the species recovery trust

2018-22 Species Report

Field Gentian
(Gentianella campestris)

This project has been generously funded by **The Halpin Trust** with additional funding from The Oakdale Trust, The Leslie Mary Carter Charitable Trust, John Swire Trust, Biodiversity Solutions & Natural England

Summary

During 2018-2021 the majority of Field Gentian sites in England and Wales were surveyed and assessed, with particular focus on data deficient sites. There are still many sites to be visited, but we now have a much more complete picture of the species in England and Wales

A detailed census was carried out in the New Forest, counting every plant each Autumn in order to study the population dynamics at these sites, both directly and as a proxy for what might be occurring across the country. Highly significant & fascinating trends have emerged in the data, with many sites showing dramatic fluctuations from one year to the next

A partnership project was set up in Yorkshire to engage landowners and volunteers with the species

A research project in collaboration with Kew Gardens has been set up in order to gain a better understanding of seed ecology and lifecycles

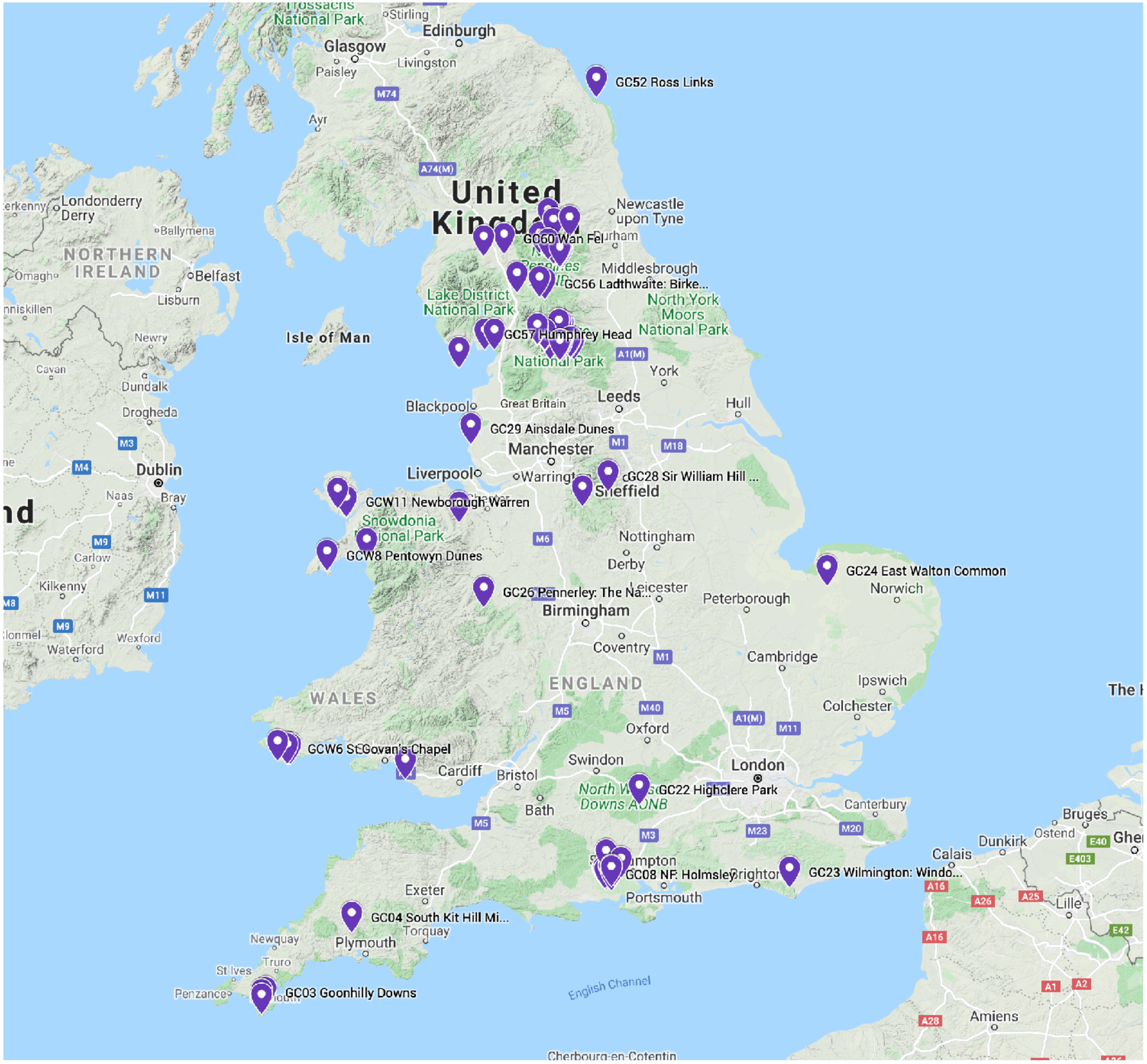
Management advice has been provided at a range of sites in order to improve the habitat conditions for Gentian and other species of short-sward grasslands

Volunteers have been recruited across England and Wales to assist with annual monitoring

In Derbyshire an ex situ project has been commend with the idea of growing plants to re-introduce to the county in the future

Sites

England and Wales



Cornwall

Lizard Downs

The Lizard

Surveys in 2020 failed to find a single plant in the Lizard, but in 2021 a population was discovered on Lizard Downs, on a different track from where plants had been previously seen. With over 100 plants this is a significant find and raises hope for the species not becoming extinct in Cornwall.

The other sites remain puzzling as there is good (although slightly sporadic) availability of suitable habitat, but with no plants present. Due to the cyclical nature of populations it is recommended to keep monitoring all these sites to confirm absence or otherwise.

Devon

Kit Hill Down

Devon only had one site for Field Gentian, which we have been surveying in detail using a combination of staff and volunteers since 2017.

In 2017, 16 very small plants were recorded in thin vegetation at a site where 50 plants had been recored some years before.

Sadly, despite continuing survey effort no plants have been recorded since then, and we are now fearful for the status of this site. We plan to continue surveying in case the population re-emerges.

There is still much suitable habitat on site, mostly away from the chimney area (where plants were last seen) which suffers quite heavily from visitor pressure, and therefore we may consider these areas for a re-introduction in a few years if the owners and site mangers are supportive.

The New Forest

GENTIAN NEW FOREST CENSUS								
GC			2015	2017	2018	2019	2020	2021
5x	Dur Hill		Extinct					
6	Burbush	SU 20142 01660			0	5	9	4
7	Magpie	SU 21000 00100	Extinct					
8a	Holmsley	SZ 21800 98600	Extinct					
8b	Holmsley	SZ 21980 99200				91	36	45
8c	Holmsley	SZ 22000 99219				42	12	30
8d	Holmsley	SZ 22061 99256				1	0	0
8e	Holmsley	SZ 22029 99217						7
9	Fritham	SU 21957 13062	2000		25	800	20	900
10	Spy Holms	SU 23888 02537	850		0	900	150	470
11	Markway Inclosure Roadside	SU 24252 02114	20		0	1	1	4
12x	Markway		Extinct					
13x	Wilverley Plain	SU 24800 01900	Extinct					
14a	Markway Trackside West	SU 24707 01951						11
14b	Markway Trackside East	SU 24861 01986				124		30
14c	Markway Trackside Hollow	SU 24928 02009	120	130	0	40	33	5
15a	Tiptoe	SZ 25626 98568			0	30	123	25
15b	Tiptoe	SZ 25545 98606					13	0
16	Wilverley Plain Main	SU 25638 01561			0	3419	0	1907
16b	Wilverley Plain pit	SU 25613 01281	150		0	326	0	36
16c	Wilverley Plain Heather	SU 25210 01420				6	6	20
17	Duckhole Bracken	SU 25617 02373	210		0	75	20	73
17b	Duckhole Pine	SU 25578 02328				136	47	86
18	Longslade Bottom	SU 26053 00716	428		0	316	0	12
19	Whitefield Moor	SU 28324 02343	260	600	0	200	15	490
19b	Whitefield Moor E	SU 28345 02441					300	500
20	Matley Wood	SU 32979 07806			0	6	0	9
20b	Matley Wood	SU 33144 08059						150
TOTALS			**4038**	**730**	**25**	**6518**	**785**	**4664**

New Forest (continued)

In 2021 and 2019 the New Forest experienced exceptional counts for Field Gentian, whereas many sites in 2018 and 2020 failed to produce a single plant.

A pattern does seem to be emerging, of alternating years of boom and bust. However, this trend is far from clear and will likely only be fully elucidated as we collect more data. As the previous table shows we initially planned to survey the forest every few years (as it is known to be a secure stronghold for the species so was not considered a priority). However, since we started observing these fluctuations in 2019 we have now made the decision to monitor every site every year.

The main fluctuations appear to be happening in the larger population that occur on the open ‘lawn’ habitats, whereas the smaller populations in more sheltered areas appear more constant. However, Fritham, which has a large population but largely occurring in amongst dense Heather and Bracken, has also shown this fluctuation.

The population is either fluctuating due to natural population dynamics, potentially linked to a biennial lifecycle, or simply failing to grow on years of excessive heat and drought during the summer (which occurred in 2018 & 2020).

New Forest (continued)

Gentian populations typically comprise a majority of biennial individuals, which in many locations seem to be flowering on alternate years. However, this would be odd as seed dormancy in the soil normally means populations tend not to be locked into such tight cohorts, and should produce flowering plants each year.

Observations to try and spot the year 1 basal rosettes growing in the wild have remained unsuccessful (see next page), but we are hoping that the ex situ plants being grown at Kew will provide a better picture of this.

One unusual observation has been the health and vigour of plants closely associated with animal dung. Although this response to nutrients is in someway not surprising, it is curious for a plant so closely associated with low nutrient habitats.

Liaison with Forestry England has led to two successes. A heather cut at GC11 (Parkway Inclosure Roadside) led to the discovery of 4 plants at a site which has only supported a single plant for many years, and there is much more available habitat here now.

At Matley Wood, Forestry England have agreed to carry out a much later bracken cut and while monitoring this, an entirely new population was discovered to the east of the site.

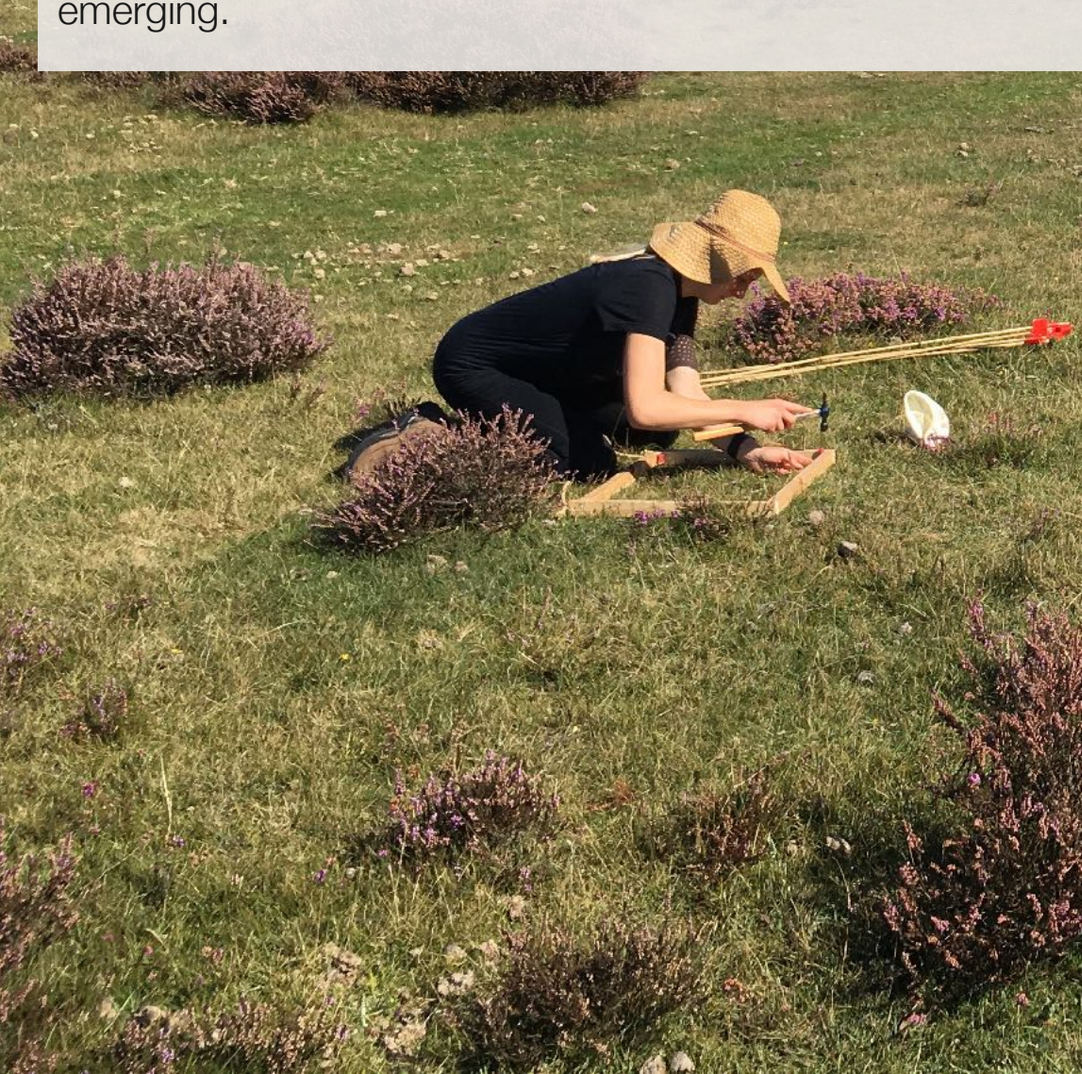
Fritham Plain, with insets of dung-enriched plants

New Forest (continued)

Lifecycle monitoring

One of the great paradoxes with the Field Gentian monitoring has been our inability to record the presence of any year-1 rosettes in the wild, if indeed these are being produced. Initial ex situ work at Kew suggests plants usually flower in one year, adopting a more annual lifestyle, despite much of the literature suggesting a biennial habit. To try and get to the bottom of this, we set up 10 permanent plots in the New Forest, mapping the exact location of plants and then inspecting them in minute detail to pick up on the occurrence of rosettes. A device called the 'Gentianator' was deigned for this task, which could map individual plants to the nearest centimetre, and track them every month. The plots were re-visited every month for one and half years.

After 18 months this research failed to reveal the presence of a single basal rosette, although the work was thwarted by ponies constantly kicking out the marker pegs, and by the occurrence of a poor year in 2020 where hardly any new plants grew in the lots. What was notable was how quickly flowering plants appeared in August, with no signs of rosettes or any basal growth prior to the flowering plant emerging.



North Hampshire

Highclere Park

This population in the grounds of Highclere House (but sadly never featured as a sub-plot in Downton Abbey) represents a significant outlier population, and our work here has involved annual monitoring, combined with liaison with the estate mangers to improve the habitat at the site.

The population here has mirrored the extreme fluctuations seen in the New Forest, which is of huge interest.

2018 0

2019 158

2020 0

2021 1243

Liaison work has focussed on carrying out some vegetation cutting to open up the sward, and keeping a close eye on the current sheep grazing regime.

Sussex

Wilmington

This site has suffered from inappropriate sheep grazing for many years, and it subsequently became apparent that local NE staff were unaware of the presence of the species on the site. Having monitored a further decline in this population in 2021, we are now closely liaising with NE staff and the landowner to ensure a better future for this site.

It has now been proposed that the sheep will be removed from the area during the summer months.

Norfolk

East Walton Common

Field Gentian was last recorded here in 1997, but an absence of further data meant we were unsure whether it had become locally extinct, or was simply not being recorded.

Surveys in 2018 and 2021 found several small areas where suitable short sward existed that could support plants, but sadly no Gentian was found.

When we have greater resources in this part of the country we will investigate the potential for re-introduction at this site.

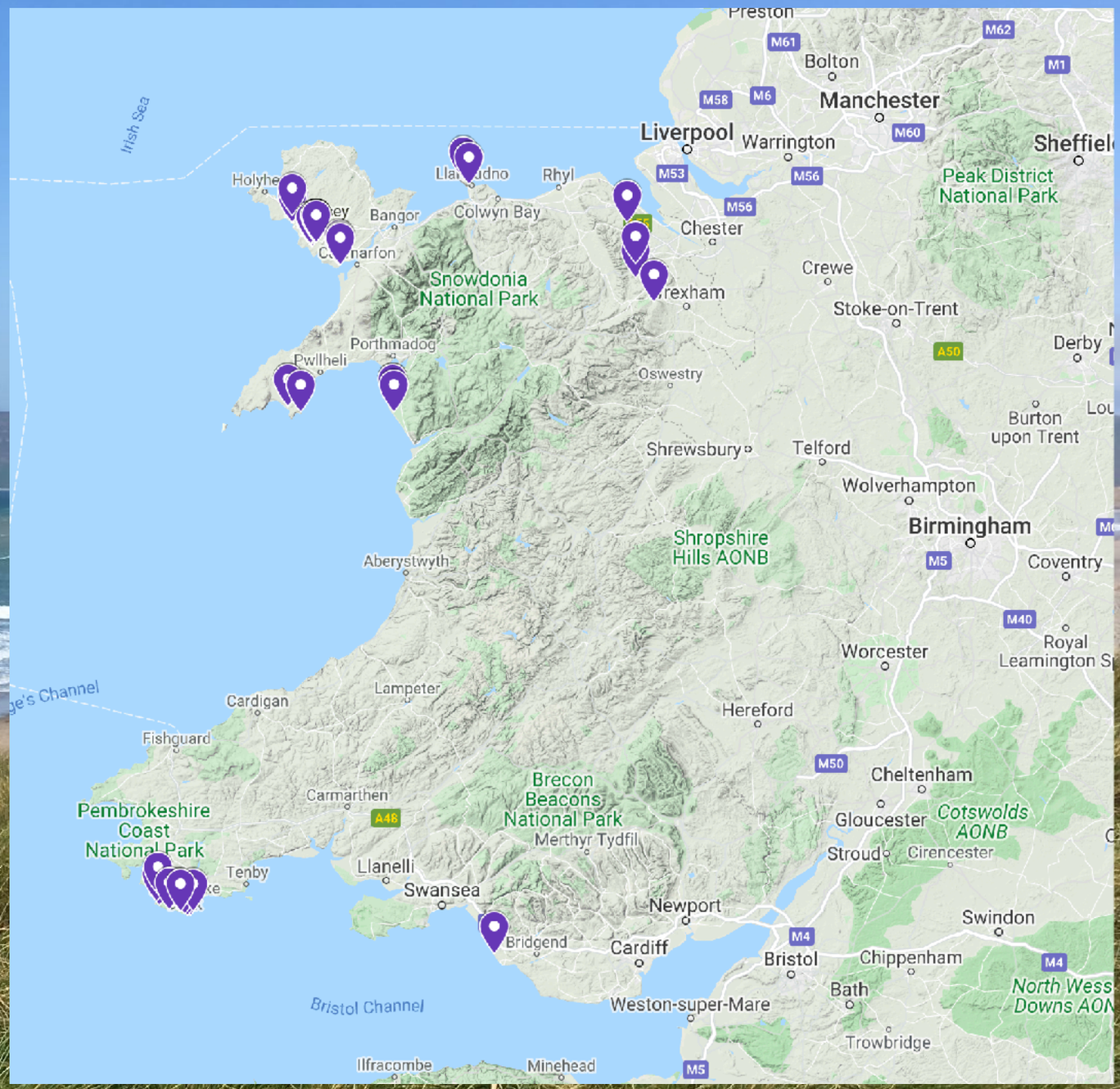
Wales

Field Gentian is known from roughly 19 sites at 12 locations in Wales, which can be further divided up into multiple sub-sites, with meta-populations present at 5 of the locations.

The western populations contrast the sites in England as they are all costal, either occurring in dune systems or on windswept clifftop grasslands.

Currently there is insufficient data to be able to assess a long-term trend at these sites, and future surveys will aim to pick up on this pattern.

While many sites do support large and extensive populations, a few now appear to have either a handful of plants left, or none found at all.

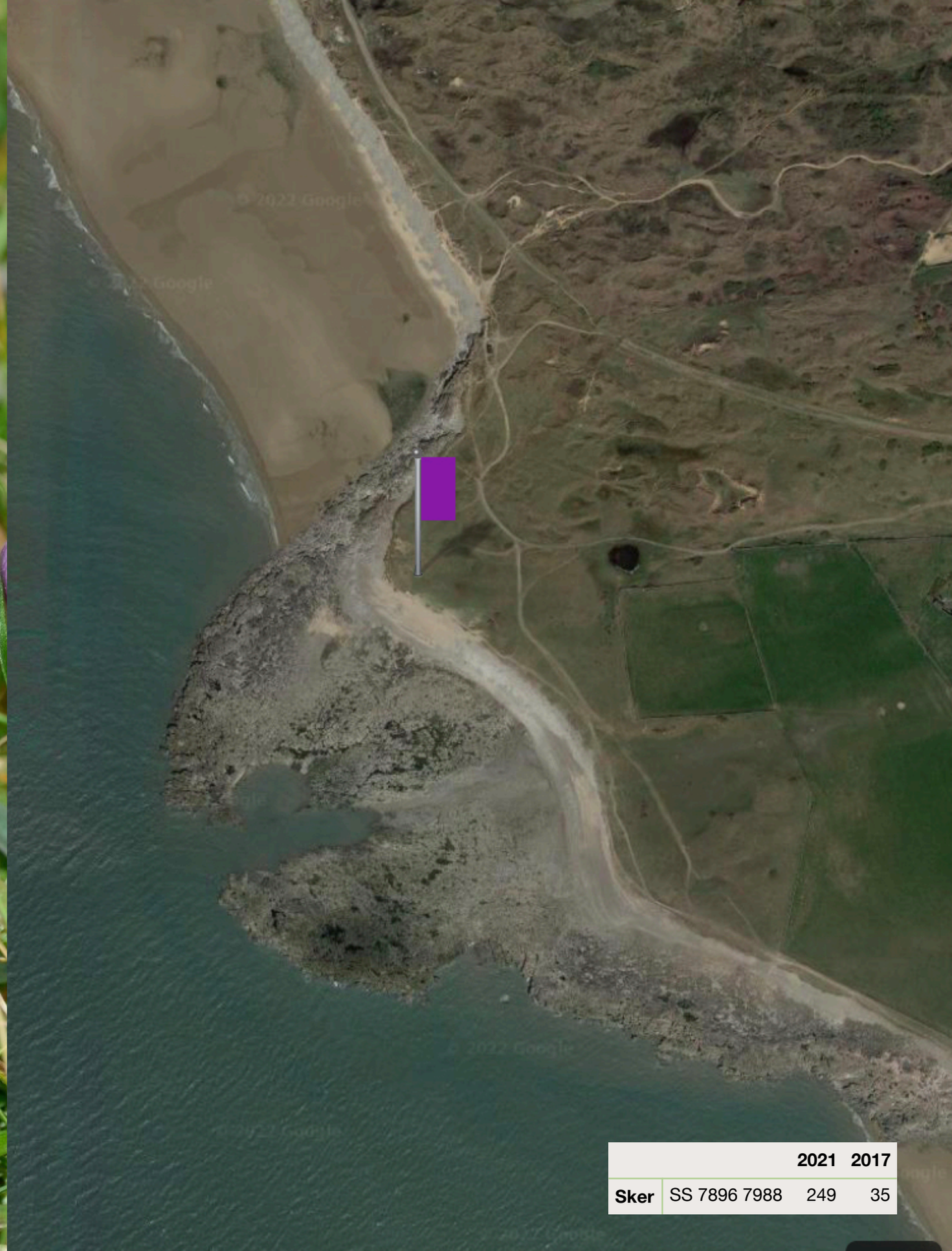


South Wales

Sker (Kenfig)

This coastal site continues to support Field Gentian, but at a lower level than in the past due to the encroachment of Gorse.

Consideration should be potentially given to carrying out scrub removal in an effort to claim back more short-sward grassland



		2021	2017
Sker	SS 7896 7988	249	35

Pembroke Coast

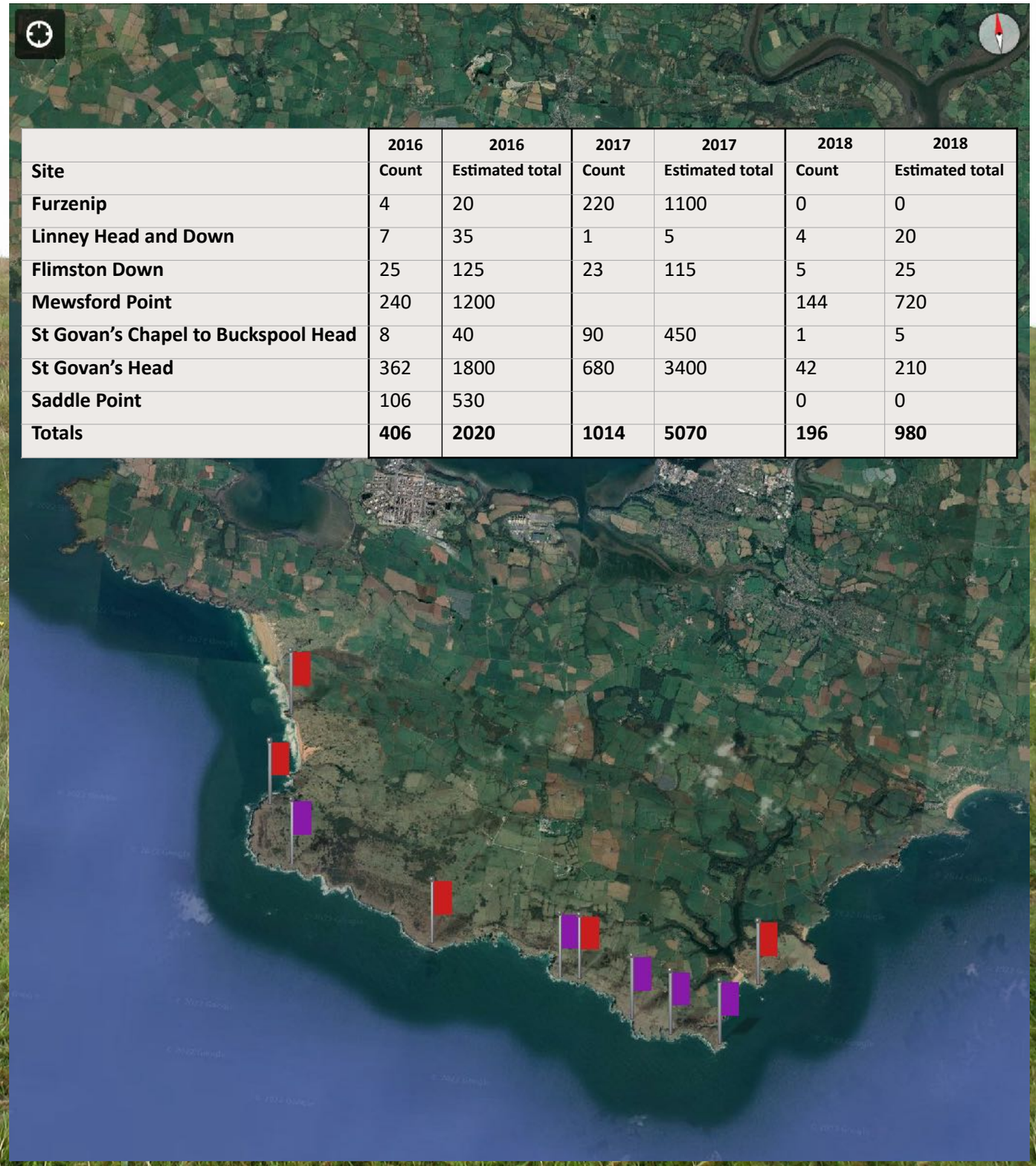
One of the major strongholds for G. campestris in England and Wales is on the Pembrokeshire coast within the Castlemartin Ranges SSSI and the Stackpole SSSI and NNR. A full survey of populations was conducted here in 2004 and 2016-2018. The purpose of the work described here was to carry out an up-to-date census of these populations, to collect ecological information from the site and to establish areas within which populations could be monitored over three years in order to investigate population fluctuations and trends.

Nearly all populations recorded in 2004 were surveyed with the addition of two further sub-populations at the eastern and western extremities of the area. Numbers of plants and numbers of populations were considerably fewer than in 2004. In 2004, **160,000** plants were estimated from 928 100m squares, while in 2016, only **3,770** plants were estimated from 63 100m squares.

Plants were found in two NVC communities: H7b coastal heathland and MC9b maritime grassland. These are both species-rich vegetation types found in sub-maritime conditions, but sheltered from the full force of salt-laden spray. These vegetation types form a mosaic over much of the upper cliff slopes and cliff-top plateaux. Gentianella campestris favours vegetation that is significantly shorter than adjacent areas without G. campestris.

Full report available here

Site	2016 Count	2016 Estimated total	2017 Count	2017 Estimated total	2018 Count	2018 Estimated total
Furzenip	4	20	220	1100	0	0
Linney Head and Down	7	35	1	5	4	20
Flimston Down	25	125	23	115	5	25
Mewsford Point	240	1200			144	720
St Govan's Chapel to Buckspool Head	8	40	90	450	1	5
St Govan's Head	362	1800	680	3400	42	210
Saddle Point	106	530			0	0
Totals	**406**	**2020**	**1014**	**5070**	**196**	**980**



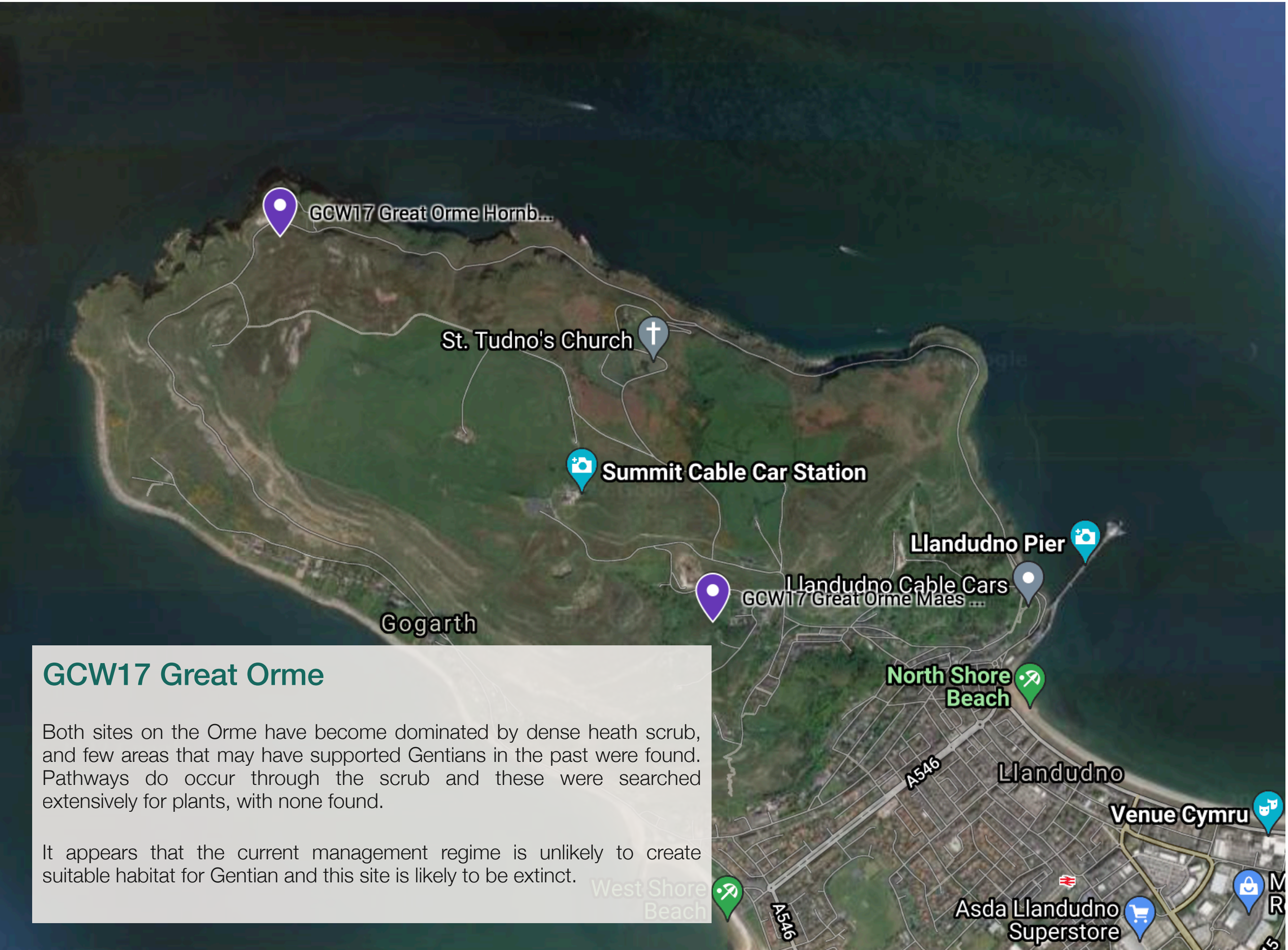
North Wales

GCW19 Morfa Harlech

The southern site was surveyed in 2019 and despite finding areas of good habitat, no plants were found.

The northern site was not surveyed in 2019.

GCW19 Morfa Harlech	SH 55870 25590	2018 2 plants
GCW19a Morfa Harlech S	SH 56000 24300	2019. 0 plants. Good habitat with short turf in extensive dune slacks. Associates include Lady's Bedstraw, Mouse-ear Hawkweed, Restharrow, Thyme, Fescue. 2017 present



GCW17 Great Orme

Both sites on the Orme have become dominated by dense heath scrub, and few areas that may have supported Gentians in the past were found. Pathways do occur through the scrub and these were searched extensively for plants, with none found.

It appears that the current management regime is unlikely to create suitable habitat for Gentian and this site is likely to be extinct.

North Wales (cont.)

GCW17 Great Orme Hornby Cave	SH 75670 84302	2019 0 plants found, sward appears too thick. 2016 At least 20 plants at path edges at top of small gulley from Marine Drive opp. Rest & Be Thankful cafe SH7567084302
GCW17 Great Orme Maes Y Facrell	SH 77150 82910	2019 0 plants. The area where the plants were last recorded is now dominated by a tall dense sward and appears on suitable for the plants. That is shorter turf present at the top of the hill around the rocks, but no plants were found here. 2000 Grassy north-east facing slope in Maes y Facrell NNR SH7715.8291

GCW10 Aberffraw SSSI

Aberfrraw was the most impressive site, supporting two meta-populations with a total of 20 sub-sites and 905 plants were recorded, with the possibility of many more.

The overall habitat condition is excellent, with ample available areas of short species-rich turf.

GCW10 Aberffraw SSSI (cont)

GCW10 Aberffraw SSSI	SH 35630 68310	2019 50 plants
GCW10 Aberffraw SSSI	SH 35632 68231	2019 60 plants
GCW10 Aberffraw SSSI	SH 35669 68149	2019 6 plants
GCW10 Aberffraw SSSI	SH 35707 68170	2019 10 plants
GCW10 Aberffraw SSSI	SH 35708 68344	2019 12
GCW10 Aberffraw SSSI	SH 37043 68920	2019 240 plants
GCW10 Aberffraw SSSI	SH 37036 68922	2019 6 plants
GCW10 Aberffraw SSSI	SH 36977 68869	2019 3 plants
GCW10 Aberffraw SSSI	SH 37063 68922	2019 250 plants amongst rabbit warren in 20m area.
GCW10 Aberffraw SSSI	SH 37092 68932	2019 50 plants in short turf at edge of Marram grass
GCW10 Aberffraw SSSI	SH 37067 68980	2019 1 plant
GCW10a Aberffraw SSSI	SH 35651 68545	2019 1 plant
GCW10c Aberffraw SSSI	SH 36054 67986	2019 0. Some suitable habitat, but much of it appears relatively overgrown now. 2010 present
GCW10d Aberffraw SSSI	SH 35607 68444	2019 10 plants in short turf along small path running north through dunes SH35626843 2008 10 plants
GCW10d Aberffraw SSSI	SH 35619 68442	2019 18 plants in short sward in shallow hollow.
GCW10d Aberffraw SSSI	SH 35596 68419	2019 16 plants in short sward dominated by Pilosella
GCW10d Aberffraw SSSI	SH 35602 68419	2019 8 plants
GCW10d Aberffraw SSSI	SH 35597 68400	2019 10 plants
GCW10d Aberffraw SSSI	SH 35605 68396	2019 12 plants
GCW10d Aberffraw SSSI	SH 35627 68327	2019 142 plants

GCW11 Newborough Warren

The 2019 surveys at this site were hampered by a severe storm, which reduced the quality of the survey.

The vegetation in several of the sites where plants had been recorded in the past appeared to have become quite thick, and although individual plants may have been missed, there did not appear to be any large numbers. At site 11a, 250 plants were recorded in a 10x7m patch.

Due to the vastness of the area, by necessity we focussed effort on where previous plants had been recorded, but there is a chance other populations are present. There is a huge variety of vegetation in the dunes with some excellent site management, so there certainly appears to be potential in the broader area.

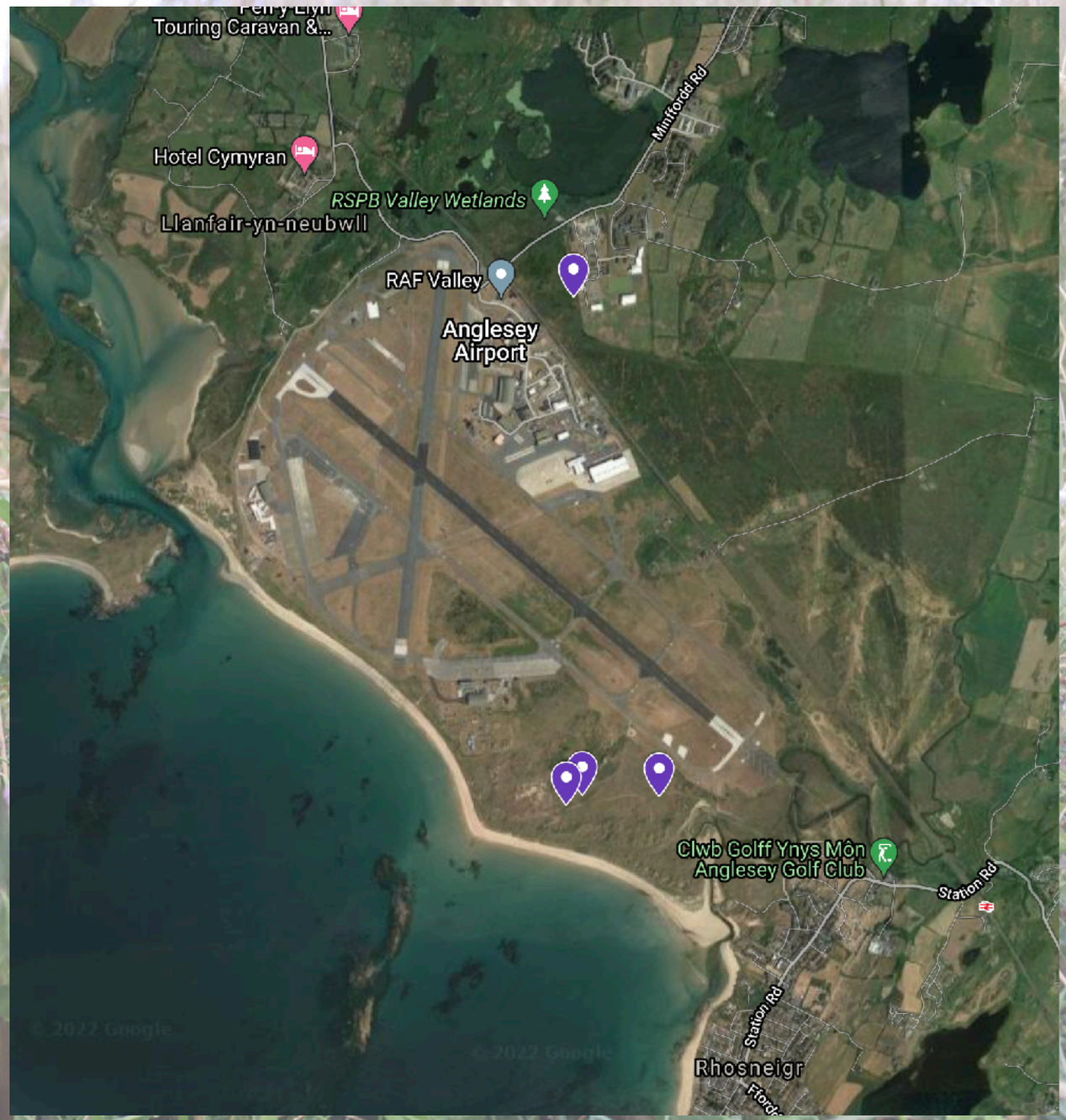
More surveys are required to accurately assess this area.

GCW11 Newborough Warren	SH 42930 62750	2019 absent, but habitat suitable and lots of Autumn Gentian. 2008 present
GCW11 Newborough Warren	SH 42731 63520	2019 1 plant in short sward vegetation
GCW11 Newborough Warren	SH 43130 63170	2019 0. Sward too thick 2008 present
GCW11a Newborough Warren	SH 43240 62860	Coastal sand dune system 2019 c. 250 plants scattered in 10x7 patch on either side of path 2008

GCW12 Tywyn Trewan

This site, surrounding Anglesey Airport, contained 3 extant populations to the south of the runway. A fourth population to the north appears to have died out, with the habitat replaced by dense vegetation and gorse.

The plants were associated with pathways through the site which supported a thinner sward with a more diverse flora. As long as these paths receive similar use and management it is likely the populations here are relatively secure.



GCW12a Tywyn Trewan	SH 31213 74242	2019 64 plants along 40m stretch path
GCW12b Tywyn Trewan	SH 31277 74280	2019 13 plants along pathway Sward too tall and dense at original grid ref 2008 400-500 plants
GCW12c Tywyn Trewan	SH 31577 74261	2019 15 plants along 30m section oftrack in short sward
GCW12dX Tywyn Trewan	SH 31310 76240	2019 0 plants. Some suitable habitat remains but is mostly hemmed in with tall rank sward unsuitable for pension 2010 175 plants

GCW18a Pentowyn Dunes	SH 28360 26440	2016 40 plants 2019 23 plants in patch of short sward in sandy grassland with Festuca, Viola, Leontodon, Thymus, Euphrasia, Galium verum
GCW18b Porth Ceiriad	SH 31750 24960	2016 Slope above east end of Porth Ceiriad, west of fence SH3175.2496; Grassy slope above the sea, just below footpath Porth Ceiriad SH31752496 at least 40 plants but heavily sheep grazed 2019 0 plants. Very heavily grazed with parched sward, generally grass dominated and species poor.

GCW18a Pentowyn Dunes

This site initially appeared to offer little potential for Gentian, with the majority of the swardtoo thick to support any plants. Eventually a small patch of open short turf was found, and to our delight 23 plants were found within in.

The long-term prospects for this site are extremely fragile due to the small area of suitable habitat.

GCW18ab Porth Ceiriad

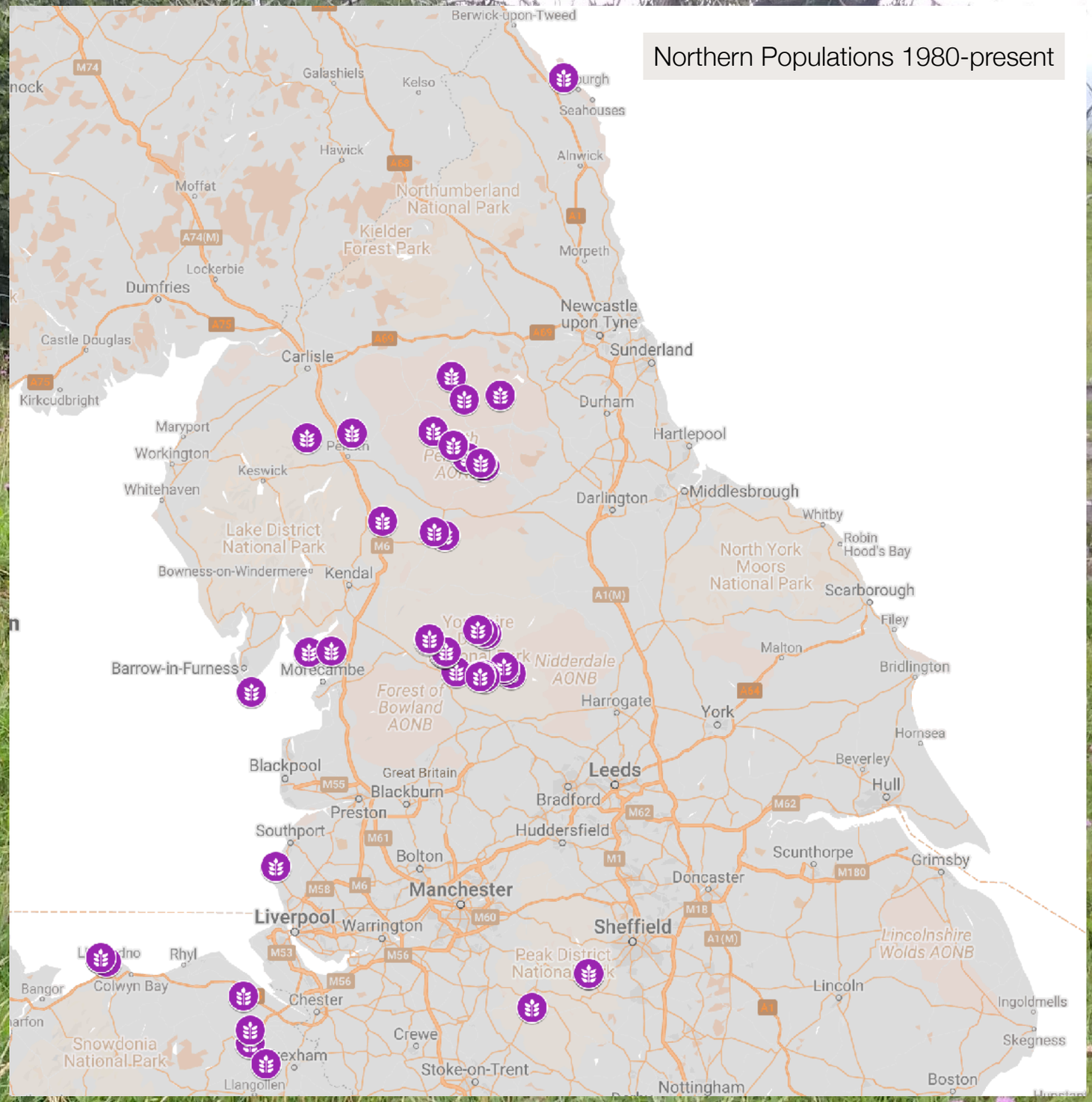
No sheep were present during the surveys, but the site had the feel of an area of grassland that has been extremely heavily grazed in the past, with a species-poor and rather parched sward. No gentians were recorded.

North England Project

The majority of the northern sites were surveyed in 2016, and details can be found in the report here.

During those surveys it was found that the majority of populations were declining, and this decline seemed closely matched with areas of intensive sheep grazing.

With the appointment of a Northern Field officer in 2021, our work here has now moved onto liaising with local landowners and conservation mangers in an attempt to reverse this trend, as well at trialling new management techniques that could boost dwindling populations.



Northern Project - 2021 Summary

- Northern sites surveyed: 24
- Five volunteers were recruited, and of the sites shown above, they surveyed ten sites (averaging 2 sites each)
- Land owners/managers engaged on surveyed sites: 9
- Sites not surveyed but land owners/managers contacted: 2
- NB Sites are now broadly categorised as “lost”, “at risk” “good condition” or “unsurveyed/no recent data”
- Objectives for 2022 are to continue building the network with recorders and site managers, recruit more volunteers, continue to liaise with site managers to improve management and survey sites that have not been visited - chiefly Cumbrian coastal sites and Northumberland coastal sites.
- The trial management planned for 2021 has not been carried out, but we are hoping to move forward with this over the winter.

Looking forward

Project aims 2022-2030

Continue annual census in New Forest

Widen scope of project in Yorkshire to offer advice to more landowners, and carry out more trial management work

Continue research work at Kew, looking at growth ecology of plants and try and provide answers to lifecycles in the wild

Strengthen project in Wales with further monitoring and liaison with landowners

The Species Recovery Trust is a charity set up to tackle the loss of some of the rarest species in the UK.

There are over nine hundred native species in the UK that are classed as under threat, with several hundreds more currently widespread but known to be in significant decline. The countryside is now bereft of many species that were a familiar sight a mere generation ago.

A small number of these species are on the absolute brink of existence, poised to become extinct in our lifetimes; our goal is to stop them vanishing.

Our aim is to remove 50 species from the edge of extinction in the UK by the year 2050. In addition we are reconnecting people with wildlife and the natural world through training programmes and awareness raising.









the species recovery trust

www.speciesrecoverytrust.org.uk

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