

# Kent Rare Plant Register

## **Draft** species accounts

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## Kent rare plant register

This section of the register covers:

*Lactuca saligna*

*Lathyrus aphaca*

*Lathyrus japonicus*

*Lathyrus linifolius*

*Lepidium campestre*

*Lepidium heterophyllum*

*Lepidium latifolium*

*Leymus arenarius*

*Linaria repens*

*Lithospermum arvense*

*Lobelia urens*

*Lotus angustissimus*

*Lythrum hyssopifolia*

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:

ADRH Tony Hare

ACH Andrew Henderson

AGS Trudy Side

AW Anne Wilkes

AWi Tony Witts

BBe Ben Benatt

BW Brian Woodhams

CO Colin Osborne

CS Cath Shellswell

DC David Carder

DCh Danny Chesterman

DG Doug Grant

DM Daphne Mills

EGP Eric Philp

FB Fred Booth

FR Francis Rose

GK Geoffrey Kitchener

GS Geoff Smith

JBe Jim Bevan

JRP John Palmer

JS Judith Shorter

LR Liam Rooney

MHD M.H. Dolling

OL Owen Leyshon

PH Peter Heathcote

RC Richard Carter

RG Bob Gomes

SB Sue Buckingham

SC Steve Coates

SDP S.D. Prince

SP Sue Poyser

TI Tim Inskipp

#### Other abbreviations:

BM Natural History Museum

herbarium

KBRG Kent Botanical Recording Group

KFC Kent Field Club

KWT Kent Wildlife Trust

MNE Maidstone Museum herbarium

RNR Roadside Nature Reserve

SLBI South London Botanical Institute  
herbarium



## *Lactuca saligna* L. (Least Lettuce)

Draft account

vc 15 and 16

### Rarity / scarcity status

*Lactuca saligna* is a nationally rare plant, designated as an **Endangered** species in both England and Great Britain as a whole. It currently grows in coastal areas, especially sea wall embankments, and was thought in the 1990s to be restricted to two populations, one in Rye harbour in East Sussex and the other at Fobbing in Essex. It transpires, however, that there are two colonies in Kent as well, which qualify it to be regarded as **rare** in the county.

Sheppey. Photo by Lliam Rooney, 27 August 2013

### Account

The first Kent record was given by John Ray in the second edition of his *Synopsis Methodica Stirpium Britannicarum* (1696), in which he refers to 'The least wild Lettuce or Dwarf-Gum-Succory' – 'By Mr. Dale it was found in Eriffe-Marshes in Kent'. Hanbury and Marshall (1899) identify a further record not far from Erith Marshes, at Plumstead Marshes (where abundant in 1873 and much collected at least from 1845 to 1884), together with others at Charlton (indicating a presence which probably extended through Woolwich Marshes to Plumstead Marshes); Cliffe; between Gravesend and Shornemead (and below the Fort); near Sheerness; between Herne Bay and Whitstable (it was much collected in the 1870s and 1880s at Whitstable); under Swalecliffe; at Seasalter; and Wouldham. Except for last record, for the tidal Medway valley, there is a clear pattern of distribution along the Thames valley, extending along the north coast. Hanbury and Marshall's assessment was that it was a rare species, a plant of marshes and shingly beaches.



This distribution subsequently thinned out, with still a range of occurrences by the 1940s, much fewer after the 1970s, and then diminishing to a point when it was thought to be gone. Records for the London area dropped off in the early 20<sup>th</sup> century, the last place being Stone Marshes (1903, 1925, 1935, 1955, 1967) where it is possible<sup>1</sup> that there was some recruitment from larger populations on the Essex side of the Thames. It was not recorded at Dartford Marshes after 1901. Further east, it survived longer and Francis Rose (in litt.) stated that "my notebooks make it clear that in the late 'forties and 'fifties *L. saligna* was plentiful in several years from about Shornemead fort to Higham Marshes, and again about Cliffe Creek and Cooling sea wall... then again plentiful both west of the 'Sportsman' for some way [Seasalter] and east of the pub behind the chalets along the road". There was continuity up to the 1971-80 survey of Philp (1982), with a spread in the Seasalter area and a series of records from Higham (where recorded 'in quantity' by Jim Bevan in 1976) along the Cliffe/Cooling coast (recorded by Tony Hare in 1978 as part of fieldwork for a paper, Prince & Hare (1981)<sup>2</sup>, in which colony size is given as about 100 plants, but there is reference to population fluctuations at Cliffe between 48 and 303 plants over a five year period).

<sup>1</sup> Per R.M. Burton, *Flora of the London Area* (1983).

<sup>2</sup> Prince, S.D. & Hare A.D.R., in (ed.) Synge, H. (1981). *The Biological Aspects of Rare Plant Conservation*, pp.379-388. BSBI.



After 1978, however, records dropped off. At least one site (Seasalter) was adversely affected by a storm, which had buried the *L. saligna* site on the sea wall in shells and sand<sup>3</sup>; subsequent unconfirmed records were discounted by Rosemary FitzGerald, when she reviewed the position in 1987<sup>4</sup>. It was her view that the losses after this time were attributable to major works in the 1980s on the sea walls which irrevocably changed the habitats in all the then known sites. The species was then considered extinct on the Kent shores of the Thames estuary although presciently Rosemary FitzGerald suggested the possibility of presence where not formerly recorded, and where habitat was less damaged, such as Elmley Marshes in Sheppey or in parts of the Isle of Grain.

This prediction was realised about 20 years later when (1999) Least Lettuce was found along the Yantlet Creek sea wall, which marks the beginning of the Isle of Grain; and in 2000 a sea wall survey commissioned by the Environment Agency located the species on Sheppey, alongside the Swale, near The Dray, which marks the beginning of Elmley Island. A re-assessment was undertaken in 2013, and Least Lettuce was found present at both sites.

At Sheppey, *Lactuca saligna* appeared to require bare or semi-bare terrain for establishment and most plants were found on the sea wall centred at the junction of the London Clay upper slope with the lower concrete batter, and in cracks in the concrete. Some of the plants in the concrete descended well down the slope towards the area of marine influence. The species was also growing scattered on the upper clay slopes which were only lightly vegetated and where there was some cracking and crumbling – partly due to the angle of slope and the drying out of the clay, but also due to cattle-trampling. The upper level plants tended to be smaller and it looked as though most were of current year's growth. The larger lower level plants were assumed to have over-wintered; and one specimen exhibited a thick woody stem base or upper tap root which suggested the possibility that it was behaving as a biennial. Associated plant species were very much as one might expect in such coastal grassland with some ruderality, but included rare plant register species *Bupleurum tenuissimum* (Slender Hare's-ear) and *Hordeum marinum* (Sea Barley).



Sheppey, habitat. Photos by Bob Gomes, 27 August 2013.

There is a strong contrast between this section of coastline and its continuation around Dray Bay. The continuing section is not cattle-grazed, the grass is high and there is minimal open ground within which *Lactuca* might establish. This emphasises the apparent fragility of the habitat of the *Lactuca* section and the importance of an appropriate grazing regime.

<sup>3</sup> Side, A.G. (1979). 26th August [1978] – Seasalter (meeting report). *Kent Field Club Bulletin* **24**: 23-24.

<sup>4</sup> FitzGerald, R. *Lactuca saligna* L. Least Lettuce. Unpublished NCC report, December 1987.



At the Isle of Grain site in 2013, following the sea wall northwards along Yantlet Creek, *Lactuca saligna* was not seen at the first location where found in 2000, but was picked up 20m or so further northwards, when plants were found on the west (creek-) facing wall on the upper parts of the London Clay slope, which was heavily poached by cattle with much broken, semi-open ground. Associated species reflected disturbance in a sub-maritime context, including *Beta vulgaris* subsp. *maritima* (Sea Beet), *Hordeum marinum* (Sea Barley), *Rapistrum rugosum* (Bastard Cabbage), *Sonchus oleraceus* (Smooth Sow-thistle) and *Torilis nodosa* (Knotted Hedge-parsley). On the inland side of the seawall (east or south-east facing) were eight plants, the only *Lactuca saligna* find on the inland side of the Yantlet Creek seawall. As the seawall turned eastwards, away from the creek and facing northwards to the Thames estuary, *Lactuca saligna* ceased to be recorded on the coast-facing seawall slope, which now changed its character, became dominated by coarser vegetation and at times was more influenced by the proximity of the sea wall. The species instead appeared on the inland upper (south-facing) slopes of the seawall, again on cattle-poached clay. The extent of occurrence eastwards was investigated in 2017, and further plants were found.

Grain, habitat. Photo by Geoffrey Kitchener,  
3 September 2013.



From the alignment of colonies at both Sheppey and Grain, it is possible to conclude that the species will tolerate quite close proximity to tidal water, but on south-facing sea wall slopes (as at the relatively sheltered Dray Bay on Sheppey) or west-facing (as at Yantlet Creek, also sheltered to a degree); not on north-facing sea walls fully exposed to the Thames estuary. An analysis by Prince & Hare (1981) in relation to populations at Fobbing, Essex, across the estuary also confirmed that the species occurred mostly on south-facing slopes. This may be related to more effective autumn germination on south-facing slopes providing larger and better established plants, and perhaps also to a competitive advantage in being able to survive in dry, exposed conditions in hot summers<sup>5</sup>. However, Prince & Hare also refer to Essex south-facing slopes having less vegetative cover and hence presumably more open ground for seedling establishment; but in Kent, this was only the case where the south-facing slope overlooked the tidal waters – where such a slope did not overlook, then presumably there were enough vegetation gaps for establishment, but there was not conspicuously less vegetative cover overall.

*Lactuca saligna* is an over-wintering or spring-germinating annual, and accordingly dependent on the presence of open ground for establishment. By analogy with the short period of seed viability for (Prickly Lettuce), namely a half-life of between 1.5 and 3 years, Prince & Hare (1981) supposed that re-establishment from buried seeds of Least Lettuce would be unlikely even after one year. The removal of cattle grazing for a year could accordingly be damaging for the plant's survival. Additionally, the species is exposed to the potential for climate-related vulnerability by virtue of being at the northern limit of its European distribution. It may need the hot, dry summers obtaining in the core of its general distributional range, and extending to south east England; but severe or prolonged winters may kill off the large, autumn-germinating plants and early spring-germinating ones, the main germination period in Essex (and presumably, Kent) being November to January.

<sup>5</sup> Suggested by Adams, K.J. and Hare, A.D.R. (1999. *Lactuca saligna* L. (Asteraceae), in (ed.) Wiggington, M.J., *Vascular Red Data Books 1 Vascular Plants*, 3<sup>rd</sup> edition. J.N.C.C., Peterborough.



This would leave the limited seed resource deriving from the small, later (up to May) spring-germinating plants. The species in Kent and its neighbouring counties therefore lacks resilience to catastrophe.

Sheppey. Photos by Liam Rooney, 27 August 2013



Identifying Least Lettuce is principally a matter of distinguishing it from *Lactuca serriola*. The former has a narrower inflorescence, more vertical in appearance, and its leaves are narrower, with a sagittate base, and the midrib below lacks the strong prickles of Prickly Lettuce. Often just as difficult as separating Least Lettuce from Prickly Lettuce, is separating sight of it from surrounding vegetation, especially when very small. This is compounded when the flowers close up, which takes place from about 11 a.m. – it is perhaps not surprising that the species is self-pollinating.

Site	Grid reference	Site status	Last record date	Recorder	Comments
Higham Marshes	TQ77C		After 1970, before 1981	GS, MHD & EGP, in Philp (1982)	
Cliffe Pools	TQ77D		(1) 1978 (2) 1977 (3) After 1970, before 1981	(1) ADRH (2) SDP (3) AGS & EGP in Philp (1982)	(1) TQ 712 778. (2) TQ 710 778. on landward side of sea wall over c.100 yd stretch immediately east [north?] of where the track meets the sea wall...with <i>Bupleurum tenuissimum</i> and <i>Torilis nodosa</i> . (3) Recorded as TQ77D.
Cliffe Marshes	TQ77E		After 1970, before 1981	AGS, in Philp (1982)	Lower Hope Point.
Cliffe/Cooling Marshes	TQ7479		(1) 1978 (2) After 1970, before 1981	(1) ADRH (2) AGS & EGP in Philp (1982)	(1) TQ 747 792. (2) Recorded as TQ77P.
Grain Marshes	TQ87P,U		(1) 17 August 2017 (2) 28 July 2017 (3) 3 September 2013 (4) 2000 (5) 9 September 1999	(1)& (2) BBe (3) GK (4) Carter Ecological (5) EGP & DG	(1) TQ 87558 78286, three plants. (2) TQ 86355 78446, one patch found with c.20 plants just in front of sea wall. (3)(a) 107 plants spread along about 85m of the Yantlet creek seawall, nearly all on the coastal slope. Fifteen plants were found on the west (creek-) facing wall from



					<p>TQ8584 7802 to TQ8585 7802, on the upper parts of the clay slope, which was heavily poached by cattle with much broken, semi-open ground. 12 more plants were recorded in a similar habitat between TQ85845 78027 and TQ85848 78032. On the inland side of the seawall (east or south-east facing) were a further 8 plants at TQ85897 78201. One plant each was noted on the west (creek-facing) side at TQ85837 78052 and TQ85836 78059. Between TQ85833 78078 and TQ85830 78092, there were 70 plants.</p> <p>(b) A total of 34 plants. At TQ86440 78480 there was one plant, between TQ86500 78512 and TQ86508 785147, 16 plants, and between TQ86567 78527 and TQ86580 78528 there were 7, and at TQ86602 78201 there were 10. All on the inland upper (south facing) slopes of the Thames estuary seawall, on cattle-poached clay.</p> <p>(4) Sea wall survey for Environment Agency. Two populations, one large and one small, in sites over a kilometre apart on the Isle of Grain. Grid references noted were TQ 8651 7851, TQ 8583 7813, TQ 8583 7803, TQ 8587 7794, TQ 9234 6910 and TQ 9242 6910.</p> <p>(5) Sea wall, TQ87P. There is also a record by FR for 1999 on Grain at TQ87, which may be the same.</p>
The Dray, Kingsferry, Sheppey	TQ9269		<p>(1) 2 August 2016</p> <p>(2) 27 August 2013</p> <p>(3) August-September 2000</p>	<p>(1) AWi</p> <p>(2) GK, LR &amp; RG</p> <p>(3) ACH &amp; RC</p>	<p>(1) TQ 923 691, 136 plants counted on Ferry Marshes seawall, Elmley NNR.</p> <p>(2) 1028 plants were counted, with individuals ranging from 3cm to 70cm high. The colony extended along about 190m of shoreline, scattered from TQ 92229 69095 to TQ 92434 69116. Plants were growing on the coastal (Swale) side of the sea wall, facing south and south-west. None was seen on the landward side, where vegetation was probably too dense. The lower parts of the seawall slope were stone, covered with concrete; the upper parts were vegetated London Clay. Most plants were centred at the junction of the clay upper slope with the lower concrete batter, and in cracks in the concrete. Some of the plants in the concrete descended well down</p>



					<p>the slope towards the area of marine influence. The species was also growing scattered on the upper clay slopes which were only lightly vegetated and where there was some cracking and crumbling - partly due to the angle of slope and the drying out of the clay, but also due to cattle-trampling. Associated species included: <i>Beta vulgaris</i> subsp. <i>maritima</i>, <i>Bromus hordeaceus</i>, <i>Bupleurum tenuissimum</i>, <i>Cynosurus cristatus</i>, <i>Dactylis glomerata</i>, <i>Helminthotheca echioides</i>, <i>Hordeum marinum</i>, <i>Lathyrus nissolia</i>, <i>Lolium perenne</i>, <i>Phleum bertolonii</i>, <i>Plantago lanceolata</i>, <i>Poa humilis</i>, <i>Potentilla reptans</i>, <i>Scorzoneroideis autumnalis</i>, <i>Senecio erucifolius</i>, <i>Torilis nodosa</i>.</p> <p>(3) Part of an Environment Agency sea wall survey. North of the Swale along a rather dry and small/old section of bank at Dray Bay. In very sparse vegetation, dotted along quite a length (100m+ possibly) and including some 'patches' of more than isolated plants.</p>
Cleve Marshes	TR0464		1979	EGP	Record is given as Seasalter, but with Cleve Marshes gridreference. It is probably the same as TR06M, 'Seasalter area' in Philp (1982), and is likely to be west of the Sportsman, where known to FR (possibly the same as FR's record at Graveney beach, 1945, although this may instead relate to the following TR0664 site).
Graveney Marshes	TR0664		19 September 1965	BW	Landward side of sea wall, including in its cracks, plus some plants on level below.
Seasalter	TR06X		1979	EGP	TR 090 640 and TR 090 649. Also known to FR on the seawall, 1944.



## *Lathyrus aphaca* L. (Yellow Vetchling)

Draft account.

vc 15 and 16

### Rarity / scarcity status

*Lathyrus aphaca* occurs locally in southern England, especially the south east, and occurrences further north tend to be casual introductions. It is considered to be possibly native where there are persistent populations on calcareous ground, especially by coasts; but it may not be easy to differentiate from introduced origins, such as a contaminant of legume crops, as suggested in *The New Atlas of the British and Irish Flora* (2002), or possibly amenity sowings with seed mixes including legumes. The species is nationally **scarce** and is considered to be **Vulnerable** to the risk of extinction, both in England and Great Britain as a whole; in England its area of occupancy is taken to have declined by 31% in comparing records for the periods 1930-69 and 1987-99. In Kent, there appears to have been a decline of 40% between the surveys in Philp (1982) and Philp (2010),



but not to a level which would give rise to any ranking of local rarity or scarcity.

Springhead, near Ebbsfleet.

Photo by Geoffrey Kitchener, 4 June 2015

### Account

The first Kent record for *Lathyrus aphaca* is by Thomas Johnson, who mentioned it as seen on the return leg of his second Kent journey, *Descriptio Itineris* (1632), from Faversham to Gravesend via Sittingbourne and Rochester. It is quite possible that he had seen it before then, but not mentioned it in either of his journey accounts, as Johnson was responsible for a 1633 revision of John Gerard's *Herball*, and there refers to the species as being 'in the corne fields about Dartford in Kent and some other places'. Whilst John Parkinson's *Theatrum Botanicum* (1640) has a higher reputation than Johnson's revision, its reference to *Lathyrus aphaca*, that 'It groweth in divers corne fields in Kent' adds nothing more, and may be derivative. The arable association may well be indicative of introduction through seed contamination. Hanbury and Marshall (1899) gave relatively few records and regarded the species as a colonist or casual of fields, banks and roadsides, rare and seldom permanent. There are a few Victorian herbarium specimens from the Folkestone area, but not the range of finds that might be expected if the species were other than rare. The *Woolwich Surveys* (1909), which covered north west Kent, took the view that there were only very old and more than doubtful records. So, whilst the earliness of the seventeenth century citations would normally offer some support to a case for native occurrence, their references to cornfields do not suggest native habitat, and the other evidence is not particularly helpful to such a case.

Springhead, near Ebbsfleet. Photo by Lliam Rooney, 4 June 2015



There are specimens in **MNE** which include some from the 1950s and 1960s, but not suggesting any discernible distribution pattern. Philp (1982) recorded presence in 20 tetrads, mostly in the Dartford/Swanscombe area, but also from Sandwich to St Margaret's-at-Cliffe – on dry banks, sea walls and waste ground. Yellow Vetchling was given as native (which is what the standard Floras then stated), 'although perhaps introduced in some locations'. During the 1991-2005 survey (Philp, 2010), however, the species was not recorded at all in far

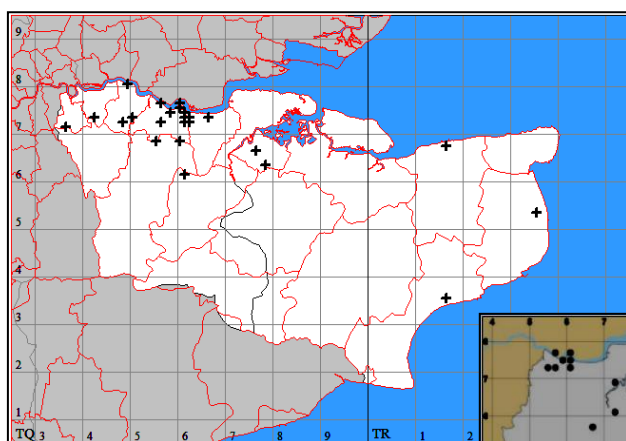


eastern Kent, there was a thin scattering from the Medway Towns towards Maidstone, and a residual clump of records continuing in the Dartford/Swanscombe area. The total had then reduced to 12 tetrads, and the species was described as native without qualification, present usually on the chalk or near the coast. It is unclear whether this description represents a change of mind about the plant's status. Even in the species' core north west Kent area, the judgment is not easy to make. Roadside records may represent the continuance of old grassland; but equally, it is a habitat where sowing after roadworks may have been undertaken. There are (2015) enormous quantities of Yellow Vetchling on the Swanscombe peninsula, with an air of wildness, but they are accompanied by much *Medicago sativa* (Lucerne) which may be indicative of general legume sowing; this area was historically saltmarsh, with levels changed by tipping and the operation of cement factories, so that the habitat is not indicative of historic continuity for the species. Equally, the large quantities around the HS1 rail link near the A2 south of Northfleet, accompanied by other legumes, may be indicative of sowing, given the major landscape changes in this area, although recognizing that some of these changes have been relatively recent. However, Rodney Burton remarked in the *Flora of the London Area* (1983) that 'it is very abundant and persistent around Northfleet station, but it was not there at all 30 years ago'.

Springhead, near Ebbsfleet. Photo by Liam Rooney, 4 June 2015



Recording from 2010 to 2017 has affirmed the 1991-2005 distribution, with records made in 21 tetrads (the equivalent of 24 monads), mostly clustered near the Thames in north west Kent, as shown in the accompanying 2010-17 distribution map, but with a scattering in East Kent, which Philp (2010) did not have. As *Lathyrus aphaca* is not uncommon, at least in West Kent, the distributional data maintained in this register will be, as shown, 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), which also differs by omitting metropolitan vc16 as being outside the administrative county.



*Lathyrus aphaca* (Yellow Vetchling) 2010-17

*Lathyrus aphaca* (Yellow Vetchling)  
1991-2005



*Lathyrus aphaca* is an autumn-germinating annual, flowering from May to August. Whilst it is widespread in Europe, north Africa and Asia, its presence in Belgium, The Netherlands and Germany at least is believed to be as an introduced species<sup>6</sup>. It is a distinctive plant by virtue of its yellow flowers, and the large, hastate stipules which function as leaves paired up the stem (the true leaves have been reduced to a tendril).

<sup>6</sup> Rumsey, F.J. (1994). *Lathyrus aphaca* L., in (eds.) Stewart, A., Pearman, D.A. & Preston, C.D., *Scarce Plants in Britain*. JNCC.



## *Lathyrus japonicus* Willd. (Sea Pea)

Draft account.

vc 15

### Rarity / scarcity status

Sea Pea is not infrequent on shingle beaches in the south and east of England and also has a presence on the south coast of Ireland, being very scattered and local elsewhere in the British Isles. Its restricted habitat and range means that it is nationally **scarce**, but as its populations are generally stable, its conservation risk status is regarded as of 'Least Concern', both in England and Great Britain as a whole. It is not known in West Kent, and in East Kent it is **scarce**.



Dungeness. Photo by Heather Silk, 8 May 2011

### Account

The first printed Kent record for Sea Pea is in John Parkinson's *Theatrum botanicum* (1640) as growing 'neere Rumney'. He also mentions another sort of Sea-pea (which does not seem separable) 'at Gilford, in Kent, over against the Comber', which is more likely to be in East Sussex. Gilford is the pronunciation for Guldeford, and Comber would have been equivalent to the Camber, a large bay which became reclaimed and silted-up behind present-day

Camber village. Early records run from Sandwich to Kingsdown, and then New Romney, Lydd and Dungeness; but Hanbury and Marshall (1899) considered that it was very rare, seemingly extinct at some of the old stations, although it might perhaps be found at Dungeness and Kingsdown in small quantity. Records have indeed continued to be made from those locations.

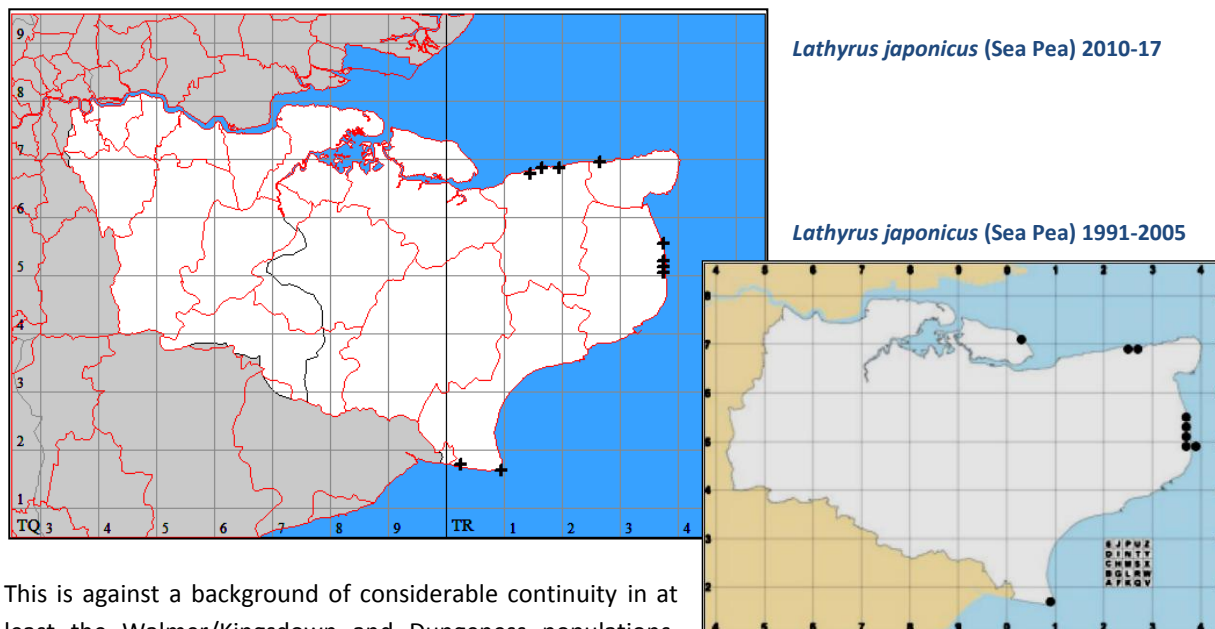
*Lathyrus japonicus* was first found on the north Kent coast by Francis Rose, who collected material in 1949 from a shingle beach at Plumpudding island, west of Birchington, and from a beach north east of Shuart (these may be the same location, as also on a shingle beach, St Nicholas at Wade, 1962). It was thought that, from being 'in local plenty' in the 1960s, it had been eliminated due to inroads by the sea and the erection of a new sea wall (Randall, 1977)<sup>7</sup>. However, there have been sporadic finds to follow, and Philp (1982) gave two north coast records, as well as at Kingsdown, Hythe and Dungeness, to produce a total of eight tetrad records in the county for the 1971-80 survey.

The total of nine records for the 1991-2005 survey (Philp, 2010) suggests stability, but only five of those were for identical tetrads, and of the others, Sea-pea had now been found on Sheppey, at Leysdown-on-Sea.

<sup>7</sup> Randall, R.E. (1977). The past and present status and distribution of Sea Pea. *Lathyrus japonicus* Willd., in the British Isles. *Watsonia* 11: 247-251.



Similarly, the records for 2010-17 (comprising nine tetrads) are not fully coincidental with those for 1971-80 or 1991-2005: they include three tetrads which feature in neither of the previous surveys. The implication seems to be, subject to the relative completeness of each survey, that within the limits imposed by suitable habitat, Sea Pea is fairly mobile in its occurrences within parts of east Kent.



This is against a background of considerable continuity in at least the Walmer/Kingsdown and Dungeness populations.

The former was present at least by 1801, when Lewis Dillwyn read to the Linnean Society his *Catalogue of the more rare Plants found in the Environs of Dover, with occasional Remarks*<sup>8</sup>, with a reference to Sea Pea 'On the beach between Walmer Castle and Kingsdown'.



The Dungeness population was recognized in the 1695 and subsequent editions of Camden's *Britannia*, and that of 1701 states 'From hence the Shore turning, goes directly Westward, and has a sort of Pease which grows in great Plenty, and naturally amongst the Pebbles, in large Bunches like Grapes, in Taste, differing very little from Field-Pease'. Randall (1977) mentions that 'East of Dungeness power station, E. Kent, there is a colony which has increased considerably between 1946 and 1973, though two other colonies nearby known in the 1940s have now apparently disappeared'.

Deal. Photo by Sue Buckingham, 2011

There are still large quantities present at Dungeness – see table below. The series of Dungeness patches present in 2015 have been there, more or less as they are, for the previous 20 years or so without getting any bigger and, if anything, they are becoming weaker and more straggly, with discoloured leaves (pers. comm., Owen Leyshon).

The easternmost of this grouping is a patch behind the new lighthouse, c. TR 096 168, and there have been no recent records for the 6km stretch of shingle coastline running northwards towards Greatstone, which seems surprising, particularly in view of the considerable accretion of shingle in recent winters in the lifeboat station

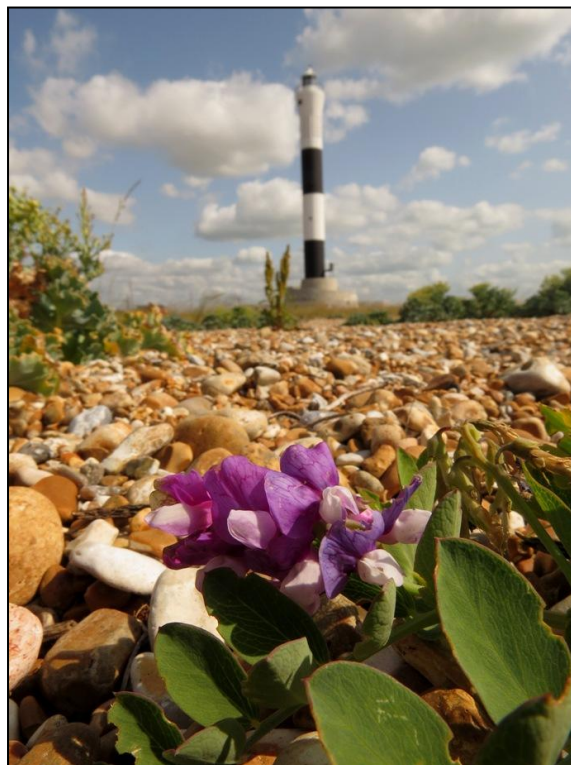
<sup>8</sup> L.W. Dillwyn, in (1802) *The Transactions of the Linnean Society of London* 6: 177-184.



area and the absence of sea defence works here. Further north, at Hythe Ranges, there have been significant sea defence works in the last 20 years which have severely reduced the ability for strandline vegetation to expand here.

Dungeness. Photo by Daphne Mills, 9 July 2015

It is a perennial of bare or semi-vegetated shingle beaches. Small populations may be susceptible to trampling where there is pressure of beach visitors<sup>9</sup>. It is said that the species is capable of growing on sand, but our Kent observations have been in relation to plants in the usual bare shingle habitat, sometimes where plentiful extending in a zone along a shingle bank or ridge, always above high tide mark. Zoned bands, 50m long (at Walmer) and 100m long (near Birchington) have been noted. The plants are often unaccompanied, being the first colonists of the shingle, penetrating it with their deep tap root, which may grow to 2m; but the decay of its foliage can result in organic matter accumulating with a Sea Pea patch, so as open the way for colonization by other shingle plants.<sup>10</sup> Although growing above high tide mark, plants need to be within reach of storm surges to enable sea dispersal, although it may be that wind dispersal accounts for some local spread.



It is not a species which is readily capable of confusion with any other.

Site	Grid reference	Site status	Last record date	Recorder	Comments
Dungeness	TR01Y		(1) 3 July 2011 (2) 4 June 2011 (3) 30 September 2010 (4) 27 June 1996 (5) After 1970, before 1981	(1) & (2) TI (3) SB (4) EGP (Philp, 2010) (5) Philp (1982)	(1) TR 09017 16677. An isolated population of 120 plants west of others, by old coastguard tower. (2) TR 09195 16744 to TR 09480 16884 (E-W, each side of boardwalk). 2490 plants, most on bare shingle. Plants furthest from sea very sparse and leaves discoloured. (3) TR 09284 16818, Plants spread over area of shingle, 7m x 2m. (4) & (5) Recorded as TR01Y.
Lydd Ranges	TR0217		(1) 3 September 2017 (2) 7 August 2012	(1) BBe (2) TI	(1) TR 02575 17388, 10 x 6m patch. (2) -
Leysdown-on-Sea	TR07F		!991-1999	EGP (Philp, 2010)	
Seasalter	TR0965		21 April 1995	AW	Sherrins Alley, TR 097 657.
Hythe	TR13G		After 1970, before 1981	Philp (1982)	

<sup>9</sup> Akeroyd, J.R. (1994). *Lathyrus japonicus* Willd., in (eds. Stewart, A., Pearman, D.A. & Preston, C.D.) *Scarce Plants in Britain*, JNCC.

<sup>10</sup> Brightmore, D & White, P.H.F. (1963). *Lathyrus japonicus* Willd. Biological Flora of the British Isles, *Journal of Ecology* **51**:795-801.



Hythe Ranges	TR13L		After 1970, before 1981	Philp (1982)	
Whitstable	TR16D		After 1970, before 1981	Philp (1982)	
Swalecliffe	TR1467		(1) (2) 31 July 2014	(1) & (2) CO	(1) One patch still present as before. (2) One patch on middle beach at c. TR 145 677, about 2 sq. m.
West of Herne Bay	TR1668		(1) (2) 21 July 2014	(1) & (2) CO	(1) One patch still present as before. (2) One patch on middle beach at TR 1615 6825, about 1 sq. m.
North of Beltinge	TR1968		(1) 3 May 2014 (2) 31 August 2013 (3) 23 July 2012 (4) 19 August 2011 (5) 4 September 2009	(1) -(5), CO	(1) As below, six small plants. (2) As below, now covering over 1 sq.m. Very sparse and well eaten but spreading, no flowers this year, six plantlets present. (3) As below, now a small patch less than 1 sq.ft., but flowering (4) At c.TR 198 686, three plants in eastern rocky bay; one pod seen. (5) At c.TR 198 686 in eastern of three bays containing sea defence boulders. No flowers and possibly first year. 1-2 small plants.
Wade Marshes	TR26P		1991-98	EGP (Philp, 2010)	
West of Birchington	TR26U		(1) 1 July 2013 (2) 30 September 2010 (3) 1991-98 (4) After 1970, before 1981	(1) CO (2) SB (3) EGP (Philp, 2010) (4) Philp (1982)	(1) All over shingle between lagoon and sea. Also, spread west of lagoon along top of shingle beach. Abundant. (2) (a) TR 26559 69200 to TR 26667 69206, a 100 m long stretch of plants between these two grid references, all along top of a shingle bank which protects a small salt marsh. (b) TR26430 69205, 50 metre long stretch of plants at top of shingle beach - estimated 150 plants. (3) & (4) Recorded as TR26U.
Kingsdown	TR34U		(1) 1991-98 (2) After 1970, before 1981	(1) EGP (Philp, 2010) ( ) Philp (1982)	
Kingsdown	TR34Z		(1) 24 September 1999 (2) After 1970, before 1981	(1) EGP (Philp, 2010) (2) Philp (1982)	
Walmer	TR35Q		(1) 2 May 2015 (2) 17 October 2011 (3) 16 August 2011 (4) 16 July 2011 (5) 23 July 2010 (6) 1991-98 (7) After 1970, before 1981	(1) KFC meeting (2) & (3) SB (4) KBRG meeting (5) SC (6)EGP (Philp, 2010) (7) Philp (1982)	(1) TQ3750. (2) (a) >10 large patches of plants on shingle ridge from TR 37904 50477 north to TR 37868 50761. (b) Patch of plants 12m x 6m, somewhat swamped by <i>Centranthus ruber</i> and <i>Arrhenatherum elatius</i> . (3) 15 patches of plants on shingle beach from TR 37850 51899 to TR 37855 51997, the largest



					<p>containing more than 100 plants.</p> <p>(4) (a) Large numbers of plants forming a band on top of shingle beach between TR 37924 50370 and TR 37914 50402.</p> <p>(b) Top of shingle beach at TR 37931 50302.</p> <p>(5) TR 379 503, extensive on beach, between castles.</p> <p>(6) &amp; (7) Recorded as TR35Q.</p>
Deal	TQ35R		<p>(1) 29 October 2011</p> <p>(2) 16 August 2011</p> <p>(3) 12 June 1999</p>	<p>(1) &amp; (2) SB</p> <p>(3)EGP &amp; JBe</p> <p>(Philp, 2010)</p>	<p>(1) Patch about 1 sq. m. on high shingle ridge above sea, TR 37165 55539. Also three small plants at top of shingle beach, TR 37354 55032.</p> <p>(2) Patch covering 10m x 10m of shingle beach, TR 37852 52045. Also three patches of plants on shingle, TR 3785 5202.</p> <p>(3) Recorded as TR35R.</p>
Deal	TQ35S		4 August 2000	EGP & PH (Philp, 2010)	

Deal. Photo by  
Sue Buckingham,  
2011





## *Lathyrus linifolius* (Reichard) Bässler (Bitter-vetch)

Draft account.

vc 15 and 16

### Rarity / scarcity status

*Lathyrus linifolius* is widespread in the British Isles, in wood-borders and hedgerows, although absent from East Anglia and central Ireland. In Great Britain as a whole its conservation risk status is regarded as one of 'Least Concern', but in England the rate of its decline is such that 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 29% in the likelihood of recording the species. A decline, albeit over a different period, is also shown by Kent data, the number of recorded tetrads having dropped by 63% between 1971-80 and 1991-2005. The species is still not sufficiently uncommon in Kent to merit being designated as rare or scarce, but the apparent rate of decline is concerning.



### Account

The first Kent record for *Lathyrus linifolius* is by John Ray, in his *Catalogus Plantarum Angliae* (1670), where he writes of Wood-pease or Heath-pease 'In sylvis & dumetis Cantii'<sup>11</sup> [in woods and thickets of Kent]. Other old records treat it as common, e.g. Edward Jacob's *Plantae Favershamienses*, 1777 (*In Jud's Wood – very common*); Thomas Forster's *Flora Tonbrigensis* 1816 ('In woods, common'); (Gerard Smith's manuscript notes 1830-33 ('Upon the clay cap of the chalk, at Stowting, etc. The variety of this plant with linear elongate leaves occurs in North Kent, and upon Seal heath, between Wrotham &



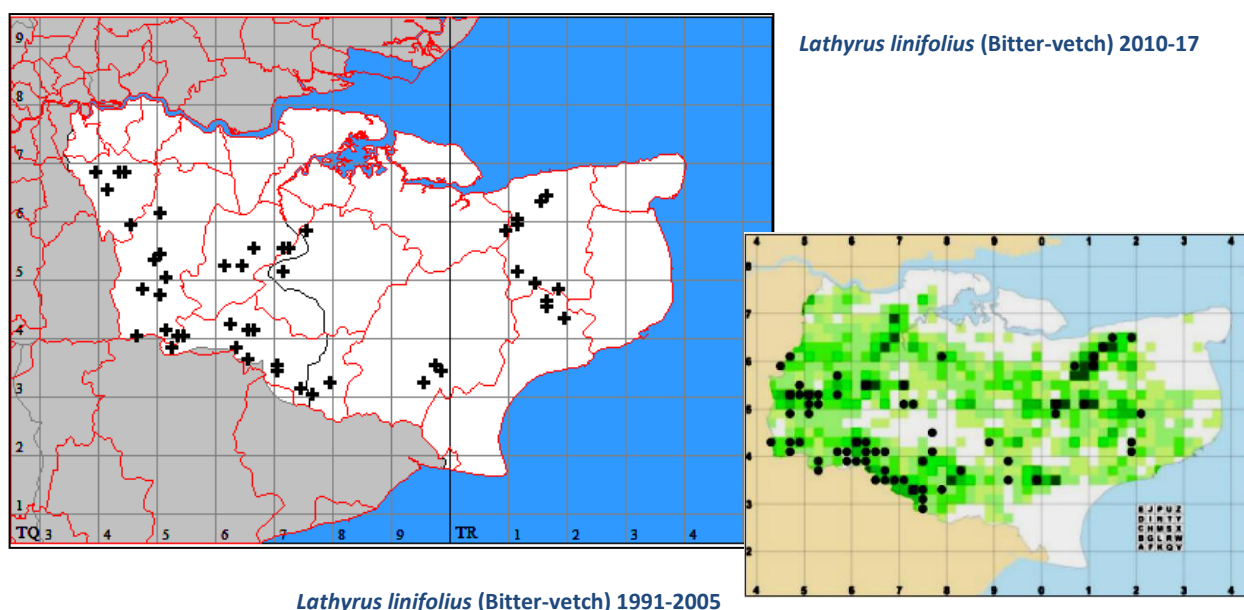
Riverhead'). Hanbury and Marshall (1899) assessed the species as very common, particularly in the Wealden districts, in woods, copses and bushy places.

Fishpond Wood near Dunkirk. All photos by Liam Rooney, 23 April 2011

Bitter-vetch remained locally frequent at woodland edges and rides, and in sheltered roadside banks, particularly on the more sandy soils, until the 1971-80 survey in Philp (1982), when it was found in 167 tetrads. However, the 1991-2005 survey (Philp, 2010) produced only 62 tetrads, still with a clear woodlands association but largely retreating to the area around Canterbury and Wealden south west Kent. The reasons for decline are not apparent, but the decline itself is shared with other species of fairly infertile soils.

<sup>11</sup> There seems to be some confusion in Hanbury and Marshall (1899), where they give the date of Ray's *Catalogus Plantarum*, first edition, as 1673, which is actually the date of Ray's *Catalogus Stirpium in Exteris Regionibus* instead. The Latin extract has also been mangled – 'spumetis' [foaming] instead of '& dumetis'.





The 1991-2005 distribution is given in the accompanying map reproduced with kind permission of the late Eric Philp and the Kent Field Club), in which records are correlated with green woodland density marking. In comparison, the 2010-17 distribution map, which differs in providing records at 1 km square (monad) level and in including metropolitan vc16, also shows an attenuated distribution, but even fewer records (47 monad records, corresponding to 46 tetrads). It would, however, be premature to assume further decline without further time for recording.

Recent records have mostly been on roadsides or banks passing through woodland, but have also been in other marginal situations with woodland shading, but some exposure: by woodland rides or tracks or a woodland edge. The species is regarded as an ancient woodland indicator. There is insufficient heathland in the county to afford significant alternative habitat for it.

The species has been treated as giving rise to three varieties: var. *montanus* (our usual plant); var. *variifolius* (of which no Kent records have been traced); and var. *linifolius* (a narrow-leaved form, with a number of records in Hanbury and Marshall (1899) under *L. montanus* b. *tenuifolius*, including note of a herbarium specimen gathered by Gerard Smith, which is likely to correspond with the latter's note of a variety at Seal, mentioned above).

*Lathyrus linifolius* may be recognized as having a winged stem (as distinct from merely angled) and 2-4 pairs of narrow leaflets with a small point at the end of the leaf stalk instead of a tendril. It often grows in similar habitats, but not so wide-ranging, as another purple pea-flower, *Vicia sepium* (Bush Vetch). The latter has more, wider and blunter leaflets, branching tendrils and smaller, half arrow-shaped stipules.

*Lathyrus linifolius* stipule. Photo by Liam Rooney, 23 April 2011





## *Lepidium campestre* (L.) W.T. Aiton (Field Pepperwort)

Draft account.

vc 15 and 16

### Rarity / scarcity status

Field Pepperwort is an archaeophyte, or ancient introduction (although the evidence for this appears limited, except for its association with arable cultivation), scattered but locally common in the British Isles, less frequent in the north and west including Ireland. Whilst its conservation risk status is one of 'Least Concern' in Great Britain as a whole, in England the rate of its decline is such that 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 21% in the likelihood of recording the species. In Kent, the decline between the two surveys of 1971-80 and 1991-2005 is in the order of 50%, which would more than support the English risk rating. The number of sites in the county, however, is such that would not normally qualify as rare or scarce, but clearly its status is such that records are worth monitoring.

Ranscombe. Photo by Lliam Rooney, 9 June 2010.

### Account

In Kent, the first published record for *Lepidium campestre* was said by Hanbury and Marshall (1899) to be by Thomas Johnson in 1629. However, Francis Rose, in the 1972 edition of Johnson's *Iter Plantarum*, expressed the view that, from Johnson's other writings, *Thlapsi arvense* (Field Penny-cress) seems to have been intended. Both taxa were long included under *Thlapsi* (pre- and post- Linnaeus), and both were called Mithridate Mustard, which leaves some scope for confusion. The next earliest potential record traced is that of Thomas Forster in *Flora Tonbrigensis* (1816), who refers to it as 'Among corn, very common', but as his stations were 'Withyham, on the High Rocks, [both in Sussex] and elsewhere', it is ambiguous as to whether 'elsewhere' includes Kent, although this is likely, if very common.

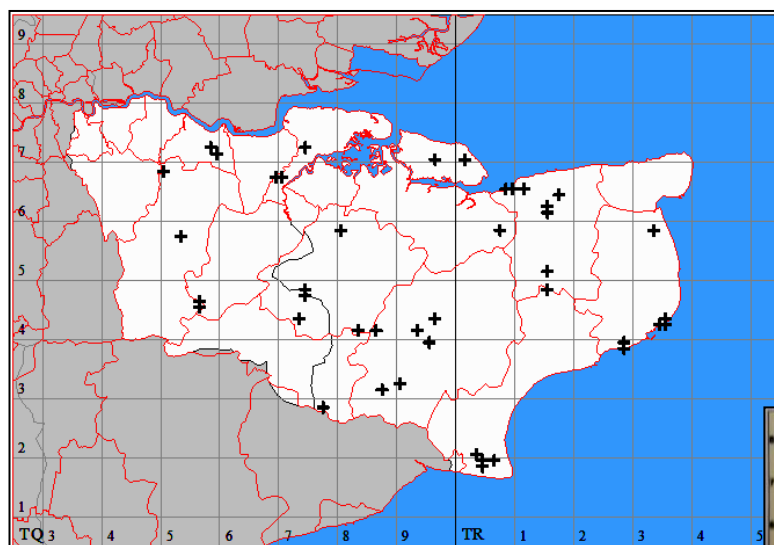


Hanbury and Marshall (1899) regarded Field Pepperwort as so abundant that they gave virtually no specific records, referring to it as common in all the districts, especially on heavy soils, and found in fields and on banks, etc. Records in the first half of the 20<sup>th</sup> century are not abundant either, in spite of the frequency of the species, although there is in **SLBI** a specimen collected by Ted Lousley in 1933 from near Ranscombe, where it still grows. It was treated in Philp (1982) as rather local – there were clearly gaps in distribution, such as east of Ashford, and it was commonest in north Kent and, albeit scattered, the Weald. It was recorded in 120 tetrads, growing at roadsides, arable fields and waste places. In the 1991-2005 survey (Philp, 2010), however, it was only found in 60 tetrads, looking native (in spite of its archaeophyte status) in open grassland, roadside verges and arable fields. The accompanying distribution map for this period is provided with kind permission of the late Eric Philp and The Kent Field Club.

Bough Beech. Photo by David Steere, 10 June 2014.



Field Pepperwort records for this register will be maintained on a 1 km square (monad) basis, in view of the relative frequency of the taxon. The 2010-17 data are mapped here, and provide only 42 monad records, equivalent to 37 tetrads. This is suggestive of further decline, subject to what may be forthcoming from continued surveying for comparison.



*Lepidium campestre* (Field Pennywort)  
2010-17

*Lepidium campestre* (Field Pennywort)  
1991-2005



*Lepidium campestre* is an annual, sometimes perhaps biennial, with most seeds germinating in March and April. Some seedlings may continue to emerge until late autumn, and those plants which over-winter are often larger and more robust. The species differs from *Thlapsi arvense* (Field Penny-cress) in being hairy, having only one seed per valve and bearing swollen, pimple-like cells (vesicles) on the valves. The differences from *Lepidium heterophyllum* (Smith's Pepperwort) are dealt with under the account of that species.



Dover. Photo by David Steere, 29 April 2017



## *Lepidium heterophyllum* Benth. (Smith's Pepperwort)

Draft account.

vc 15; apparently gone from vc 16

### Rarity / scarcity status

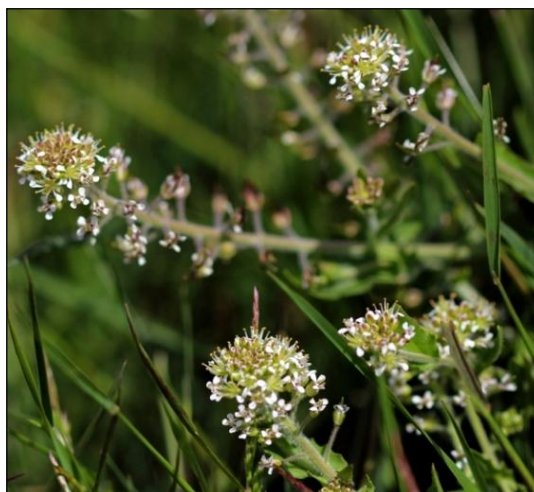
*Lepidium heterophyllum* is widespread in the British Isles, but predominantly in western Britain and in the east and south of Ireland. Its conservation risk status in England and in Great Britain as a whole is one of 'Least Concern'. The position is very different in Kent and some parts of eastern England, where it is absent or very local. On the basis on the data in Philp (2010) the species would be treated as rare in East Kent, but its status is better regarded as **scarce**. It is absent from West Kent.

### Account

*Lepidium heterophyllum* was not, as pointed out by Hanbury and Marshall (1899), separated from *Lepidium campestre* (Field Pepperwort) by the older botanists, so that the first published record which they identified was a listing in H.C. Watson's *Topographical Botany* (given as 1873, although the listing seems not present in that edition, but appears for West Kent in that of 1883). However, they identify a Lydd beach specimen dated 1861 from the herbarium of John Stuart Mill as being this species. Contributors to Hanbury and Marshall's Flora produced a range of records across the county, and the species was assessed as being uncommon (but perhaps more common than reports suggested) on banks and open ground on dry, light soils. Those soils included sand (a sandy field near Sandwich), chalk (a bank near Lenham) and presumably shingle (Lydd beach).

Subsequent West Kent records were thin on the ground. It was regarded as common on Hayes Common in 1903 (W.H. Griffin in the *Woolwich Surveys*, 1909) and subsisted at Hayes at least until 1938, when seen by David McClintock, as also at West Wickham. It was reported by P.H. Cooke near Romney Street in 1933.

Dungeness. Photo by David Steere, 15 June 2016



Smith's Pepperwort was found near the Bird Observatory at Dungeness by Francis Rose in 1956, on old shingle workings, and the Dungeness/Lydd area has provided the most consistent records in the county. Indeed, this was the only area where its presence was recorded in Philp (1982), given in three tetrads. In the 1991-2005 survey (Philp, 2010), the species continued to be recorded in just one of these tetrads. However, a further site was found, on fixed sand dunes at Pegwell Bay. Finds in the period 2010-17 have been limited to the Dungeness/Lydd area.

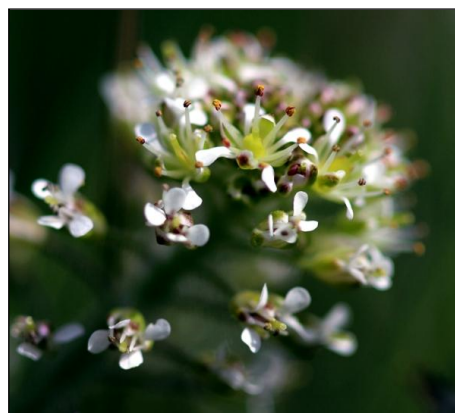


Dungeness, habitat. Photo by David Steere, 15 June 2016

The species is a biennial or more usually perennial, of dry, well-drained, open habitats – sand dunes, shingle, stony and gravelly ground. Because the national distribution is



primarily western, this suggests that it is favoured by higher rainfall than is experienced in Kent, even though precipitation drains rapidly through its substrate. It is not always easy to distinguish from *Lepidium campestre*, especially if fruits are not well developed. The latter is an annual, branched above; *L. heterophyllum* is generally perennial, branching at the base. The style of *L. heterophyllum* usually projects well beyond the notch at the top of the valve; that of *L. campestre* barely projects beyond, if at all. The valves of *L. heterophyllum* may have no swollen, pimple-like cells on the surface (vesicles), or relatively few; those of *L. campestre* are generally well covered with vesicles.



Dungeness. Photo by David Steere, 15 June 2016

Site	Grid reference	Site status	Last record date	Recorder	Comments
Lydd south	TR01P		After 1970, before 1981	Philp (1982)	
Dungeness (Boulderwall Farm area)	TR01U		(1) 3 July 2011 (2) After 1970, before 1981	(1) TI (2) Philp (1982)	(1) TR0719. (2) Recorded as TR01U.
Dungeness (lighthouse area)	TR01Y		(1) 15 June 2016 (2) 2010 (3) 27 June 1996 (4) After 1970, before 1981	(1) DS (2) TI (3) EGP (Philp, 2010) (34 Philp (1982)	(1) TR0817, Long Ponds south west. (2) TR0817. (3) & (4) Recorded as TR01Y.
Lydd	TR0521		27 July 2012	OL	
South of Lydd-on-Sea	TR0819		30 May 2012	OL	
Pegwell Bay	TR36G		3 June 1999	EGP & DG (Philp, 2010)	Fixed sand dunes.



## *Lepidium latifolium* L. (Dittander)

Draft account.

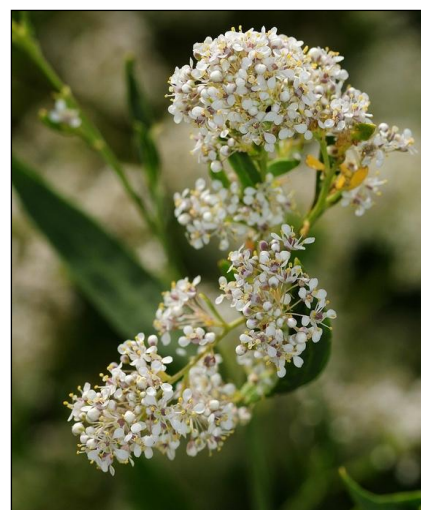
vc 15 and 16

### Rarity / scarcity status

Dittander is considered to be a native plant in coastal locations in Kent and East Anglia, the Severn and the odd spot on the south coast. Elsewhere it has a scattered casual distribution. In England and Great Britain as a whole, its conservation risk is regarded as one of 'Least Concern', although it is a **nationally scarce** plant (i.e. recorded in from 16 to 100 hectads - presumably this is on the basis of its assumed native distribution). In Kent it is neither rare nor scarce.

### Account

The first record of Dittander in Kent appears to be a comment by Thomas Johnson in his *Mercurialis Botanicum* (1634) that 'I found it upon a banke between *Feversham towne* and the Haven'. It is still present on Faversham Creek (2012), although this does not necessarily represent the 1634 site. Christopher Merrett, in his *Pinax rerum naturalium Britannicarum* (1666) claimed that it was 'On most of the Ditches in the *Isle of Thanet*'. Thanet is not now notable for its ditches, other than where the ground descends to the Stour and Wantsum where there is still some Dittander, but it is possible that the terrain here was much more brackish and suitable for Dittander when the remains of the Wantsum Channel (which ceased to be navigable as a sea connection in 1672) continued in being.



Seasalter. Photo by Liam Rooney, 2 August 2010

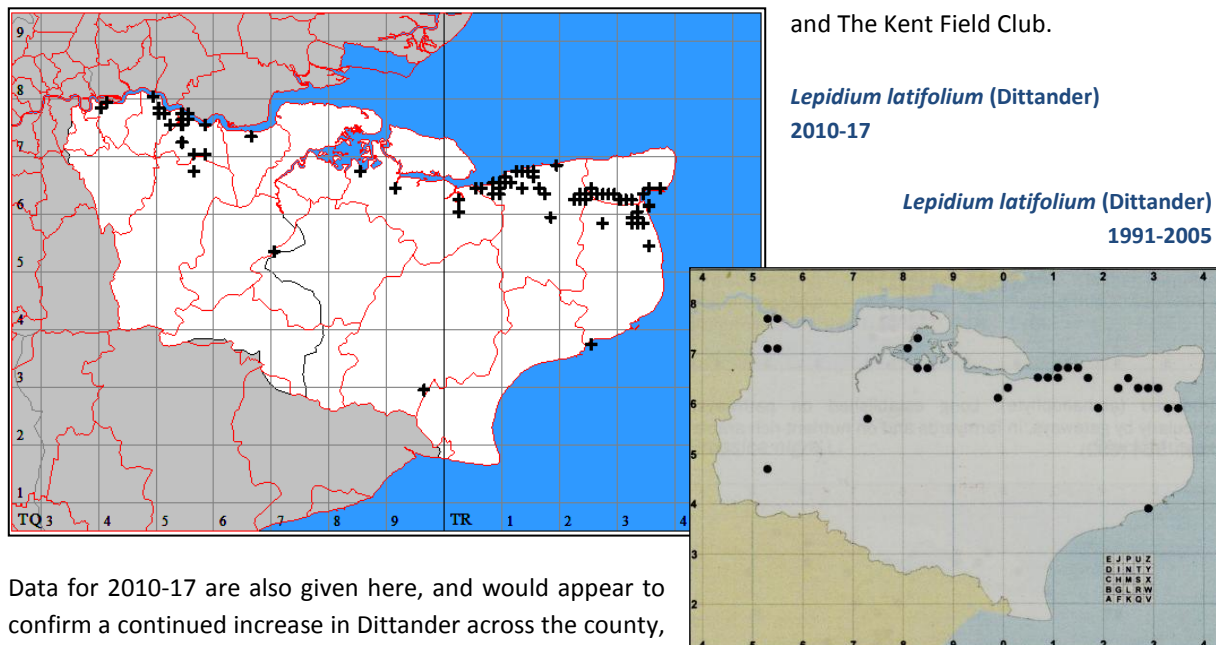
Hanbury and Marshall (1899) assessed it as a rare and local native, growing on banks near the sea and tidal waters, and they considered it evidently rarer then than it had been formerly. In one or two stations they considered that it might possibly be a relic of cultivation. This dual status was also apparent in the days of Thomas Parkinson who in his *Theatrum Botanicum* (1640) said that the species 'is found naturally growing in many places of this Land, as... upon *Rochester Common* in *Kent*... and in other places, but is usually kept in Gardens'. The early herbals attributed culinary and medical properties to the plant: the former because of the peppery taste of leaves and roots (hence Pepperwort was an alternative name), and the latter, for the supposed beneficial effects on, amongst other things, joint pains or skin marks or scars.

It is a moot point as to whether the former cultivated status of Dittander has had any effect on current distribution. Prompted by suggestions that a Chichester colony might be related to cultivation for the purposes of a mediaeval leper hospital, John Palmer<sup>12</sup> pointed out the inland presence of Dittander in the grounds of three old hospitals in Kent, Bexley Hospital (opened, 1898), Joyce Green Hospital (opened, 1902); and Darenth Hospital (opened, 1902), although none of the sites themselves appeared to have been gardens. The coincidence was heightened by the absence at the time of Dittander from the area; but, given that the species had no place in the British pharmacopeia in the latter half of the nineteenth century, and that there have been a number of casual vc16 records since, this may well be no more than coincidence.

<sup>12</sup> Palmer, J.R. (1994). Dittander near old hospitals. *BSBI News* **66**: 17.



Philp (1982) treated the species as rare, just as had Hanbury and Marshall (1899), and noted presence in 12 tetrads. These included a couple of tetrads in the Whitstable/Swalecliffe area, but most were along the River Stour, with one unexpected appearance of the plant at the edge of the non-tidal Medway in Maidstone. Apart from this, all sightings were on the banks of tidal rivers and near the sea. There were no records for non-metropolitan West Kent. By the time of the 1991-2005 survey (Philp, 2010), the number of tetrad records had increased to 28. It was then treated as a scarce, rather than rare, plant of river banks, sea walls and brackish ditches, and occasionally on roadside verges. This last habitat provides saline conditions through the use of highway de-icing salt. There remained a stable population along the tidal River Stour. The accompanying 1991-2005 distribution map, taken from Philp (2010), is provided with kind permission of the late Eric Philp and The Kent Field Club.



Data for 2010-17 are also given here, and would appear to confirm a continued increase in Dittander across the county, although the earlier distribution map did not include all Dittander sites known to botanists at the time. Records for 72 monads are given (as the Dittander records for



this register are being maintained at 1 km square level, and hence finer resolution than as given for 1991-2005) and these are equivalent to 50 tetrads. Even making allowance that Philp (1982) and (2010) did not include metropolitan West Kent, it is likely that Dittander has never been as common in Kent as now. Some of the increase seems to be the consequence of transporting materials carrying the plant, whose creeping roots are very persistent and can re-generate from small fragments. This can even account for increase which seems to be within the area of natural habitat: in 2014 a large patch was noted by the beach near Beltinge, apparently associated with a deposit of rocks relating to sea defence works. Inland roadside occurrences may be related either to movement of contaminated materials or to transport of seed on tyres. Occurrences include the A2 south east of Faversham (2012), the A299 west of Chestfield (2014), the A257 near Ash (2014) and the B2080 near Appledore (2011).

Seasalter. Photo by Liam Rooney, 2 August 2010



*Lepidium latifolium* is a robust and persistent patch-forming perennial, up to 2m high. It can hold its own amongst coarse vegetation, as on river banks; it is salt-tolerant and withstands inundation, but may be found in drier terrain such as gravel or rocky heaps; it can grow in such inhospitable terrain as the cracks in the concrete platform of the old Pegwell Bay hoverport. This competitive ability is related to its extensive root system, potentially more than 3m deep, according to data from North America (where it is an invasive alien). Apparently, root fragments are buoyant and seeds, after a period of immersion, likewise; so that this would assist its spread along river or ditch systems.

It is very distinct from other species of *Lepidium*, and should present no difficulties of identification.

Seasalter. Photo by Lliam Rooney, 2 August 2010



Near Ash, roadside habitat. Photo by Sue Buckingham, 9 July 2010





## ***Leymus arenarius* (L.) Hochst. (Lyme-grass)**

Draft account. Kent current records and photos needed.

vc 15

### **Rarity / scarcity status**

Lyme-grass is frequent on coastal sand around the coasts of the British Isles, except for south and west Ireland and the English south coast. Populations generally seem stable and the conservation risk status of the species in England and in Great Britain as a whole is one of 'Least Concern'. In Kent, however, it has only one station, if this still subsists, and it is **rare**.

### **Account**

Hanbury and Marshall (1899) were of the view that earlier Kent records of this species were in error. They dismissed a claim by Dr R.E. Hunter (whose observations were prone to error) at Margate, but were more respectful of a record ('Foot of the cliffs, Dover, sparingly') by Dr Eyre de Crespingy (died 1895), who was a competent botanist. The verdict here was 'There is no particular reason against the existence in Kent of this well-marked and handsome grass... but it must at present be excluded, pending further evidence'. There is, however, a BSBI database record from the Littlestone area, made by Lady Davy in June 1904 and her identification abilities are not in doubt (she was a first finder, and identifier, of *Carex microglochin* in the British Isles).

Hanbury and Marshall also commented on a taxon then called *Elymus geniculatus* Curtis which had a possible claim to be a variant of *Leymus arenarius*, but which at best would appear to have been a diseased or depauperate state<sup>13</sup>. This was supposed to have been found in a saltmarsh near Gravesend, but had gone by the 1850s.

The first modern confirmed discovery appears to have been that of Francis Rose and C.A. Lester, in October 1962. A specimen is held at **MNE**, marked as from the foredunes at the foreshore of Prince's Links, Sandwich Bay. In June next year, a further collection was made, now at the National Museum of Wales, by R.A. Boniface, who described it as on the blown sand and stabilised dunes of Sandwich Sands, with several clumps towards Shell Ness. *Leymus arenarius* has continued in this locality, said in Philp (1982), to be increasing steadily on the upper shore of Sandwich Bay (TR36K). A survey in March 1983 by Andrew Henderson produced some fuller grid references: TR 351 620 for Shell Ness (this would appear to be outside Eric Philp's TQ36K); TR 354 605 for sand dunes between Prince's Golf Club and the sea; and a further grid reference not readily interpretable for sand dunes on the coast near Royal St George's. In Philp (2010), Lyme-grass is given as still persisting at Sandwich, but with the comment that its original appearance may have derived from deliberate planting. Evidence is not known for this, although the species is planted for dune stabilization. Further north, on some low sand dunes at Pegwell Bay, TR3264, it was also seen growing by Joyce Pitt on 5 July 2009.

It is a robust perennial occurring on coastal sand, especially loose sand, with which its root system copes well. It has deep vertical roots terminating in leafy shoots, which eventually become flowering; and also creeping horizontal roots, patch-forming and sand-binding. It is thought that spread from rhizome fragments is more frequent than from seed. It is frequently associated with *Ammophila arenaria* (Marram), although its Kent associates appear not to have been recorded. The bluish colour of the plant is very distinctive.

Somewhat surprisingly, we have no recent (post-2010) records for this taxon, but searches at Sandwich / Shell Ness have been unsuccessful and it may have gone from there.

<sup>13</sup> T.E.T. Bond (1952). *Elymus arenarius* L. Biological Flora of the British Isles. *Journal of Ecology* **40**: 217-227.



## *Linaria repens* (L.) Mill. (Pale Toadflax)

Draft account.

vc 15; perhaps gone from vc 16

### Rarity / scarcity status

*Linaria repens* is an archaeophyte, or ancient introduction, widespread but scattered in Great Britain, primarily in the west, but scarcely extending to Ireland. Its conservation risk status in both Great Britain as a whole and in England is one of 'Least Concern'. Its relative scarcity across eastern England is manifest particularly in Kent, where it is, and always appears to have been, **rare**.



### Account

Pale Toadflax was first noted in Kent by William Hudson, in his *Flora Anglica*. The first edition gives a Cornish record for '*Antirrhinum repens*' and then mentions '*Antirrhinum monspessulanum*', 'Habitat in arvis prope Gad's-hill, in Cantio' [it grows in fields near Gad's-hill, in Kent']. However, from the second edition (1778) onwards, Hudson treated the two names together and in any event *Linaria* (*Antirrhinum*) *monspessulana* is now regarded a synonym for *L. repens*. Hanbury and Marshall (1899) mention this and five other records, nearly all for West Kent. They regarded it as a very rare plant of banks and waste ground, usually on chalk.



Barham. Photos by Liam Rooney, 7 September 2011

Whilst there are subsequent records, most are unlocalised and there is little to suggest continuity, other than a period from 1936 to 1958 when it was known at a cindery former railway track at Richborough Port. Philp (1982) gave five tetrad records, describing the plant as native (as Floras did at the time), but that some of the records might refer to escapes from cultivation. Philp (2010) gave only one tetrad record, and that was for casual plants on waste ground. The only site for which there is evidence of continuity beyond short-term is that on a chalk bank comprising a roadside nature reserve at Barham. The reserve holds a good chalk grassland flora, which includes *Briza media* (Quaking-grass), *Centaurea scabiosa* (Greater Knapweed), *Helianthemum nummularium* (Common Rock-rose) *Inula conyzae* (Ploughman's-spikenard) and *Pimpinella saxifraga* (Burnet-saxifrage). This might suggest a near-native context for the species; but it is currently considered to be native in Europe only from north Spain and north west Italy to north west Germany.

*Linaria repens* is a perennial, preferring a well-drained substrate, which may be stony or provided by walls or (as with Barham) dry calcareous ground. The hybrid with *Linaria vulgaris* (Common Toadflax) – *Linaria x sepium* – is known from the shingle beach at Lade (TR 085 204), where first discovered in 2009. Here it grows as a large patch, with variable plants which appear to have segregated so as to show two main forms, one branched and with pale-coloured and unshowy flowers, the other less branched, earlier flowering, with bright yellow flowers, shorter spike and with its lower leaves somewhat incurved. *Linaria repens* has not been seen here, so the origin of the hybrid is somewhat mysterious. It is seldom cultivated these days; although there is still the possibility that it had been grown in this neighbourhood, where many garden plants escape on the



shingle and *Linaria vulgaris* is present. The hybrid was also found at Richborough Port by Francis Rose in 1946, but the *Linaria repens* parent had been there for some time.

Site	Grid reference	Site status	Last record date	Recorder	Comments
Chislehurst	TQ4469		1983	JRP	TQ 444 699, naturalised in church yard.
Halstead	TQ4862		26 September 2004	GK	TQ 488 625, casual, on soil heaps at Broke Hill golf course between the club house and Cadlocks.
Tunbridge Wells	TQ53Z		After 1970, before 1981	Philp (1982)	
Hilldenborough	TQ54T		After 1970, before 1981	Philp (1982)	
Near Sevenoaks	TQ55D		After 1970, before 1981	Philp (1982)	
Magpie Bottom	TQ55K		After 1970, before 1981	Philp (1982)	
Rushenden	TQ97A		22 June 2000	EGP & DG (Philp, 2010)	Casual plants on disturbed waste ground.
Barham	TR2419	KWT RNR	(1) 20 August 2013 (2) 28 August 2010 (3) 23 July 2009 (4) 1990	(1) CO (2) FB, DM, JS (3) CO (4) JP	(1) Three groups of 2, 5 & 18 amongst many other plants on roadside bank just SE of crossroads at TR 213 497. No noticeable change in distribution. Total 25 flowering plants. (2) 40 plants at RNR, The Street, Barham TR 213 497. (3) 40 flowering plants counted on north roadside bank at TR213497 just SE of crossroads. (4) Road verge near junction with Gravel Castle Road.
St Margaret's	TR34S		(1) 14 October 2017 (2) After 1970, before 1981	(1) DCh (2) Philp (1982)	(1) TR 37113 44919, on steep chalky bank at end of garden dropping down to road. Considered unlikely to have been planted, but nonetheless within garden. (2)-



## *Lithospermum arvense* L. (Field Gromwell)

Draft account.

vc 15 and 16

### Rarity / scarcity status

*Lithospermum arvense* is an archaeophyte or ancient introduction found often as an arable weed mainly in south east England, being scarce and generally casual elsewhere in the British Isles. It is regarded as an **Endangered** species, both in England and in Great Britain as a whole. A comparison of its area of occupancy in England over the periods 1930-1969 and 1987-1999 produced a calculated decline of 54% in the likelihood of recording the species. In Kent there is evidence of a 33% decline between the periods 1971-80 and 1991-2005, and the species is **scarce** as well as declining.

From John Gerard's *Herball*, 1597.

### Account

Field Gromwell was abundant in Kent as an arable weed in both prehistoric and historic times, declining drastically from the 1950s in the face of modern agricultural practices. There is a fair amount of evidence of its early presence in various archaeological contexts. Charred cereal remains in an Early Iron Age pitfill at Cuxton<sup>14</sup> contained a high proportion of weed seeds, including *Lithospermum arvense*. Because the neighbouring geology was chalk, it was (surprisingly) considered that this was not congenial for *L. arvense* and that the assemblage may



have originated further away; but it was surely not necessary to make such an assumption. *Lithospermum arvense* seeds were also found amongst charred remains apparently derived from Roman grain processing, in the course of excavating a cable trench on behalf of Seeboard in 1994 through the Roman town of Springhead.<sup>15</sup> A little further to the east, near Downs Road, Southfleet, excavations for the HS1 rail route produced further charred cereal remains from a first century Roman context, in which Field Gromwell was the dominant weed (except for samples substantially lacking any weed seeds, which appeared to relate to a late stage of grain processing, following sieving); there were also smaller numbers of seeds in samples taken from a mediaeval kiln<sup>16</sup>.



Borstal. Photo by Liam Rooney, 29 June 2011

The first published record of Field Gromwell in Kent is to be found in John Gerard's *Herball* (1597) where it is stated to be present 'in the yle of Thanet neere Reculvers'. Rather puzzlingly, it was supposed to be 'upon the sands and bach of the sea', rather than in an arable context; although, whether or not Gerard was mistaken in identification, Thomas

<sup>14</sup> Davies [sic], A. (2006). The charred plant remains from Cuxton, Kent. CTRL specialist report, London and Continental Railways. Accessed via Archaeology Data Service (distributor).

<sup>15</sup> Campbell, G. The Charred Plant Remains, in Boyle, A. & Early R. (1999). *Excavations at Springhead Roman Town, Southfleet, Kent*.

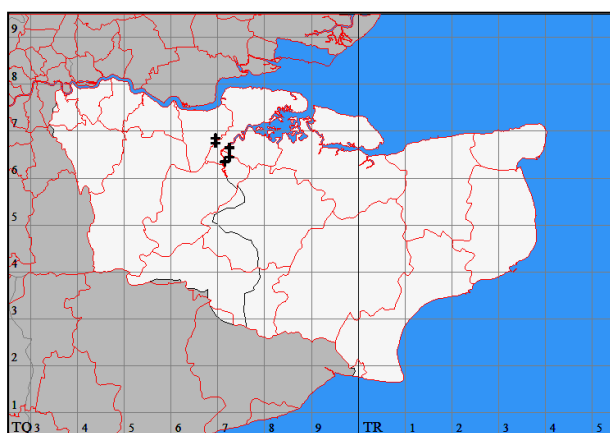
<sup>16</sup> Davis, A. (2006). *The charred plant remains from Northumberland Bottom, Southfleet, Kent (ARC WNB 98)*. CTRL Specialist Report, London and Continental Railways.



Johnson, who knew the plant and edited the second edition of the *Herball*, did not seek to change this reference. Field Gromwell continued to be so common that Hanbury and Marshall (1899) gave no stations for it, saying that it was frequent in all districts, especially on the chalk, and was a plant of cultivated and waste ground.

Borstal, habitat. Photo by Liam Rooney, 29 June 2011

It is likely that some initial reduction in the frequency of the species took place with more effective seed cleaning, although as Field Gromwell drops some seeds around the plant and those remaining would be capable of being gathered with the crop to become a potential seed contaminant, Field Gromwell would not necessarily be dependent on re-introduction. Probably more damaging for survival is the use of agricultural herbicides, so that by the time of the 1971-80 survey (Philp, 1982) the species was listed in only 12 tetrads. These were well spread across the county and followed the chalk soils. The 1991-2005 survey (Philp, 2010) not only showed a



decline to eight tetrads, but instead of being county-wide, the distribution was virtually confined to the Medway valley as it passes through the chalk downs. The only non-Medway sites were at St Margaret's at Cliffe in the east and Wrotham Water in the west. Two of the Medway valley tetrads were also noted in the earlier survey; the others were new. Our 2010-17 records, shown on the accompanying distribution map, with only five tetrads so far, have a similar Medway distributional focus.

*Lithospermum arvense* (Field Gromwell) 2010-16

Field Gromwell is a spring annual, perhaps sometimes autumn-germinating and overwintering. Seed production is apparently up to 300 seeds per plant and the seedbank is short-term persistent. Dormancy increases with depth of seed burial and so germination is likely to be favoured by low impact tillage systems which keep the seed near the surface. As an annual, it requires open ground for continued establishment, and it prefers a calcareous soil, although there are a few Kent records with different soil conditions, e.g. arable land on London Clay near Seasalter (Hector Wilks, 1956) and a cornfield by the Medway east of Tonbridge, presumably alluvial (Clive Stace, 1954).

Borstal. Photo by Liam Rooney, 29 June 2011





Site	Grid reference	Site status	Last record date	Recorder	Comments
Otford/Shoreham	TQ5360		31 July 1997	JP	Over 40 plants at edge of chalky arable either side of footpath leading from Fackenden Down to Shoreham Road, known here for at least five years before. Field was subsequently converted to pasture, so headland is no longer disturbed to enable further appearance.
Eynsford	TQ5366		9 November 1986	RMB	TQ 533 662, Crockenhill Lane – railway.
Longfield	TQ56Z		After 1970, before 1981	Philp (1982)	
Dartford	TQ57L		After 1970, before 1981	EGP & JRP, in Philp (1982)	
Wrotham Water	TQ65J		1991-99	EGP (Philp, 2010)	
Luddesdown – Great Buckland	TQ66S		After 1970, before 1981	Philp (1982)	
Luddesdown - Cobham	TQ66T		After 1970, before 1981	Philp (1982)	
Lower Bush	TQ66Y		(1) 2011 (2) 28 July 2011 (3) 1991-99	(1) RM (2) SP & DC (3) EGP (Philp, 2010)	(1) Probably hundreds of plants at approximately TQ 696 674 (outside the Ranscombe Farm Reserve). [Checked since each year 2012-15, but not seen. RM.] (2) TQ 6953 6737. Many plants scattered along top of field over c. 50m.
Ranscombe	TQ6968		(1) 2016 (2) 23 July 2015	(1) & (2) Comm. RM	(1) Seven plants in Kitchen Field at around TQ698680. (2) Six plants in Kitchen Field centred on TQ698680, originally discovered by CS.
Gravesend	TQ67L		After 1970, before 1981	EGP & JRP, in Philp (1982)	
West of Eccles	TQ76A		2 June 1991	JP	Eccles old pit, c. TQ 719 608
Medway valley	TQ76B		(1) 28 June 2013 (2) 1991-99 (3) After 1970, before 1981	(1) CS (2) EGP (Philp, 2010) (3) Philp (1982)	(1) TQ 71980 63580, Wouldham, a population in south west corner of field ploughed in spring 2013 and sown to barley. (2) & (3) Recorded as tetrad, may have been in vc16, or records in both vc15 and 16.
Eccles	TQ76F		1991-99	EGP (Philp, 2010)	Given only as tetrad.
Burham	TQ76G	KWT managed reserve	(1) 11 June 1997 (2) 1991-99 (3) After 1970, before 1981	(1) FB, DM, DC (2) EGP (Philp, 2010) (3) Philp (1982)	(1) TQ 735 624 given, but may well be centroid for reserve.
Nashenden	TQ76H		(1) 28 July 2013 (2) 1991-99	(1) CS (2) EGP (Philp, 2010)	(1) TQ72183 64073, c. 50 plants present along the west side of field ploughed in spring 2013 and sown to barley.
Borstal	TQ76I		(1) 4 July 2017 (2) 29 June 2011 (3) 24 May 2010	(1) DCh (2) LR (3) SP & DG	(1) TQ 72586 66100, six plants on edge of field a few yards south from <i>Allium oleraceum</i> site.



			(4) 1991-99	(4) EGP (Philp, 2010)	(2) TQ 72568 66401 – TQ 72565 66004, Burham Rd, Borstal, c. 100 plants distributed over about 36m on bank, west side of road. (3) TQ 72572 66087 to TQ 72564 66041. 10 plants noted on the edge of a Rape field along Burham Road, near to the M2. (4) -
Thurnham - Detling	TQ85E		After 1970, before 1981	Philp (1982)	
Hogben's Hill	TR05I		After 1970, before 1981	Philp (1982)	
Crundale	TR05Z		After 1970, before 1981	Philp (1982)	
Barham	TR24E		After 1970, before 1981	Philp (1982)	
Ripple	TR34P		After 1970, before 1981	Philp (1982)	
St Margaret's at Cliffe	TR34S		1991-98	EGP (Philp, 2010)	



## *Lobelia urens* L. (Heath Lobelia)

Draft account.

vc 16

### Rarity / scarcity status

Heath Lobelia is very local in south England, by 2002 having declined from 19 historic populations to six, of which Kent provided the easternmost colony. It is regarded as **Vulnerable** to the risk of extinction in England (and Great Britain as a whole). Our population is at Flimwell, in the administrative county of East Sussex, but it lies within botanical vice county 16, West Kent<sup>17</sup>, and for Kent purposes, it is very **rare**.



### Account

The only fully documented claim to this species in the administrative county of Kent was a communication by W. Thomson in September 1850 to the *Phytologist*<sup>18</sup> that a single plant had been found by the wife of the Rev. J. Dix by a path in coppiced chestnut near Ashford, and that the latter considered that there was no apparent possibility of its having been placed there through man's instrumentality. The living plant was provided to Mr Thompson, who passed it to the editor of the *Phytologist* as proof of identity. So the credentials of the plant and finder seem beyond doubt and so, probably, was the demise of the species at that locality. But its apparent presence as a single plant is not persuasive, and the verdict of Hanbury and Marshall (1899) was 'Doubtless planted.' Dinsdale

(1996)<sup>19</sup> was more optimistic about native status, on the basis of similarity of the habitat to the Flimwell colony 'where damp ghyll woodlands create a locally oceanic climate'. The Flimwell colony, however, is not really focused on ghyll woodland, and the assumption that the wood near Ashford was of this character is a bold one, particularly if Mrs Dix's find was near her husband's parish (Charing, where he was curate, according to the 1851 *Clergy List*).

Flimwell Photos by Liam Rooney, 30 August 2011

There is also the possibility of a mystery site, whose status remains unresolved. Rosemary FitzGerald (1988)<sup>20</sup> refers to a 1976 letter which alludes to a record at or around Penshurst, unconfirmed, albeit that the plant was identified by Lady Hardinge of Penshurst (died 1979), who used to botanise with Dr. Druce. No more is known.



*Lobelia urens*, however, was found in quantity in West Wood near Flimwell (West Kent vice county, albeit in East Sussex administrative county). A.H. Wolley-Dod in his *Flora of Sussex* (1937) refers to it as first noticed by Mrs E.E. Johnson in 1922, with a specimen forwarded by E.J. Bedford to the Natural History Museum, where its

<sup>17</sup> This appears to have been a consequence of an error in the relevant Ordnance Survey map, 1813. See Bevan, J. (1980). Flimwell: East Sussex or West Kent? *Watsonia* **13**: 120-121.

<sup>18</sup> Vol. 3 (1848-1850), p.1051; and at p.ix of the preface.

<sup>19</sup> Dinsdale, J.M. (1996). The conservation and ecology of the heath lobelia, *Lobelia urens* L. Ph.D. thesis, University of Plymouth.

<sup>20</sup> FitzGerald, R. (1988). *Lobelia urens* L. Heath Lobelia. Unpublished N.C.C. report.



identity was confirmed by A.J. Wilmott<sup>21</sup>. Wolley-Dod referred to it as covering some acres, and increasing yearly, though varying with the season. He considered the chances of its being native were considerable, even though the late discovery and the fact of its increase might point against this (increase, of course, may be just a function of the coppicing cycle). Wilmott said he 'see no reason to doubt the natural origin'.

There are many records for this colony, the fortunes of which may be indicated by the following selection:

- 15 October 1928, E.E. Johnson: 'In a wood close by Flimwell Vicarage. This year it is scarce and poor, last year it grew in masses, apparently liking the damp, which is curious, as I believe it is described as preferring heaths. It always seems to be in one area of the wood. In good seasons it is about 18 inches high.'
- 1946. Few plants, thinly scattered on the edges of rides within chestnut coppice (Dinsdale, 1996).
- 1981. 70-80 plants, confined to rides, chestnuts 5-10 years old (Dinsdale, 1996).
- 3 September 1985. Rosemary FitzGerald and L. Breda Burt: none seen.
- 20 August 1986. Rosemary FitzGerald and L. Breda Burt: TQ 722 308, about 200 plants along a stream and a woodman's track, in a chestnut coppice that was felled the previous winter.
- 1993. About 2,500 plants, scattered throughout bird park (Dinsdale, 1996).
- 16 August 2006. Matthew Berry: TQ 721 308, c. 50 plants along track.
- 27 October 2009. A.G. & K.A. Knapp: Grounds of old bird park. Many gone-over plants at or near TQ 72109 30875. Also c.20 gone-over plants at TQ 72094 20882.
- 17 September 2010. M. Shaw: TQ 72106 30881, several hundred plants in brambly, rabbit-grazed clearing.
- 30 August 2011. KBRG meeting: TQ 72137 30952, a few plants in wooded shade of former path; TQ 72103 30878, hundreds of plants centred here in area c.25 x 25m of abandoned clearing, most where rabbit-grazed, some in encroaching brambles and developing scrub.
- 25 July 2014. Judy Clark and Jaqueline Rose: occasional to frequent in monad TQ7230, still growing in the old Bird Park area and also growing in more open areas in the woodland and on the track; woodland not coppiced recently.
- 10 September 2014. Stephanie Mills: TQ72114 30927, over 450 plants.



Flimwell, habitat. Photo by Sue Buckingham, 30 August 2011

From these records, it is evident that, whilst the species is capable of growing in woodland shade, it is responsive to disturbance and exposure to light as part of the coppicing cycle. The site was opened as Flimwell Bird Park in 1989-90 with lakes and bird breeding enclosures, and had closed by 2009. The initial clearance of

<sup>21</sup> Wilmott, A.J. (1925). *Lobelia urens* L. in Sussex (Notes on British Plants). *Journal of Botany* **63**: 26.



woodland apparently boosted plant numbers from 200 to 2000<sup>22</sup>. Cleared ground occupied by the enclosures was probably helpful for the subsequent survival of the species – Dinsdale (1996) refers to the bird grazing and visitor trampling - and although following abandonment, these areas have been closing up with the spread of brambles, the remaining relatively clear ground has enabled Heath Lobelia to continue.

Results of site investigation during its operation as a bird park, using quadrat surveys, are given in Dinsdale (1996). A mature chestnut woodland community still existed, but it bore an impoverished ground flora, lacking *Lobelia urens*. The original community for the species, disturbed open areas in chestnut woodland, had been enlarged by the bird park development, and sampling from within and around this area indicated that this original community could be characterised as (National Vegetation Classification) M25 (*Molinia caerulea* – *Potentilla erecta* mire), dominated by *Juncus effusus* (Soft-rush), *Molinia caerulea* (Purple Moor-grass) and *Lobelia urens*. Two other community types were identified: species-poor areas heavily disturbed by birds at the edges of ponds, with only *Raphanus raphanistrum* (Radish), *Epilobium montanum* (Broad-leaved Willowherb) and *Lobelia urens* persisting; and grassy woodland edges dominated by *Anthoxanthum odoratum* (Sweet Vernal-grass), *Betula pubescens* (Downy Birch) and *Teucrium scorodonia* (Wood Sage).

*Lobelia urens* is a perennial of infertile acid soils, generally in rough pasture and grassy heath, but often (as in this case) in woodland marginal habitats. The Flimwell site shares similar soil conditions to Bedgebury, underlain by Tunbridge Wells Sand Formation, acid and nutrient-poor, often silty/clayey. The plant overwinters as a rosette or rosettes, produced from the rhizome, and it then develops a single flowering spike from spring onwards. A large plant may produce 3-4,000 viable seeds (Devon data), which are scattered in the immediate vicinity of the plant. The optimum germination temperature is fairly high, which reflects the more southerly European distribution, southern England being at the edge of its range; moisture also assists germination. Apparently, there are spring and autumn germination peaks, but there is high seedling mortality, and only spring germinating plants are likely to achieve sufficient maturity to withstand winter frosts. Open ground is required for establishment from seed, which will respond when the seedbank is exposed to light. Disturbance from coppicing may achieve this, but the disturbance currently afforded at the Flimwell site appears to be largely from rabbits. The likelihood is that the seedbank is enormous and long-lived, to over 25 years (there is an analogy with *Calluna vulgaris* here, another plant with a strategy of large seed production and seed dormancy to tide over periods of unfavourable habitat, emerging when woodland is opened up). The Flimwell site is a good example of resurgence from the seedbank after coppicing or clearance.

Heath Lobelia is not readily confusable with any other species.

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<sup>22</sup> Dinsdale, J. *Lobelia urens* L. (Campanulaceae), in (ed.) Wiggington, M.J. (1999). *British Red Data Books 1 Vascular Plants*. J.N.C.C.



## *Lotus angustissimus* L. (Slender Bird's-foot-trefoil)

Draft account.

vc 15; gone from vc 16

### Rarity / scarcity status

*Lotus angustissimus* is a very local plant of southern England and the Channel Islands, regarded as **Near Threatened**, both in England and Great Britain as a whole. Between 1980 and 1999, it had been seen in 50-60 locations in Britain, mostly in Devon and Cornwall, but more recently the number has been assessed at less than 30. The intermittency of its Kentish presence has been such that it was placed on the 'probably extinct' list, but following its rediscovery in 2016, it is assessed as **rare**.

### Account

The first published occurrence in Kent was a find by B.D. Jackson and the Rev. W.W. Newbould<sup>23</sup> at the Isle of Grain, where it was in some quantity, although close-bitten by sheep. This appears to have been a grassland coastal habitat akin to those which are usual for the species in south west England. Subsequent finds near Gravesend (mentioned in Hanbury and Marshall, 1899) and Stone Marshes (by W. Watson, mentioned in Francis Rose's MS Flora) may have been of comparable character. A find at a gravel pit at Sevenoaks c.1977 was dismissed by Philp (1982) as probably introduced there with other species deliberately planted. None of these occurrences appears to have been persistent (Francis Rose mentioned a report of it having been re-found at Grain, only to dismiss this as in error)<sup>24</sup>.



Trenleypark Wood. Photos by Liam Rooney, 11 August 2016

However, three populations have had a longer history, none of them relating to classic coastal habitat. One of these was at Waystreet Farm, Hernhill, where found by Francis Rose in 1955 on a bushy bank on Thanet Sand. There were 35 plants present around the edges of a heavily rabbit-grazed scrubby bank, when visited by Rosemary FitzGerald and Andrew Henderson in 1985 (grid reference given as TR 058 614½, although TR0578 6144 looks more likely). No later record can be traced; the area was reported as full of nettles in 1995.

A further population was found by Francis Rose in 1945 at scrubbed-in gravel pits at Swanton Farm, Littlebourne, TR 203 591, and recorded there in 1949, 1950, 1953 and 1960. This is currently the transmitter site at Court Hill, a transmitter mast having been erected in 1983 on what was then an old sandpit and farm tip. *Lotus angustissimus* survived the changes and its population in 1985 was estimated at over 650 plants. The terrain was sandy clay and associated species included *Hypericum humifusum* (Trailing St John's-wort), *Ornithopus perpusillus* (Bird's-foot), *Potentilla argentea* (Hoary Cinquefoil) and *Spergularia rubra* (Sand Spurrey). Most *Lotus angustissimus* plants were found on a cinder track on the north side (inferred as at TR 2030 5904) and near the edge of woodland on the west, with a scattering elsewhere. A record was made by Eric Philp in 1989, but the plant could not be re-found for the purposes of the 1991-2005 county survey (Philp, 2010), despite repeated visits to the various East Kent localities. Nor was it found in August 2016, when there were no areas of bare ground suitable for germination.

<sup>23</sup> B.D. Jackson (1875). *Lotus angustissimus* Linn., in Kent. *Journal of Botany* N.S. 4: 335-6 (not p.280, as given in Hanbury and Marshall, 1899).

<sup>24</sup> Rose, F. (1960). Botanical Records for Kent, 1955-58 – Vascular plants. *Transactions of the Kent Field Club* 1(2): 56-65.



The most widespread population, however, appear to have been that at Trenleypark Woods, found by Miss E. Day, c.1960. This is not far from the Littlebourne site and finds have been scattered over a fairly wide area of chestnut coppice on Thanet Sands. Its rediscovery here by Mrs H. Ayers led to a visit by Rosemary Fitzgerald and Andrew Henderson in October 1987 when plants were found at TR 193 598½ (>20 plants; TR 1932 5986 inferred from map; TR195598½ (>10 plants); TR 196 596 (5 plants; TR 1961 5959 inferred from map); and TR197 595½ (>500 plants on 55 yards of path). Associated species included *Hypericum humifusum* (Trailing St John's-wort), *Hypericum pulchrum* (Slender St John's-wort), *Filago vulgaris* (Common Cudweed), *Ornithopus perpusillus* (Bird's-foot) and *Rumex acetosella* (Sheep's Sorrel). After then, there was a long absence of record and, although seen by Joyce Pitt in 2005, it was placed on the county 'probably extinct' list (scope for re-finding) in 2013.

A KBRG meeting was planned for August 2016 to re-find the species in Trenleypark Woods, which was successful. Hundreds and possibly thousands of plants were found in fruit and flower on bare sand and gravel and lining both sides of a path (Stour Valley Walk) from TR 19105 59832 westwards to TR 19205 59844 (c. 100m). The path ran through sweet chestnut coppice cut in winter 2014/15, and its margins were rabbit-grazed. There were outlier plants: a patch of eight seen at a gateway 30m east of the main population at TR 19072 59824; and a solitary plant seen at a third site on a different path at TR 19560 59683. The prostrate matted growth of the nibbled path-side plants made counting individuals quite impossible. The associated flora was very similar to that recorded in 1985 – species of rides and path-sides in acid, somewhat sandy woodland, where exposed to light. It is likely that, although populations of *L. angustissimus* are known elsewhere to undergo dramatic fluctuations, possibly weather-related, a major factor at this site is the coppicing cycle. A persistent seed-bank probably enables continuation through unfavourable phases in the coppicing cycle, although it may be that rabbit disturbance also assists the occasional plant to reproduce when other areas are shaded out.



*Lotus angustissimus* is generally regarded as an annual, germinating in autumn to flower next summer, if it survives (and it seems a delicate plant to over-winter, although summer drought on a harsh-draining substrate may be deleterious in any event), or germinating in spring to flower from August onwards<sup>25</sup>. The abundance in 2016 may have been due to light exposure (with the opening up of coppice) triggering autumn germination followed by an exceptionally mild winter; then a damp spring enabling survival and growth, with perhaps a second flush of germination. Abundant autumn growth of new plants was noted at the October 1987 sighting<sup>26</sup>.

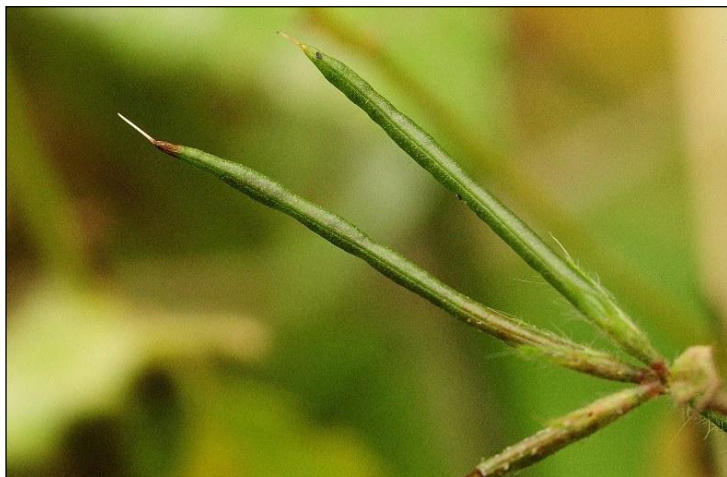
The habitat requirements for the species appear to involve a certain amount of winter damp, but a well-drained soil in summer, with enough vegetation to provide support for the straggling growth, although not

<sup>25</sup> Leach, S.J. (1999) *Lotus angustissimus* L. (Fabaceae), in (ed.) Wiggington, M.J. *British Red Data Books 1 Vascular Plants*. JNCC, Peterborough.

<sup>26</sup> FitzGerald, R. (1988). *Lotus angustissimus* L. Slender Birds-foot Trefoil. Unpublished NCC report.



such as to out-compete it. Some bare ground would also be required for germination, but very bare, sharp-draining ground may result in stunted growth, as reported by FitzGerald (1988)<sup>27</sup>, in drawing attention to larger plants at Trenleypark Wood being sheltered by *Agrostis capillaris* (Common Bent) and *Holcus lanatus* (Yorkshire-fog) fringing the edge of forestry tracks. This was also observed by Sue Buckingham in relation to



the 2016 sighting, where the exposed plants mostly had ripe fruit and few flowers remaining whilst those few plants seen in slightly denser growth with *Holcus lanatus* were at an earlier stage of flowering and fruiting and tended to have a more upright growth form. This suggests environmental impact, although summer/autumn germination effects may also be relevant.

*Lotus angustissimus* could be confused with *Lotus subbiflorus* (Hairy Bird's-foot-trefoil), although the latter is not present in Kent. They differ in that the latter is hairier, with 2-4 flowers per head (1-2(3) for *L. angustissimus*) and smaller fruits. Otherwise, a species which might need distinguishing, if stunted, (and which is present at Trenleypark Wood) is *Lotus pedunculatus* (Greater Bird's-foot-trefoil). However, the small flowers (5-6mm) of *L. angustissimus*, occurring singly or in pairs, their shape and colouring and the long slender legumes (up to 30 x 1-1.5mm) containing abundant seed (around 26 in a pod) distinguish *L. angustissimus* clearly.

This account has benefited greatly from the assistance of Sue Buckingham.

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<sup>27</sup> *Vide supra.*



## *Lythrum hyssopifolia* L. (Grass-poly)

Draft account. Habitat photo needed.

vc 15; gone from vc 16

### Rarity / scarcity status

*Lythrum hyssopifolia* is an archaeophyte, or ancient introduction, and is an extremely local plant of winter-flooded ground in southern England, otherwise a recently introduced casual. It is considered an **Endangered** species in both England and Great Britain as a whole and is protected from picking or uprooting, under Schedule 8 of the Wildlife and Countryside Act 1981 as amended. A comparison of its area of occupancy in England over the periods 1930-1969 and 1987-1999 produced a calculated decline of 62% in the likelihood of recording the species. In Kent, there is only one colony of relatively recent standing, and it is very **rare**.

### Account

There has been no more than a handful of Kent records, the first of which was 'In the Ditches near *Feversham Abbey Pond*', given by John Blackstone in his *Specimen Botanicum* (1746), but taken from a list by the Rev. John Bateman (which Edward Jacob says was produced about 70 years before publication of Jacob's *Plantae Favershamienses* in 1777). Syme (*English Botany*, vol. 3, 1865) said that he had a specimen from 'Near Rochester, Kent' – this may relate to a gathering by C. Conway in 1833, held in **BM**. Also, Hanbury and Marshall (1899) received a communication from J.G. Prebble as regards the presence of the species on the 'South Norwood side of the Irrigation Fields of the Croydon Local Board of Health, between South Norwood and Elmers End'. These were sewage works, with lagoons for (unsuccessful) drainage, and the site is now South Norwood Country Park, through which the vc16/17 boundary runs.

There are also relatively modern records: by Cyril West, 1930, recorded as a casual at Teston; by H. Gray at West Malling, 1935; again by Cyril West, a single plant in a marshy area on the vc16 side of the River Medway near Aylesford in 1941, not seen the following year; by Ted Lousley, a casual at Barming, on 24 July 1966



(specimen in **BM**); and also a find by Miss L.M. Keens by a path through a barley field leading to Princes golf clubhouse at Sandwich in 1968<sup>28</sup>. None of these records points to any permanent presence, but most suggest that the River Medway, on both sides of Maidstone, provided a focus.

Betteshanger. Photo by Steve Coates, August 2011

The only recent find was at Betteshanger (formerly Fowlmead) Country Park. Here the species was first seen by Joyce Pitt in 2010, but its identity was not confirmed. Subsequently, on 6 August 2011, Steve Coates found the same population, and it was possible to confirm it as *Lythrum hyssopifolia*. The colony was not in a classic winter-flooded field habitat, but in a ditch (TR 35287 54067) between the car park with its associated road system, and a children's play area. The plants were growing within an area of 165cm x 105 cm, containing mud and stones, beside an inlet pipe which brings water from the car park and consequently keeps this part free of larger vegetation. A count

<sup>28</sup> Confirmed by Lady Anne Brewis, and mentioned in a letter from the finder to Francis Rose.



was made of 83 plants around 8 cm high, mostly with spent flowers, and about another 30 smaller ones in a congested clump, some of which were developing flowers. The site is submerged from time to time. Associated species included plants of a weedy nature and of wetland: *Agrostis stolonifera* (Creeping Bent), *Apium nodiflorum* (Fool's-water-cress), *Atriplex prostrata* (Spear-leaved Orache), *Epilobium hirsutum* (Great Willowherb), *Juncus articulatus* (Jointed Rush), *Persicaria maculosa* (Redshank), *Plantago major* (Greater Plantain), *Potentilla reptans* (Creeping Cinquefoil), *Pulicaria dysenterica* (Common Fleabane), *Rumex conglomeratus* (Clustered Dock) and *Tripleurospermum inodorum* (Scentless Mayweed). The habitat is artificial, in the sense that it is the product of laying out for public access over a large area of shale derived from the former Betteshanger colliery. The origin of the plant here is not obvious, but may have been brought in by birds; or on Continental vehicles (British sites are rare and not necessarily vehicle-accessible); or as a seed contaminant. The last-mentioned origin for casual occurrences is suggested by a number of sources from Salisbury (1968)<sup>29</sup> onwards, but with little evidenced indication of what it may be supposed to be contaminating, although there is a USA report of its presence in clover and lucerne seed and the Canadian Food Inspection Agency records it as having been found once as a seed contaminant in the period 2001-8. Stace (2010) refers to casual occurrences from birdseed, although the usual *Lythrum* from this source is *L. junceum* (False Grass-poly).



Betteshanger. Photo by Steve Coates, August 2011

*L. hyssopifolia* and *L. junceum* may be separated by the former having pale pink flowers with (usually) 4-6 stamens and 2-3mm petals; *L. junceum* has purple flowers with 12 stamens and 5-6mm petals.

Grass-poly is an annual with quite specialised ecological requirements, needing winter-wet disturbed ground, and germinating in spring when waters recede. Populations may vary from year to year depending on the suitability of conditions, but the long viability of the seeds provides a buffer against temporary environmental change<sup>30</sup>.

<sup>29</sup> Salisbury, E.J. (1968). The reproductive biology and occasional seasonal dimorphism of *Anagallis minima* and *Lythrum hyssopifolia*. *Watsonia* 7: 25-39.

<sup>30</sup> Preston, C.D. *Lythrum hyssopifolia* L. (Lythraceae), in (ed.) Wiggington, M.J. (1999). *British Red Data Books 1 Vascular Plants*. J.N.C.C.