

Scarce arable plants: An assessment of current status in Greater Lincolnshire

December 2016

Achieving more for nature



GLNP
GREATER LINCOLNSHIRE
NATURE PARTNERSHIP

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Acknowledgements

Thanks to Paul Kirby, Sarah Lambert and Jenna Poole for compilation of the species list for this report. Thanks also to the GLNP Farmland and Grassland Habitat Group for their contributions and to Carol Paterson, Anne Goodall, Caroline Steel, Brian Hedley and Owen Mountford for records and comments.



1. Introduction

1.1 Arable plants and their decline

Arable plants are species that prefer disturbed or cultivated ground, and have therefore become strongly associated with arable farmland. Unlike many other plants, these species are able to establish communities and set seed within the short growing season of arable crops. While many arable plant species are annuals, an arable plant community can be quite stable and therefore the identification of established or diverse sites is very important.

These communities also provide habitat for a range of invertebrates as well as a source of food for many farmland birds with seeds being particularly important for species such as linnet, tree sparrow, corn bunting and yellowhammer during the winter months.

Over the past 60 years the demands on, and methods used in, agriculture have changed and many arable plant species - which were once common and therefore often regarded as 'weeds' or pests - have now become rare or even extinct. Plantlife (2009) describes them collectively as "the most threatened group of flora in Britain". The State of Nature report also acknowledges that these plants are considered the fastest declining group of plants in the UK, with a quarter being threatened and many more already extinct (RSPB, 2013).

The major threats to arable plant communities include (Wilson and King, 2003)

- Widespread use of broad-spectrum herbicides.
- More efficient seed cleaning techniques.
- Development of highly fertiliser nitrogen-responsive crops, and an increase in nitrogen applications.
- Mechanisation and agronomic advances of farming resulting in improved agricultural efficiency and dense crop uniformity
- Changes in crop rotations in particular moves to more winter sown crops

1.2 Arable plant conservation in Greater Lincolnshire

Over 36% of England is now under arable production, and much of this land lies on the eastern side of the country. It is estimated that as much as 65% of Greater Lincolnshire is tilled annually (Defra, 2013); and therefore it has the potential to be a valuable refuge for arable plant communities. Lincolnshire's wide range of soil types from heavy clays to sands adds to the region's diversity of arable plants. For example, many arable plants are associated with calcareous soils so the Lincolnshire Wolds, Kesteven Uplands, North Lincolnshire Edge and Coversands and South Lincolnshire Edge National Character Areas should provide good conditions; while The Fens has already been identified as an arable plant hotspot with species like treacle-mustard and flixweed frequenting this area. Heavier

soils such as in the Central Clay Vale and Lincolnshire Coast and Marshes also possess important arable communities.

1.2.1 Lincolnshire Biodiversity Action Plan (BAP)

The Lincolnshire BAP describes the species and habitats that are priorities for conservation in Greater Lincolnshire, and identifies actions that can take place at a local level which also contribute to national and international conservation commitments. The BAP includes a Habitat Action Plan (HAP) for arable field margins, which includes scarce arable plants. The HAP outlines an objective and target, and the actions required in order to achieve them:

Objective - To ensure survival of the full number and range of arable plant species currently present in Lincolnshire.

Target - Produce a report on scarce arable plants with past and present distribution data for Lincolnshire by 2015.

Actions

- Analyse Lincolnshire Naturalists' Union (LNU)/Botanical Society of Britain and Ireland (BSBI) records to find out more about the distribution of arable plant species in Lincolnshire.
- Identify farmland areas (one per National Character Area) to target for wildlife surveys and encourage farm advisors, agronomists and other local specialists to carry out (aim for three per year).
- Use the information from the two actions above to produce a report on scarce arable plants, with distribution data, for Lincolnshire past and present.

1.2.2 Environmental stewardship

Options for the management of rare arable plants have been available under stewardship schemes since 1991 to try and reduce the decline in arable plant communities. Under the original Countryside Stewardship scheme and more recently Environmental Stewardship schemes, farmers were compensated for cultivating fallow plots or margins with low inputs around a conventionally cropped area. These options were used to support rare arable plants to germinate, flower, set seed and complete their life-cycle. Management requirements included cultivation to establish a firm, fine tilth, either in the autumn or spring – depending on the rare arable plants being targeted. The fallow plot or margin must have been retained for an agreed period without the use of pesticides and fertilisers.

With the reform of the Common Agricultural Policy a new Countryside Stewardship scheme began in January 2016. This includes a Wild Pollinator and Farm Wildlife Package designed to include benefits for arable plants.



1.2.3 Interest groups

Flora Locale has run a number of training days for interested parties, including farmers and Natural England advisers, on the importance of arable plants and which species to look for. Plantlife has produced some guidance material; while BSBI county recorders will always welcome records of arable plant species. The LNU have arranged a number of field visits to sites that have been identified as good for arable plants.

2. Getting involved

2.1 Sending in records

In order to be able to better protect arable plant and their habitats, and to prevent declines, it is important to have an accurate picture of the species' ranges and population statuses.

Please send information on arable plant sightings to the county recorders¹ in the first instance. The information will then be passed on to the Lincolnshire Environmental Records Centre (LERC) and included in national datasets in due course. Other species records can also be sent to LERC.

For any record it is important to include as much information as possible – in particular:

'What' – the species (if known).

'When' – the date the plant was seen.

'Where' – the location of the sighting (a grid reference or postcode is best).

'Who' – contact details in case any further details are needed.

The records used to produce this report originated from a large number of sources including LNU volunteers, ecological consultants, members of the public and other records held by LERC. They have been collated by LERC, whilst maintaining confidentiality of the individuals that submitted the records, and this data plays a vital role in informing conservation effort and habitat management work. As well as being useful from a local perspective, information on the distribution of arable plants in Greater Lincolnshire is sent to the BSBI, combined with data from all over the country, and used to inform national policy.

2.2 Habitat management

The future of arable plant communities is dependent on those who manage arable land. Sympathetic management could mean the difference between the extinction of yet more arable plant species, and the protection of existing valuable sites and encouragement of new (or re-establishment of old) sites for threatened arable plants.

The majority of arable plants need regular disturbance, either in spring or winter depending on species requirements. In many cases the seed is long lived and can remain dormant in the ground for many years until favourable management returns.

The key is to first identify what species are already present. Local recording groups such as the LNU or independent consultants² can help with this if necessary.

¹ LNU recorders www.lnu.org/recorders.php

² CIEEM Professional Directory www.cieem.net/members-directory



There are a number of sources that can provide advice for identifying valuable species and give guidance on managing land for arable plants. These include:

Identification:

- **Arable plants – a field guide** Wilson, P. and King, M. (2004) *Arable plants – a field guide*. Princeton University Press
- **Centre for Ecology and Hydrology** (2016) *Rare Arable Flowers app*. Available to download from Apple and Android devices
- **Field guide to rare arable flowers** Wilson, P. and Sotherton, N. (1994) *Field guide to rare arable flowers*. Game Conservancy Trust
- **Home-Grown Cereals Authority** (2010) *The encyclopaedia of arable weeds*. <http://web.adas.co.uk/WeedManager>
- **Plantlife** (2010) *Threatened Arable Plants: Identification Guide*. www.plantlife.org.uk/uploads/documents/Threatened_arable_plants_ID_guide.pdf

Advice:

- **A Harvest of Colour: Saving Cornfield Flowers**
Carstairs, I. (2006) *A Harvest of Colour: Saving Cornfield Flowers*. Westcountry Books.
- **Greater Lincolnshire Nature Partnership** (2011) *Lincolnshire Biodiversity Action Plan 2011-2020 (3rd edition): Farmland and grassland*. www.glnp.org.uk/admin/resources/lincs-bap-2011-2020-review-2015fgweb.pdf
- **Lincolnshire Wildlife Trust** (2014) *Arable Field Margins*. www.lincstrust.org.uk/wildlife/habitats/arable-field-margins
- **Plantlife** (2009) *Arable Plants: a management guide*. www.plantlife.org.uk/uploads/documents/ARABLE_PLANTS_-_a_management_guide.pdf

3. Using this report

The maps and species accounts in Section 4 summarise the information that is currently available (up to July 2016) on the distribution and status of scarce arable plants in Greater Lincolnshire. It should be noted that records will reflect recorder effort and do not necessarily indicate absence of a species.

The report is intended as a toolkit to help inform and support arable plant conservation and awareness-raising work undertaken by BAP Partners. It can also be used by agronomists, land managers, ecologists and other interested parties to:

- Highlight key areas that are of importance for arable plants.
- Inform targeted species advice for inclusion in local provenance seed mixes
- Identify areas where further surveys are needed.
- Indicate areas where particular consideration of the presence of arable plants needs to be taken during agricultural works, though this should also be taken into account in all areas of suitable habitat.
- Identify areas where habitat enhancement works could be targeted to benefit arable plants.

This report should not be used for commercial purposes in place of a data search with LERC, which will be able to provide more detailed, up-to-date information.



4. Species accounts

The maps on the following pages have been produced using records held by LERC. The maps clearly show that some parts of Greater Lincolnshire are under recorded for arable plants; the LNU and LERC would be pleased to hear from anyone that can add any further information or additional records (historic or recent) to the maps.

The species list was compiled from threatened arable species included in the Vascular Plant Red Data List for Great Britain (Cheffings and Farrell, 2005) and UK BAP arable field margins species listed in the Lincolnshire BAP, together with the knowledge of local experts. It is worth noting that all records held by LERC for these species are included although some may not originate from arable habitats, particularly as many species occur more generally on disturbed ground. Some species have also been reintroduced through seed mixes, such as cornflower for example.

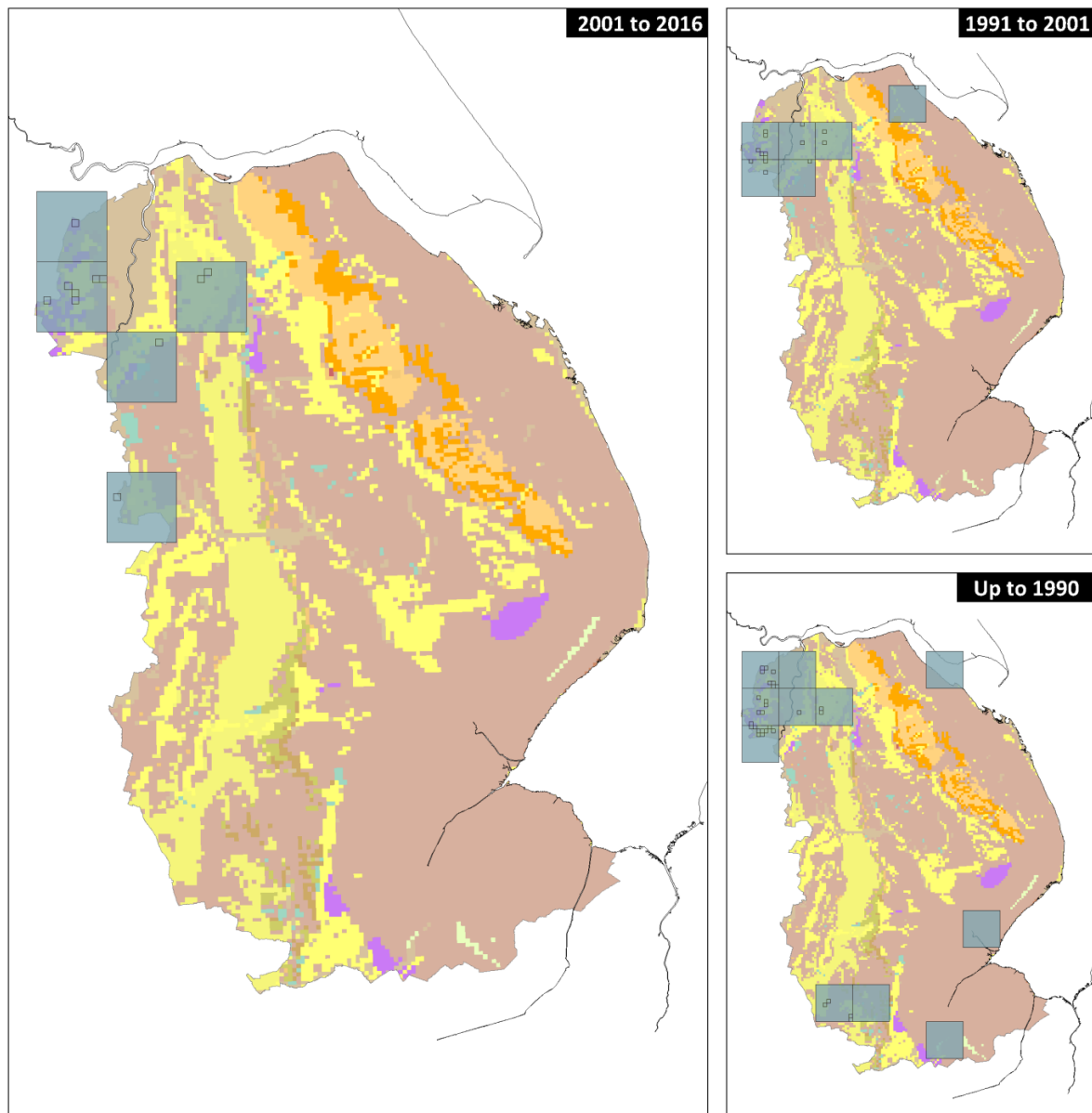
For the purposes of this report on scarce arable plants in Greater Lincolnshire, County Rare Plant Register guidelines (BSBI, 2005) were used as the basis to determine those species which are considered Locally Scarce and Declining and therefore the distributions of species present in between four and 10 hectads since 2000 are shown in the maps on the following pages.

Species appearing in three or fewer hectads since 2000 are considered Locally Rare and these are included in Appendix 1 at the end of this report. On the basis of currently held records some of these may be on the verge of extinction in Greater Lincolnshire but recorder effort needs to be taken into account.

To give further context to arable plant communities, an additional list which includes some more commonly occurring species (Wilson and King, 2003) can also be found in Appendix 2 the end of this report. This list includes some less desirable arable plant species which have the ability to dramatically impact crop yields such as black-grass *Alopecurus myosuroides*. Every attempt has been made to highlight this in the accompanying notes where possible.

Nomenclature follows the *New Flora of the British Isles 3rd edition* (Stace, 2010). UK statuses and attribute information has been taken from Wilson and King (2003), HGCA (2010) and Stace (2010) and supplemented by *PLANTATT - Attributes of British and Irish Plants: Status, Size, Life History, Geography and Habitats* (Hill *et al.*, 2004).

Loose silky-bent *Apera spica-venti* (L.) P. Beauv.



Soil textures (mySOIL)

CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

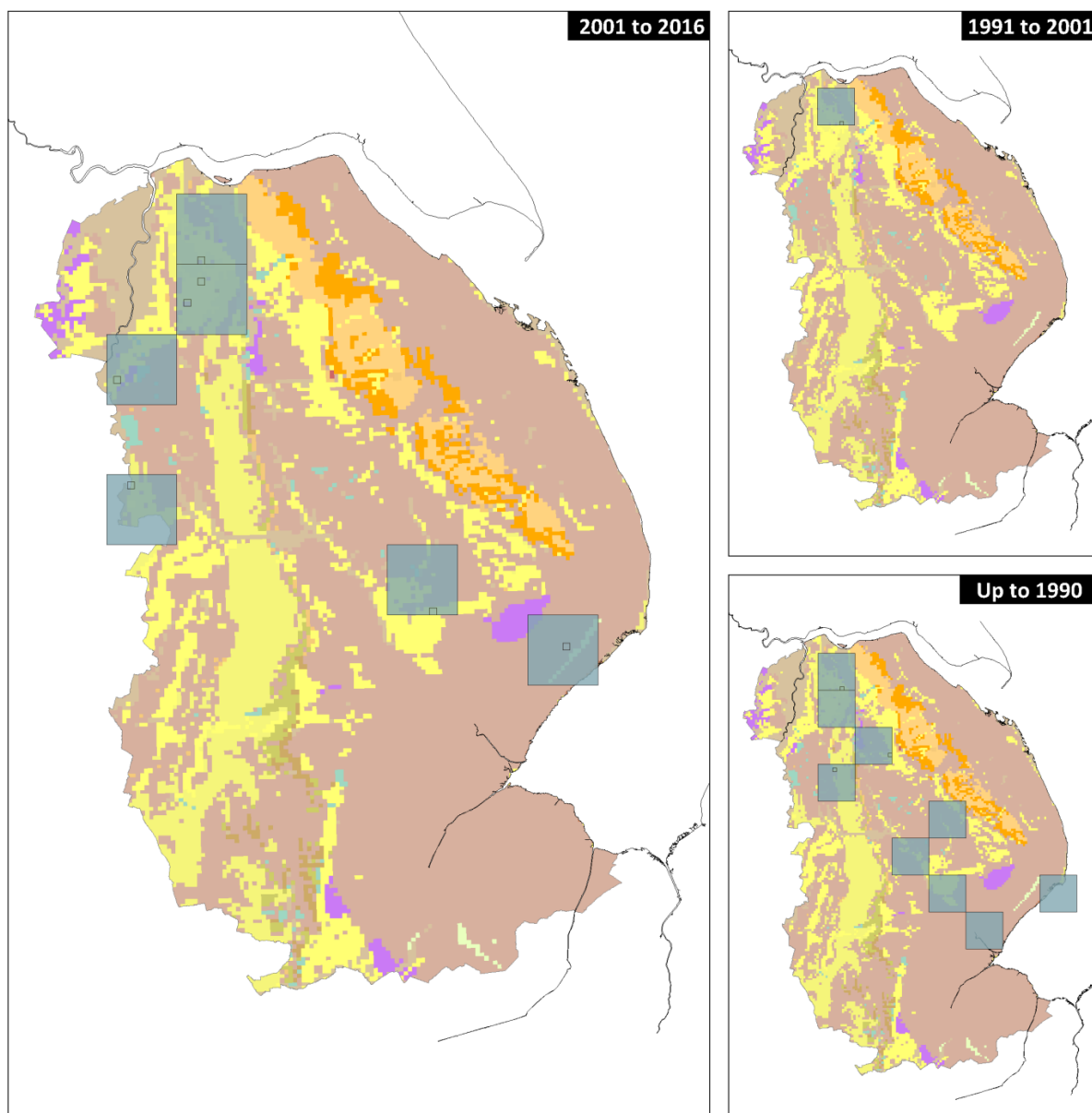
Contains British Geological Survey materials © NERC 2014

An annual archaeophyte which flowers from May to September. It is typically found in arable fields as well as waste ground, tracks and roadsides. It favours sandy loams and its distribution is frequent on sandy soils around Lincolnshire. Species decline is thought to be due to the effects of grass-specific herbicides (graminicides).

Recorded in 10 hectads in Greater Lincolnshire since 1970 but in only five of those since 2000.



Maple-leaved goosefoot *Chenopodium hybridum* L.



Soil textures (mySOIL)

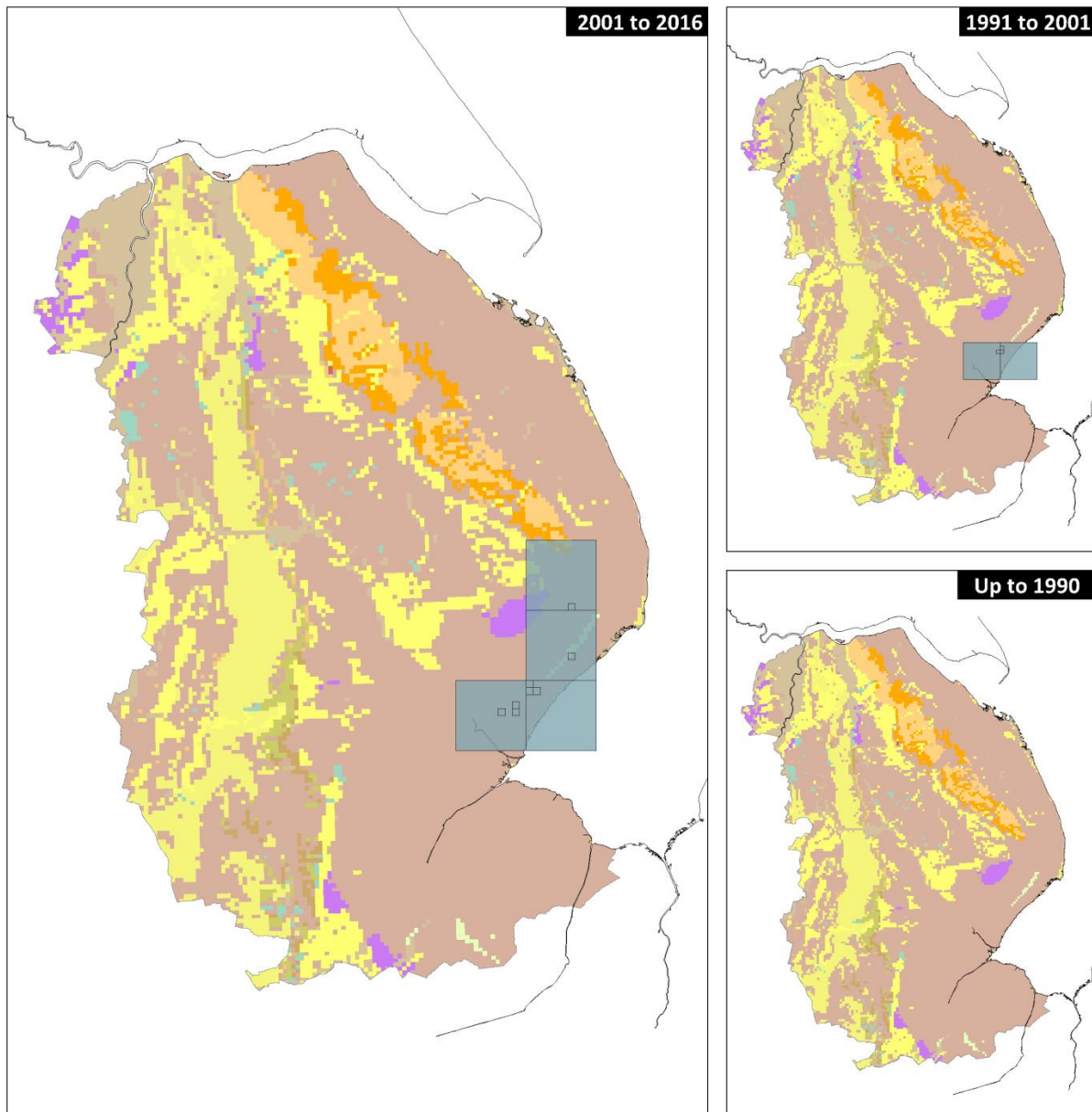
CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

Contains British Geological Survey materials © NERC 2014

An annual archaeophyte which flowers from July to October. It is typically found on disturbed, nutrient-rich arable land and waste ground. It favours humus-rich cultivated soils in lowland Fens.

Recorded in nine hectads in Greater Lincolnshire since 1970 but in only six of those since 2000.

White wall-rocket *Diplotaxis eruroides* (L.) DC.



Soil textures (mySOIL)

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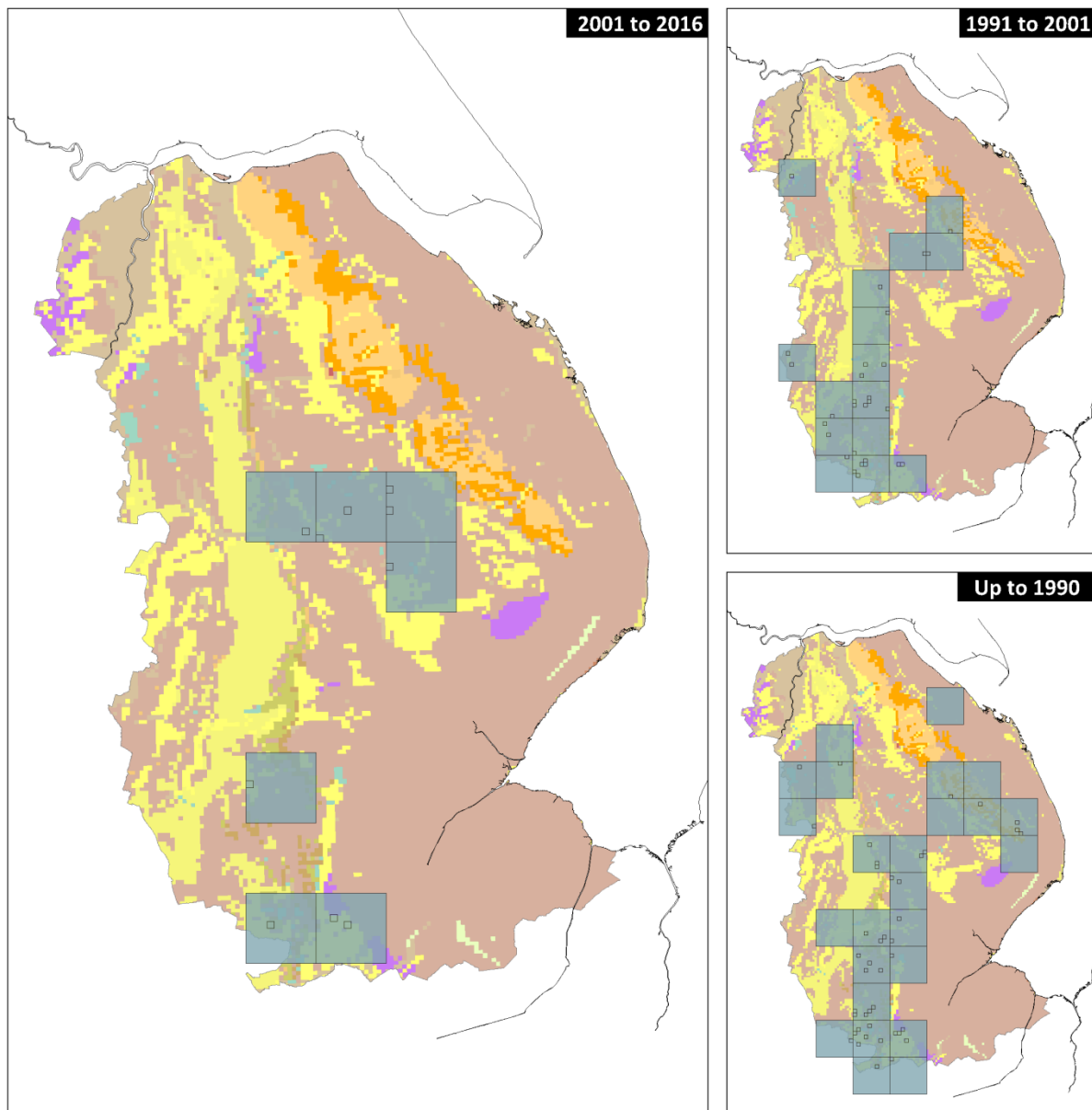
Contains British Geological Survey materials © NERC 2014

A casually occurring annual which flowers from May to September. It is typically found on arable and waste ground. It favours sandy loams and clay soils.

Recorded in four hectads in Greater Lincolnshire since 1970 however all records are relatively recent dating from 1999 onwards.



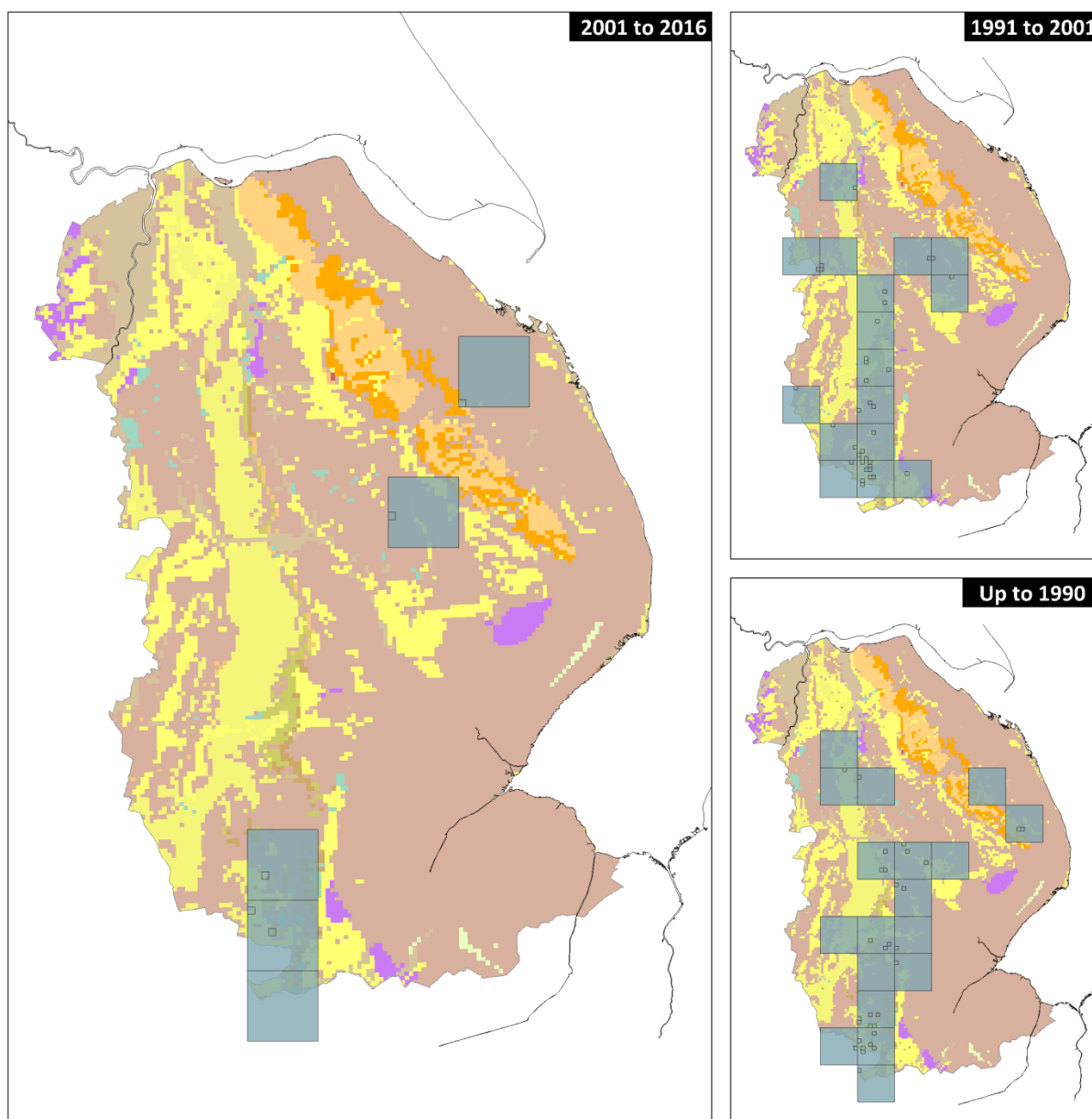
Sharp-leaved fluellen *Kickxia elatine* (L.) Dumort



An annual archaeophyte which flowers from July through to ploughing or frosts. It is typically found in arable field margins and prefers sandy and chalky soils although is occasionally found on clay. Species decline is largely due to herbicide susceptibility and early ploughing of stubbles.

Recorded in 24 hectads in Greater Lincolnshire since 1970 but in only seven of those since 2000.

Round-leaved fluellen *Kickxia spuria* (L.) Dumort



Soil textures (mySOIL)

CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

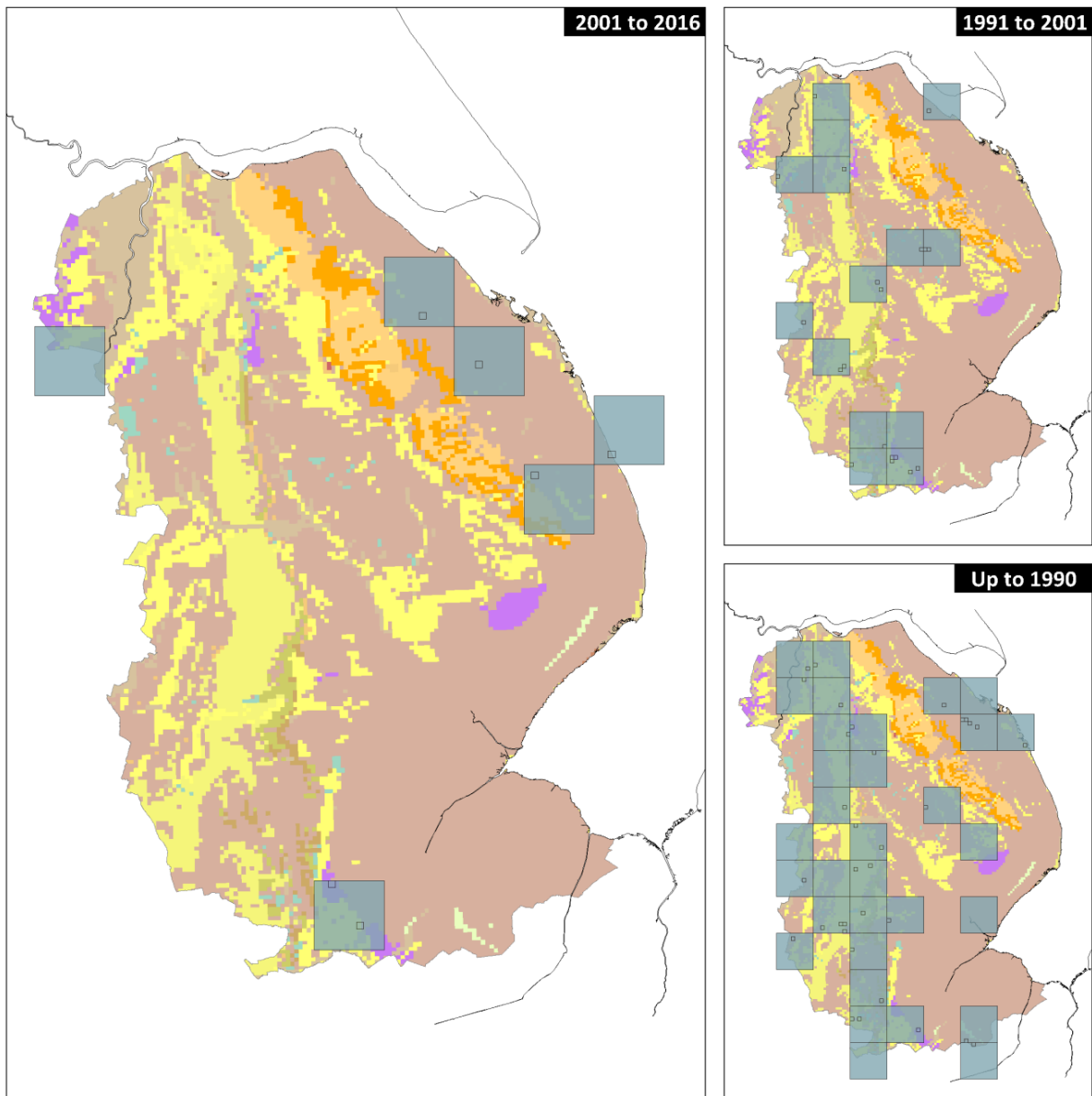
Contains British Geological Survey materials © NERC 2014

An annual archaeophyte which flowers from July through to ploughing or frosts. It is typically found in arable field margins as well as open and waste ground. It prefers well-drained chalk soils but often also calcareous clays. Species decline is thought to be due to its susceptibility to many herbicides and early ploughing of stubbles.

Recorded in 24 hectads Greater Lincolnshire since 1970 but in only five of those since 2000.



Field gromwell *Lithospermum arvense* L.



Soil textures (mySOIL)

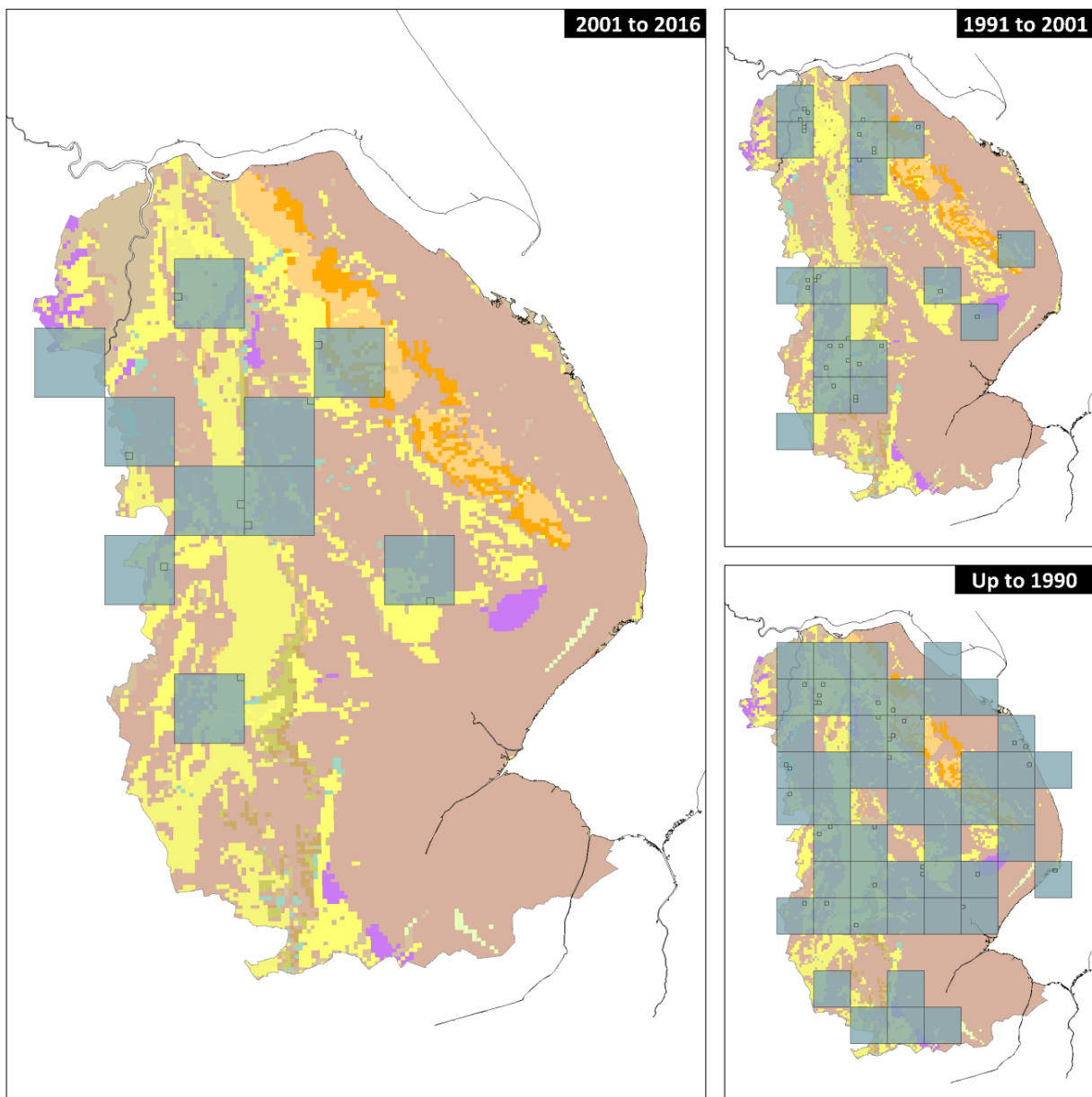
CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

Contains British Geological Survey materials © NERC 2014

An annual archaeophyte which flowers from mid-May to July. It is typically found in arable field margins however more recently, its seeds have been found to have potential as a source of fatty acids and field trials are currently underway to assess suitability as a crop. It prefers calcareous loams and calcareous clay loams.

Recorded in 30 hectads in Greater Lincolnshire since 1970 but in only six of those since 2000.

Prickly poppy *Papaver argemone* L.



Soil textures (mySOIL)

CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

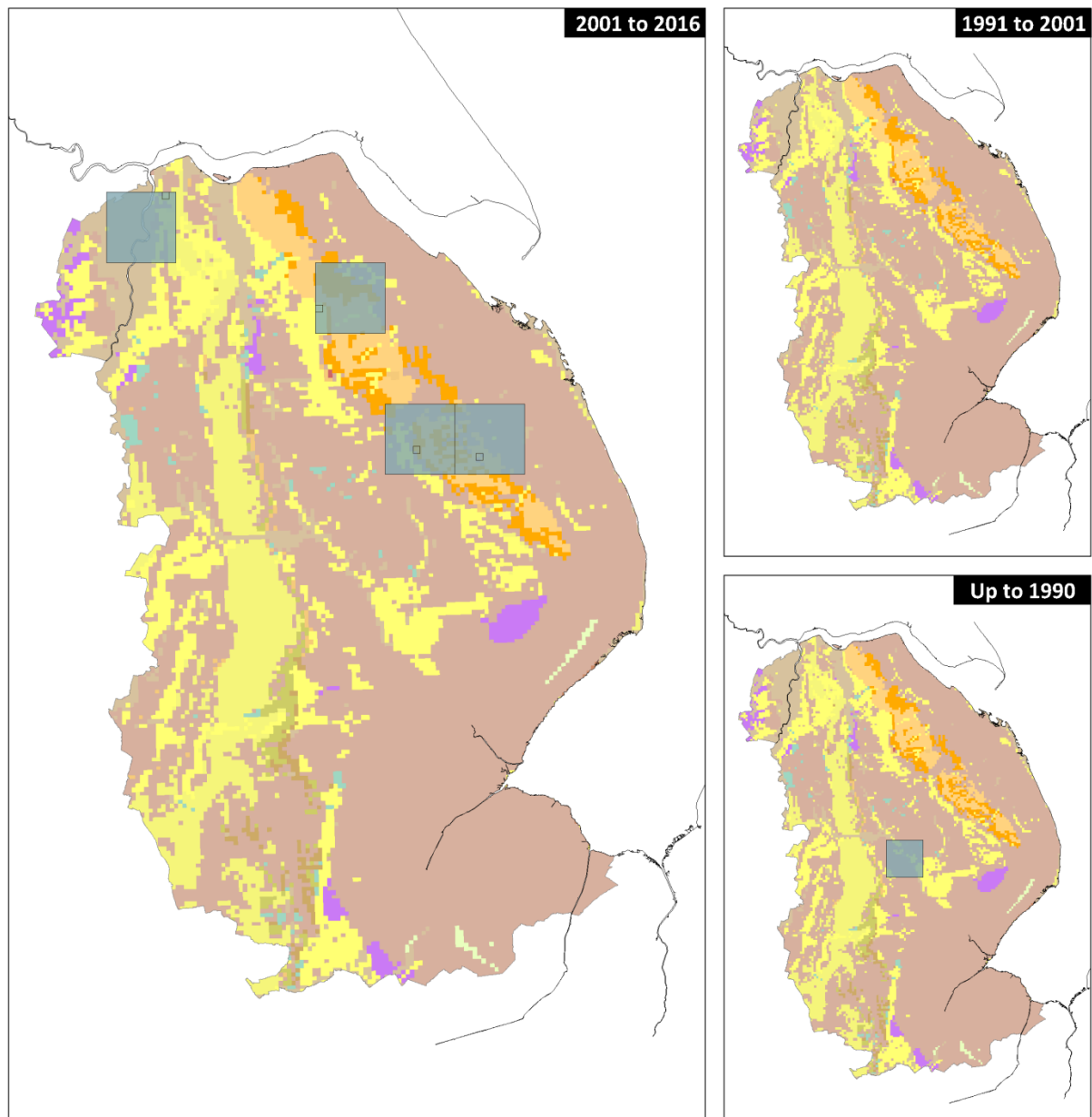
Contains British Geological Survey materials © NERC 2014

An annual archaeophyte which flowers from June to July. It favours free-draining chalky and sandy loams and calcareous clay loams. Species decline is thought to be due to increases in levels of nitrogen applications and the use of herbicides.

Recorded in 34 hectads in Greater Lincolnshire since 1970 but in only 10 of those since 2000.



Cornfield knotgrass *Polygonum rurivagum* Jord. ex Boreau



Soil textures (mySOIL)

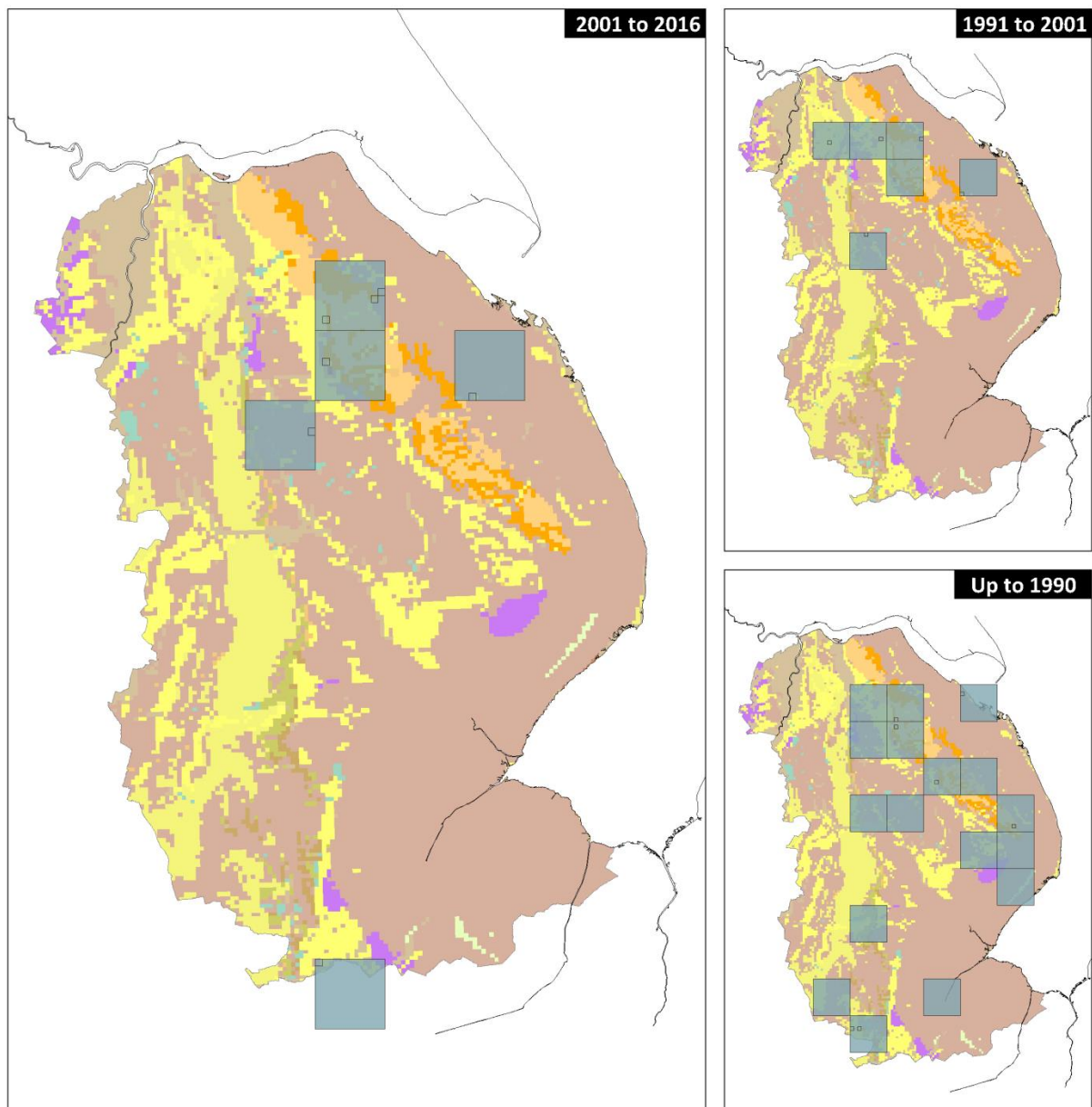
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Contains British Geological Survey materials © NERC 2014

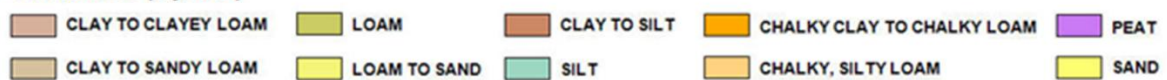
An annual archaeophyte which flowers from July to October. It is typically found in arable fields as part of species-rich arable plant communities. It favours light chalky loams as well as calcareous clays and sandy loams.

Its similarity to common knotgrass means it is easily overlooked and previous distribution is not well known. In Greater Lincolnshire it was recorded in one hectad in 1945 but records were then absent until more recently where it has been found in four hectads since 2000.

Small-flowered buttercup *Ranunculus parviflorus* L.



Soil textures (mySOIL)



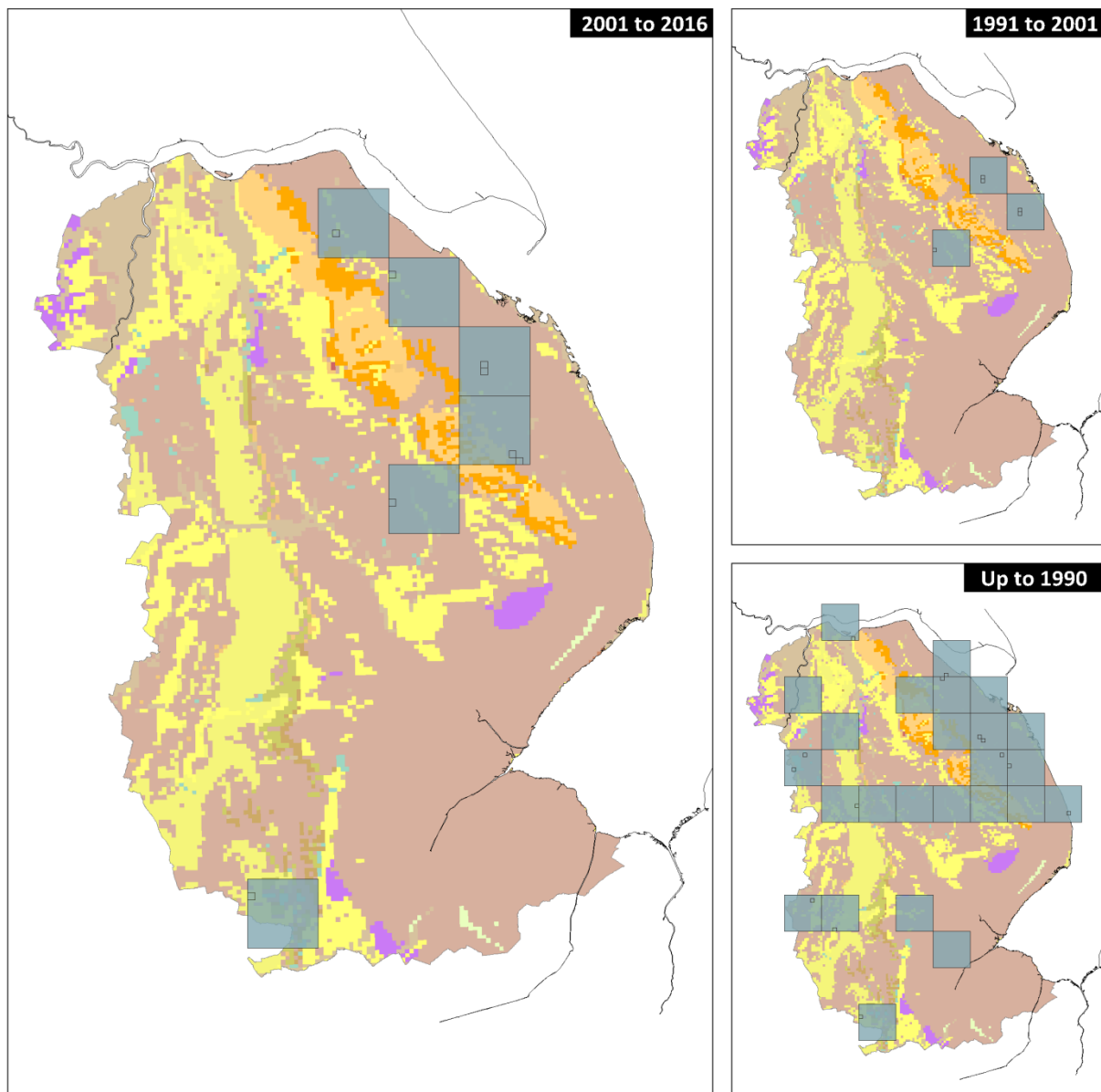
Contains British Geological Survey materials © NERC 2014

An annual native species which flowers from May to July. It is typically found in arable field margins near the coast however scattered sites also occur more inland. It favours calcareous and non-calcareous clay loams and sandy loams. Species decline is thought to be due to more competitive crop varieties and increased levels of nitrogen application to crops.

Recorded in eight hectads in Greater Lincolnshire since 1970 but in only of those five since 2000.



Shepherd's needle *Scandix pectin-veneris* L.



Soil textures (mySOIL)

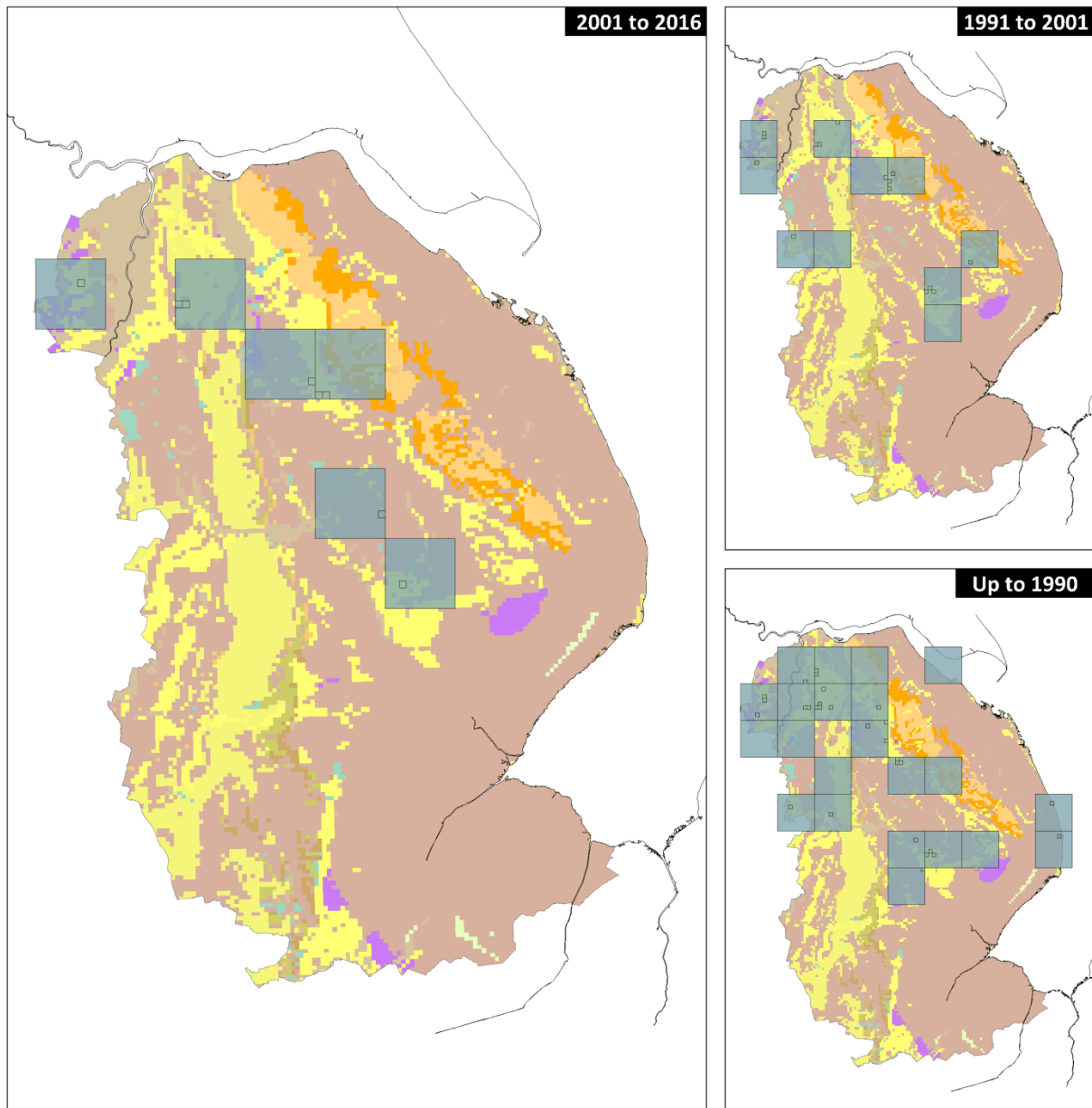
CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

Contains British Geological Survey materials © NERC 2014

An annual archaeophyte which flowers from April to July. Typically found in arable fields and occasionally on coastal dry and sunny banks it requires autumn cultivation. It is frequent on heavy calcareous clay loams but often occurs on a range of other soil types. Species decline is thought to be due to susceptibility to broad-spectrum herbicides however it is often spread between farms in straw.

Recorded in 13 hectads in Greater Lincolnshire since 1970 but only six of those since 2000.

Annual knawel *Scleranthus annuus* L.



Soil textures (mySOIL)

CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

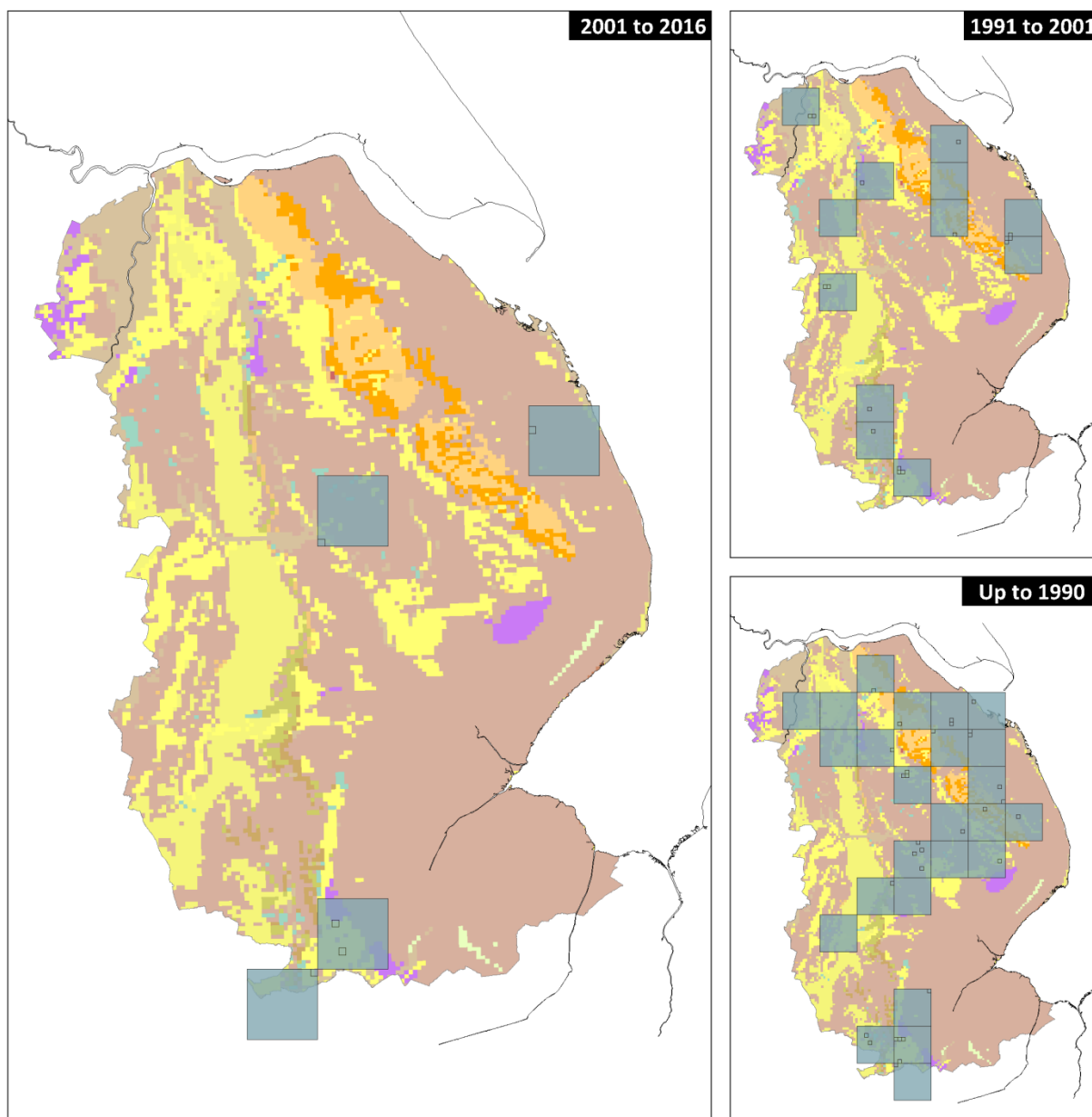
Contains British Geological Survey materials © NERC 2014

An annual native with inconspicuous flowers from June to August. It is a plant of arable fields but also frequently found in other locations, particularly dry, heathy grassland. Species decline mainly from arable habitats is thought to be susceptibility to broad-spectrum herbicides.

Recorded in 18 hectads in Greater Lincolnshire since 1970 but only six of those since 2000.



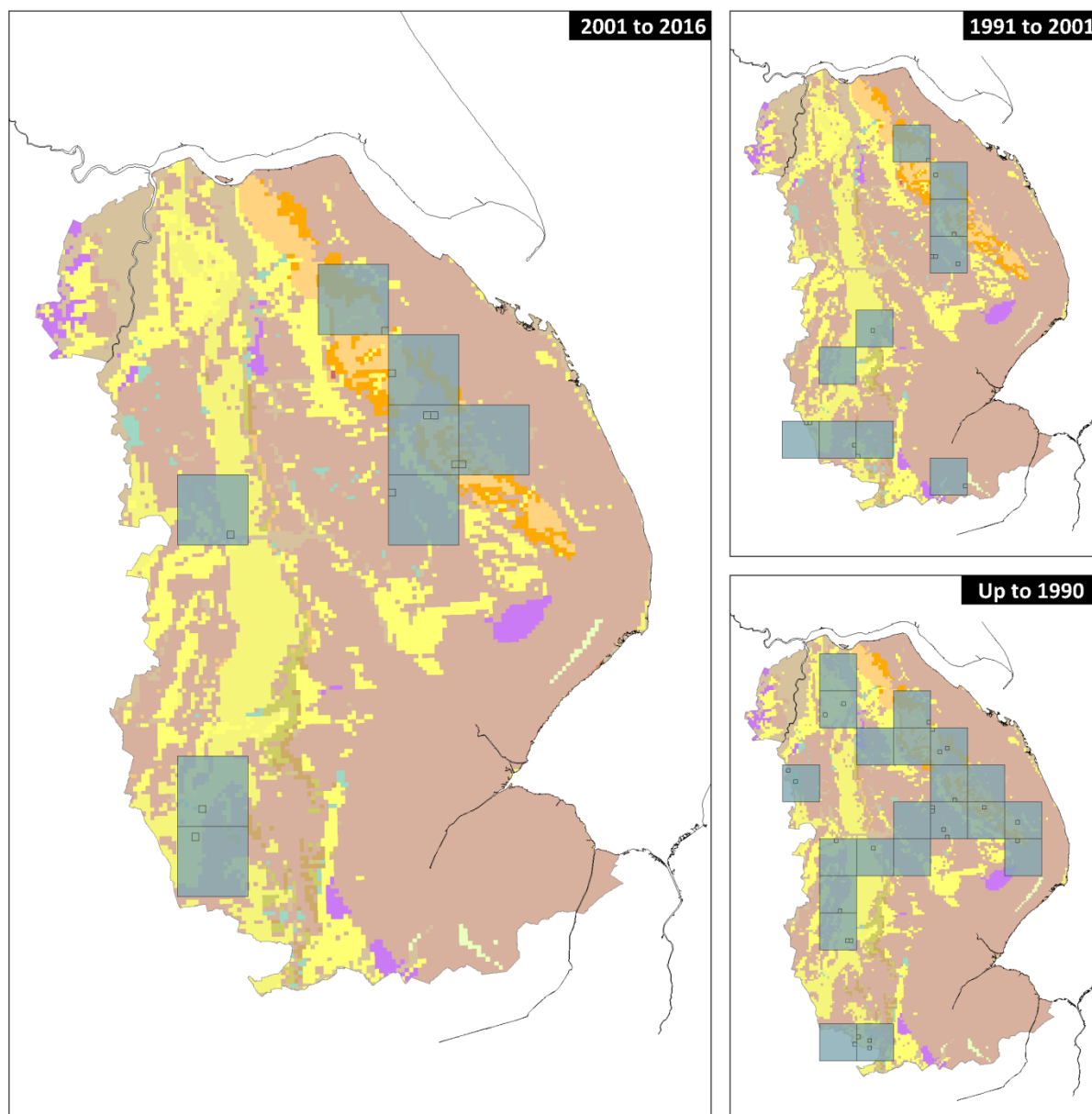
Field woundwort *Stachys arvensis* L.



An annual archaeophyte which flowers from April to November. It is a plant of arable field margins and occasionally gardens. It favours non-calcareous soils and is characteristic of sandy loams. Species decline is largely due to broad-spectrum herbicides, an increase in winter cropping and increased nitrogen applications to crops.

Recorded in 28 hectads in Greater Lincolnshire since 1970 but only four of those since 2000.

Narrow-fruited cornsalad *Valerianella dentata* L.



Soil textures (mySOIL)

CLAY TO CLAYEY LOAM	LOAM	CLAY TO SILT	CHALKY CLAY TO CHALKY LOAM	PEAT
CLAY TO SANDY LOAM	LOAM TO SAND	SILT	CHALKY, SILTY LOAM	SAND

Contains British Geological Survey materials © NERC 2014

An annual archaeophyte which flowers from June to August. It is a plant of arable field margins, particularly in spring crops. It favours light calcareous loams, mainly on chalk. Species decline is thought to be due to broad-spectrum herbicides, and an increase in winter cropping.

Recorded in 19 hectads in Greater Lincolnshire since 1970 but only eight of those since 2000.



5. Conclusion

Greater Lincolnshire is very fortunate to host a range of rare arable plant species, but only through monitoring known sites and surveying new sites will we begin to establish the full distribution picture. By increasing our knowledge of arable plant species' management requirements and identifying key threats, we hope to protect and expand the distribution of these important plants within Greater Lincolnshire.

Requirements for low input regimes and regular disturbance mean that agri-environment options for arable plants provide one of the main opportunities for conservation measures at the farm scale. The majority of arable land is in private ownership and so working with farmers to try and increase survey efforts would help to provide a better understanding of arable plant diversity, both scarce and more common, in Greater Lincolnshire.

5.1 Implications

This report demonstrates that there have been significant declines in recorded numbers of many species over the last 45 years. The contribution of individuals working or volunteering in the field is vital to the broadening of our knowledge and understanding of scarce arable plants. It is hoped that farmers, agronomists, conservation organisations and other interested parties will feel encouraged by this report to carry out further surveys to provide up to date information and to realise the importance of submitting their records as the information they submit will be used to identify potential sites for habitat enhancement, restoration and creation to facilitate population expansion.

6. Glossary

Annual – plant in which the whole life cycle from germination to seed dispersal occurs in one year.

Archaeophyte – a non-native species introduced to a geographical region before 1500 AD– literally ‘ancient plants’.

Calcareous – used here to mean an alkaline habitat. The alkalinity is derived from the soil/geology with the main alkaline rocks as chalk or limestone.

Casual – a species which grows in an area without being planted, but fails to establish itself in the wild for very long.

Hectad – a 10km x 10km grid square used for recording purposes

Invasive – any alien/non-native species that has the ability to spread causing damage to the environment, the economy, our health and the way we live.

Loam – good quality soil containing sand, clay and organic matter.

Nationally Scarce – recorded in 16-100 hectads.

Native – a species that occurs naturally in an area, and therefore one that has not been introduced by humans either accidentally or intentionally.

Tilth – physical condition of the soil



7. References

Blamey, M., Fitter, R. and Fitter, A. (2013) *Wild Flowers of Britain and Ireland*. 2nd edition. London: Bloomsbury

Defra (2013) *Structure of the agricultural industry in England and the UK at June*. www.gov.uk/government/statistical-data-sets/structure-of-the-agricultural-industry-in-england-and-the-uk-at-june

Gibbons, E.J. (1975) *The Flora of Lincolnshire*. Lincolnshire Naturalists' Union

Gibbons, E.J. and Weston, I. (1985) *Supplement to the Flora of Lincolnshire*. Lincolnshire Naturalists' Union

Greater Lincolnshire Nature Partnership (2011) *Lincolnshire Biodiversity Action Plan*. 3rd edition. www.glnp.org.uk/admin/resources/lincs-bap-2011-2020-final.pdf

Hill, M.O., Preston, C.D. and Roy D.B. (2004) *PLANTATT - Attributes of British and Irish Plants*. Cambridge: Raven Marketing Group

Plantlife (2009) *Arable Plants: a management guide*. Salisbury: Plantlife International

RSPB (2013) *The State of Nature in the UK and its Overseas Territories*. www.rspb.org.uk/stateofnature

Stace, C. (2010) *New flora of the British Isles*. 3rd edition. Cambridge University Press

Wilson, P. and King, M. (2003) *Arable plants – a field guide*. Hampshire: WILDGuides Ltd

Appendix 1: Locally Rare species

Table 1: Species recorded in three or fewer hectads in Greater Lincolnshire

Highlighted species are those which appear to show more recent declines and which based on post 2000 data alone may now be considered Locally Rare.

Latin name	Common name	No. of hectads since 1970	No. of hectads post 2000	Last recorded
<i>Adonis annua</i>	Pheasant's-eye	1	1	2011
<i>Anagallis arvensis subsp. foemina</i>	Blue pimpernel	7	1	2014
<i>Chenopodium murale</i>	Nettle-leaved goosefoot	9	1	2009
<i>Echium plantagineum</i>	Purple viper's-bugloss	4	3	2011
<i>Fumaria muralis subsp. boraei</i>	Few-flowered fumitory	2	1	2014
<i>Fumaria parviflora</i>	Fine-leaved fumitory	1	1	2013
<i>Galeopsis angustifolia</i>	Red hemp-nettle	6	2	2006
<i>Galium tricornutum</i>	Corn cleavers	1	0	1988
<i>Misopates orontium</i>	Weasel's-snout	4	0	2000
<i>Myosurus minimus</i>	Mousetail	2	1	2001
<i>Papaver hybridum</i>	Rough poppy	12	1	2013
<i>Ranunculus arvensis</i>	Corn buttercup	31	1	2012
<i>Rhinanthus angustifolius</i>	Greater yellow-rattle	2	2	2007
<i>Silene gallica</i>	Small-flowered catchfly	3	1	2014
<i>Torilis arvensis</i>	Spreading hedge-parsley	5	2	2014



Appendix 2: Commonly recorded species

Table 2: Species more commonly recorded in Greater Lincolnshire

Highlighted species are those which have nationally declined severely. In some cases there have also been reductions in numbers of records in Greater Lincolnshire, however current figures exceed those to be considered as Locally Scarce and Declining by the BSBI definition.

Latin name	Common name	No. of hectads since 1970	No. of hectads post 2000	Comments
<i>Aethusa cynapium</i>	Fool's parsley	51	46	Moderately competitive, can reduce yield at high densities
<i>Agrostemma githago</i>	Corncockle	24	11	
<i>Agrostis gigantea</i>	Black bent	46	45	
<i>Alopecurus myosuroides</i>	Black-grass	56	56	Prolific arable weed which reduces crop yields.
<i>Anagallis arvensis</i>	Scarlet pimpernel	53	51	
<i>Anchusa arvensis</i>	Bugloss	53	46	
<i>Anthemis arvensis</i>	Corn chamomile	23	12	
<i>Anthemis cotula</i>	Stinking chamomile	47	13	
<i>Aphanes arvensis</i>	Parsley-piert	48	35	
<i>Arctium minus</i>	Lesser burdock	61	61	
<i>Atriplex patula</i>	Common orache	56	54	
<i>Avena fatua</i>	Wild-oat	56	55	Competitive yield-reducing weed of arable crops
<i>Bromus diandrus</i>	Great brome	33	33	Competitive yield-reducing weed of arable crops

<i>Bromus secalinus</i>	Rye brome	24	23	Competitive yield-reducing weed of arable crops
<i>Bromus sterilis</i>	Barren brome	62	62	Competitive yield-reducing weed of arable crops
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	60	60	Significant weed of some crops. Good seed resource for birds.
<i>Centaurea cyanus</i>	Cornflower	48	27	
<i>Chaenorhinum minus</i>	Small toadflax	64	25	Many records not from arable habitats
<i>Chenopodium album</i> agg.	Fat-hen	61	60	Moderately competitive, can reduce yield at high densities. Good seed resource for birds.
<i>Chenopodium polyspermum</i>	Many-seeded goosefoot	51	29	
<i>Cirsium arvense</i>	Creeping thistle	66	66	Injurious weed of arable crops
<i>Cirsium vulgare</i>	Spear thistle	66	66	Injurious weed of arable crops
<i>Convolvulus arvensis</i>	Field bindweed	64	64	
<i>Descurainia sophia</i>	Flixweed	48	19	
<i>Elytrigia repens</i>	Common couch	61	60	
<i>Erysimum cheiranthoides</i>	Treacle-mustard	40	13	
<i>Euphorbia exigua</i>	Dwarf spurge	52	18	
<i>Euphorbia helioscopia</i>	Sun spurge	89	71	
<i>Fallopia convolvulus</i>	Black-bindweed	58	54	Moderately competitive, can reduce yield at high densities
<i>Fumaria officinalis</i>	Common fumitory	85	52	Moderately competitive, can reduce yield at high densities



<i>Galeopsis bifida</i>	Bifid hemp-nettle	20	16	
<i>Galeopsis speciosa</i>	Large-flowered hemp-nettle	29	12	
<i>Galium aparine</i>	Cleavers	65	65	Competitive yield-reducing weed of arable crops
<i>Geranium dissectum</i>	Cut-leaved crane's-bill	61	61	Moderately competitive, can reduce yield at high densities
<i>Geranium pusillum</i>	Small-flowered crane's-bill	56	54	Moderately competitive, can reduce yield at high densities
<i>Glebionis segetum</i>	Corn marigold	57	25	
<i>Lamium amplexicaule</i>	Henbit dead-nettle	71	41	Many records not from arable habitats
<i>Lamium hybridum</i>	Cut-leaved dead-nettle	79	53	
<i>Lamium purpureum</i>	Red dead-nettle	58	58	Moderately competitive, can reduce yield at high densities
<i>Lapsana communis</i>	Nipplewort	63	62	
<i>Legousia hybrida</i>	Venus's-looking-glass	39	13	
<i>Lepidium coronopus</i>	Swine-cress	54	50	
<i>Lepidium didymum</i>	Lesser swine-cress	46	41	
<i>Matricaria chamomilla</i>	Scented mayweed	60	59	
<i>Mentha arvensis</i>	Corn mint	41	28	
<i>Myosotis arvensis</i>	Field forget-me-not	60	59	Moderately competitive, can reduce yield at high densities
<i>Papaver dubium subsp. dubium</i>	Long-headed poppy	17	17	

<i>Papaver dubium subsp. lecoqii</i>	Yellow-juiced poppy	34	20	
<i>Persicaria lapathifolia</i>	Pale persicaria	58	57	
<i>Persicaria maculosa</i>	Redshank	61	59	Competitive yield-reducing weed of arable crops
<i>Petroselinum segetum</i>	Corn parsley	29	15	Scarce as an arable plant but often on drain banks
<i>Poa annua</i>	Annual meadow-grass	63	63	Weed of arable crops now controlled by herbicides. Good seed resource for birds
<i>Poa trivialis</i>	Rough meadow-grass	61	61	Weed of arable crops now controlled by herbicides.
<i>Polygonum aviculare</i>	Knotgrass	57	57	Moderately competitive, can reduce yield at high densities
<i>Ranunculus sardous</i>	Hairy buttercup	26	17	
<i>Raphanus raphanistrum subsp. raphanistrum</i>	Wild radish	33	24	
<i>Rumex crispus</i>	Curled dock	60	60	Injurious weed of arable crops
<i>Rumex obtusifolius</i>	Broad-leaved dock	65	65	Injurious weed of arable crops
<i>Senecio vulgaris</i>	Groundsel	61	61	Moderately competitive, can reduce yield at high densities
<i>Sherardia arvensis</i>	Field madder	72	47	Many records not from arable habitats
<i>Silene latifolia</i>	White campion	60	59	
<i>Silene noctiflora</i>	Night-flowering catchfly	48	20	
<i>Sinapis alba</i>	White mustard	24	16	Competitive yield-reducing weed of arable crops
<i>Sinapis arvensis</i>	Charlock	59	59	Competitive yield-reducing weed of arable crops



<i>Sisymbrium officinale</i>	Hedge mustard	63	63	Competitive yield-reducing weed of arable crops
<i>Solanum nigrum</i>	Black nightshade	22	22	
<i>Solanum physalifolium</i>	Green nightshade	17	14	
<i>Sonchus arvensis</i>	Perennial sow-thistle	64	64	Moderately competitive, can reduce yield at high densities
<i>Sonchus asper</i>	Prickly sow-thistle	66	66	Moderately competitive, can reduce yield at high densities
<i>Sonchus oleraceus</i>	Smooth sow-thistle	63	63	Moderately competitive, can reduce yield at high densities
<i>Spergula arvensis</i>	Corn spurrey	49	27	
<i>Stellaria media</i>	Common chickweed	64	64	Competitive yield-reducing weed of arable crops
<i>Thlaspi arvense</i>	Field penny-cress	57	55	
<i>Torilis nodosa</i>	Knotted hedge-parsley	44	23	Many records not from arable habitats
<i>Tripleurospermum inodorum</i>	Scentless mayweed	62	62	Competitive yield-reducing weed of arable crops
<i>Tussilago farfara</i>	Colt's-foot	61	61	
<i>Urtica urens</i>	Small nettle	56	53	
<i>Veronica agrestis</i>	Green field-speedwell	58	18	Moderately competitive, can reduce yield at high densities
<i>Veronica arvensis</i>	Wall speedwell	56	55	Moderately competitive, can reduce yield at high densities
<i>Veronica hederifolia</i>	Ivy-leaved speedwell	54	46	Moderately competitive, can reduce yield at high densities
<i>Veronica persica</i>	Common field-speedwell	58	58	Moderately competitive, can reduce yield at high densities

<i>Veronica polita</i>	Grey field-speedwell	45	18	Moderately competitive, can reduce yield at high densities
<i>Viola arvensis</i>	Field pansy	87	67	Widespread but reduced density in arable fields



Scarce arable plants: An assessment of current status in Greater Lincolnshire

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December 2016

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