

Kent Rare Plant Register

Draft species accounts

C (third part: Ci-Cy)



Kent rare plant register

This section of the register covers:

In Part Ca:

Callitriche truncata
Calystegia soldanella
Campanula glomerata
Campanula rotundifolia
Cardamine bulbifera
Cardamine impatiens
Carex canescens
Carex divisa
Carex echinata
Carex elata
Carex elongata
Carex extensa
Carex lepidocarpa

Carex nigra

Carex panicea
Carex pulicaris
Carex rostrata
Carex vesicaria
Carex vulpina
Calina vulgaris
Catabrosa aquatica

In Part Ce-Ch:

Centaurea calcitrapa
Centaurea cyanus
Centunculus minimus

Cephalanthera

damasonium
Cerastium arvense
Chaenorhinum
origanifolium
Chamaemelum nobile
Chenopodium bonus-
henricus
Chenopodium
chenopodioides
Chenopodium glaucum
Chenopodium murale
Chenopodium vulvaria

In Part Ci-Cy:

Cichorium intybus
Cicuta virosa
Cirsium eriophorum
Cladium mariscus
Clinopodium acinos
Clinopodium calamintha
Comarum palustre
Crassula tillaea
Crepis foetida
Cruciata laevipes
Cuscuta epithymum
Cynoglossum officinale

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:

AC Andrew Craven
 AG Alfred Gay
 AH A.C.B. Henderson
 AS Alan Showler
 Awa Ann Waite
 BB Brian Banks
 BF Brian Ferry
 BG Bob Gomes
 BH B. Hawkes
 BS Bob Scott
 BW Brian Woodhams
 CH C.Harris
 CJC & AP James Cadbury
 & A. Parker
 CO Colin Osborne
 CP Chris Pogson
 CR Chris Rose
 DG Doug Grant
 DM Daphne Mills
 DN David Nicolle
 DW D. Worsfold

EB Enid Barrie
 EGP Eric Philp
 ES E. Scott
 FB Fred Booth
 FR Francis Rose
 FRB F.R. Bryson
 GB Bill Brook
 GK Geoffrey Kitchener
 JA Jan Armishaw
 JAR Jacqueline Rose
 JC Juliet Cairns
 JEL J.E. Lousley
 JH J.Hendey
 JL J.Lockward
 JLM J. Le Mesurier
 JP Joyce Pitt
 JRP John Palmer
 JVC Judy Clark
 L&DH Lorna & Derek
 Holland
 LBB L. Breda Burt
 LM Lesley Mason
 LR Lliam Rooney
 MG Margot Godfrey
 MH Margaret Holdaway

MP Mike Porter
 MCS Mary Clare Sheahan
 MT Mario Tortelli
 MW M. Waite
 NH N. Holmes
 NR N.Riddiford
 NS Nick Stewart
 OL Owen Leyshon
 PB Peter Bassett
 PBU Paul Buckley
 PG Phil Green
 PH Peter Hodge
 PHE Peter Heathcote
 Pho P. Horton
 RB R.A. Boniface
 RC Ray Clarke
 RD Dick David
 RF Lady Rosemary
 FitzGerald
 RG Bob Gomes
 RM Richard Moyse
 RMB Rodney Burton
 RP R.D. Porley
 RS R.M.Stokes
 RW R.H. Woodall

RWD R.W. David

SB Sue Buckingham
 SC Steve Coates
 SL Stephen Lemon
 SP Sue Poyser
 TI Tim Inskipp

Other abbreviations:

BBS British Bryological
 Society
 KBRG Kent Botanical
 Recording Group
 KFC Kent Field Club
 KWT Kent Wildlife Trust
 LNHS London Natural
 History Society
 MNE Maidstone Museum
 Herbarium
 MOD Ministry of Defence
 RNR roadside nature
 reserve
 WFS Wild Flower Society

Cichorium intybus L. (Chicory)

Draft account

vc 15 and 16

Rarity / scarcity status:

Chicory is currently regarded as an archaeophyte, or ancient introduction, having earlier been treated as a native, and is widespread in England and Wales, less so in Scotland and Ireland. Although there has been a general decline (probably due to its decreased use as a crop, and hence diminished opportunities for recruitment to wild populations), the species is not specified as at risk in Great Britain as a whole, its conservation status being one of 'Least Concern'. However, in England there is evidence of decline sufficient for it to be treated as **Vulnerable** to the threat of extinction in the wild. A comparison of its area of occupancy in England over the periods 1930-1969 and 1987-1999 produced a calculated decline of 35% in the likelihood of recording the species. In Kent, it is neither rare nor scarce but, comparing the periods 1971-1980 and 1991-2005, Philp (2010) shows a major decline in tetrad records of 51% over those given in Philp (1982).

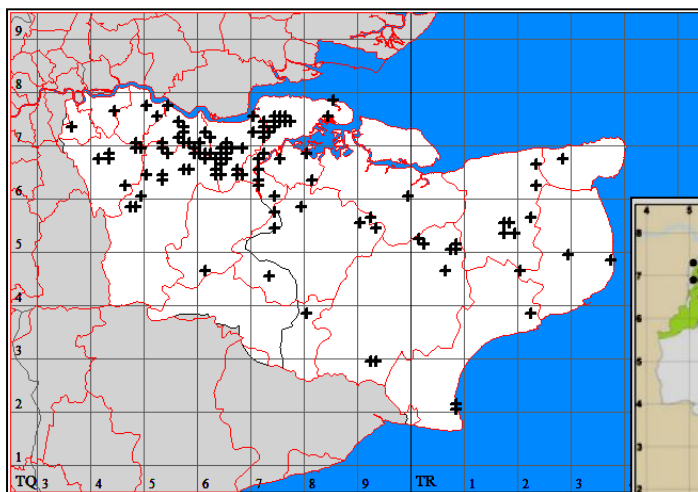


Fawkham. Photo by David Steere, 30 August 2013

Account:

Cichorium intybus was first recorded in the wild in Kent by Thomas Johnson on 13 July 1629, in the course of pursuing the main road from Gravesend to Rochester (*Iter Plantarum*, 1629). Hanbury and Marshall (1899) stated that it was common on fields and roadsides in most parts of the county, especially on chalk. However, it does not feature in a number of earlier accounts of the Kent Flora, and there is reason to suppose that it may have been commonest in the north west. For example, Daniel Cooper in his *Flora Metropolitana* (1836) noted it on the roadside between Dartford Heath and Green Street Green, at Darenth Wood, on Gravel Hill between Swanscombe and Northfleet, and at Lewisham chalkpit.; and Eyre De Crespigny in his *New London Flora* (1877)

referred to Chicory in the area of the North Downs near Sevenoaks, at the hills east of Wrotham, and at Cobham / Cuxton.



Cichorium intybus (Chicory) 2010-17



Cichorium intybus (Chicory) 1991-2005

Philp (1982) treated the species as probably native in Kent, and found it to be frequent on roadsides and waste places, especially on chalky soils, with a total of 143 tetrad records. These are shown with a heavy concentration in the north west of the county. In Philp (2010) only 70 tetrad records could be found, and *Cichorium intybus* was described as 'introduced (archaeophyte) but with some justification to be considered native... on roadside verges, field margins and rough grassland'. No comment was offered on the cause of this significant decline. The cause is unlikely to be an issue of habitat loss, since roadside and ruderal areas continue to be available. It may be that the 'national' explanation of diminished use in cultivation applies, although there is still some Kent use of Chicory as part of a fodder crop, and the species can be found in some wildflower and game bird food seed mixes. It was seen, for example, near Harrietsham in 2015 in a field with game bird food species such as *Echinochloa frumentacea* (White Millet), *Raphanus sativus* (Garden Radish) and *Setaria pumila* (Yellow Bristle-grass).



Records for 2010-17, given in the accompanying map, amount to 112 monads and broadly corroborate the pattern shown in the 1991-2005 distribution map from Philp (2010), reproduced with kind permission of the late Eric Philp and the Kent Field Club). In interpreting the north west Kent distributional focus, it should be noted that the 2010-17 map includes metropolitan West Kent, which was not covered by the surveys in Philp (1982, 2010). As recent recording has developed, it looks likely that the extent of decline since Philp (1982) may have been overstated.

Farningham Wood. Photo by David Steere, 20 July 2013

Cichorium intybus is a perennial and, once established, its thick tap-root should enable it to penetrate below shallow soils and withstand drought conditions. Our recent records suggest both wild (on roadsides) and sown (wildflower) status. The arguments for non-native status include the absence of fossil record; a history of cultivation; and a predilection for

open, ruderal habitats. We do not yet have data as regards the extent to which our plants are the possibly native subsp. *silvestre* (inner involucre bracts 10-12 mm, linear-lanceolate) rather than the crop-derivative subsp. *intybus* (inner involucre bracts 13-15mm, oblong-lanceolate) – disregarding the well-branched, lettuce-leaved subsp. *foliosum*, a market garden plant (bracts similar to subsp. *silvestre*, but lanceolate).

Habitat, common land, Green Street Green.
Photo by Geoffrey Kitchener, 19 July 2015



Cicuta virosa L. (Cowbane)

Draft account.

vc 15 (introduced) and 16 (spread from introduction)

Rarity / scarcity status:

Cowbane is a local plant, primarily of East Anglia, west central England and Ireland, and regarded as nationally scarce, but with fairly stable populations. It is accordingly treated as carrying no particular conservation concerns, both in England and in Great Britain as a whole. The species has not traditionally been regarded as part of the Kent flora. It has been recorded as an established introduction in East Kent and as present in a natural waterside habitat in West Kent; in which it appears to have arrived, river-borne, from an introduced population upstream. Accordingly, its status for the purposes of the Kent rare plant register is marginal, although it is **rare** in the county.

Account:

Hanbury and Marshall (1899) were not satisfied that *Cicuta virosa* had ever been found in Kent. Records for Canterbury and Ashford published in 1805 had already been discounted, as attributable to *Oenanthe fluviatilis*. The authors also entirely distrusted records for Graveney and from Minster, Monkton and St Nicholas Marshes, on the basis that *Berula erecta* or *Oenanthe crocata* were more likely.

No confirmed sightings¹ have been identified until 2005, when it was located by Susan Pittman (conf. Joyce Pitt) on the banks of the River Eden near Penshurst (TQ 5185 4393). This was a surprising discovery: the nearest other current populations were at Burton Mill, Sussex, East Anglia or introduced at Camley Street Nature Park in London. Despite it being a fairly sizeable umbellifer, it was inconspicuous as being set low near the water, with obscuring vegetation on the banks above. It was visible from the opening afforded by a fishing point. It has not been re-found there on subsequent search. However, in 2014 Geoff Joyce pointed out that there was a potential source upstream (7km or so) at Hever Castle, where the plant is grown in the water maze, constructed in 1997 on the north side of the lake fed by the River Eden. From there, it has become naturalised in places along the northern lake margin of (per Stephen Lemon, 14 June 2014); and seed (or the new overwintering rootstocks which form at the base of the old one which dies at the end of the year, and which are capable of detaching themselves and forming propagules) would be capable of being carried onward by the River Eden. So whilst it is fair to assume that Cowbane was not planted at Penshurst, it apparently derives from an introduced source.



Hever Castle water maze, with Cowbane. Photo by Stephen Lemon, 14 June 2014.

¹ However, a 2001 record for the lake off Waterfall Road, Hothfield (TQ 978 445) may warrant further investigation.

On 16 September 2010 it was also identified by Heather Silk at Sheldwich (TR 011 565), where there were ten to fifteen plants around and in the middle of the school pond, constructed about 20 years before. There was no local knowledge as regards its planting, but the assumption must be that this was originally an introduction, although by then well established. Its discovery caused some local concern because of its toxic reputation,

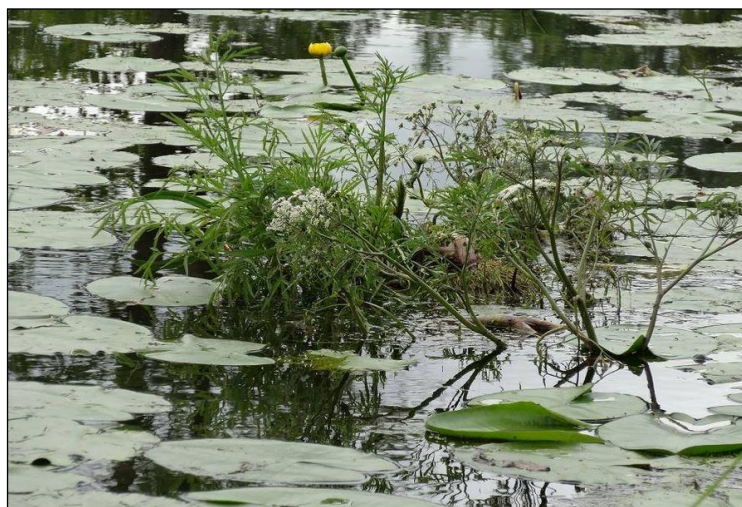


although it might be queried whether a common (but also poisonous) plant such as *Oenanthe crocata* would have caused the same apprehension. The future of the site was not secure, as it became earmarked for a school extension.

Sheldwich. Photo by Heather Silk, September 2010.

Cowbane is a perennial which grows in shallow water at the margins of ponds and rivers. It is distinctive by virtue of the long, narrow, toothed segments of its compound leaves, and its globular fruits.

Hever Castle lake. Photo by Stephen Lemon, 14 June 2014



Sheldwich. Photo by Heather Silk, September 2010

Cirsium eriophorum (L.) Scop. (Woolly Thistle)

Draft account.

vc 15; long gone from vc 16

Rarity / scarcity status:

Cirsium eriophorum is not uncommon on chalk, limestone and calcareous clay in central south England, being probably most abundant in Avon, Gloucestershire, Oxfordshire and Wiltshire. It is less frequent further north, extending as far as Co. Durham, and is very local in the south east. Its threat status is of 'Least Concern', both in England and in Great Britain as a whole. In Kent, it is confined to East Kent and is **scarce**.

Cheriton Hill. Photo by Liam Rooney, 2013

Account:

The first published record for Woolly Thistle in Kent is in a paper submitted by Lewis Dillwyn to the Linnean Society in 1801, a *Catalogue of the more rare Plants found in the Environs of Dover, with occasional remarks*², in which it is referred to as "about a farm called Polton, near Raddigund's Abbey; and about the ruins of Lymne Castle". Although it was given in a list of plants at Stone chalk pit published by



Daniel Cooper in 1836, it seems to have had very little presence in West Kent and its core Kentish distribution has always been in East Kent, especially on the chalk around Folkestone. Hanbury and Marshall (1899) referred to it as rare, on downs, etc., on chalk and greensand. In the mid-1950s, Francis Rose³ referred to its primary locations as at Postling Downs and Cheriton Downs, where it persisted in abundance. It is still (2013) plentiful in the Cheriton Hill area: 800 plants have been counted in this vicinity. Philp (1982) gave it in six tetrads, reduced in Philp (2010) to four, all still in the Folkestone area and relating to roadside and other grassy areas on the chalk. One of the four tetrads relates to Beachborough, a site of long standing, since it is mentioned in Hanbury and Marshall (1899). Arpinge is in this vicinity, and 600 plants have been counted in 2013.

Cheriton Hill. Photo by Geoffrey Kitchener, 11 July 2013

Woolly Thistle is a tall (usually) biennial plant, distinctive by virtue of its stature and the very large, almost globular flower-heads with their bracts enveloped in white woolly hairs. Its scarcity in Kent (and Sussex and Surrey) may be attributable (Tofts, 1999⁴), not so much to lower rainfall than is found in its core national areas of distribution, but to the effect of the summer water balance (i.e. the difference between rainfall and

² *Transactions of the Linnean Society* (1802), 6: 177-184.

³ F. Rose (1960). Botanical Records for Kent 1955-58 – vascular plants. *Transactions of the Kent Field Club* 1: 56-65.

⁴ R. Tofts (1999). *Cirsium eriophorum* (L.) Scop. (*Carduus eriophorus* L.; *Cnicus eriophorus* (L.) Roth). *Biological Flora of the British Isles. Journal of Ecology* 87:529-542.

evaporation), the species being scarce or absent from areas where an agricultural drought might be expected in more than five summers out of 10. Open ground will assist germination and establishment, and it appears tolerant of trampling on path-sides; but it will grow in rank grassland. Because of its spines it is not susceptible to grazing other than when young; and rabbits appear to avoid it. Mowing is deleterious.

Site	Grid reference	Site status	Last record date	Recorder	Comments
Sellindge	TR03Y		After 1990, before 2006	EGP (Philp, 2010)	
Postling	TR1439		(1) 26 May 2016 (2) 6 June 2010	(1) SC (2) AG	(1) TR146393, ten plants. (2) Two rosettes seen at the eastern end of the downs during KFC visit. Hanbury also saw it near Postling Church, before 1899.
Beachborough	TR13U		After 1990, before 2006	EGP (Philp, 2010)	A location given in Hanbury and Marshall (1899). This tetrad includes the sites TR1638 and TR1738 set out below.
Etchinghill / Beachborough	TR1638				Two flowering plants at TR 1630 3815 and a few rosettes scattered across chalk escarpment.
Near Etchinghill	TR1738		12 August 2013	AG	Several plants at TR 1788 3874.
Arpinge	TR13Z		After 1990, before 2006	EGP (Philp, 2010)	May be the same area as either of the next two entries.
Arpinge - Peene	TR1838	MOD land	(1) 12 August 2013 (2) 18 June 2011 (3) August 2010	(1) AG (2) SB (3) AG	(1) Estimate of 600 flowering plants in vicinity of TR 1812 3884. Total number of plants probably in thousands. Most at head of main Arpinge combe in patches of grassland that were cleared of scrub by MOD a few years before. (3) Single plant on chalk slope TR 18434 38685, KFC meeting on Army land. (3) Abundant in disturbed ground at the base of the downs.
Folkestone - Cheriton	TR1938		(1) 30 July 2010 (2) 7 August 2009	(1) SC (2) RM	(2) TR 198 383.
Cherry Garden	TR2037		11 June 1997	FR	Occasional
Cheriton Hill	TR2038		(1) 20 August 2013 (2) 11 July 2013	(1) CO (2) PG, LR & GK	(1) 15 plants (14 flowering) at top of escarpment adjoining road from TR 201 382 to TR 210 382. Usually a few additional plants along rest of escarpment around triangulation point. (2) Chalk downs escarpment in various locations, e.g. disturbed ground at TR 2055 3820, rosettes on trampled path-side around TR 2076 3807, large plant at TR 2073 3805. PG has counted 800 plants in the Cheriton Hill area some years before.
Folkestone – Castle Hill	TR2137	SSSI	(1) 5 May 2017 (2) 13 August 1991 (3) 22 June 1986	(1) SB & AG (2) JP (3) FR	(1) A single plant at TR2147 3790 (2) Castle Hill. (3) Round Hill to Castle Hill, chalk scarp.
Folkestone	TR23E		After 1990, before 2006	EGP (Philp, 2010)	May be same as last entry.

Cladium mariscus (L.) Pohl (Great Fen-sedge)

Draft account

vc 15

Rarity / scarcity status:

Great Fen-sedge is widely scattered and locally common in the British Isles, primarily in East Anglia, West Scotland and in Ireland, its conservation status being of 'Least Concern', both in England and in Great Britain as a whole. In Kent it has in recent times been restricted to four sites, and is very **scarce**.



Habitat at Dungeness. Photo by Geoffrey Kitchener, 20 June 2012

Account:

Cladium mariscus was first recorded in Kent by Lewis Dillwyn 'In Ham Ponds near Eastry' in a listing of East Kent plants presented to the Linnaean Society in 1801 (published in their Transactions of 1802). Hanbury and Marshall (1899) give other historic records in this general area, but not elsewhere. It remains at Ham Fen, an area at which alkaline peat developed where the historic Stour estuary (since reclaimed and now inland) received drainage from the chalk. The species was later recognised as being present at Dungeness, from which Francis Rose collected material in 1952-54, describing the site as a fen developed from a former freshwater pond. A location analogous to that at the Dungeness RSPB reserve (not given in Philp 1982 or 2010, but probably now lost) has also been recorded at the Lydd Ranges.

Its presence at Hare and Billet Ponds, Blackheath, vc16 (2012, JC), is not given in the data table below and is doubtless an introduction, perhaps with the intention of 'improving' the native flora.

Dungeness. Photo by Liam Rooney, 13 July 2013



Great Fen-sedge is found in wet areas, often base-rich, where its creeping rhizomes give rise to dominant patches of coarse growth. It would potentially be at risk if lowering of the water table occurred at any of its sites. It is not readily confusable with other sedges/rushes, and is notable for the saw-toothed leaf margins.

Site	Grid reference	Site status	Last record date	Recorder	Comments
Lydd Ranges	TR0319	MOD land	c. 1990-91	BF	Inside the fence along Galloways

					Road near Lydd Camp, and in a small wetland hollow, on the edge of a tongue of shingle projecting into marsh, TR 0398 1939. This area (2012) since heavily scrubbed over, and the plant is believed lost.
Dungeness	TR0618	RSPB reserve, SSSI	(1) 27 November 2016 (2) May 2012 (3) 15 June 2010	(1) BBS meeting (2) BB (3) GK	(1) West side of Open Pit 6 (Cladium Pit), TR06521838. <i>Phragmites</i> dominated peat in wet open fen. Strong growth along north western corner of pit. (2) Recorded as at the freshwater pit (no. 6), TR 0652 1840. Additionally, a young plant, found in the interior of pit no.6 in 2011, was not re-found in 2012. (3) Recorded as at TR 0653 1839 (same site). There is a long recording history at this location, at the western end of pit no. 6. It is (2010) in a crescent shape (each horn being c. 15m long, and the width of the colony up to 5m), following the curve of the end of the pit. There is <i>Phragmites australis</i> adjoining on the (wetter) inside of the curve and <i>Juncus</i> spp are on the outside.
Greatstone	TR02R		28 July 2000	EGP (Philp, 2010)	A few clumps in a small marshy area at a dyke, north Romney Salts. [Not found, 2013, GK.]
Ham Fen	TR3354	SSSI	(1) 19 July 2017 (2) 1 August 2012 (3) 26 August 2006 (4) After 1990, before 2006	(1) SB & SL (2) SB (3) JS (4) EGP (Philp, 2010)	(1) Ham Fen. Three fruiting spikes seen at TR3338 5492 (2) Six to ten flowering spikes at TR 33382 54920. (3) TR 3309 5483 (4) Recorded as T35H. This is our oldest site, from 1801, and known to FR in the 1940s as locally dominant, occurring as a series of scattered, extensive patches.



Dungeness. Photo by Liam Rooney, 20 June 2012



Dungeness. Photo by Geoffrey Kitchener, 20 June 2012

Clinopodium acinos (L.) Kuntze (Basil Thyme)

Draft account

vc 15 and 16

Rarity / scarcity status:

Clinopodium acinos is an annual requiring open ground and favouring calcareous soils, often found on eroding slopes, disturbed dry grassland and decreasingly on arable margins. Its arable presence has been diminishing as a result of more efficient weed control and this has led to its designation as **Vulnerable**, both in England and in Great Britain as a whole. As a result of its marked decline it is also treated as a priority species for the UK Biodiversity Action Plan, which puts forward actions such as creating skeletal grassland / bare ground communities on chalk or limestone within its range, ensuring that appropriate agri-environmental options are available to farmers on a targeted basis and developing a surveillance and monitoring programme. In Kent there is also evidence of substantial recent decline, although it is still sufficiently widespread that no rarity or scarcity designation is applied.



Fowlmead. Photo by Mel Lloyd, July 2011

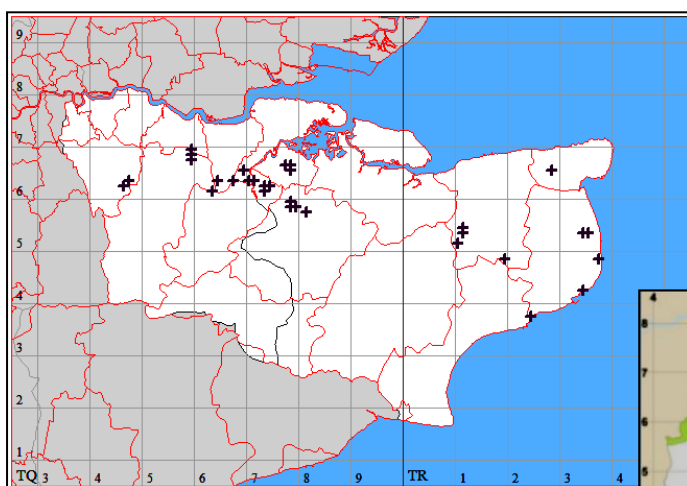
Account:

Basil Thyme was first recorded in Kent by Johnson, who found it on both of his Kent journeys. The first of these occasions was given in his *Iter Plantarum*, being on 14 July 1629, when the plant was found on climbing the hill from Chatham towards Gillingham. Hanbury and Marshall (1899) assessed it as frequent on rough banks and in dry fields, especially on the chalk downs, and occurring in all botanical districts. This last observation might suggest that the species extended, presumably in arable, into the Weald (which it does not do now); but Hanbury and Marshall constructed their southern botanical districts so as to run northwards as far the downs, and this could account for the reference to all districts. By the time of Philp (1982), Basil Thyme was regarded as rather local, usually on the chalk, and it was recorded in 87 tetrads in the administrative county. A significant decline seems to have taken place by the survey of 1991-2005, published in Philp (2010), when only 21 tetrads were listed. It is assumed that the reasons for this are principally the same as apply nationally, viz. changes in weed control.

It is regarded nationally as a good indicator species for a threatened habitat, but this may be in the context of the conversion of chalk and limestone pastures into arable, perhaps more applicable to areas other than Kent. Nonetheless, its presence in Kent probably indicates a habitat with potential for good quality flora: it has been recorded in conjunction with *Ajuga chamaepitys* (Ground-pine) and *Vulpia unilateralis* (Mat-grass Fescue). All these are species favouring sunny, crumbling semi-bare chalk slopes. Basil Thyme is a component of the *Festuca ovina*- *Carlina vulgaris* (CG1) plant community, and the *Festuca ovina*- *Hieracium pilosella*- *Thymus praecox* / *pulegoides* (CG7) community.

As this species is not uncommon in Kent, the distributional data maintained in this register will be at 1km square (monad) level. This will entail recording at a finer scale than the tetrads given in Philp (2010), from which the accompanying 1991-2005 distribution map is taken (with kind permission of the late Eric Philp and the Kent Field Club). The 2010-17 recording data (with records from 31 monads, equivalent to 25 tetrads) have now exceeded the number of tetrads as recorded in Philp (2010), but while it is evident that the same general chalk-related distribution pattern is shown, many of the sites are different; so that it may be that

further recording can fill in some of the missing sites as well, which may indicate that decline from the 1971-80 survey, substantial as it appears to be, may not be as great as might be supposed.



Clinopodium acinos (Basil Thyme)
2010-17



Clinopodium acinos (Basil Thyme)
1991-2005



Halling. Photos by Lliam Rooney,
19 June 2012

Clinopodium calamintha (L.) Stace (Lesser Calamint)

Draft account.

vc 15 and 16

Rarity / scarcity status:

Clinopodium calamintha is, in the British Isles, primarily a plant of the south east, particularly Essex and, to a lesser degree, Kent. Its historic range in east England has apparently contracted considerably, probably due to habitat destruction and changes in grassland cutting regimes (flailing of verges and close mowing of churchyards or similar habitats). This has led to it being classified as **Vulnerable**, both in England and in Great Britain as a whole, and it is also nationally **scarce**. In Kent, it is treated as **scarce** as well.



Lesnes Abbey. Photos by Chris Rose, 3 October 2010

Account:

As with Basil Thyme, Thomas Johnson's two journeys into Kent account for the first published records. In his *Iter Plantarum*, he recorded *Clinopodium calamintha* as *Calamentha pulegii odore* Lob., by the public highway between Gillingham and Sheppey on 14th July 1629. Along this route Francis Rose (in the 1972 edition of Johnson's *Iter Plantarum*) noted the species as still abundant at Key Street and Bobbing. Johnson during his second journey encountered this species on his return from Faversham, via

Sittingbourne, Rochester and Gravesend on 5th August 1632. The route would have passed near localities which Francis Rose (in Johnson's *Descriptio Itineris*, the 1972 edition) also noted the species as still present - plentiful at Key Street and Chestnut Street near Sittingbourne and, until (then) recently, along Watling Street near Norton. His general assessment⁵ of this species was that it was rare, but scattered along the valley- and river terrace-gravels from Abbey Wood to Faversham, where it was locally abundant, with an outlier on the Medway gravels at Leybourne. It was formerly more widespread from Charlton to Thanet.



Its rarity has increased since then. From 11 tetrads in the administrative county for the period 1971-80 (Philp, 1982), it was subsequently, in 1991-2005, found in only six tetrads, having appeared to have gone from some of its former sites. Several current sites have a long history of records, in addition to (possibly) Chestnut Street

⁵ In his manuscript *Flora of Kent*.

mentioned above, e.g. Lesnes Abbey, Greenhithe and Leybourne. Records for 2010-17 are still for only six tetrads (the equivalent of nine monads).

Lesser Calamint favours sunny, semi-open, south-facing banks, typically calcareous with sandy or gravelly soil. It is a short-lived perennial with a late flowering period (and hence seed-set), so that it is at risk from any mowing regime which cuts back growth without leaving time for seed-set. Semi-open conditions assist with seedling establishment, but the species can survive in more extensive vegetative cover. It may be found on roadside verges and pastures, frequently associated with *Rumex pulcher* (Fiddle Dock), which also grows in sandy / gravelly grassland. It is drought-resistant, and Francis Rose referred to it remaining fresh right through the great drought of 1959.

	Grid reference	Site status	Last record date	Recorder	Comments
Lesnes Abbey	TQ47T		(1) 19 August 2017 (2) 3 October 2010	(1) RMB (LNHS meeting) (2) CR	(1) On east side of gravel pit TQ 4778 7887 etc. - has increased greatly over 20 years with conservation effort. (2) Photographed in abundance on slope near Abbey. Site is also mentioned by Hanbury and Marshall (1899). Maintained by Lesnes Abbey Conservation Volunteers, e.g. reducing bramble. Bexley Council has BAP policy: "PA01-05 Manage the vegetation in and around the colony of Lesser Calamint near Lesnes Abbey (its only London site) to promote its survival and spread, including removal of encroaching trees as necessary".
Farningham Road station	TQ5569		1998	RMB	TQ 5575 6929, embankment.
Stone	TQ5574		1997	JRP	TQ 577 745, churchyard.
Bluewater	TQ5972		13 July 2011	GK	Eastern Quarry, on chalk.
Greenhithe	TQ5873, TQ5874		(1) 2 October 2012 (2) After 1990 and before 2006	(1) GK (2) EGP (Philp, 2010)	(1) From TQ 58547 73943 to TQ 58563 74074, in and around chalk grassland scrubbing over, and adjoining field bank. Abundant, even in quite shady scrubbed areas, but in 2014-15 this area was in course of housing development. (2) Location given as TQ57X. Hanbury and Marshall (1899) mention the species as present in woods and lanes around Greenhithe.
Leybourne	TQ65Z		After 1990 and before 2006	EGP (Philp, 2010)	There is a history of records in the Leybourne area, including Hanbury and Marshall's reference (1899) to the Rev. W.M. Rogers having found it in great plenty around Leybourne Castle; and 1944 material in MNE from FR, referring to the castle and a gravelly pasture by the churchyard.
Hartley	TQ6166		25 July 2004	BW	Foxbrough wood.

[Holborough]	[TQ76B]		[After 1990 and before 2006]	[EGP (Philp, 2010)]	The colony recorded as this species was revisited on 4 August 2013. It is at TQ 7104 6283, spread over an area of about 30 x 30m down by the river on old industrial land. On careful examination it appeared to be atypical <i>C. ascendens</i> , and not <i>C. calamintha</i> (DG & SP).
Blue Bell Hill	TQ7460		15 August 2004	DM & FB	TQ 7491 6085.
Staplehurst	TQ7944		2004	MH	Road-verge near bridge.
Danaway	TQ8662		14 August 2015	SB	A patch about 3 metres long on a wide grassy roadside verge at TQ 86037 62853. Obviously a known, managed site as recent mowing had avoided the plants. Also scattered plants alongside a dry roadside bank at TQ 86016 62893.
Chestnut Street	TQ8763		(1) 16 October 2012 (2) 2 August 1991	(1) GK (2) EGP	(1) Abundant for about 40m of roadverge and south-east facing grassy bank below, in adjoining pasture, from School Lane junction with Chestnut Street towards the Tudor Rose pub. TQ 87668 63961 to TQ 87636 63938. Well grown and flowering in pasture despite horses. Soil overlies chalk. (2) Specimen in MNE from the (old) A249 roadside verge. Recorded as TQ86R, but thought to be at TQ 875 638, although TQ8662 records (above) are in the same tetrad. This area has a long history of records – see above.
Bobbing	TQ8864		23 October 2012	LR & GK	Abundant along c. 45m of north side of former Bobbing Hill road (closed in relation to construction of current line of A249 and Sheppey Way) between TQ 88322 64749 and TQ 88369 64747. Numerous plants and seedlings along this stretch, both on verge and in cracks of pavement and in gutter. Probably Johnson's original 1629 route.
Kingsferry	TQ9169		(1) 27 August 2013 (2) After 1990 and before 2006	(1) RG, LR & GK (2) EGP (Philp, 2010)	(1) TQ 91221 69163, numerous plants along slope of 15m stretch of embankment, made ground between Sheppey Way and the railway, where old and new bridges over the Swale intersect. (2) Given as TQ96E.
South of Danaway	TQ9662		14 August 2015	SB	(a) Scattered plants alongside a dry roadside bank at TQ86016 62893. (b) A patch about 3 metres long on a wide grassy roadside verge at TQ86037 62853. Obviously a known, managed site as recent mowing had avoided the plants.
Dover Castle	TR34F, TR34G		(1) August 2015	(1) EB	(1) TR 32619 41716, Dover Castle,

			(2) July 1994	(2) JP	on the bottom of a grassy slope next to a path and running along that area. (2) Dry banks, both tetrads.
St Peter's, Thanet	TR36Z		After 1990 and before 2006	EGP (Philp, 2010)	



At Bobbing, along the route probably taken by Thomas Johnson in 1629, when the species was first recorded for Kent. The calyx teeth characters and protruding hairs in the calyx tube distinguish it from *Calamintha ascendens* (Common Calamint). Photo by Liam Rooney, 23 October 2012

Comarum palustre L. (*Potentilla palustris* (L.) Scop.) (Marsh Cinquefoil)

Draft account

vc 15; long gone from 16

Rarity / scarcity status:

Comarum palustre is common over much of the British Isles, but increasingly local or rare in central and southern England. It is not regarded as being at risk in Great Britain as a whole, and so its conservation status there is of 'Least Concern', although in England it has become **Near Threatened**. In Kent it is **rare**.



Dungeness. Photo by Geoffrey Kitchener, 15 June 2010

Account:

Marsh Cinquefoil was first published as a Kent species by Daniel Cooper in his *Flora Metropolitana* (1836), representing the results of excursions in 1833-35. He noted it at Keston Mark or Common, from which it has not since been recorded. Hanbury and Marshall (1899) regarded it as very rare, in spongy bogs and pond borders. Its most constant (and last remaining) station is at Dungeness, where it was described by George Dowker in 1867⁶ as appearing "in great profusion in the beach ponds – the only habitat I know in East Kent", and where it

has more recently been recorded in three tetrads in Philp (1982) and two in Philp (2010). These more recent records were in dykes or other damp areas, hollows and about pools. A major new site was found further north by Tim Inskipp in 2013, with some 600 plants present in a wet depression lying north-south in the shingle between Lade, Lydd-on-sea and Lydd airport.

Habitat at Dungeness. Photo by Geoffrey Kitchener, 15 June 2010

It spreads by rhizomes and may be found straggling through *Juncus* and *Carex* spp. in permanently wet ground and floating vegetation mats at the edge of the Open Pits at Dungeness.

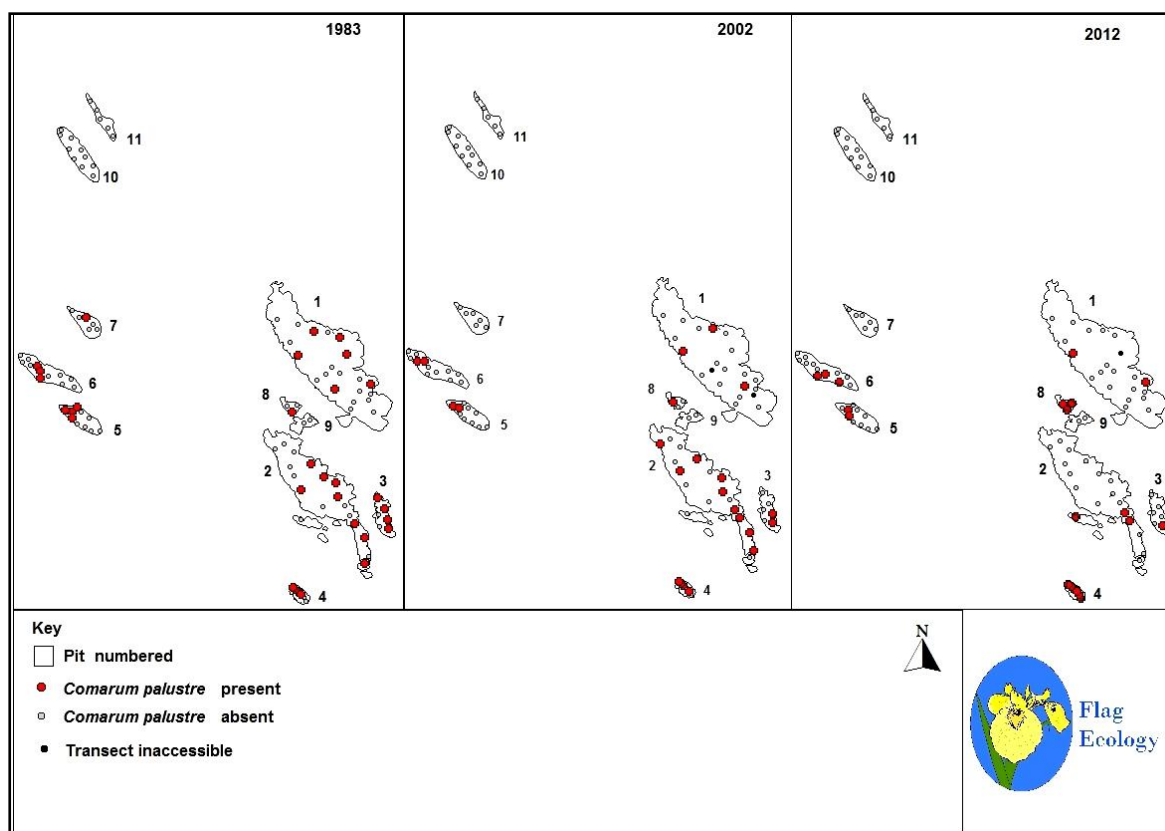
Transects of 10 x 1 metres have been regularly surveyed there for the RSPB and the accompanying map (included by kind permission of Flag Ecology and the RSPB⁷) indicates presence/absence in the relevant transects in 1983, 2002 and 2012. Whilst the map is not a full distribution map, in the sense that it relates to the surveyed transects only, there is evidence for decline of *Comarum palustre* in this location, having only been found in 18 transects in 2012, whereas it was present in 23 in 2002



⁶ Report of the East Kent Natural History Society, Session 1867. p.32.

⁷ Unpublished report (2013), B. Banks & B. Ferry: Fen Vegetation Monitoring, Dungeness RSPB Reserve.

and 30 in 1983. It has disappeared from pit 7 and has become very rare in pit 3. Indeed, in the context of the transect vegetation as a whole, *Comarum palustre* lies amongst the top ten declining plants, which is a disturbing trend. Over-shading by developing *Salix* spp. appears to be a major factor.



The following data table represents records other than the survey data given above.

Site	Grid reference	Site status	Last record date	Recorder	Comments
Dungeness	TR01T		(1) 10 July 2016 (2) 2012 (3) After 1990 and before 2006	(1) KBRG meeting (2) BB & BF (3)EGP (Philp, 2010)	(1) In Open Pits 3 and 4, TR0717. (2) TR0717. (3) Recorded as TR01T.
Dungeness	TR01U	SSSI	(1)13 May 2017 (2) 10 July 2016 (3) 25 July 2012 (4) 15 June 2010 (5) After 1990 and before 2006	(1) SL (2) KBRG meeting (3) SB (4) GK & BG (5) EGP (Philp, 2010)	(1) Dungeness RSPB Reserve, west side of Open Pit 6 (<i>Cladium</i> Pit), TR 065 183. (2) Open Pit 2, TR0718. (3) TR0618. About 20 plants at TR 06593 18353 in <i>Cladium</i> Pit. (4) TR0718. A colony c. 15 x 10m spreading in wet area of pit 8 where cleared of <i>Salix</i> , TR 0723 1827; also small quantity at edge of pit, TR 0745 1835. (4) Recorded as TR01U.
Dungeness	TR01Y		After 1970, before 1981	Philp, 1982	
West of Lade / Lydd-on-sea	TR0720		15 June 2013	TI	TR 07117 20887, 600 plants

***Crassula tillaea* Lest.-Garl. (Mossy Stonecrop)**

Draft account

vc 15

Rarity / scarcity status:

Mossy Stonecrop is not uncommon in East Anglia and Dorset and has been expanding its range, so that its conservation status is generally one of 'Least Concern', both in England and in Great Britain as a whole. It may not be a native of long standing in Kent, but had been supposed to be extinct for many years. Currently its Kent status is **rare**, with only three known localities.

Account:

Early occurrences of this species in Kent are somewhat obscure. There is a specimen at Perth Museum and Art Gallery, apparently donated by Prof. J.H. Balfour (1808-84), labelled as from vc 16, London, which raises



questions as to its exact provenance and status. It was also recorded around 1900 from Sandwich, but although there is apparently suitable sandy terrain there, it failed to persist.

Lydd Ranges. Photo by Owen Leyshon, 7 August 2012

In 2012, it was discovered by a group of botanists in the course of an exploration of Ministry of Defence lands at Lydd Ranges. The location was reminiscent of the species' Breckland habitats, a trackway passing over

open, fairly bare sandy ground with planted conifers in the vicinity. *Crassula tillaea* was found scattered but frequent on the compacted shingle/sand of the trackway from its junction with a military road at TR 03785 19888 for about 100m east south-eastwards to TR03878 19865. It was also present on compacted sand, often devoid of other vegetation, for a couple of metres either side of the trackway.

Lydd Ranges, habitat. Photo by Owen Leyshon, 7 August 2012

Then in June 2013, Owen Leyshon found on the dirt edge of Galloways Road which runs alongside Lydd Ranges, thousands of plants extending from (south) TR 03978 19758 for at least 450m to TR 04218 20178 (north towards Lydd), and present also in the fishermen's car park on the lake side (TR 04019 19794) of the road. This population

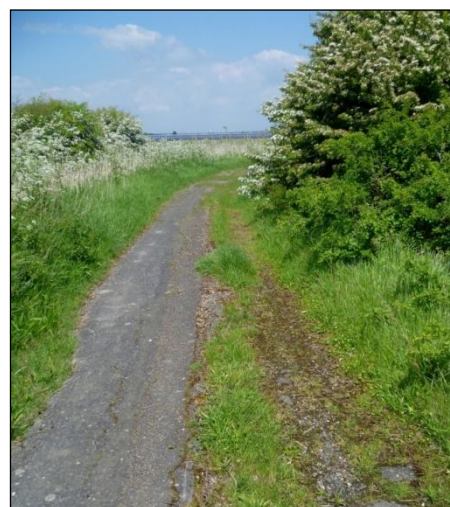


appears very likely related to that found in 2012. They are only 140m apart and although they are currently separated by security fencing, it is possible that vehicles may have passed from one location to the other when conditions permitted. The only normal use of the Lydd Ranges location would be for the passage of military

vehicles. Whilst the plant may be native here, given that it could have long been overlooked due to access restrictions (albeit that Galloways Road is not subject to the same restriction level as the fenced-off ranges), there is a strong possibility that seed may have arrived with military vehicles from East Anglia or Dorset.

This possible explanation of origins is not particularly compatible with a third site, also found by Owen Leyshon. In Millbank Lane, south west of Old Romney, some three hundred plants were discovered on 11 May 2014. These stretched for about 10 metres, between TR 01964 24994 and TR 01949 24983, in a dried up puddle/depression at the largely disused lane. The site is close to a new solar panel farm. It does not appear particularly affected by construction works, but it is of interest that this species was discovered at Cambridgeshire in 2014, apparently associated with new development (pers. comm., Alan Leslie).

Near Old Romney,
habitat. Photos by
Owen Leyshon, 11 & 16
May 2014



Mossy Stonecrop is a minute annual which would be at risk of overshadowing by any other vegetation and so prefers open terrain. Its affinity for compacted ground is probably related to the assistance given to autumn germination and establishment by retention of water in what, but for the compaction, would otherwise be a free-draining substrate.



Lydd Ranges. Photo by Sue Buckingham, 7 August 2012

Crepis foetida L. (Stinking Hawk's-beard)

Draft account

vc 15 (having been considered extinct); long gone from 16

Rarity / scarcity status:

Crepis foetida is considered to be an archaeophyte, or ancient introduction, and has been regarded as extinct in the wild in the British Isles since 1980. It is possible, however, that its extinction was not total in Kent, and that there is a surviving colony, so that the species continues as being extremely **rare** in Kent and nationally. **Its status is Critically Endangered in England and visitors to the current site are asked to tread carefully. Young plants are inconspicuous and have been damaged with stems snapped through trampling in search of the species.**

Account:

Population trends

The Stinking Hawk's-beard formerly possessed a scatter of records in the county on well-drained substrates, either on chalk or gravel / shingle.

The first published record is that of Blackstone in his *Specimen Botanicum* (1746), in which he refers to the Small rough Succory-leaved Hawkweed at Northfleet Chalk-pits. Other early records give the species along the North Downs from Knockholt to Wrotham and on the chalk exposures of north west Kent (e.g. Charlton chalk-pits, Greenhithe, Gravesend chalk-pits). The chalk-pit occurrences are suggestive that disturbance may have accompanied a bare, well-drained, nutrient-poor habitat. These chalk-related records barely continued into the 20th century, although W.H. Griffin found the species in 1903 on waste ground above Swanscombe Marshes (there were chalk workings in this area, also)⁸.

Lydd-on-Sea. Photo by Brian Banks, 7 July 2010



In contrast, East Kent occurrences have mostly related to growth on gravel or shingle. *Crepis foetida* was especially known in the 19th century from the coast between Deal and Kingsdown, J.T.B. Syme recording it as abundant on the shingle between Walmer Castle and Kingsdown and collecting it there at least from 1860. Records just continued into the 20th century: Marshall still regarded it as present when writing his botany account for the *Victoria History of the County of Kent* (1908). Similarly, there was then extant a site by the shore at Hythe from which material was collected in the 19th century. This may well have been the shingly terrain now occupied by Hythe Ranges. The Hythe site, in terms of habitat and location, appears closest to the Dungeness area, which was (and it seems, still is) the last stronghold for the species, both nationally and in the county.

Dungeness was not recognized as a site for Stinking Hawk's-beard by Hanbury and Marshall (1899); and although most records are from the 1940s onwards (albeit recorded in 1932), there does not seem to be any substantive reason for supposing that it had not been long established there. The plant was well-known from

⁸ A Survey and Record of Woolwich and West Kent (1909), general eds. C.H. Grinling et al.

some limited spots in the extensive shingles of Dungeness, although one of the difficulties of communicating its situation before the availability of GPS tracking equipment was the lack of landmarks. This may have obscured the distinctness of some of the records and attention being given to the plant's decline. The first edition of the *British Red Data Book* (1977) refers to over 400 flowering plants having been recorded in one Kent colony in 1969, with only two plants being seen in 1970. There is also a sequence of records from a colony in TR0916, with Francis Rose having seen over 60 plants in both 1952 and 1953; down to 20 in 1976 (Eric Philp) and two plants (1980, Eric Philp, N. Riddiford and P. Horton). A further record in 1980 at TR093182 (Eric Philp and P. Horton) was regarded as related to this colony. The last records before the species was treated as extinct in the wild in the British Isles appear to have been these from 1980 and another made that year by L. Breda Burt at TR0917: "five plants, between the road and the bungalow of the elderly lady who breeds dogs. Plants used to be by the garden path in front of the bungalow and near the corner of the concrete blockhouse". There was also an unconfirmed 1981 record attributed to B. Hawkes somewhere north of the old Dungeness station. By the time that Rosemary FitzGerald took stock of the position in 1987, following abortive searches in 1985 and 1986, the species appeared to have vanished: "Being so well known, and so taken for granted, there were no questioning eyes watching its progress".⁹

Lydd-on-Sea. Photo by Liam Rooney, 20 June 2012

Reintroductions

Following the apparent extinction of *Crepis foetida*, various attempts were made to reintroduce the species, a thorough account of which is given by Brian Ferry et al. (2010)¹⁰. Using Dungeness seed held at Cambridge University Botanic Garden, pot-grown plants and seed were planted at the RSPB Dungeness reserve and in nine gardens at Dungeness village in autumn 1992. Following rabbit-grazing, a renewed attempt was made in autumn 1993, protecting plots with wire cages. Plant numbers peaked at around 250 in both areas in 1995-96, although in general plants did not spread more than seven metres from the cages, and there is little in the way of record of continued presence from 2001 onwards. Only one Dungeness village property appears to retain the reintroduced Stinking Hawk's-beard, and this is after a number of unsuccessful reintroductions there. It is a partly shaded location on shingle modified by content of sand, soil and crushed concrete, where about 40 plants have appeared regularly as at 2012 and domestic pets deter rabbit-grazing. In September 2008, introduction plots with rabbit-proofed fencing were set up near the RSPB visitor centre, but although plants appeared in 2009, none succeeded in 2010 or subsequently; and an introduction site at Boulderwall farm held plants in a fallow field (at TR 06043 19809) which has since reverted to permanent pasture and is infested by rabbits, which are destructive to Stinking Hawk's-beard.



In 1998 Stinking Hawk's-beard was made a priority species under the UK Biodiversity Action Plan, with a target to reintroduce it by 2003, either to its original sites or to alternatives. In 2000 it was reintroduced to Rye Harbour in East Sussex and in 2003 pot-grown plants were planted out at three chalk pits in north Kent (bearing in mind the early Kent records from this type of habitat). The chalk pit plantings gave rise to small populations which, however, had died out by 2008. The Rye population expanded considerably following the installation in 2005 of fencing to exclude rabbits; and a population in Northiam, East Sussex also developed

⁹ R. FitzGerald (1987): *Crepis foetida* L. Stinking Hawksbeard. Unpublished NCC report.

¹⁰ B. Ferry, B. Banks, J. Sears & C. Sculley (2010): Stinking Hawk's-beard – a reluctant candidate for Species Recovery. *British Wildlife* 21(4): 255-260.

following garden cultivation. The species' current status as a reintroduced plant more or less rests on the East Sussex populations, given the lack of success of the Kent reintroductions other than at the one property mentioned above.

Rediscovery

In July 2010 a visitor to a bungalow at Lydd-on-Sea, Dave Walker, suggested that the species was present there (it had been missed by many visiting naturalists previously). The occupier of the property, Dorothy Beck, recognised it as the source of an odour which had accompanied gardening operations for some time and which she connected with the sward, and indeed the white pappus clocks had been familiar as a regular occurrence in recent years. It transpired that the plant was present within the garden of the property, and was particularly abundant in frontage grassland outside the garden wall. This distribution also appeared to apply in relation to the similar adjoining property.

Lydd-on-Sea, habitat. Photo by Brian Banks, 7 July 2010



There is no suggestion that the species has been deliberately cultivated here: Dorothy Beck had occupied the property for the previous 7 years and knew the previous owner, first visiting some 35 years before. It is not possible to rule out that the reintroductions at Dungeness might have spread through wind-borne seed to this location, but this is relatively improbable in view of the limited success of the reintroductions and their distance (1.4km to the south east in the case of the Dungeness estate, from 2 to 2.7km to the south west in the case of the

RSPB reserve) in comparison with historic natural occurrences. There was formerly a natural population recorded some 440m to the south west, at the old railway and rail halt at Lydd-on-Sea. Also, the species was reported by the RH&D railway some 50m away in 1989, although Eric Philp was then unable to confirm presence, despite search. Plants have been found growing by the railway line between 2010 and 2012, 60 to 70 metres distant from this point. The likelihood is that the present colony is a survival from a population related to these records, rather than a spread from the reintroductions. An unconfirmed report around 2005 of a few plants in an unidentified garden just over 1km north may also relate to the railway corridor, but falls short of providing further evidence.

At the bungalow in 2010, 46 plants were counted by Brian Banks in the front and rear gardens and the drive; and at least 1811+ plants were counted on the frontage plot. The adjoining frontage plot to the south was not then surveyed, but several hundred plants appeared to be present.

A count at the bungalow in 2011 of 229 plants was considered an underestimate, as many small annuals flowered later after rainfall.

On 23 August 2012, the total recorded by Brian Banks was at least 351 plants, of which 228 were on the frontage plot. In addition, several hundred plants were estimated as present on the adjoining frontage to the south. One plant present in June 2012 on roadside shingle west of Pleasance Road could not be located in August. Also, he found a patch of 16 plants growing close together by the railway to the north of the bungalow, apparently representing seedlings from eight plants here in 2011. It is not yet clear whether this railway-related population (which grows on modified shingle with fine material intermixed, as with the

bungalow frontage plot) represents a self-sustaining population or short-term colonists from the bungalow site. However, given the other railway-related sightings mentioned above, there appears to have been some historical continuity for appearances in this sort of habitat in this general locality.



Lydd-on-Sea. Plants (circled) in their RH&D light railway trackside habitat, where relatively uncommon. Photo by Brian Banks, 18 August 2011

Associated flora recorded by Geoffrey Kitchener in 2012 at the bungalow was indicative of consolidated shingle with sufficient fine material and nutrients to maintain a sward: species included *Achillea millefolium*, *Anisantha sterilis*, *Anthroxanthum odoratum*, *Arenaria*

serpyllifolia, *Bromus hordeaceus*, *Cerastium glomeratum*, *Cynosurus echinatus*, *Daucus carota*, *Echium vulgare*, *Festuca rubra*, *Holcus lanatus*, *Hordeum murinum*, *Lolium perenne*, *Papaver rhoeas*, *Plantago lanceolata*, *Poa humilis*, *Sedum album*, *Sherardia arvensis*, *Sonchus asper*, *Trifolium scabrum*, *Trisetum flavescens*, *Vulpia bromoides*.

The maintenance regime for the northern frontage plot comprises scarifying in September to remove vegetation; the southern frontage plot is mown and raked. Additional areas of nearby roadside habitat have been scarified from 2010 onwards in order to encourage the plant to spread naturally, with no success as at 2012.

Characteristics

There are four features of the Stinking Hawk's-beard which may especially help pick it out from other yellow flowered members of Asteraceae. The first is its smell, when leaves are crushed or cut, which was described by Hanbury and Marshall (1899) as resembling bitter almonds. It might as aptly be described as medicinal, resembling antiseptic (e.g. TCP). However, not everyone is able to detect any odour. Dorothy Beck has found that the maximum level of odour appears to be present when the ground is moist and the young plants are growing vigorously (but so is everything else, so that they may still resist discovery on a hands-and-knees search). The second feature is the distinctive nodding buds. The third is the distinctively white pappus clock of



Long-beaked achenes (left) and short-beaked achenes. Photos by Brian Banks. (These are taken from plants outside Kent.)



the plant when in seed, noticeable both when fully expanded or when, resembling a small, soft white paint brush, it is contracted. The fourth is the differing shape of the achenes. Those in the centre of the receptacles are long-beaked and are dispersed by the wind. Those around the outer edge of the receptacle are short-

beaked and remain attached to an involucre bract once the remaining seed has dispersed; they are a good way to confirm the identity of dead plants after flowering.



Lydd-on-Sea. Photo by Brian Banks, 18 August 2011

When in flower and not in fruit or in bud, the species might well be passed over as yet another *Leontodon*- or *Hypochaeris*-like plant, and its general inconspicuousness is increased by the flowers closing around mid-day. When this happens, the flower colour changes from yellow, so as to take on a more orange tinge (see illustration, which also shows the brush-like seeding heads). Dorothy Beck has noted the plant as frequently 'hiding up' on the north side of walls or of larger plants such as *Centranthus ruber*, for moisture or shade, and only emerging to view when a flower head or seed head makes an appearance. This increases the difficulty of making an accurate survey.

Ecology

The ostensible extinction of *Crepis foetida* gave rise to questions regarding the plant's ecology, and what factors may tip the balance between survival and decline. The reintroduction programme has led to a greater understanding of these factors.

Seed production and viability do not seem to be an issue. Brian Ferry has pointed out¹¹ that viable seed is produced readily by plants in the field and that satisfactory germination rates have been achieved in the laboratory and in field experimental plots. A need for disturbed conditions is supported by failure of the plant to thrive on undisturbed shingle at Dungeness and Rye, and the frontage lawn scarification and raking at the Lydd-on-Sea location has evidently been effective. Ferry et al. (2010) summarise the negative factors affecting the species' survival as follows:

- heavy rainfall in July-September (resulting in poor germination);
- grazing by invertebrates, mainly slugs and snails (killing off plants in winter);
- drought, either immediately after germination in July-September or when buds start to form in May-June;
- rabbit grazing, especially during flowering period, May-August. The Rye Harbour re-introductions have been particularly effective when fresh ground has been made available, with rabbits excluded. Brian Banks points out that when a rabbit got into the fenced enclosure at Rye in 2012, the *Crepis foetida* population crashed to 50 from 1546 plants in the previous year. Rabbits are not present at the Lydd-on-Sea site, and hares are only occasional. Ferry et al. (2010) surmise that the earlier history of *Crepis foetida* at Dungeness may, particularly pre-myxomatosis, have been affected by local factors limiting rabbit populations which would otherwise decimate the plants. Local interviews recorded in Ferry & Beck (2004)¹² indicate that rabbit-catching was frequent and often profitable. Rabbits may also have been deterred from the vicinity of properties with pets: it may not be coincidence that one of the old sites researched by Rosemary FitzGerald was said by local botanists to be "by the barking dog bungalow".

¹¹ B. Ferry: *Crepis foetida* L. (Asteraceae), in e.d M.J. Wigginton, (1990) British Red Data Books 1 Vascular Plants, Joint Nature Conservation Committee, Peterborough.

¹² B. Ferry & D. Beck (2004). Dungeness before 1960: the landscape and the people. English Nature Report no. 571.

Young plants by wall at Dungeness, with characteristic nodding heads.

Photo by Geoffrey Kitchener, 20 June 2012

The positive factors affecting survival are:

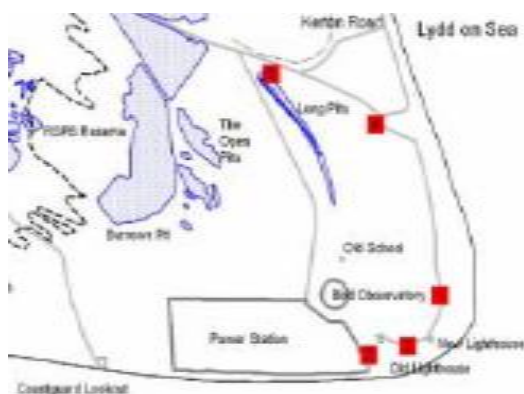
- the control of rabbits;
- the presence of open ground or short turf into which seedlings can establish without overshading;
- where the substrate is shingle, the presence of a mixture of fine material such as sand or soil, which renders it more moisture-retentive (the formation of such a mixture in front of the bungalow site may owe much to the spreading of domestic ash here by the former occupier and his neighbour);
- enough nutrient enrichment to encourage plant growth, but not so much as to encourage coarse vegetation;
- cold winters discouraging slugs and snails;
- warm spring-time weather encouraging rapid growth of rosettes, reducing mortality by slugs and snails.



There is also a more general issue as regards habitat change at Dungeness, from pre-1960 and particularly pre-war, as discussed in Ferry & Beck (2004). The cessation of grazing and the reduction of inhabitants' passage generally over the shingle (as distinct from defined roadways) may be factors in the increase of coarse vegetation. The extent of potential habitat which meets the positive factors cited above for the survival of *Crepis foetida* will have decreased accordingly.

Historic Dungeness records

The decline in the occurrence of Stinking Hawk's-beard at Dungeness up to the 1980s is discussed under "Population trends" above. In this section, more detail is given about the historic records.



Historic Dungeness sites, based on mapping given in English Nature Report 571, copyright English Nature

Site	Grid reference	Site status	Last record date	Recorder	Comments
Dungeness	TR0718	SSSI	[undated – given in EN report compiled 1980]	n/k	Located near the Open Pits; population said to have been fluctuating yearly and possibly declining. Grid reference given as TR070180, which may not be accurate unless the Burrows pit

					had not then been excavated.
Dungeness	TR0816		1970s	BS	There were records for about 3 years by the power station east boundary – see lowermost red square on map. Natural England data gives a grid reference of TR082169, but this appears incorrect.
Dungeness	TR0817	SSSI	1981	BH	c. TR 086 175, near old railway station, unconfirmed.
Dungeness	TR0818	SSSI	1953	FR	See uppermost red square on map. TR 080 188, a disturbed shingle area adjacent to the artificial 'long ponds' of Denge Beach. The plant occurred at a disused railway siding used for moving shingle, recorded from 1947. <i>Vicia lutea</i> , <i>Lactuca saligna</i> , <i>Barbarea verna</i> , <i>Centranthus ruber</i> , <i>Crepis capillaris</i> and <i>C. vesicaria</i> have been recorded here.
Dungeness	TR0818		1946	RWD	See red square on map near coast east of Long Pits. At the road junction just west of The Pilot, presumably c. TR 088 185.
Lydd-on-Sea	TR0819		2010-2012	BB	Data for this, the surviving non-reintroduced site, are given in main text, TR 0880 1927.
Dungeness	TR0916	SSSI	(1) 1980 (2) 1980	(1) EGP, NR, PHo (2) EGP, PHo	(1) Presumably the same as FR's records from 1952 to 1970 between the Britannia Inn and the old lighthouse. Down to 20 plants in 1976 (EGP) and two in 1980. On the map, this is the second lowest red square. Presumably c. TR 091 168 or TR 092 168. (2) TR 093 182, treated as related to the preceding colony.
Dungeness	TR0917		1980	LBB	Five to ten plants by the Oasis, 1978 and 1980, TR 093 171 (the "barking dogs bungalow" site). See easternmost red square on map.



This account has benefited greatly from the assistance of Brian Banks, Brian Ferry, Dorothy Beck and Owen Leyshon.

Dungeness village, former re-introduction site. Photo by Owen Leyshon, 1999

Cruciata laevipes Opiz. (Crosswort)

Draft account

vc 15 and 16

Rarity / scarcity status:

Crosswort is not uncommon in Great Britain as far north as central Scotland, although more sparse in parts of the west and introduced in Ireland. It is not regarded as being particularly at risk in Great Britain as a whole (the risk being designated as of 'Least Concern'); but in England there is some evidence of decline, and 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 22% in the likelihood of recording the species. In Kent, it is neither rare nor scarce, but Philp (2010) shows a decline in tetrad records of 32% over those given in Philp (1982).



Account:

The first published record of *Cruciata laevipes* for Kent is given in John Gerard's *Herball* (1597), where it is stated that Crossewoort 'groweth in the lane or high way beyond Charleton, a small village by Greenwich'.

From Gerard's *Herball*, 1597.

Wye Crown. Photos by Liam Rooney, 4 June 2010

Early authors have not always noted Crosswort in the county; but Thomas Forster (*Flora Tonbrigensis*, 1816) regarded it as not uncommon in bushy places and hedges in the neighbourhood of Tunbridge Wells, and Daniel Cooper remarked on the species as present at Dartford Heath and Keston Common (*Flora Metropolitana*, 1836). None of these localities (on sand or wealden clay) is particularly typical of the species' habitat preferences, as Hanbury and Marshall (1899) considered it as to be found especially on chalk, although common and widely distributed across the county on hedgebanks and in thickets.



In the 1971-80 survey (Philp, 1982), it was found in 201 tetrads, and so remained fairly common. This, however, was primarily on the chalk of west and central Kent, the species becoming scarce or absent on the chalk in the east, but there was also a concentration along the Medway valley. It was difficult to account for this distribution when Crosswort could not be found in what appeared to be localities as suitable as those in which it was present. In the 1991-2005 survey (Philp, 2010), the same basic pattern is traceable, with *Cruciata laevipes* being found in woodland edges, open scrub, rough grassland and roadside banks on the chalk generally, and in similar habitats (plus river banks) along the

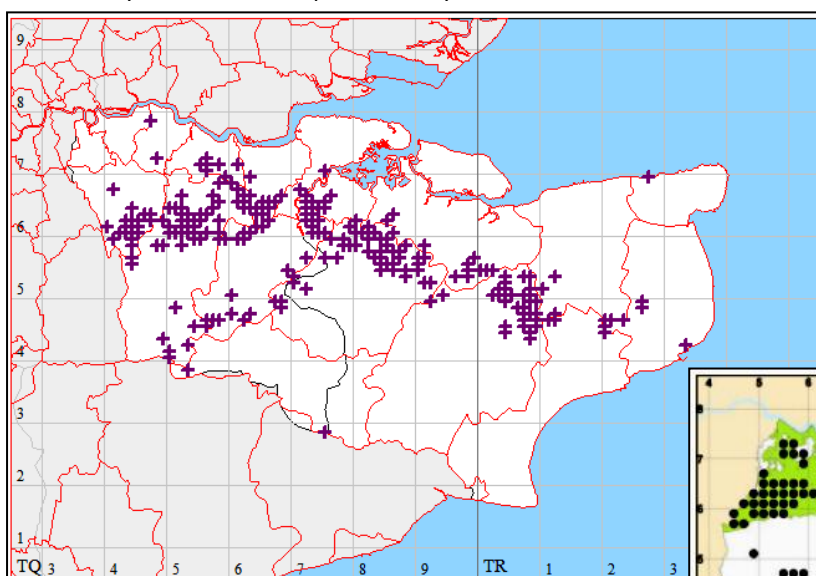
Medway valley – with only occasional records elsewhere. However, the number of tetrad records has plummeted from 201 to 137 between surveys.



Magpie Bottom, habitat. Photo by David Steere, 1 June 2014

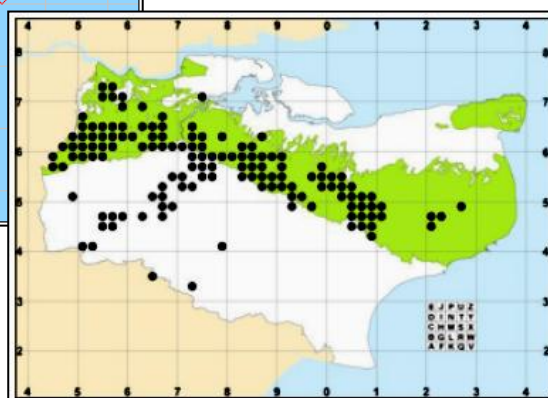
It is not immediately apparent what may have caused this decline. The *New Atlas of the British and Irish Flora*¹³ notes that, although characteristic of older and relatively undisturbed habitats, Crosswort is able to colonize roadside and river banks; so that a loss of existing habitat might be capable of compensation in some degree. The response of *Cruciata laevipes* to climate changes entailing drier

summers but wetter winters would appear to be mixed. Dunnett et al (1998)¹⁴ indicate that growth would be retarded by the former and promoted by the latter.



Cruciata laevipes (Crosswort)
2010-17

Cruciata laevipes (Crosswort)
1991-2005



As this species is not uncommon in Kent, the distributional data maintained in this register will be at 1km square level. This will entail recording at a finer scale than the tetrads given in Philp (2010), from which the 1991-2005 distribution map is taken (with kind permission of the late Eric Philp and the Kent Field Club). The 2010-17 distribution map already reflects substantially the earlier recorded distribution. It represents records for 237

¹³ Preston, C.D., Pearman, D.A. & Dines, T.D., 2002.

¹⁴ Dunnett, N.P., Willis, A.J., Hunt, R. & Grime, J.P (1998). A 38-year study of relations between weather and vegetation dynamics in road verges near Bibury, Gloucestershire: *Journal of Ecology* **86**: 610-623.

different monads, representing 147 tetrads, and so has exceeded the level of 137 tetrads recorded by Philp (2010). The maps are not directly comparable; this is partly through the differences between monads and tetrads, but also in that the 2010-17 map extends further north-westwards, to include metropolitan vc16. Nonetheless, it looks as though there has been decline since the 1971-80 survey, but not as much as might have been supposed.



Cruciata laevipes is a perennial and fairly shade-tolerant, its habitat preferences being for locations with both sun and shade; it may grow with a scrambling habit through other vegetation. It is not readily confused with any other British species.

Kemsing, after flowering. Photo by David Steere, 21 June 2015

Cuscuta epithymum (L.) L. (Dodder)

Draft account

vc 15 and 16

Rarity / scarcity status:

Dodder is in the British Isles mostly to be found in southern England. Distribution in the Midlands, Wales and Ireland is limited, and its former presence in northern England and Scotland has receded. In both Great Britain as a whole and in England it is regarded as **Vulnerable** and so facing a risk of extinction in the wild. In England this risk assessment is based on a reduction both in the overall geographical extent of its occurrence and in the area of occupancy within that range. A comparison over the periods 1930-1969 and 1987-1999 showed that its overall range had reduced by 35% and its area of occupancy had declined so that there was a 38% reduction in the likelihood of recording the species. In Kent, it is approaching a state of scarcity and Philp (2010) shows a decline in tetrad records of 45% over those given in Philp (1982) – calculated over a different period, of course, but seemingly more serious than the national position.



Polhill Bank. Photo by David Steere, 4 August 2014

Account:

In Kent, the first record of *Cuscuta epithymum* is by John Parkinson in his *Theatrum Botanicum* (1640), in which he writes of finding it 'upon the grasse...on Black-heath in Kent, on the very ground, not rising an inch or two high, being red'. There are a number of other early records, which may in part be a product of the unusual appearance of the plant, but there is no doubt that it was formerly much more widespread than at present. Hanbury and Marshall (1899) assessed the species as locally plentiful on heaths, etc., parasitical chiefly upon *Calluna vulgaris* (Heather) and *Ulex europaeus* (Gorse). Hence there are records for the sandy and gravelly ground of the north west Kent heaths and commons – on *Calluna* at Greenwich Park (1790); at Keston Heath



(1837); and at Hayes Common (1838). A similar habitat would have been afforded by Tunbridge Wells Common (1816); Hothfield Heath (where abundant, c.1830-32); Willesborough Lees (upon furze, 1829); Pendenden Heath (on *Ulex*, 1839). Hanbury and Marshall's correspondents also supplied records for St Paul's Cray Common (probably 1887) and Fawke Common; and a different habitat is indicated by records from around Rochester and between Wye and Boughton Aluph, where it is more likely that chalky terrain was involved. A third habitat is indicated by reference to George Dowker's observations at Dungeness published in the East Kent Natural History Society's Transactions (1867) in which *Cuscuta epithymum* is recorded on *Ulex europaeus*; Hanbury and Marshall supplement this by their own observations that it also grew on *Teucrium scorodonia* (Wood Sage) on the shingle.

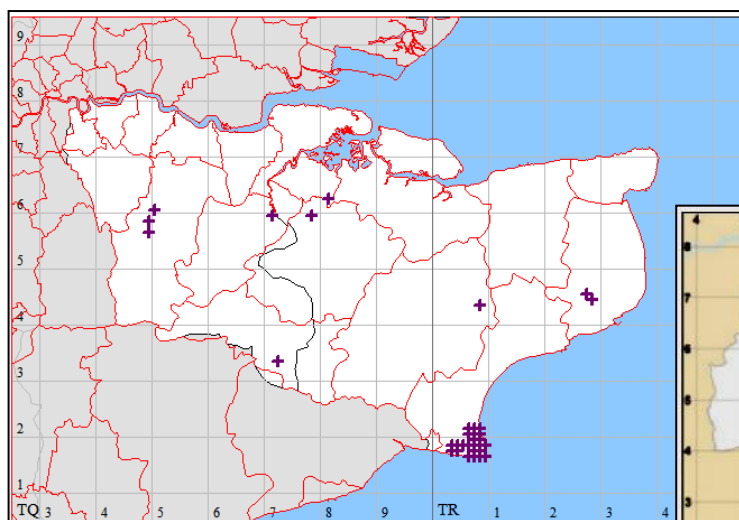
Dungeness, shingle habitat. Photo by Heather Silk, 5 June 2011

By the time of the 1971-80 survey published in Philp (1982), much of the breadth of this distribution had been lost (although the north west Kent heaths and commons were largely outside the scope of that work, lying in metropolitan vc16), and the species was noted as present on heaths, downland and shingle beaches as a parasite on *Teucrium*, *Ulex* and occasionally other plants, being rather local and scarce except on the Dungeness shingle. The 22 tetrad records in Philp (1982), however, had reduced to 12 by the 1991-2005 survey (Philp, 2010), attributed to loss of habitat, and over half of these surviving tetrads constituted the Dungeness population.

Polhill Bank. Photo by David Steere, 4 August 2014

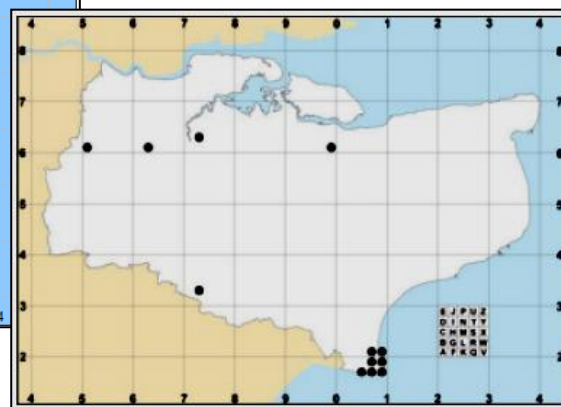


The distributional data maintained in this register will be at 1km square level. This will entail recording at a finer scale than the tetrads given in Philp (2010), from which the 1991-2005 distribution map is taken (with kind permission of the late Eric Philp and the Kent Field Club). The 2010-17 distribution map already reflects substantially the earlier recorded distribution and, although showing monad records, actually covers 21 tetrads in comparison with 12 in Philp (2010), so the decline indicated after 1971-80 is not supported by recent records. The continued presence of the species on east Kent downland (the Temple Ewell area) has now been recognised (given in Philp, 1982, but not in Philp, 2010).



Cuscuta epithymum (Dodder) 2010-2017

Cuscuta epithymum (Dodder) 1991-2005



Cuscuta epithymum is a plant with leaves reduced to minute scales and without visible chlorophyll, consisting of slender thread-like reddish stems which are attached to a host plant, from which nourishment is derived via projecting growths (haustoria). The inflorescence comprises a small dense head of sessile flowers. It has been described as an annual species, but would appear capable of surviving over winter through tubercles attached to the host plant. The ability to over-winter is mentioned by Gerard Smith in his *Catalogue of Rare or Remarkable Phaenogamous Plants collected in South Kent* (1829), although this is in relation to observations at Hastings. Perennation via the tubercles may enable local spread without reliance on seed production.¹⁵

¹⁵ Shillito, J.F. (1952). Note on the perennation of Dodders. *Watsonia* 2: 239-242.

Whilst it is not always easy to trace which is the host plant amidst a mass of twining stems, the attachment of the haustoria provides evidence. In Kent, the principal hosts are, as mentioned, *Ulex europaeus* and *Teucrium scorodonia*. However, other plants have been recorded as involved. Joyce Pitt (1994)¹⁶ has described its presence on the chalk at Polhill Bank (TQ5060) where in July 1993 Dodder was parasitizing nine different species: *Asperula cynanchica* (Squinancywort), *Centaurea nigra* agg. (Knapweed), *Cirsium acaule* (Dwarf Thistle), *Galium album* (Hedge Bedstraw), *Helianthemum nummularium* (Common Rock-rose), *Hypericum perforatum* (Perforate St John's-wort), *Leontodon hispidus* (Rough Hawkbit), *Lotus corniculatus* (Common Bird's-foot-trefoil) and *Poterium sanguisorba* (Salad Burnet). In contrast, a visit to a shingle population near the old lighthouse at Dungeness (TR0816) a week later produced record of eight host species, only one of which duplicated the chalk species: primarily *Cytisus scoparius* (Broom), *Silene nutans* (Nottingham Catchfly), *Teucrium scorodonia* (Wood Sage) and *Ulex europaeus* (Gorse), but also *Carduus tenuiflorus* (Slender Thistle), *Centaureum erythraea* (Common Centaury), *Cerastium fontanum* (Common Mouse-ear) and *Lotus corniculatus* (Common Bird's-foot-trefoil). Furthermore, *S. nutans* (79%) and *T. scorodonia* (18%)¹⁷ were also found to be



the principal hosts in a comparable shingle habitat at Lydd airport by Fred Rumsey in a 2014 survey which identified 66 locations for Dodder (in TR0620, TR0621, TR0720 and TR0721), including a case where the parasite was damaging its host.

Lydd airport, *Cuscuta epithymum* parasitizing *Silene nutans*. Photo by Fred Rumsey

Kent specimens in **MNE** provide evidence of host plants including species mentioned above, plus *Chenopodium album* (Fat-hen), *Erica*

cinerea (Bell Heather), *Medicago sativa* (Lucerne), *Origanum vulgare* (Wild Marjoram), *Pimpinella saxifraga* (Burnet-saxifrage), *Scabiosa columbaria* (Small Scabious), *Solanum nigrum* (Black Nightshade) and even *Euphrasia nemorosa* (Common Eyebright), a case of a hemiparasite itself being parasitized.

In spite of the abundance of historic records for heathlands and commons, recent similar records are largely lacking, presumably because of habitat loss and modification, although a KBRG meeting in 2011 found groups of plants widely scattered over *Calluna vulgaris* heath at Bedgebury.

Cuscuta as a genus is distinctive and the only British native species seen in Kent apart from *C. epithymum* has been, long ago, *C. europaea* (Greater Dodder), a larger and more robust species generally growing on *Urtica dioica* (Common Nettle) with styles (including stigmas) not projecting beyond the ovary. Alien species have occasionally been encountered, e.g. *C. epilinum* on flax (1860) and *C. campestris* (recorded at three sites in 2017, apparently a contaminant of Niger seed); and it is at least possible that what appeared to be *C. epithymum* growing on *Aster* spp. in a Chipstead allotment in 2013 may have represented *C. campestris* or another alien species introduced through seed contamination.

¹⁶ Pitt, J. (1994). Dodder and its hosts in Kent. *Kent Field Club Bulletin* **39**: 41.

¹⁷ For the remaining 3%, it could not be determined which of the two species might be regarded as the principal host.

Cynoglossum officinale L. (Hound's-tongue)

Draft account.

vc 15 and 16

Rarity / scarcity status:

Hound's-tongue is fairly widespread in England and Wales, but restricted in Scotland and Ireland. Because of its sharp decline since the 1950s, in part reflecting herbicide spraying and loss of habitat, it is both in England and in Great Britain treated as **Near Threatened**. In Kent, it is not uncommon.

Account:

The first published Kent record for *Cynoglossum officinale* is in Thomas Johnson's *Iter Plantarum* (1629). Having started from St Paul's Cathedral on the morning of 13 July, Johnson came across "*Cynoglossum maius vulgare*" after dinner by the main road from Gravesend to Rochester. The next day, he also recorded it in the course of a walk from Stoke to Cliffe, via High Halstow and Cooling, most of his exhausted companions having abandoned him for a lift in a brewer's dray. Hanbury and Marshall (1899) assessed the species as widespread, but especially frequent on the chalk and on sandhills or shingle by the sea. There is some evidence in the *New Atlas of the British and Irish Flora* (2002) of pre-1970 presence in hectads which lack subsequent records. However, no decline since 1970 is shown by Philp (2010), where 59 tetrad records are listed, against 55 in Philp (1982). Both are less than the extent of findings since.

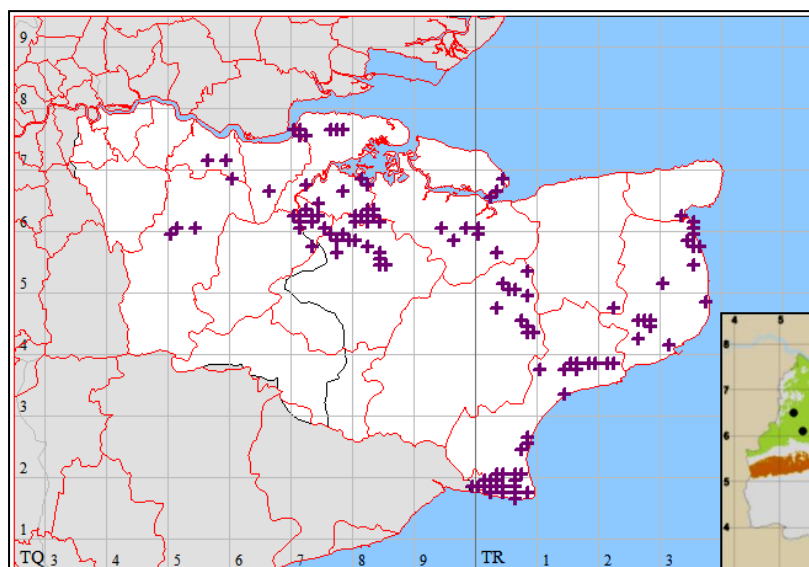


Sandwich. Photo by Lliam Rooney, 24 May 2010

In Kent, the species continues to favour chalk and coastal areas on sand or gravel. It is a biennial or short-lived perennial of bare or broken areas on dry, well-drained, disturbed ground. On the chalk grassland of the North Downs it can cover entire slopes, but is particularly often found towards the base, where cattle disturbance increases. It is toxic to cattle and horses, due to pyrrolizidine alkaloids, especially in the rosette leaves. The rosettes accordingly have a degree of protection in their first year of growth and can also survive drought, once the taproots are sufficiently established, delaying flowering until favourable conditions arise. In many places in Kent, Hound's-tongue is associated with rabbit disturbance, and presumably the rabbits (as well as other grazing animals) provide a vector for spread of the burred seeds. Otherwise, the seeds are fairly heavy and generally fall within a couple of metres of the parent plant¹⁸.

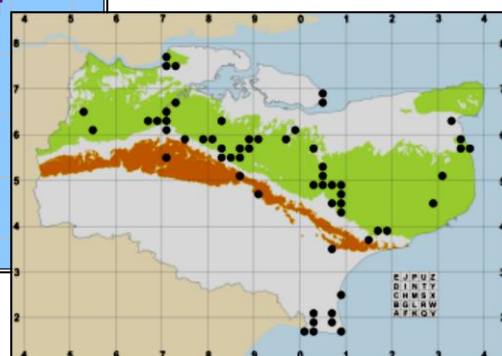
¹⁸ Ecological data generally are summarised in Upadhyaya, M.K. et al. (1986), The Biology of Canadian Weeds. 87. *Cynoglossum officinale* L. Canadian Journal of Plant Science 68: 763-774.

Phil Green (pers. comm.) has noted that there is some evidence of spread on the downs above Folkestone so as to appear in new sites near footpaths, as though carried by walkers. Having arrived, the species may then disperse further within its new location through cattle grazing.



Cynoglossum officinale (Hound's-tongue) 2010-17

Cynoglossum officinale (Hound's-tongue) 1991-2005



As this species is not uncommon in Kent, the distributional data maintained in this register will be at 1km square (monad) level.

This will entail recording at a finer scale than the tetrads given in Philp (2010), from which the accompanying 1991-2005 distribution map is taken (with kind permission of the late Eric Philp and the Kent Field Club). Records for the period 2010-17 have amply replicated the 1991-2005 results, adding many locations, and resulting in 118 different monad records, equivalent to 90 tetrads. This total well exceeds those under both previous surveys (Philp, 1982 and 2010), without any contribution from metropolitan vc16, which was not included in them. So either the species is currently spreading, or recent surveys have been more thorough.

Whereas the English risk assessment of this species as Near Threatened involved a comparison of its area of occupancy in England over the periods 1930-1969 and 1987-1999 producing a calculated decline of 28% in the likelihood of recording the species, the Kent data since 1971 do not support the contention that this is a species in decline.



Alkham. Photo by Sue Buckingham, 16 May 2011

Sandwich.
Photo by Liam Rooney,
24 May 2010

