanceolata</i>	I (2–5)	II (1–6)	II (1–6)	I (2)	I (1–6)
<i>Trifolium repens</i>	I (3)	II (1–5)	II (1–4)	I (1–4)	I (1–5)
<i>Linum catharticum</i>	II (1–3)	I (2–3)	II (1–3)	I (2)	I (1–3)
<i>Calliargon cuspidatum</i>		I (4–9)	II (1–10)	II (1–8)	I (1–10)
<i>Campylium stellatum</i>	I (3–5)	I (4)	II (1–5)	II (1–7)	I (1–7)
<i>Sagina nodosa</i>	I (2–3)	I (1–3)	I (1–3)	I (1–4)	I (1–4)
<i>Bellis perennis</i>	I (1–3)	I (1–4)	I (1–4)	I (3)	I (1–4)
<i>Carlina vulgaris</i>	I (1–3)	I (2)	I (1)	I (2)	I (1–3)
<i>Juncus acutus</i>	I (1–5)	I (4–5)	I (4–5)	I (2)	I (1–5)
<i>Ranunculus acris</i>	I (3)	I (1–4)	I (1–3)	I (1)	I (1–4)
<i>Erigeron acer</i>	I (1–3)	I (1–2)	I (1)	I (1–2)	I (1–3)
<i>Trifolium dubium</i>	I (3)	I (3–4)	I (4)	I (1)	I (1–4)

Floristic table SD16 (cont.)

	a	b	c	d	16
<i>Carex nigra</i>	I (3–4)	I (3)		I (1–5)	I (1–5)
<i>Pseudoscleropodium purum</i>	I (3–8)	I (3–5)	I (3–10)		I (3–10)
<i>Cynosurus cristatus</i>	I (3–5)	I (3)	I (3–4)		I (3–5)
<i>Epilobium palustre</i>	I (1–3)	I (2–3)	I (3)		I (1–3)
<i>Ammophila arenaria</i>	I (1–3)	I (2–3)	I (4)		I (1–4)
<i>Cerastium fontanum</i>	I (1–3)	I (1–3)	I (1–3)		I (1–3)
<i>Epipactis helleborine</i>	I (1–3)	I (2)	I (1–2)		I (1–3)
<i>Viola riviniana</i>	I (3)	I (3)	I (1–5)		I (1–5)
<i>Taraxacum officinale</i> agg.	I (1)		I (1–2)	I (3)	I (1–3)
<i>Hypnum cupressiforme</i>	I (3–8)	I (1–8)		I (1)	I (1–8)
<i>Brachythecium albicans</i>	I (4–8)		I (4)	I (1)	I (1–8)
<i>Gentianella amarella</i>	I (2–4)		I (1–4)	I (1)	I (1–4)
<i>Equisetum palustre</i>		I (1–7)	I (2–4)	I (1)	I (1–7)
<i>Equisetum arvense</i>		I (1–3)	I (3)	I (1–3)	I (1–3)
<i>Agrostis capillaris</i>		I (2–4)	I (3–4)	I (1–3)	I (1–4)
<i>Thymus praecox</i>	I (3–5)	I (5)			I (3–5)
<i>Poa annua</i>		I (2–3)	I (2)		I (2–3)
<i>Eupatorium cannabinum</i>		I (1–6)	I (2–4)		I (1–6)
<i>Phragmites australis</i>	I (1–4)	I (4)	I (1–10)		I (1–10)
<i>Tortula ruralis ruraliformis</i>	I (2–6)		I (3)		I (2–6)
<i>Cirsium arvense</i>		I (1–4)		I (3)	I (1–4)
<i>Crepis capillaris</i>	I (3–4)	I (3)			I (3–4)
<i>Eleocharis quinqueflora</i>			I (4)	I (3)	I (3–4)
Number of samples	67	47	58	31	203
Number of species/sample	16 (8–28)	15 (6–36)	22 (14–32)	15 (7–29)	17 (6–36)

a *Ononis repens* sub-communityb *Rubus caesius* sub-communityc *Prunella vulgaris*-*Equisetum variegatum* sub-communityd *Agrostis stolonifera* sub-community16 *Salix repens*-*Holcus lanatus* dune-slack (total)

