Kent Rare Plant Register

Draft species accounts

J & K



Compiled by Geoffrey Kitchener and the Kent Botanical Recording Group

Issue date: February 2017

Kent rare plant register

This section of the register covers:
Jasione montana
Juncus acutus
Juncus compressus
Juncus squarrosus
Juncus subnodulosus
Juniperus communis

Knautia arvensis

It is issued in draft, pending further development. Records, photographs and information regarding the occurrences of these plants in Kent will be welcome.

The register accounts give priority to data from 2010 onwards, but some historic data are also included (however, in the data tables, generally no specific sites without post-1970 records) so as to indicate trends and where the plant may yet be discovered or rediscovered. Distribution maps for records from 2010 onwards show vice counties 15 and 16 in white (the boundary between is a black line) and local authority boundaries by red lines. See the Kent webpage of the BSBI website at http://www.bsbi.org.uk/kent.html for the full Kent rare plant register list, the introduction to the register and a list of 'probably extinct' Kent plants.

Abbreviations used in the text:

Recorders' initials:

ACH Andrew Henderson
AL Alex Lockton
AP Alan Parker
BB Brian Banks
CEC Carter Ecological Consultants
CJ Clive Jermy
CJC James Cadbury
CO Colin Osborne
DM Daphne Mills
DP David Penney
DS David Steere
EGP Eric Philp
SLBI South London Botanical Institute
FR Francis Rose
GK Geoffrey Kitchener
IB Ishpi Blatchley
JA Jan Armishaw
JBe Jim Bevan
JC Jeremy Cotton
JN Josie Newman
JP Joyce Pitt
JPu John Puckett
JS Judith Shorter
LR Lliam Rooney
LS Leonie Seymour
OL Owen Leyshon
Pho Paul Holt
RG Bob Gomes
RMB Rodney Burton
RoF Lady Rosemary FitzGerald
SB Sue Buckingham
SL Stephen Lemon
TI Tim Inskipp

Other abbreviations:

KBRG Kent Botanical Recording Group
KWT Kent Wildlife Trust
MNE Maidstone Museum herbarium
SLBI South London Botanical Institute

Jasione montana L. (Sheep's-bit)

Draft account.

vc 15 and 16

Rarity / scarcity status

Jasione montana is in the British Isles a locally common plant of acid ground, whose distribution is primarily western; its eastern distribution is largely related to the East Anglian, Surrey and Hampshire heaths. Whilst its conservation status in Great Britain as a whole is of 'Least Concern', in England it is considered to be **Vulnerable** to the risk of extinction. A comparison of its area of occupancy in England over the periods 1930-1969 and 1987-1999 produced a calculated decline of 39% in the likelihood of recording the species, which may relate to losses of lowland heath habitat and to the growth of coarser vegetation following a decline in rabbit grazing. In Kent, except for an outlier near Sevenoaks, Sheep's-bit is confined to the Lydd/Dungeness area. On the strength of the data given in Philp (2010) it would be regarded as scarce; but from the number of records made since, it is a little commoner than would warrant scarcity ranking.



Long Ponds Dungeness. Photo by David Steere, 4 July 2015

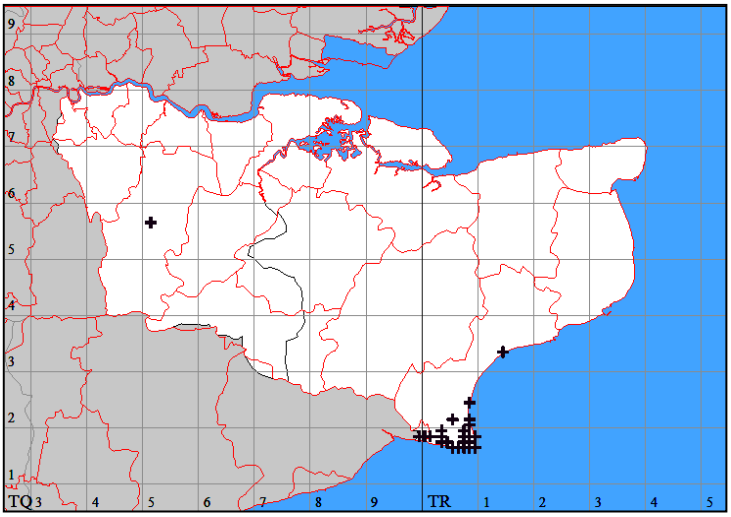
Account

Jasione montana-type pollen has been identified from deposits formed around 1160-1250 in Muddymore Pit, Dungeness (TR 062 176) and presumably the species formed part of the surrounding shingle ridge flora[1]. In terms of conventional botanical publication, however, Sheep's-bit may have been first recorded in Kent by Thomas Johnson (*Iter Plantarum*, 1629); at any rate, Hanbury and Marshall (1899) thought that this was the case. However, Johnson gave the (then) name of Sheep's-bit, *Scabiosa montana minima*, but attributed its site to Chalkedale near Dartford, a former chalk-pit quarried for quick-lime. This is a quite inappropriate habitat, so that at best, all one can say (as Francis Rose noted in the 1972 edition of *Iter Plantarum*) is that Johnson would more likely have seen *Scabiosa columbaria* (Small Scabious); and that, if he saw Sheep's-bit, he must have confused this record with one made at his next port of call, Dartford Heath, where it was known by de Crespingy before 1899. If Johnson's record is disregarded, the earliest publication was in 1763 by Thomas Martyn (*Plantae Cantabrigienses*), who listed it for Bexley. This would have been part of a pattern of occurrences on the acid soils of north west Kent: Hanbury and Marshall (1899) also list records from Blackheath, Lock's Bottom, Bromley Common, Lee, Charlton, Hayes Common and east of Plumstead Common. All these sites have gone, the last probably being a south-facing sandy railway cutting just west of Bromley South station, from where it was collected by Francis Rose in 1946 (specimen in **MNE**) and where it was still flourishing in 2002 (Rodney Burton, pers. comm.).

Hanbury and Marshall (1899) regarded the species as locally plentiful on sandy soils of banks and heaths, listing sites including Dunkirk; Sandwich; Tunbridge Wells and Rusthall Commons (where it was plentiful in Thomas Forster's day (*Flora Tonbrigensis*, 1816); along the Folkestone or Hythe Beds (Sevenoaks, Stone Street,

[1] Scofield, J.E. & Waller, M.P. (2005), A pollen analytical record for hemp retting at Dungeness Foreland, UK. *Journal of Archaeological Science* **32**: 715-726.

Ightham Common, Addington, Leybourne, Bearsted; a scattering in the Weald (Hawkhurst, Staplehurst, Cranbrook); and in the Dungeness / Lydd / Dymchurch / Hythe / Sandgate area. Open heathland habitat has declined considerably in Kent since then, but some of this breadth of distribution still remained in the 1940s. As well as the Bromley record mentioned above, Francis Rose found Sheep's-bit three-quarters of a mile west of Wrotham Heath, in an old sand pit (Folkestone Sands) north of the railway in 1942 and 1946. He also collected from Friezley Wood, Cranbrook, by the sandy bank of a track in the wood in 1949, as well as at Dungeness, where it still subsists.



***Jasione montana* (Sheep's-bit) 2010-16**

The distribution had shrunk further by 1971-80, and Philp (1982) assessed the species as very local and scarce: 'Still common in the Lydd-Dungeness area but appears just about to have disappeared from its former inland localities'. Presence was recorded in 16 tetrads, including one inland site, at Riverhead (Sevenoaks). By 1991-2005, the inland site remained, but nearly 50% of the Lydd-Dungeness tetrads were without record, giving a total for the county of nine tetrads. Recording for the period 2010-16 indicates that the extent of loss may be overstated by Philp (2010), as the species has been found in 14 tetrads (or 24 monads). Accordingly, it is unclear whether there has been a decline in real terms from the 1970s.



Riverhead, former sand pit. Photo by Geoffrey Kitchener, 19 July 2016

Jasione montana is normally a biennial, overwintering as a rosette and flowering/setting seed within a year of germination. It occurs as isolated plants at varying levels of density on open ground. It appears to respond to higher rainfall levels than are usual in Kent (and hence is a more westerly distributed plant in the British Isles), but is intolerant of waterlogging. Weather patterns may affect its frequency in any one year, as was observed in the Lade/Greatstone area in 2011. In the British Isles generally, it is said[2] to be found on consolidated sand dunes, on cliff tops, on maritime heath and in semi-natural sites such as walls, hedgebanks and roadverges.

Our Kent locations are largely related to maritime heath, at Dungeness; and our inland site at Riverhead may be regarded as semi-natural (although it is not clear whether other historic sites along the Folkestone Sands may be considered as similar). The Riverhead site is a former sand pit used as a recreation ground, partly scrubbed and wooded, and Sheep's-bit just hangs on in trodden ground above the former sand working face,

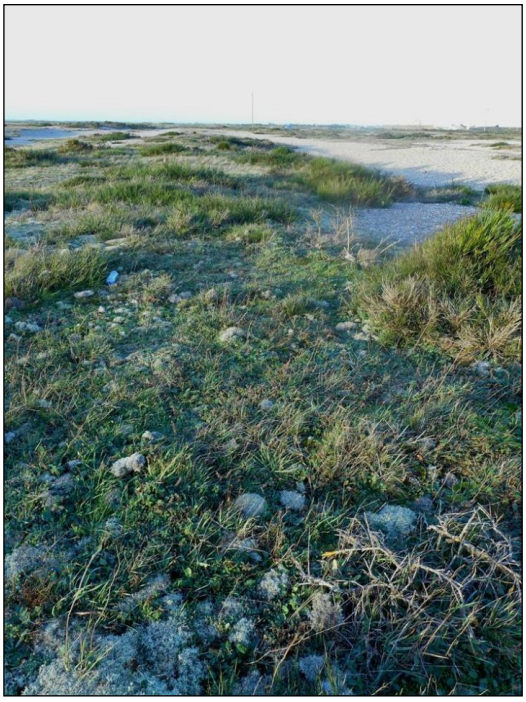
[2] Parnell, J.A.N. (1985), *Jasione montana* L., Biological Flora of the British Isles, *Journal of Ecology* **73**: 341-358. Some other general ecological information in this account is also taken from this source.

where vegetative succession is slow, partly because of the minimal soil cover on the free-draining sand, but is increasingly threatening any open areas; also there is the odd plant on the steep working face itself. It has in addition been known from the sandy railway cutting on the other side of Shoreham Lane to the main site. The Dungeness plants generally grow on the stabilised shingle with a very thin, acid, nutrient-poor, free-draining soil. Where noted, the flora is consistent with such a habitat, e.g. *Rumex acetosella* (Sheep's Sorrel) *Silene uniflora* (Sea Campion), *Teucrium scorodonia* (Wood Sage) and lichens (*Claydonia* spp.), but we could do with more data on associates.



Habitat, Littlestone. Photo by David Steere, 19 August 2015

Jasione montana, although somewhat scabious-like, is unlikely to be confused with other British species when in flower. There is some infraspecific variation in the British Isles: Sell & Murrell (*Flora of Great Britain and Ireland,* vol. 4) list five varieties, although no data as regards the occurrence of any in Kent can be traced, albeit that var. *montana* is the designation for anything which cannot be assigned to another variety.



Typical shingle ridge habitat, Dungeness. Photo by Owen Leyshon, December 2015

Site	Grid reference	Site status	Last record date	Recorder	Comments
Bromley south (metropolitan vc16)	TQ4068		14 August 1987	RMB	TQ 403 687, top of railway bank west of Bromley South station. Also seen by RMB making a good show in 2001 and 2001, but not since, in spite of looking out for it. The site is [2015] seriously overgrown with *Clematis vitalba* and brambles.
Riverhead	TQ5156		(1) 19 July 2016 (2) 20 July 2011 (3) 1991-99 (4) After 1970, before 1981 (5) 13 July 1978	(1) & (2) GK (3) EGP (Philp, 2010) (4) Philp (1982) (5) RMB	(1) TQ51667 51682, one plant on hummock in steep face of former sand pit, on virtually bare sand. Associated spp. *Anthoxanthum odoratum, Agrostis capillaris, Aira caryophyllea, Ulex europaeus*. Also at TQ 51627 56165, a patch c. 1 sq metre, maybe 6-10 plants, skeletal soil on sand. Fairly open ground, but potentially invasive shrubs/trees beginning growth

					near. Associated spp. *Anthoxanthum odoratum, Aira caryophyllea, Ulex europaeus, Trifolium arvense, Cytisus scoparius, Achillea millefolium, Hedera helix, Quercus robur.* (2) TQ 51628 56142, a small patch on open sandy ground above former pit in Bradbourne Sandpits recreation ground. (Full search not made.) (3) & (4) Recorded as TQ55D. (5) Seen on railway cutting from train.
Dungeness: Jury's Gap	TQ9918		7 August 2012	OL, GK, TI & SB	
Dungeness, The Wicks	TR01D		30 May 1993	EGP & JBe	Relates either to TR0017 or TR0117.
Lydd Ranges	TR0018	MOD land	7 August 2012	OL, GK, TI & SB	On shingle at TR 0011 1833.
Lydd Ranges	TR0118	MOD land	9 August 2013	OL, GK & TI	
Dungeness, Lydd Ranges	TR0317		(1) 8 August 2012 (2) 30 May 1993	(1) SB & TI (2) EGP (Philp, 2010)	(1) Shingle at TR 0392 1717. (20 Recorded as TR02I, so relates to TR0317 or TR217.
Lydd Ranges	TR0318	MOD land	28 April 2014	OL, Ti & SB	
Lydd Ranges	TR0319		7 August 2012	OL, GK, TI & SB	Sandy/shingly ground at TR 038 198 with *Teucrium scorodonia*.
Lydd Ranges	TR0417		8 August 2012	SB & TI	
Lydd / Denge	TR01P		After 1970, before 1981	Philp (1982)	
Dungeness	TR0516		9 August 2012	TI	
West Lydd	TR02F		After 1970, before 1981	Philp (1982)	
Lydd north east	TR0521		(1) 27 June 2012 (2) 15 July 1999 (2) 7 August 1986	(1) OL (2) JP (3) FR	(2) TR 0509 2180. (3) Abundant.
Dungeness power station	TR0616		20 August 2011	SB	Abundant on shingle TR 0699 1687.
Dungeness power station	TR0716		22 June 2014	KBRG meeting	
Dungeness power station	TR0717		(1) 22 June 2014 (2) 20 June 2000	(1) KBRG meeting (2) JS	(2) TR 079 177.
Dungeness reserve	TR0718	RSPB reserve	(1) 4 July 2015 (2) 3 July 2011	(1) DS (2) TI	(1)TR 07866 18986, over 100 plants, more flowering than in 2014, over area to north of Long Ponds.
Dungeness, north of Denge beach	TR0719		(1) 4 October 2013 (2) 3 July 2011	(1) DS (2) TI	(1) TR 078 190, near layby for anglers, Long Pits, over 20 plants in shingle vegetation.
Dungeness, old lighthouse	TR0816		(1)3 July 2011 (2) 23 June 2010 (3) 21 June 2008	(1) TI (2)SB (3) DM	(2) TR08742 16913, 12 plants on stabilised shingle.
Dungeness, north of old lighthouse	TR0817		(1) (2) 8 June 2004	(1) DS (2) JP	(1) Dungeness, power station East. Small group of flowering plants in short turf, TR 08594 17040. (2) Behind old lighthouse, stated as TR 085 175.
Dungeness,	TR0818		(1) 23 August 2013	(1)CO	(1) Almost over.

Long Pits			(2) 3 July 2011 (3) 1 November 1977	(2) TI (3) CJ	(3) TR 018 180.
Lade, Greatstone	TR0820, TR0821		(1) 22 August 2011 (2) After 1970, before 1981	(1) OL (2) Philp (1982)	(1)Found throughout the square from TR 081214 (west of the houses at Channon Road) south through TR 083208 to south of Pleasance Road North at TR 086201. All in flower at present and species appears to be more widespread in 2011 compared to recent years. Weather/rainfall is driving factor. (2) Recorded as TR02V.
Dungeness	TR0916		27 July 2014	JP	
Dungeness – lifeboat station	TR0918		3 July 2011	TI	
Hythe Ranges	TR1433	MOD land	(1) 29 June 2013 (2) 31 May2001 (3) 31 August 1995	(1) SB & OL (2) IB & JP (3) JP	(1) Frequent on scattered patches of undisturbed established shingle heath at TR 146 335 and TR 146 334, with *Cladonia* lichens, *Silene uniflora*, *Rumex acetosella*, etc. Population potentially at threat from vehicle disturbance. (2) & (3) TR 144 335.

Juncus acutus L. (Sharp Rush)

Draft account

vc 15

Rarity / scarcity status

Juncus acutus is a plant of coastal sand and saltmarsh, very local in the south of the British Isles, principally on the Welsh coast and the eastern coast of Ireland. Its conservation status in England and in Great Britain as a whole is of 'Least Concern', but its limited distribution means that it is nationally scarce. It is also **scarce** in Kent.

Account

Hanbury and Marshall (1899) note that although the first printed record for Kent is in Turner and Dillwyn's *The Botanists's Guide through England and Wales* (1805) – in which it was recorded by Joseph Woods junior at Sand hills near Deal – they had found earlier mention in a manuscript by James Petiver and James Sherard. This was an account published in the *Phytologist* N.S. (1862) as the *Journal of a Botanical Journey from London to Dover, the Isle of Thanet, Rochester, etc., by Tunbridge and Hastings*. Petiver and Sherard, on 23 August 1714, walked from Knowlton Court to Deal and, sending their servant on ahead, continued for four or five miles to Sandwich, keeping near to the sea. On the sandy downs near Sandowne Castle, they met with 'Junc. capitulis, Sorghi' [*Juncus acutus*]. The species is mentioned amongst others which are characteristic of sand dunes, although the dunes or downs were also covered with broom, a great quantity of which they saw laid out on the beach to dry, to make 'Bas belts' (presumably bass, a term for plant fibres).



Sandwich. Photo by Lliam Rooney, 22 June 2010

Sharp Rush was considered by Hanbury and Marshall (1899) to be very rare, on sandhills and in marshes near the sea. Records were limited to the Deal / Sandwich / Pegwell area; and a claim from Dungeness was discounted. This has remained the area of Kent distribution ever since. Philp (1982) and Philp (2010) give it here in eight tetrads, seven of which are identical. So far, recording in the period 2010-16 has produced records from ten tetrads (15 monads). The distribution accordingly appears at least stable.

Its habitat in Kent has been noted as including the edge of dykes or ditches; wet sandy soil behind dunes; damp saline dune slacks or sandy brackish hollows; rough pasture or fixed dune grassland; and at Shellness it has been seen at the highest tide limit, some washed loose by storm surges. Whilst Sharp Rush grows in damp areas, it appears not to be so tolerant of permanent waterlogging as is *Juncus maritimus* (Sea Rush)[3]. Although

[3] General ecological information is given by Jones, V. & Richards, P.W. (1954). *Juncus acutus*, L., Biological Flora of the British Isles, *Journal of Ecology* **42**: 639-650.

the habitat is normally saline, Francis Rose observed that its Kent occurrences included older dunes which are no longer saline, but of a fen character, the soil being highly calcareous with much colloidal black peat in the top inch. In the marginal zone of the more saline slacks, where it may be locally abundant or even dominant, Francis Rose described its associates as including *Carex extensa* (Long-bracted Sedge), *Limonium binervosum* (Rock Sea-lavender), *Parapholis incurva* (Curved Hard-grass) and *Sagina maritima* (Sea Pearlwort). Where saline water levels are higher, and *Juncus acutus* is not found, one might expect to find *Juncus maritimus* (Sea Rush), *Juncus gerardii* (Saltmarsh Rush), *Spergularia marina* (Lesser Sea-spurrey) and *Triglochin maritima* (Sea Arrowgrass). In an older, non-saline slack he found Sharp Rush only sparse or locally frequent, and then associated with *Potentilla anserina* (Silverweed), *Parentucellia viscosa* (Yellow Bartsia), *Salix repens* (Creeping Willow) and *Juncus articulatus* (Jointed Rush). In drained or filled-in slacks modified by golf courses and buildings, Sharp Rush was found growing with *Ammophila arenaria* (Marram) and *Festuca arenaria* (Rush-leaved Fescue).



Sandwich. Photo by Lliam Rooney, 22 June 2010

Juncus acutus generally grows as scattered plants, conspicuous through their size, but can become dominant over small areas. The size, toughness and dense prickliness of the tussocks render the species resistant to trampling, grazing and uprooting; and so plants may survive changes in land use. The tufted character means that the shortness of rhizome internodes inhibits spread where the movement of sand threatens to overwhelm a plant. The large tussocks may represent plants several decades old.



Pegwell Bay, old hoverport. Photo by Sue Buckingham, 23 September 2016

A large plant of *Juncus acutus* is unlikely to be confused with anything else. A smaller one may be confused with *Juncus maritimus* which, however, does not have so stiff and tufted a habit. *Juncus acutus* flowers earlier (June, rather than July to August) and its red-brown capsules are almost twice the length of the tepals (cf. light brown capsules of *Juncus maritimus*, about equal to the length of the tepals).

Site	Grid reference	Site status	Last record date	Recorder	Comments
Lydden Valley	TR3354		2003	CEC	TR 33836 54551, Hacklinge Ditch Survey.
Stonar Cut	TR3360		(1) (2) 2 March 1983	(1) SB (2) ACH	(2) TR 337 608, saltmarsh, Stour estuary.
Stonar Cut	TR3361 TR36F		(1) 30 May 2002 (2) 1991-98	(1) JP (2) EGP (Philp,	(1) TR 3333 6101, Thanet waste Management Site; also given as TR

				2010)	334 610. This site has since been developed. (2) Recorded as TQ36F and may relate to this monad.
Stonelees NR	TR3362		28 July 1999	FR	In big pit dug in 1988.
Lydden Valley	TR3452		2003	CEC	TR 34545 52918, Hacklinge Ditch Survey.
Sandwich Bay	TR3458		18 August 2007	JS	TR 349 587.
Lydden Valley	TR3460		(1) 13 October 2016 (2) 2003	(1) SB (2) CEC	(2) TR 34830 60930, TR 34961 60043, Hacklinge Ditch Survey.
Sandwich Bay	TR3461		(1) 14 May 2011 (2) 2 March 1983	(1) SB (2) ACH	(1) Plants continuous along 200 metres of ditch from TR 3450 61519 to TR 34697 61635. (2) TR 343 614, TR 349 618.
Pegwell Bay	TR3462		(1) 22 September 2015 (2) 2 March 1983	(1)KBRG meeting (2) ACH	(2) TR 343 627.
Great Stonar	TR35J		After 1970, before 1981	Philp, 1982	
Cliffsend south	TR3463		20 September 2016	CO	On edge of saltmarsh by main road at TR 346 639
Sandwich Bay	TR3557		(1) 3 June 2010 (2) 1982	(1) GK (2) ACH	(1) TR 3572 5764, one clump in rough pasture. (2) TR 35591 57640.
Sandwich Bay	TR3558		(1) 2003 (2) 2 March 1983	(1) CEC (2) ACH	(1) TR 350315 8888 (2) TR 355 585, Royal St George's Golf links.
Sandwich Bay	TR3559		(1) 9 July 2010 (2) 24 June 2010 (3) 29June 2008	(1) JA (2) SB (3) DM	(1) Eight clumps at TR 35386 59162. (2) TR 35391 59160, five large plants in a dune slack. (3) TR 3561 5965.
Sandwich Bay	TQ3560	SSSI	(1) 4 August 1996 (2) 2 March 1983	(1) FR (2) ACH	(1) (a) One clump in slacks by pool. (b) Abundant. (2) TR 353 605, Prince's Golf Links.
Sandwich Bay	TR3561	SSSI	(1) 1 August 2015 (2) 9 June 2010 (3) 5 July 1987	(1) LR & SL (2) JA (3) EGP & RoF	(1) South of Shellness, damp hollow, TR 35095 61816. (2) 200+ plants at TR 35039 61999. (3) TR 350 619.
Pegwell Bay	TR3562	SSSI	(1) 23 September 2015 (2) 15 April 2015	(1) KBRG meeting (2) SB	(1) Plants at the very highest tide limit at TR3 501 6257, some had been washed loose by storm surges.
Lydden Valley	TR3654		(1) 23 September 2016 (2) 2003	(1) SB (2) CEC	(1) A single large fruiting plant on the concrete apron of the old hoverport TR 35068 64012. Ten seedlings from this plant within a few metres, one with an infructescence. (2) TR 36626 54960, TR36496 54916, Hacklinge Ditch Survey.
Lydden Valley	TR3655		2003	CEC	TR 36220 55380, TR 36482 55107, TR 36360 55039, TR 36373 55495, TR 36520 55600, TR 36532 55398, TR 36731 55427, Hacklinge Ditch Survey.
Sandwich Bay south	TR3656		29 October 2011	SB	Two plants at TR 36545 56276.

Sandwich Bay estate	TR3657		1 August 2011	SB	
Stonelees	TR3662	KWT reserve	(1) 2 July 2013 (2) 18 October 2011	(1) KBRG meeting (2) SB	(1) TR 3385 6249.
Deal – Sandown Castle	TR3754		3 January 2011	SB	(a) TR 37211 54391, one plant at edge of golf course, opposite club house and other single plants nearby at TR 37187 54471, TR 37162 54659 and TR 37165 54684. (b) 27 plants in a hollow in fixed dune grassland at TR 37387 54341. Also 4 plants, edge of Royal Cinque Ports golf course at TR 37345 54321 plus (same grid reference) one plant fenced off with wood and wire. (c) One plant in fixed dune grassland at each of TR 37467 54403, TR 37440 54497, TR 37442 54490, TR 37387 54406. Also two and five respectively at TR 37378 54364 and TR 37375 54340. (d) TR 37145 54946, single plants in dune grassland. Also TR 37103 55002, single plant here and at TR 37090 55036. Also TR 37083 55051, three plants in grassland, edge of golf course.
Deal north	TR3755	7	(1) 3 January 2011 (2) 1997 (3) 2 March 1983	(1) SB (2) BB (3) ACH	(1) TR 37306 55089, landward side of shingle sea bank. Also approx 15 plants beside pond on edge of golf course (same grid reference given). (2) TR 372 552, brackish slack. (3) TR 376 557, Royal Cinque Ports Golf Links.

Juncus compressus Jacq. (Round-fruited Rush)

Draft account/ Photos, close-up and habitat, needed.

vc 15

Rarity / scarcity status

A plant of marshes and wet meadows, Round-fruited Rush is found in southern, central and north west England and scattered elsewhere in the British Isles. It is regarded as **Near Threatened** in Great Britain and **Vulnerable** to the risk of extinction in England, albeit more frequent there than in Wales, Scotland and Ireland, in all of which it is rare. The assessment of Vulnerable is based on a reduction both in the overall geographical extent of its occurrence in England and in the area of occupancy within that range. A comparison over the periods 1930-1969 and 1987-1999 showed that its overall range had reduced by 37% and its area of occupancy had declined so that there was a 34% reduction in the likelihood of recording the species. There has been a substantial decline in Kent also, and its presence was reduced to six tetrads in the 1971-80 county survey and then it could not be found at all in the 1991-2005 survey. It survives, however, but is **rare** in Kent.

Account

Juncus compressus was first recorded in Kent by Thomas Forster in his *Flora Tonbrigensis* (1816) as growing 'On moist meadows and heaths'. It should not be supposed from this that it is a plant of acid ground; the reference to heaths is a little surprising. Hanbury and Marshall (1899) considered it to be a scarce plant of marshy ground, with few, but widespread, records – some inland, but most fairly coastal. These records included Plumstead Marshes; a meadow near Herne Bay; a grassy flat by the shore near Whitstable; east of Sheerness; Pegwell Bay; Romney and Hythe/Dymchurch; and a cluster of records west of Ashford (Sevington, Stanford and near Stowting, apparently on the gault clay, a little below the chalk hills). The Stowting site (communicated to Hanbury and Marshall by William Beeby, who collected there in 1887) survived long enough for Francis Rose to collect the rush in 1947 and 1954, in a calcareous fen meadow below the village, by chalk springs. Analogous East Kent locations where Francis Rose found *Juncus compressus* were fen meadows at Wingham (1946) and Worth Minnis (1951); a calcareous spring in fen meadow at Cuckolds Coomb above Brook (1946 and 1950); and a wet, calcareous meadow on gault below chalk springs and south of Brabourne Church (1954). In West Kent[4], he found it in 1944 abundant at Halling Marshes; Cuxton; Upnor; Shorne Marshes; apparently replacing *Juncus gerardii* (Saltmarsh Rush) by the tidal Medway, where he had not seen the latter for certain.

These sites generally do not feature in Philp (1982), where the records are all inland, mostly relating to gault or Wealden clay. And even those sites could not be found in the surveys for Philp (2010), several having been destroyed by land drainage (although Francis Rose still found it to be locally frequent in 1986 at Cuckolds Coomb); so that it was then considered that the species might be extinct in the county. However, it was subsequently discovered at Seasalter Levels, a site which may bear a relationship to de Crespigny's pre-1895 record at a grassy flat near Whitstable; and the species remains on the county current listing.

Round-fruited Rush is a plant of weakly acid to weakly basic soils, in pasture, meadow or grassland, often in areas which rapidly dry out after inundation during winter and early spring[5]. The Seasalter Levels match this habitat description well. The Francis Rose East Kent descriptions largely seem to apply to habitats with soils more alkaline than weakly basic, although once calcareous flushing has reached gault clay, its effect may be

[4] BEC report for 1943-44 (1946): **12**: 760.

[5] Stroh, P.A. 2014. *Juncus compressus* Jacq.. Round-fruited Rush. Species Account. Botanical Society of Britain and Ireland.

diluted. Conditions for seed germination require localised disturbance to open the seed bank, and bare, moist soil for access to light and warmth. These conditions may be achieved under livestock grazing.



Seasalter Levels, habitat. Photo by Lliam Rooney, June 2013

Coastal locations, where water may be brackish, give rise to difficulty in picking out *Juncus compressus* from the very similar *Juncus gerardii* (Saltmarsh Rush), which is not confined to saltmarsh, so that their habitats may overlap outside. The species are best not separated on one character alone. *J. compressus* is tufted, forming only small patches; *J. gerardii*, with its creeping rhizomes, tends to form larger patches. *J. compressus* has a curved, somewhat flattened stem; that of *J. gerardii* is stiffly erect and more three-angled. The lowest bract is usually shorter than the inflorescence in *J. compressus*; longer in *J. gerardii*. The near-globose capsule is 1½ times the size of the pale brown tepals in *J. compressus*; the capsule is oval and pointed, scarcely, if at all, longer than the very dark brown or blackish-edged tepals in *J. gerardii*. (Beware of different-shaped *J. gerardii* capsules leading to an expectation that the fuller ones must represent Round-fruited Rush: this may simply reflect the fact that some plants have set seed better than others.) The anthers of *J. compressus* (which may remain, tucked behind the tepals, after flowering) are 0.5-1mm long and up to twice the length of the filaments below; those of *J. gerardi*i are 1-2mm long and two to three times the length of the filaments. (These anther measurements are for fresh anthers; spent or dried ones may require wetting before examination.) The style of *J. compressus* is 0.1-0.3mm, less than half as long as the stigmas; that of *J. gerardii* is 0.5-0.8mm, about as long as the stigmas. The seeds of *J. compressus* are 0.35-0.5mm long; those of *J. gerardii* are 0.5-0.7(-0.85)mm. The anther, style and seed characters are regarded as the most diagnostic.

The hybrid between *J. compressus* and *J. gerardii* was claimed by J.E. Lousley in 1934 at Pegwell Bay (specimens in SLBI), where a patch of *Juncus* was observed between the putative parents, with intermediate leaf colour and a markedly infertile weakly general appearance[6]. The record was published subject to qualification, and is treated as unsatisfactory in the *Hybrid Flora of the British Isles*, as with all other British records[7].

Site	Grid reference	Site status	Last record date	Recorder	Comments
Edenbridge	TQ44I		After 1970, before 1981	Philp (1982)	
Brasted	TQ45S		After 1970, before 1981	Philp (1982)	
Thamesmead West (metropolitan vc16)	TQ4580		(1) 6 August 1985 (1) 20 May 1984	(1) WFS meeting (2) BSBI meeting	(1) TQ 459 808, on west margin of the more northerly of the Twin Tumps, two oval canals. May have been only two plants. (2) Same site, said to have been

[6] Lousley, J.E. (1935). Juncus compressus x Gerardi. *Rep. Bot. Soc. Exch. Club Brit. Isles* **10**: 986-987

[7] Stace, C.A., Preston, C.D. & Pearman, D.A. (2015). *Hybrid Flora of the British Isles*. Botanical Society of Britain & Ireland, Bristol. The position is further confirmed by Wilcox, M. (2015). Recording *Juncus gerardii* and *J. compressus*. *BSBI News* **130**: 57.

					almost inaccessible. This site became over-shaded by bushes (per RMB). Historic records for Plumstead Marshes may be relevant.
Cross Ness (metropolitan vc16)	TQ4781		8 May 1984	RMB and JC	TQ 478 811, east of Crossways Lake. Four old clumps. Site destroyed in 1986 (per RMB).
Holborough Marshes	TQ7062	KWT managed reserve	1989	DP	TQ 706 622 (this may be a generalized grid reference). Confirmation desirable, but it would accord with FR's 1940s records.
South of Harrietsham	TQ85Q		After 1970, before 1981	Philp (1982)	
Bethersden	TQ93E		After 1970, before 1981	Philp (1982)	
Hamstreet	TR03B		After 1970, before 1981	Philp (1982)	
Cuckolds Coomb, nr Brook	TR04		15 July 1986	FR	Locally frequent, inferred to be at TR0744.
Molash	TR05F		After 1970, before 1981	Philp (1982)	
Seasalter Levels	TR0864	KWT managed reserve	6 July 2011	CJC & AP	(a) Coastal marsh, but not brackish. Estimated 101-300 plants, locally frequent. TR 0842 6429, 'field N', hay meadow, aftermath grazed. Generally associated species: *Carex divisa, Oenanthe silaifolia, Lotus glaber* and *Ranunculus sardous.* (b) Coastal marsh, but not brackish. Estimated 1-10 plants, rare. TR 0809 6416, 'field D', grazed by suckler herd of cattle. *Carex divisa* also present at ditch margin, *Oenanthe silaifolia* rare in field. (c) C. Coastal marsh, but not brackish. Estimated 1-10 plants. TR 0850 6413, 'field C', hay meadow. *Carex divisa* also locally frequent, *Lotus glaber* abundant in field. (d) Coastal marsh, but not brackish. Estimated 11-100 plants. TR0878 6421, 'field B', hay meadow with immediate associates *Alopecurus geniculatus* F, *Agrostis stolonifera* F, *Ranunculus sardous* O, *Elytrigia repens* O. *Carex divisa* also abundant in field, *Oenanthe silaifolia* scarce, *Lotus glaber* abundant.
Seasalter Levels	TR0964	KWT managed reserve	13 June 2013	RG, LR & GK	Small amount in grassy field at TR 09085 64292.

Juncus squarrosus L. (Heath Rush)

Draft account

vc 15 and 16

Rarity / scarcity status

Juncus squarrosus is a common plant of wet heath and moorland, especially in northern England, Wales, Scotland and Ireland, and is sometimes dominant in wet upland acid grassland. In southern England its distribution is patchier, in line with the availability of lowland heath. Its conservation risk status in Great Britain as a whole and in England is one of 'Least Concern'. Due to the lack of suitable habitat, in Kent it is **rare** or possibly very **scarce.**



Hothfield. Photo by Sue Buckingham, 21 June 2012

Account

Even when more suitable habitat was present in Kent, it seems not to have been a common plant and was not noticed before Matthew Cowell's *A Floral Guide to East Kent (*1839) published records taken from Gerard Smith's manuscript notes (1830-33). Smith had seen it on Willesboro' Lease (Willesborough Lees near Ashford) and 'In Sandling Park, among heath & furze'. Hanbury and Marshall (1899) considered it to be a rare plant of moors, heaths and sandy wastes. The only other sites which they mentioned were at Keston Common (reported by Walter Reeves, before 1892); sandhills between Deal and Sandwich (found by Elizabeth Harvey, before 1873); on the commons (near Tunbridge Wells) (attributed to Forster, although Forster's *Flora Tonbrigensis* refers to the rush as 'on heaths every where', which doubtless includes Sussex as well); and Hothfield Heath (reported by William Jeffrey, before 1899).



Hothfield. Photo by Lliam Rooney, 19 May 2011

Contemporaneous with the publication of Hanbury and Marshall (1899) was the discovery of a further site by Henry Lamb, at Ightham Common, in a boggy place by Oldbury Camp. The rush was still present when visited by Francis Rose in 1944, at a damp, heathy beechwood by ponds near Crown Point (presumably there were open areas in the canopy and perhaps bracken was not then so extensive as now). Rose also found a further site in 1946 south of Wrotham Heath and the railway (Valley Wood), by a path and a small area of damp *Calluna* heath. The Wrotham Heath site persisted at least until the 1971-80 survey published as Philp (1982), when presence in only four tetrads was recorded in the administrative county. These records exclude metropolitan vc16, where the acid soils of Keston and Chislehurst Commons still accounted for two further tetrad records. By the time of the 1991-2005 survey (Philp, 2010), only the two Hothfield tetrads remained for this species in the administrative county (although at least Keston Common continued in vc16 as well), so the history of Heath Rush in Kent has been one of decline. The position is the same as regards our 2010-16 records.

Juncus squarrosus requires wet open conditions, although ground may be seasonally wet and the species is intolerant of complete submergence[8]. Its slow growth, need for light and inability to grow upwards with an accumulation of soil-raising litter means that it is a poor competitor, but on the other hand, it is little affected by grazing and trampling. This gives it an advantage in trodden areas, such as by pathways at Hothfield Common. It spreads vegetatively by the emergence of new shoots at the margin of a rosette extending at the rate of 1-2cm a year, and so gradually resulting in formation of a patch. Seed requires light for germination and hence bare ground. The seeds are mucilaginous, according to Green (1969)[9] who suggested that this might facilitate carriage by birds. It might equally be inferred, however, that there is a potential for spread by animals and people using tracks by which the plant is growing.



It is a short wiry rush, distinct from other British species.

Hothfield. Photo by Lliam Rooney, 19 May 2011

Site	Grid reference	Site status	Last record date	Recorder	Comments
Keston Common (metropolitan vc16)	TQ4164		(1) 6 August 016 (2) 13 June 2007 (3) 20 April 1987 and 8 August 1987	(1) SL (2) JP (2) RMB	(1) Keston Bog, small valley, TQ 4171 6434. Patch of plants on bare peat cleared of trees at northern edge of bog. Also on larger of two open grassland heaths on high plateau. (2) Main heathland area west of lake. (3) TQ 418 640, c. 150 plants.
Chislehurst Common (metropolitan vc16)	TQ4369		20June 1988	RMB	TQ 436 769, west of cricket ground. Not found when re-visited in 2004(RMB).
Wrotham Heath	TQ65I		After 1970, before 1981	Philp (1982)	A few plants in a small area. Presumably the 1946 FR site (see main text).
Sandway	TQ85V		After 1970, before 1981	Philp (1982)	A few plants in a small damp area.
Hothfield	TQ9645	KWT managed reserve, SSSI	(1) 21 May 2016 (2) 25 May 2010 (3) 12 July 2000 (4) 6 August 1995 (5) 1991-99	(1) SL (2) GK (3) JS (4) JPu (5) EGP (Philp, 2010)	(1) Edge of fenced-off acidic meadow off western side of public footpath, TQ 9652 4596. (2) Frequent within this 1km square on the common, particularly on trodden areas. (3) TQ 969 456. (4) TQ 969 458. (5) Recorded as TQ94S. These are sample records only, this location having been visited by many botanists.
Hothfield	TQ9646	KWT managed reserve, SSSI	(1) 25 May 2010 (2) 1991-99	(1) GK (2) EGP (Philp, 2010)	(2) Recorded as TQ94T.

[8] General ecological information is given by Welch, D. (1966). Juncus squarrosus L., Biological Flora of the British Isles. *Journal of Ecology* **54**: 535-548.

[9] Green, H.E. (1969). *Juncus squarrosus* L. – Dispersal of seeds. *Proc. Bot. Soc. Br. Isles* **7**: 562.

Juncus subnodulosus Schrank. (Blunt-flowered Rush)

Draft account

vc 15 and 16

Rarity / scarcity status

Juncus subnodulosus is a plant of fens and marshes, locally frequent in England, especially in East Anglia, present also in Wales and central Ireland but barely reaching north to Scotland. Its conservation risk status in both Great Britain as a whole and England is one of 'Least Concern'. In Kent there appears to be evidence of rapid decline, leading to the species becoming **scarce** (but further recording may yet demonstrate that the species should only be regarded as uncommon, verging on scarcity).



Ham Fen. Photo by Lliam Rooney, 13 July 2013

Account

Blunt-flowered Rush (then known as *Juncus obtusiflorus*) was first published for Kent by Thomas Forster in his *Flora Tonbrigensis* (1816), in which he described it as 'On bogs, not uncommon' which, if it were to imply acid ground, seems not entirely apt, as the species is more frequently known where there is some base enrichment. The habitat description by Edward Jenner 'Wet pastures and other places, frequent' in his *Flora of Tunbridge Wells* (1845) seems more appropriate. Whilst there have been further Wealden records, the distributional assessment by Hanbury and Marshall (1899) as 'local (chiefly submaritime') in marshes, seems fairly representative of the position then and now. Records mentioned by them include marshes above Woolwich, sites near Oare and Faversham; Sandwich; Deal; Ham Fen; Eastwear Bay; and Preston (near Stodmarsh).

Much of this breadth of range was known to Francis Rose in the 1940s and 1950s, when he found *Juncus subnodulosus* at a flooded gravel pit near Oare Creek (1959); in a wet dune slack north of Deal (1946); in mixed fen with *Cladium mariscus* (Great Fen-sedge) at Ham Ponds (1946); in fen meadow at Wingham Fen (1946); in calcareous fen-meadow at Worth Minnis (1947); in flush areas over gault clay at East Wear Bay, Folkestone (1947). Rose also came across the species in a much wider range of localities, amongst which were: fen developing on a sandy lake shore at Leybourne Castle (1958); by a ditch in alluvial marshes at Barnes Cray (1944) ; in calcareous fen meadow at Holborough Marshes (1944; still there, 2013); in calcareous spring-fen on ragstone at Whitenbrooke, Seabrook near Hythe (1954); in calcareous spring-fen at The Lince, Etchinghill (1958; still in the vicinity, 2014); and in wet shingle pits north of the old railway station at Dungeness (1953).

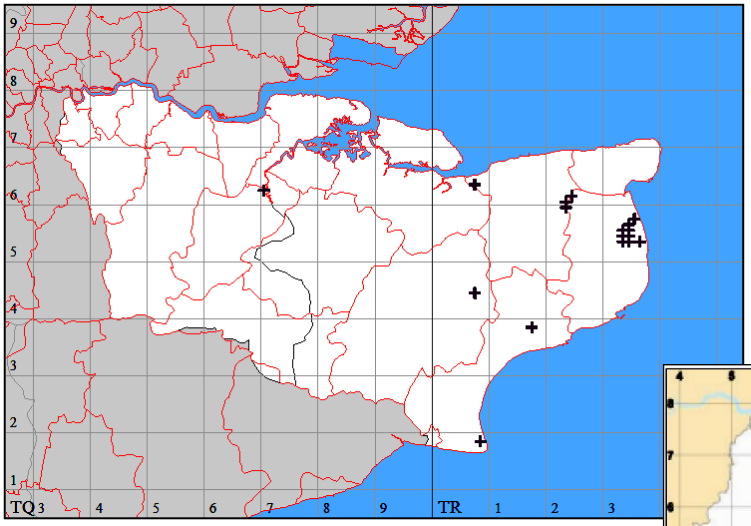


Worth Minnis. Photo by Lliam Rooney, 5 July 2011

This fairly wide county distribution persisted until the county survey of 1971-80 published as Philp (1982), where the species was described as one of fens, marshes and dyke edges in areas with basic ground water, rather local and such that it could only be called frequent in the marshes just inland between Deal and Sandwich. Sightings were recorded in 21 tetrads and these included a few in the south west of the county, reminiscent of the early 19th century Tonbridge / Tunbridge Wells records, although that for TQ45V below Ide Hill contributed by Ray Clarke should be disregarded (the supporting specimen in **MNE** is not this species). However, the 1991-2005 survey (Philp, 2010) only relocated six of these 21 tetrad records, adding three more, suggesting a decline of 57% overall, and indicating almost complete loss from West Kent.

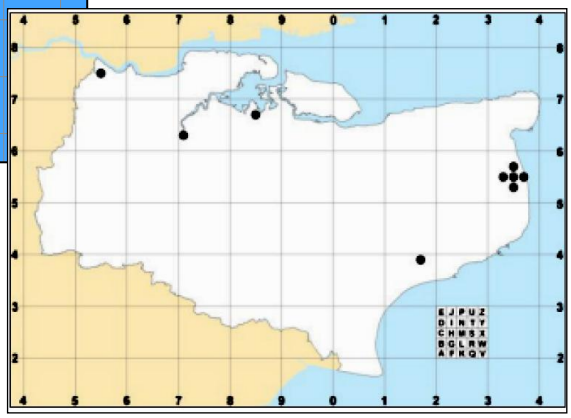
Whether this is a real decline remains to be tested by current recording, but for the period 2010-165, *Juncus subnodulosus* has been located in 12 tetrads (17 monads), only one of which is in West Kent; so at least there does not appear to be evidence of further losses overall.

As Blunt-flowered Rush is not rare in Kent, and may fall short of being scarce, the distributional data maintained in this register will be at 1km square (monad) level. This will entail recording at a finer scale than the tetrads given in Philp (2010), from which the following 1991-2005 map is taken (with kind permission of the late Eric Philp and the Kent Field Club).



***Juncus subnodulosus* (Blunt-flowered Rush) 2010-16**

***Juncus subnodulosus* (Blunt-flowered Rush) 1991-2005**



Juncus subnodulosus is a patch-forming perennial, with far-creeping rhizomes which may be matted below the surface, often present with other rushes, such *as Juncus inflexus* (Hard Rush) and *Juncus articulatus* (Jointed Rush). It forms part of, and may be dominant in, the *Juncus subnodulosus-Cirsium palustre* fen-meadow plant community (M22). This community, where ungrazed, commonly reaches 50-80cm in height, but *Juncus subnodulosus* may be noticeably taller (40-130cm). The assemblage indicates soils which are kept reasonably moist for most of the year and have a moderate to high base-status, and may be represented on terrain which is sloping, with seepage lines where ground waters reach impervious substrates; or on flat ground in badly drained hollows or valley bottoms, which may accumulate peat below. Rodwell[10] refers to such communities as being secondary, derived and maintained by mowing and/or grazing; and *Juncus subnodulosus* is often one of the strongest threads of continuity from the precursor community, being adapted to survive both the former traditional annual summer mowing and grazing.

[10] J.S. Rodwell (ed.)(1991) British Plant Communities, vol. 2, Mires and heaths. Cambridge University Press, Cambridge.

Whilst the species is especially associated with calcareous peat, it may also grow on alluvium or sand, and it shows some salt tolerance[11]. It is noticeable as having pale florets when young. These darken later, but then the inflorescence is distinctive with its branches diverging widely and reflexed. The leaves are distinctive as having both cross-partitions – as do *Juncus articulatus* (Jointed Rush) and *Juncus acutiflorus* (Sharp-flowered Rush) – and longitudinal partitions (which they do not).

[11] Richards, P.W. & Clapham, A.R. (1941). *Juncus subdodulosus* Schrank. (*J. obtusifolius* Ehrh.). Biological Flora of the British Isles. *Journal of Ecology* **29**: 383-391.

Juniperus communis L. (Common Juniper)

Draft account.

vc 15 and 16

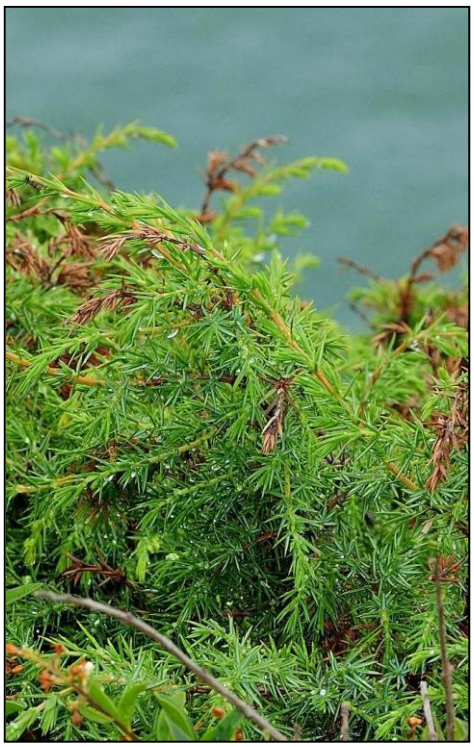
Rarity / scarcity status

Juniper is a very local shrub or small tree throughout much of Britain and Ireland, absent from much of the south west and from central and eastern England. It has been in decline through the loss of scrub communities by over-grazing, burning or woodland succession/afforestation. Regeneration from seed is often poor. It requires the presence of both male and female plants, the availability of bare ground and the absence of grazing-off seedlings. Juniper is treated as a UK Biodiversity Action Plan priority species. Planned actions are targeted towards maintaining the species' current range and overall population size, achieving natural regeneration at sites under conservation management, and maintaining or re-establishing populations at sites not under direct conservation management.



From William Turner's Herball, 1562.

The lowland plant is *Juniper communis* subsp. *communis* and, whilst its conservation risk status in Great Britain as a whole is of 'Least Concern', in England it is considered to be **Near Threatened**. The assessment of Near Threatened is based on a reduction both in the overall geographical extent of its occurrence in England and in the area of occupancy within that range. A comparison over the periods 1930-1969 and 1987-1999 showed that its overall range had reduced by 24% and its area of occupancy had declined so that there was a 20% reduction in the likelihood of recording the species. Viewed on a much wider timescale[12], the number of 10km squares in which it was recorded in the period 1987-99 had in East Kent declined to four (from 11 over all time before), a loss of 64%; and in West Kent the decline was from seven 10km squares to five, a loss of 29%. However, in Kent, Juniper falls short of qualifying as rare or scarce, because of the number of extant sites; but it may be regarded as at risk because of the earlier decline and the ageing of colonies without recruitment of young plants.



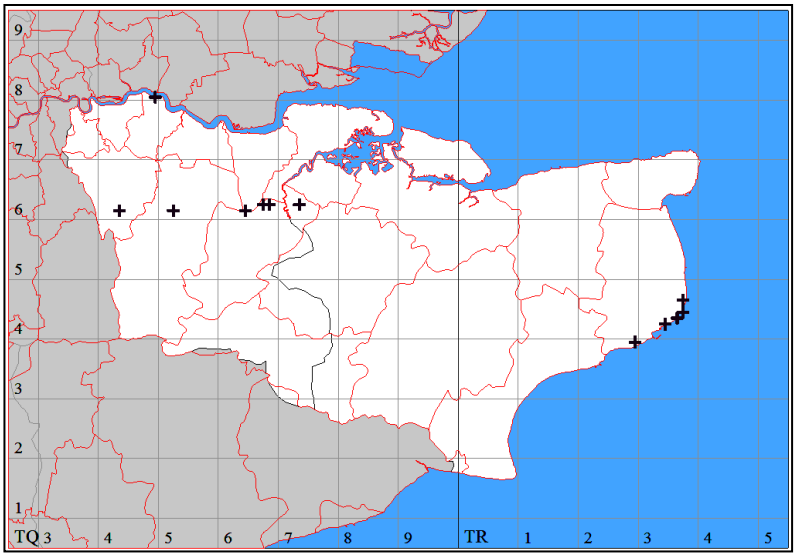
Dover. Photo by Lliam Rooney, 5 July 2011

[12] Ward, L. (2007) *Juniperus communis* L. Plantlife dossier, http://www.plantlife.org.uk/wild_plants/plant_species/juniper accessed 14/11/2015

Account

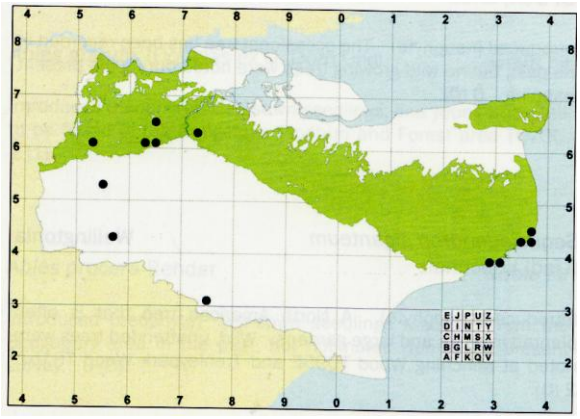
Juniper has a very early first published county record, that of William Turner in Part 2 of his *Herball* (1562), in which he states that 'In England it groweth most plentuouslye in Kent'. This abundance is still reflected in the account by Hanbury and Marshall (1899), who regarded it as locally common, but sufficiently frequent along the North Downs across Kent that they did not enumerate individual records for that area. The only areas where it was not to be found were what is now metropolitan north west Kent; Sheppey and the adjoining mainland; and Thanet.

This distribution has shrunk considerably since then, in particular as regards the North Downs from Burham eastwards to the coast. Sites in this latter area were known to Francis Rose, such as at Yockletts Bank (1958); Fanscombe Wood, east of Wye (1959); and Petham (1959). In the 1971-80 county survey (Philp, 1982), 13 tetrad records were made. The species was considered to be declining: many of the adult bushes appeared to be suffering from the effects of a fungus and there were no recent reports of any seedlings in the country. Apart from a few bushes on Southborough Common, all other localities were on the chalk.



***Juniperus communis* (Juniper) 2010-16**

During 1990-2005, again 13 tetrad records were made, although only eight represented the same tetrads. By then, some known shrubs had died as a result of fungal infection, and others on the cliff tops in the east of the county had been lost through erosion.



***Juniperus communis* (Juniper) 1991-2005, showing affinity with chalk (green)**

Surveys of 26 colonies were noted by Plantlife (Ward, L., op. cit.) as having been carried out in 1971 and 1999, resulting in estimates of 183 and 138 bushes respectively, a decline of 26%. Plantlife's assessment was that Juniper on the North Downs is in a terminal state of decline with only small numbers in Kent; but holding its own in low numbers on the eroding chalk cliffs on the east coast of the county where it is less dependent on agricultural practices.

Recording in the period 2010-16 has produced 12 tetrad/monad records, disregarding some of unclear status, but including two planted at Downe Bank and 30 or so presumed planted at Kingsdown. Six of those 2010-16 records come from the same tetrads as the 1991-2005 records; so, although it appears from total numbers that occurrence in the county has been broadly constant since 1971, the total has been maintained by new

discoveries. These are not necessarily 'new' plants, although it is possible that there is recruitment of bird-sown plants, particularly on migratory routes. Many of our records are of single bushes, probably of considerable age, and unable to reproduce because both male and female bushes are required. A lone bush noted at Burham in 2012 was understood to be one which Eric Philp had recorded for 40 years and which had hardly changed in that time. If the strategy of juniper is one of a mobile plant, exploiting favourable situations for colonisation within the area of bird dispersal movements, then this is likely to be ineffective with us when the seed resources are insufficient to result in both males and female bushes arriving in proximity. Bushes may appear in unlikely places: there is one (found 2000 and still present in 2015, 3m high), rooted above the reach of tides, at the Thames estuary near Cross Ness.

As Juniper in Kent does not (yet) quite qualify as rare or scarce, the distributional data maintained in this register will be at 1km square (monad) level. This will entail recording at a finer scale than the tetrads given in Philp (2010), from which the accompanying 1991-2005 map is taken (with kind permission of the late Eric Philp and the Kent Field Club).

Although tabular information regarding sites is not being included here, conservation interest in this species is such that it is worth providing information as regards selected colonies.

Shoreham, TQ 528 612 and 529 612. Mentioned by de Crespigny in *A New London Flora* (1877) as present east of Shoreham; recorded also in 1929; and said by Francis Rose to be abundant in 1945. On 5 July 2010, the colony was noted (GK) as consisting of five individuals growing on a chalk slope with a western aspect. These appeared perhaps healthier than they have been at times before, except for one with a damaged stem, although the quality of the surrounding downland flora had declined, with increasing tree and shrub seedlings, despite some scrub cutting. There were two males and three females, ranging from 1.75 to 6m high. All (but one) were over-shaded, partly to severely, two with scrub growing up from their rooting points. There was no sign of regeneration.



Shoreham. Photo by Geoffrey Kitchener, 21 November 2015

Folkestone Warren, TR 248 380. Present at least since 2007 (and clearly much older than this), one male bush, 3.5m high by 2.5m wide, was noted on 3 August 2010 (LS, JN) in Folkestone Warren SSSI (TR 2483 3801), growing on the chalk cliff with a south western aspect in an area of undercliff characterised by slumps and steep cliffs. In front of the bush was rabbit-grazed chalk grassland, but its immediate surroundings, particularly behind, were in need of scrub control, massive scrub encroachment having taken place in the area since removal of grazing animals, even the steeper, more exposed parts of cliff being swamped by *Betula pendula* (Silver Birch), *Buddleja davidii* (Butterfly-bush), *Cornus sanguinea* (Dogwood), *Crataegus monogyna* (Hawthorn), *Ilex aquifolium* (Holly), *Ligustrum vulgare* (Wild Privet).

Samphire Hoe (Shakespeare Cliff), c. TR2927 3918. This site may correspond to the reference in Rose & Géhu (1964)[13] to Juniper being rare at the edge of cliff-tops between Folkestone and Dover. It is an area difficult to survey in its entirety because of the precipitous cliff. When observed by SB through binoculars from below at Samphire Hoe on 10 July 2014, many bushes appeared diseased, with large patches brown and bare of leaf. The population comprised 31 plants (PHo, pers. comm.) and included male and female bushes.

Dover (Langdon Hole), TR3442. This may be the same site as given by Matthew Cowell in *A Floral Guide for East Kent* (1839) as contributed by Miss Elizabeth Harvey for a location between Dover and St Margaret's Bay. Francis Rose also saw it in 1958 at the edge of the chalk cliff summit at Langdon Bay. It was seen by a KBRG meeting on 12 July 2010 as a small wind-sculpted bush on the very cliff edge at Langdon Hole, TR 34449 42505. There are more plants: on the public footpath which drops down the vertical cliff-face, at TR 34559 42540, KBRG meeting attendees were able to look up and back at the vertical cliff face and, with binoculars, see four plants (it was understood that eight are known).

These sample site records exemplify a number of themes: the small size of some populations; the potential for loss through disease or erosion (although conversely erosion may provide open ground for regeneration); the competition arising in some locations from encroaching scrub; and the absence of record of recruitment.

Juniper is tolerant of frost, nutrient-poor soils and (except when young) drought[14]. It may be browsed, but is apparently not very palatable to herbivores (although seedlings are vulnerable). In consequence, it may act as nurse to other trees or shrubs which may establish themselves in its shelter. It shows some tolerance to scrub which may grow around it; and, although not able to cope with deep shade, it will survive and grow in levels of a fifth of normal sunlight. Its life span, however, is likely to be shortened by shading. Seed viability may be affected by the age of the bush, its nutritional status, insect predation and seeds not fully formed; and for those seeds which are sufficiently formed, delayed germination of three to five years is common. Blackbirds, mistle thrushes and song thrushes are considered to be the main dispersal agents of the cones (berries) in Britain, although the results do not appear to be particularly effective in Kent for colony expansion. Life span on the southern chalk is reckoned to be 100-120 years.



Shoreham. Photo by Stephen Lemon, 16 July 2014

[13] Rose, F. & Géhu, J.M. (1964). Essai de phytogéographie comparée. La végétation du Sud-Est de l'Angleterre et ses analogies avec celle du Nord de la France. *Bulletin de la société botanique de France* 90ème session extraordinaire 38-70.

[14] General ecological information from Ward, L. (op.cit.) and from Thomas, P.A., El-barghathi, M. & Polwart, A. (2007) *Juniperus communis* L. Biological Flora of the British Isles. *Journal of Ecology* **95**: 1404-1440.

Knautia arvensis (L.) Coult. (Field Scabious)

Draft account.

vc 15 and 16

Rarity / scarcity status

Field Scabious is frequent in grassland over most of the British Isles, but absent from most of north and west Scotland. Despite this, its conservation risk status is assessed as of 'Least Concern' in Great Britain as a whole, but in England it is considered to be **Near Threatened**. A comparison of its area of occupancy in England over the periods 1930-1969 and 1987-1999 produced a calculated decline of 23% in the likelihood of recording the species; and it is the rate of decline, rather than absolute numbers of the species remaining, which causes this reassessment. In Kent, there appears to have been a decline of 37% over shorter time, between the periods 1971-80 and 1991-2005. Accordingly, although the species can be ranked neither rare nor scarce in the administrative county, its status is one for concern.

Account

The first printed record of Field Scabious for the county is by Thomas Johnson, who recorded it whilst travelling along the main road between Gravesend and Rochester (*Iter Plantarum*, 1629). On his next journey, in 1632, he remarked on a white form of this species en route from Margate to Nash. The species appears to have been generally common enough that it was more worthy of remark when an unusual form was found, as with Edward Jacob (*Plantae Favershamienses*, 1777), who remarked on a plant with proliferous flowers in Badgen Wood; and Thomas Forster (*Flora Tonbrigensis*), who saw white, red and blue flowered plants. Hanbury and Marshall (1899) considered *Knautia arvensis* to be very common throughout the county, at banks, cliffs, fields and pastures.



Bredhurst, habitat. Photo by David Steere, 22 July 2015

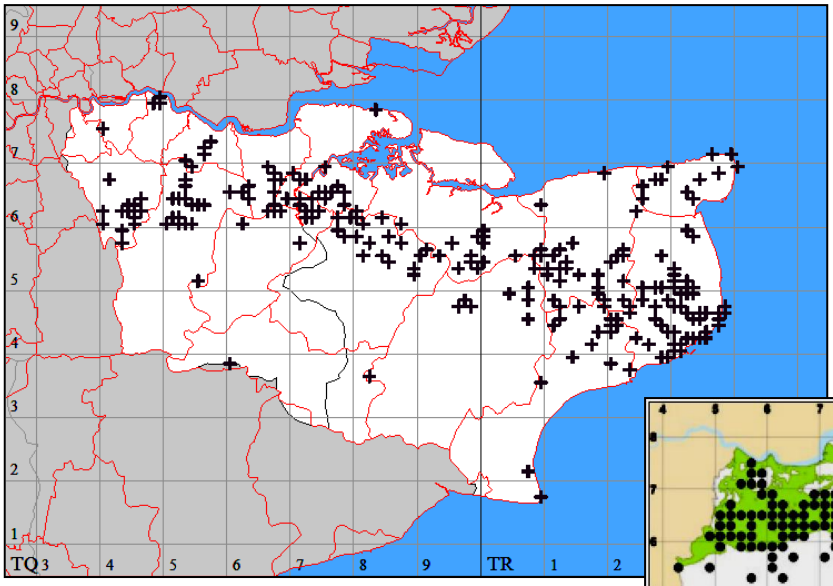
Philp (1982) recorded the species in 382 tetrads, finding it in dry grassy fields, at roadsides and on cliffs, being common on the chalk. It was noticeably missing from Dungeness and nearly all of the Weald. A similar distribution was shown by Philp (2010), but significantly thinned out, so that only 243 tetrads were given. The

species was noted as a plant of rough pastures, hedgerows, wood borders and roadside verges, particularly on the chalk; but no suggestion was given as regards potential causes of decline, nor are these apparent.



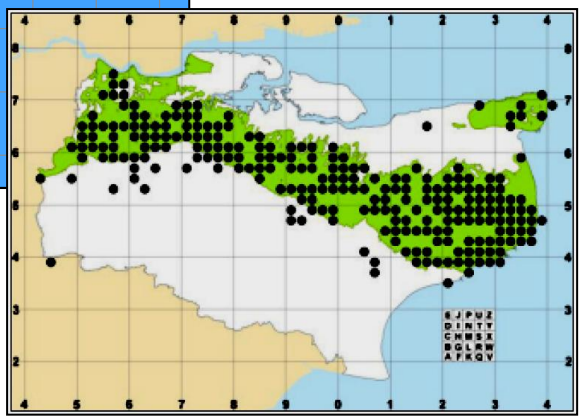
Nashenden. Photo by David Steere, 18 October 2015

As Field Scabious in Kent does not qualify as rare or scarce, the distributional data maintained in this register will be at 1km square (monad) level. This will entail recording at a finer scale than the tetrads given in Philp (2010), from which the following 1991-2005 map is taken (with kind permission of the late Eric Philp and the Kent Field Club). Comparison with 2010-16 records indicates further thinning out, although there are some occasional records beyond the range of the 1991-2005 finds, e.g. at Dungeness and the Hoo peninsula. It is not noted in the record details for those particular outliers, but anomalous distribution is possible through inclusion of the species in some wildflower seed mixes and this is the suspected origin of at least one metropolitan West Kent sighting. The apparent further decline (to 163 tetrads, including metropolitan West Kent) should not be taken as definite, pending further recording.



***Knautia arvensis* (Field Scabious) 2010-16**

***Knautia arvensis* (Field Scabious) 1991-2005, showing affinity with chalk (green)**



Knautia arvensis is a perennial with a strong tap root. It is pollinated by butterflies and bees, and in southern Sweden, has been considered as a potential indicator for species-richness in bees. It may be distinguished from *Succisa pratensis* (Devil's-bit Scabious) by the latter generally having dark bluish-purple flowers (those of *Knautia arvensis* are usually bluish-lilac) and more or less untoothed, entire stem-leaves (those of *Knautia*

arvensis are mostly pinnatifid). It may be distinguished from *Scabiosa columbaria* (Small Scabious) by the latter's smaller, slenderer appearance with corollas 5-lobed (4-lobed in *Knautia arvensis*).



Stem leaves, Bredhurst. Photo by David Steere, 10 July 2015

Variation in *Knautia arvensis*. Photos by David Steere: (top) Cuxton 26 June 2013; (bottom) Shoreham, 30 August 2015



