Lundy Cabbage Flea Beetle

(*Psylliodes luridipennis*)

Survey report – 2024

February 2025
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Saving the small things that run the planet

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Summary

- The Lundy Cabbage Flea Beetle (*Psylliodes luridipennis*) is endemic to Lundy and is a global conservation priority. Parts of Lundy have been designated by Buglife as an Important Invertebrate Area specifically for the beetle.
- The beetle feeds on Lundy Cabbage (*Coincya wrightii*) which is also endemic to Lundy. The distribution of the cabbage on the island is severely restricted by grazing animals and it has in the past also been threatened by the invasive plant *Rhododendron ponticum.*
- In 2024 surveys, Buglife staff found Lundy Cabbage Flea Beetles at six locations in the south east of the island
- It is recommended that structured annual monitoring be put in place for the beetle, and a favourable conservation status assessment and species recovery plan be produced in partnership with landowners and land managers.
- The Lundy Cabbage Flea Beetle should be added to the Lundy SSSI citation as an interest feature, and the boundary should be extended to include all areas where Lundy Cabbage is regularly present.
- Our report recommends habitat management trials and interventions – that should be undertaken to increase the abundance and distribution of Lundy Cabbage in the south of the island, ensuring areas of Lundy Cabbage are bigger, better and more joined up.

Introduction

Lundy Island sits about 18km off of the coast of North Devon, within the Bristol Channel. It is almost 5km in length and approximately 1km wide covering about 4.5km^2. The westerly side of the island is quite rugged with its vast granite cliffs facing directly out into the Atlantic Ocean, it can often experience strong winds and rough sea conditions. The eastern side of the island is considerably more sheltered and has more gentle maritime cliff slopes, known as 'Sidelands', which are generally protected from the worst of the weather.

The word Lundy means 'Puffin' in Norse and the island is a popular place for birdwatchers and walkers, and is visited by more than 18,000 people each year. It is owned by the National Trust and leased by the Landmark Trust.

Lundy Island is home to the Lundy Cabbage (*Coincya wrightii*) which is endemic to the island and is found nowhere else in the world. Lundy Cabbage is listed as Vulnerable on the GB Red List (Stroh et al 2014) and is also protected under Schedule 8 of the Wildlife and Countryside Act which means it is protected from picking, uprooting, destruction or sale (Wildlife and Countryside Act 1981). Lundy Cabbage is also unique in the UK as it is the only endemic plant known to also support endemic invertebrates (Compton et al 2007).

Lundy Island © Laura Larkin

The Lundy Cabbage Flea Beetle (*Psylliodes luridipennis*) is approximately 3.5mm in length, and is often a faint metallic bronze colour, although this can vary (UK Beetle Recording). It is also endemic to the island of Lundy and is found nowhere else in the world. It is Nationally Rare and has been listed as Critically Endangered on the IUCN Red List and is a global conservation priority (Macadam 2022, Macadam 2023). Parts of Lundy have been designated by Buglife as an Important Invertebrate Area for the Lundy Cabbage Flea Beetle (Buglife). https://cdn.buglife.org.uk/2025/05/Lundy-IIA-profile.pdf

Lundy Cabbage Flea Beetles live on Lundy Cabbage. The adults oviposit into the soil at the base of the plants and seem to demonstrate a preference for sandier substrates (Craven 2002). The beetle larvae mine the stems, roots and leaves of the plant and then return to the soil to pupate (Craven 2002). Despite searches of other species of brassica on Lundy, larvae have not been found present on any other plant species they would be able to viably complete their development on (Craven 2007). The adults feed on the leaves of the cabbage, although have also been observed feeding on Sea Rocket (*Cakile maritima)* (Compton et al 2002, Compton et al 2001). The adult beetles are capable of flight (Key 1994 (1)). There is a possibility that substrate attributes might influence their choice of site (Craven 2002), and with cabbage plants growing both in land and on bare, rocky cliffs, this could potentially limit their ability to disperse throughout the island.

Lundy Cabbage Flea Beetles are entirely reliant on the Lundy Cabbage throughout their different life stages and have no mechanism for dormancy. This presents a risk to the viability of the population as there is a requirement for sufficiently abundant Lundy Cabbage plants each year to support the beetle.

Lundy Cabbage in flower © Andrew Whitehouse

Lundy Cabbage flowers between May and October and only grows within a 2.5km stretch along the south eastern side of the island from Marisco Castle Bay to Knights Templar Rock (Compton et al 2004) (see appendix 1). It can be found between 2m and 120m above sea level and grows in a range of habitats from the vertical sea cliff to 300 metres in land growing amongst bracken and bramble (Compton et al 2002, Compton et al 2007, Compton and Key 2000).

The location of the largest populations of Lundy Cabbage varies from year to year, but the area of slate cliffs above Landing Beach, Millcombe, the Sugar Loaf, the cliffs below the various combes on the eastern Sidelands and sections of the granite cliffs at Quarry Bay are the most important areas for the plant. (Compton and Key 2000) (see appendix 1). The number of plants recorded each year can fluctuate enormously. In 1978 there were only 324 flowering plants recorded (Compton and Key 2000), but 6800 in 2017 (R. Key pers comm). Numbers of flowering Lundy Cabbage plants have been monitored annually since 1993. This work was undertaken by Roger and Rosy Key and Steve Compton between 1993 and 2018, (Compton et al 2018) with more recent surveys being carried out by Alan and Sandra Rowlands from the Lundy Field Society (Rowlands and Rowlands 2022, 2023).

When the Lundy Cabbage surveys were established, the aim was to help inform the conservation of both the plant and the insects, but it appeared that the beetles could be found wherever the plant was, and so efforts started to focus on the conservation of the plant, which would then in turn benefit the insects (Compton et al 2002). It has not been possible to search all cabbage locations for beetles however, as they often grow in inaccessible places (Compton et al 2001, Key et al 2002), and the cabbage surveys are usually undertaken in June ahead of times when peak beetle numbers have been recorded. In 1993, no beetles were found in late May, but by July they were abundant (Key 1994), with good numbers also being found on into early October in some years (Key 1994 (1)).

There have been previous attempts to undertake limited semi-quantitative surveys for the beetle, using pan traps and an extract of Lundy cabbage leaves mixed with ethanol, but both methods were lethal and have not knowingly been repeated (Compton 1998, Compton 1999).
Roger Key's report in 2002 noted that it had taken 20 hours of searching to find similar numbers of beetles that in the past could be found in 5 minutes with a sweep net (Key et al 2002). This corresponded with a poor year for cabbage with only 900 flowering plants estimated, compared to a mean number of 5100 (Roger Key pers. comm). In 2004, more than 50 adult beetles were seen in Quarry Bay (Key et al 2004) as cabbage numbers had recovered to approximately 2400 flowering plants (R. Key pers comm).

Lundy Cabbage Flea Beetle © John Walters

In 2014 it was recommended that a summer survey for Lundy Cabbage Flea beetle was undertaken because numbers had been low for four years (Key et al 2014). There is no evidence that this has ever happened. Beetles were abundant again in 2016 for the first time in 6 years (Key et al 2016), but only one beetle was seen in both 2017 and 2018, and

since then it hasn't knowingly been recorded (Rowlands and Rowlands 2022, Rowlands and Rowlands 2023). It is clear that more survey effort is required for this species at the correct time of year, and ideally using a quantitative method, so numbers can be compared to effort across years.

There is thought to be a link between the numbers of beetles and the number of plants, but as only very limited semi-quantitative surveys have been undertaken, it is very difficult to draw anything other than anecdotal comparisons (Compton et al 2004). The recovery of beetle numbers appears to lag behind the recovery of the cabbage population (Key et al 2005, Key et al 2006) and it is quite possible that the fluctuations in numbers of Lundy Cabbage might pose an issue for the beetle (Compton et al 2004).

Along with the Lundy Cabbage Flea Beetle, there is another beetle which can be found on Lundy Cabbage - the Lundy Cabbage Weevil (*Ceutorhynchus contractus "var. pallipes")* (Compton et al 2000). This is taken to be the pale legged form of the Cabbage Leaf Weevil (*Ceutorhynchus contractus*). From work undertaken in the early 2000s by Jenny Craven, it was established that there were potentially two different taxa that are recognised as the Cabbage Leaf Weevil - the shape of the aedeagus is different in each. One is found throughout Britain and Europe but has not been found on Lundy, the other has been recorded on Lundy and also in Northern Spain (Craven 2007). This other beetle has both pale and dark forms, both of which are found on Lundy, and it was recommended that the specimens be considered for elevation to the status of a distinct species (Craven 2007). Even if this beetle were to be declared a distinct species it would not be classified as endemic as it can also be found in Spain, however the pale form has not as yet been found anywhere other than Lundy (Craven 2007).

Lundy Cabbage is a short-lived perennial. It tends to grow in open, sunny locations and usually flowers in its second year. It is a pioneer plant and grows very well in the bare ground conditions created after disturbance - both from animal activity and rock falls and landslips (Compton et al 2002, Key 1994). It is able to rapidly recolonise areas (Compton et al 2000), and numbers of the plant should be able to recover quickly once any factors limiting its growth are addressed (Key et al 2002).

There is lots of evidence that Lundy Cabbage is prevented from growing and establishing if a thick grass sward develops. (Compton et al 2002). Experiments have previously been undertaken to see how the islands plant communities alter when grazing is excluded and these found that after the initial colonisation, the cabbage plants quickly disappeared as the seedlings were rapidly outcompeted as the grass sward closed (Compton et al 2004, Key et al 2004). There have however also been instances where areas of grass have been dramatically reduced following periods of very hot weather which scorched the plants, and cabbage seedlings were able to take advantage and successfully germinate (Key 1996) so it is likely it can grow in more open swards.

Lundy Cabbage © Laura Larkin

Despite not growing well through grass, Lundy Cabbage can grow successfully amongst plants such as bramble (*Rubus fruticosus*) and bracken (*Pteridium aquilinum*) and can also survive in the shade of plants such as Gorse (*Ulex europaeus*) and Blackthorn (*Prunus spinosa*) (Compton et al 2000). It is also able to successfully seed into the deep litter under bracken, as well as under gorse and bramble (Compton et al 2000, Key 1994, Key 1994 (1)) with new plants successfully germinating and surviving under one metre height of bramble cover (Key and Compton 1995) and in areas heavily dominated by taller bracken (Key et al 2005).

Another limiting factor in the distribution of Lundy Cabbage comes from the various mammals that graze the island. Lundy is home to sheep, deer, cattle, goats and rabbits, all of which could have a potentially detrimental impact on the survival of Lundy Cabbage plants, although none are likely to threaten the plant with total extinction (Compton et al 2000), largely because it is able to survive on the steep and inaccessible cliffs (Compton et al 2002), and amongst plants such as bramble and gorse which deter any grazers from consuming it. That said, the intensity and type of grazing will undoubtedly affect the abundance of Lundy Cabbage.

Goats have previously been sighted about 15m up one of the rocky outcrops feeding on Lundy Cabbage (Key 1995) and are likely the reason why the cabbage is absent from such a large part of the eastern side of the island (Compton et al 2002). They have also historically taken up residence in Milcombe, where the majority of the Lundy Cabbage population can be found. Here they repeatedly grazed plants, preventing them from flowering and setting seed (Key et al 2015) with mature plants also being lost (Key et al 2016). The impact of

grazing is not always as bad though, and in wet years when growth is lush and other forage is available, the impact from the goats is not so pronounced (Key et al 2014), and it is likely they help to reduce the growth of scrub on some of the steeper parts of the island.

Historically, rabbit activity has been at its highest along the Sidelands (Smith and Compton 2008) where most of the Lundy Cabbage plants can also be found. Rabbits could potentially benefit the Lundy Cabbage by grazing other plants and generating bare ground (Compton and Key 2003), but they also have the capacity to be incredibly detrimental to the plant and in high rabbit years they have grazed most of the cabbage plants in Milcombe, even those beyond the stock fencing (Compton and Key 2003). The exclosure experiments previously undertaken on the Sidelands restricted access to grazers, including rabbits, and cabbage plants were able to grow and flower where they hadn't been seen for decades (Compton et al 2002).

The biggest botanical threat to Lundy Cabbage has historically been from *Rhododendron ponitcum.* Rhododendron arrived on the island in the early 19th century and by the 1970s it was the dominant plant in parts of the eastern side of the island, potentially preventing the Lundy Cabbage from colonising new areas (Compton et al 2004). If left untreated it could have continued to spread, threatening not only the cabbage but also the endemic invertebrates (Compton et al 2004). This threat was realised and in the 1980s and 1990s the first larger scale attempts at clearance were started. In 2004 a plan was developed for the rhododendron to be fully eradicated from Lundy in the long-term (Compton et al 2004). This has been very successful and in 2024 only a very small number of immature plants remain which are regularly monitored and cleared by the island team.

Where the rhododendron has been cleared, large areas of bare soil are left and there have been several instances of Lundy Cabbage successfully germinating into these areas. In 1994, Lundy Cabbage was an early coloniser of the bare ground created by clearance at Helena's Grove, but the plants did not survive, possibly because of grazing pressure (Key 1994). Also, in 2000 a small number of plants were seen flowering amongst the brash left behind after rhododendron clearance – these were also likely protected from the grazing and so able to survive (Compton et al 2000). In both 2008 and 2009, large numbers of Lundy Cabbage plants were again seen growing amongst the brash left behind after clearance (Key et al 2008, Key et al 2009) but these were lost in 2010, again likely as a result of grazing (Key et al 2010). Work has been undertaken to plant these post rhododendron areas with gorse and blackthorn in the hope that the cabbage plants might be able to survive here alongside occasional grazing (Compton et al 2004).

There are many pressures that impact the distribution and abundance of the Lundy Cabbage plants, but there is also potential to identify opportunities for further work, which may help to increase the abundance and distribution of the plant. It is clear that more work is needed to ensure that the beetles are not detrimentally impacted by the fluctuating numbers of cabbage plants, and also whether they are indeed present throughout the cabbage population as has previously been thought.

2024 Surveys

In 2024, Buglife undertook a research trip to Lundy to survey for the Lundy Cabbage Flea Beetle and the weevil, and attempt to understand more about the current distribution of both on the island, whether they seemed to be present wherever the cabbage plants were found, and whether there were any additional measures that could be undertaken to ensure the beetles and the cabbage were as widespread as possible and ensure they thrive into the future.

The field visit took place between the 2nd and 4th July 2024 and was undertaken by Laura Larkin and Andrew Whitehouse. The surveys occurred in dry weather and the daytime temperature was approximately 15 degrees. Joe Parker, Head Warden on Lundy very kindly provided us with maps of the known Lundy Cabbage locations which we used to denote our survey areas. This corresponded with the Lundy Important Invertebrate Area which can be seen at https://www.buglife.org.uk/our-work/important-invertebrate-areas/

As many of the areas known to contain cabbage plants were visited as was possible, and any accessible plants were surveyed for the beetles. Much of the survey area falls within the Lundy Island SSSI and so permission was sought for the surveys from Natural England prior to their commencement. To locate cabbage plants, binoculars were used from safe locations to scan for plants in the distance.

Lundy Cabbage Flea Beetle surveys © Laura Larkin

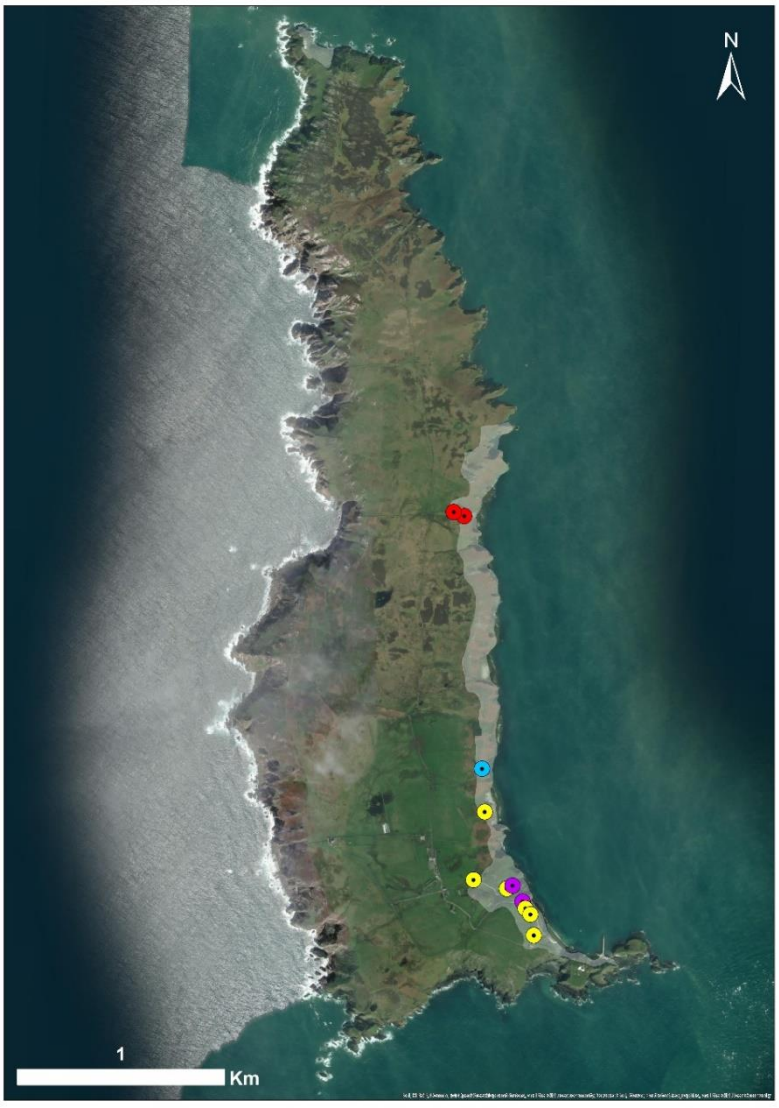
The surveys were undertaken using a sweep net, which where necessary was attached to a 3m extendable pole. The sweep net was used to gently knock any insects present on the cabbage from the plants and into the net, and where plants were not easily accessible from ground level, the 3m handle was added to extend the reach of the net. Many of the plants were inaccessible for survey, either because they were growing amongst bramble which cannot be surveyed using the net, or they were out of reach on cliffs or high up on rocky

outcrops. If possible, the plants growing with bramble were visually searched. This lack of access severely restricted the places we were able to survey.

Results

Through the surveys, 11 locations were searched across three days, and in total six Lundy Cabbage Flea Beetles were recorded at six locations, along with over 50 Lundy Cabbage Weevils at five locations.

Locations of the beetle records can be seen below. Map 1 shows the 11 survey locations on Lundy, and Map 2 shows the locations with Lundy Cabbage Flea Beetle records in more detail, with further information in Table 1. The most northerly beetle record was from just north of Sugar Loaf at SS 13938 44428 along the coast path, with other records from Milcombe, the Landing Bay road and on the cliffs just below Marisco Castle. Map 2 shows this in more detail.



Map 1 – The 11 survey locations on Lundy Island with the IIA shown in grey – the red points had visible cabbage plants, but they were unreachable with the survey equipment, Blue points no beetles were found, purple points has weevil records alone, and yellow show Lundy Cabbage Flea Beetle locations

Map 2 – Lundy Cabbage Flea Beetle records from near Sugar Loaf, Milcombe and Landing Bay. Purple points are weevil records alone, Yellow points are Lundy Cabbage Flea Beetle records

Grid reference	Name	Date	Lundy Cabbage Flea Beetles found	Lundy Cabbage Weevils found	Notes
SS 14045 44058	Milcombe near bench	2nd July	1	10	
SS 13938 44428	Near Sugar loaf	2nd July	1	-	Most northerly beetle recorded during this survey
SS 14175 43832	Near Marisco Castle	3rd July	1	some	
SS 14121 43996	Landing Bay Track	3rd July	-	10+	
SS 14135 43962	Landing Bay Track	3rd July	1		
SS 13884 44100	Above Milcombe House	3rd July	1	some	
SS 14159 43934	Landing Bay Track	3rd July	1		
SS 14072 44072	Milcombe near coast	2nd July		2	
SS 13925 44636	Near White Beach	2nd July	-		Surveyed plants but no beetles found
SS 13839 45854	Halfway Wall	3rd July	-		Unable to reach plants to survey
SS 13789 45874	Halfway Wall	4th July	-		Unable to reach plants to survey

Table 1 – Further details of the 11 survey locations on Lundy Island and records of any beetles found.

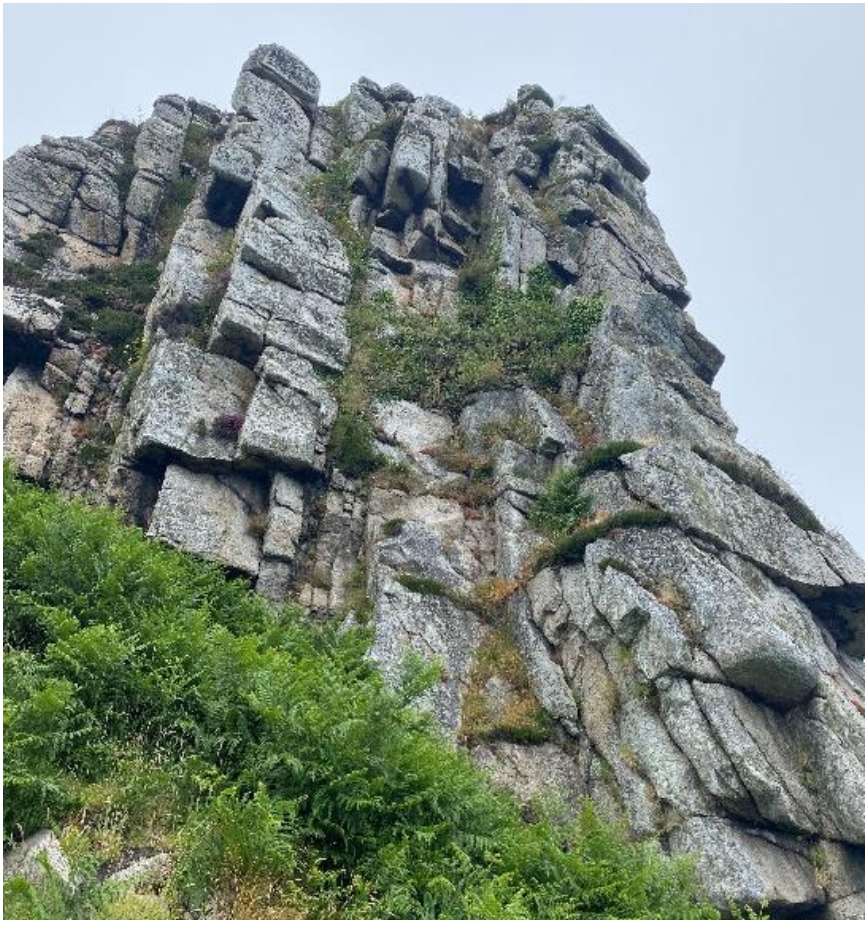
Despite covering large areas of the island, opportunities to search Lundy Cabbage Plants we more limited than expected. This was due to plants growing on cliffs and slopes that were not easily safely accessible. It is also likely that plants were present within blocks of bramble, bracken or scrub but not visible from footpaths.

The surveys were undertaken to determine presence or absence and not the abundance of beetles, and so if we found a beetle at a particular location, we did not search for further beetles and instead moved on to a new point. This also minimised damage to Lundy Cabbage plants from sweep netting. The numbers of beetles found should not be viewed as representative of the abundance of beetles at each location.

Discussion

Lundy Cabbage Flea Beetle Surveys

Lundy Cabbage Flea Beetles were found at six locations on the south of Lundy, around Sugar Loaf, Milcombe and the Landing Bay track which are as expected from the historical records. Whether these records actually demonstrate the full range of the beetle is unknown because it is not possible to survey in any other locations without use of full climbing gear, but it is assumed the beetle is found wherever the cabbage grows (Compton et al 2002).



Lundy Cabbage growing on cliff © Laura Larkin

These surveys were for beetle distribution, rather than abundance and so more work needs to be done to establish where within the south of the island has the highest abundance of Lundy Cabbage Flea Beetles. A better understanding of this could help to provide more specific advice in how best to support these endemic species going forwards.

In order to effectively assess the abundance of the beetles, the surveying will need to be more structured and quantitative. We also recommend that surveys are undertaken to study the phenology of the beetle - recording beetle numbers throughout the seasons, because although there are records for beetles in both June and October, it is not known when their peak month of activity is, or indeed whether they are active beyond these months.

Establishing a regular monitoring regime for the beetle would be a very good place to start.

Future surveys should focus on any accessible plants in the Landing Bay and Milcombe areas, as these contain the majority of flowering plants on the island (Roger Key pers comm). Table 2 below show the average number of flowering plants in each area where Lundy Cabbage Flea Beetles were found in the 2024 survey. All of these numbers are high apart from the record above Milcombe House at SS 13884 44100. There had been no flowering plants recorded here for at least 8 years between 1993 and 2018 and the area had an average of just 2 (Roger Key pers comm). This small patch of plants is set apart from the nearby larger and more stable areas of cabbage by approximately 130m which would suggest that either the beetles are able to survive on very small numbers of plants, and/or they are able to travel distances of at least 100m to seek out the plants.

Area	**Average number of flowering plants between 1993 and 2018**
Track above Milcombe House	2
Milcombe near bench	356
Landing Bay	228
Marisco Castle	277
Sugar Loaf	183

Table 2 – Average number of flowering plants in areas with Lundy cabbage Flea Beetle records (Roger Key pers comm).

It would be interesting to undertake a mark-recapture study of beetles across a number of months to see how far they're able to travel. There has been extensive research into the Cabbage Stem Flea Beetle (*Psylloides chrysocephala*) because it is considered a pest species of commercial brassica crops. This closely-related species is able to disperse over 10km (Hausmann et al 2024). Not much is known about the Lundy Cabbage Flea Beetle's ability to disperse, and what any barriers to this might be. There is a possibility that they may be able to easily travel to cabbage plants throughout the island, but without being able to access the plants for survey, a mark-recapture study is currently not a viable option. Even if the beetles are found throughout the island, it is possible that they are not regularly breeding on some of the steeper cliffs. Lundy Cabbage Flea Beetles demonstrate a preference for ovipositing in sandy soil (Craven 2002), and potentially the underlying substrate on the cliff faces may not be suitable, although the beetles may well use plants to feed. It would be good to gather further information on this if the opportunity to undertake surveys of the cliffs ever presents itself.

Lundy Cabbage and island vegetation

Lundy Cabbage plants need to be present year-round and in the long term to ensure the future viability of the Lundy Cabbage Flea Beetle (Craven 2007). The cabbage populations between the Landing Bay and Sugar Loaf seem to be stable (Roger Key pers comm), but more work could still be undertaken to further increase the number of plants and patch areas, and also to better link them. This would not only help to secure the beetle populations but would also help to improve the number of endemic cabbage plants, with the possibility of increasing their visibility to island visitors too. An endemic insect feeding on an endemic plant is really something very special and should be something that all visitors to Lundy in the appropriate season, are given the opportunity to experience.

Lundy Cabbage can be easily grazed off by the island's mammals including goats, sheep and rabbits. Ideally, any grazers would be absent from populations of Lundy Cabbage from between April and October when it is growing and setting seed, which will allow the plant to reproduce and hopefully spread, which should in turn be beneficial to the beetle. This could be achieved by erecting additional stock proof barriers, which is unlikely to be an aesthetically pleasing solution, and for some grazers, no fence collars could potentially prove a valuable tool. A reduction in the overall number of grazing animals on the island could also help to reduce any detrimental impacts to the cabbage populations. If there are fewer grazers consuming vegetation elsewhere on the island, they may not be so inclined to travel such distances to the high cabbage areas to seek out alternative food sources.

It may also be worth investigating the impacts of winter grazing on some small existing areas of Lundy Cabbage. Previous exclosure trials only looked into whether allowing grazers access or preventing it entirely had impact on cabbage plants (Compton et al 2002), but winter grazing has not knowingly previously been trialled. To enable this, decent stock fencing would be required around the trial area, and consideration would also need to be given as to which grazing animals to use. Whether this is possible would also depend on current numbers of rabbits on the island. If grazers are permitted access to cabbage plants over winter, any disturbance caused could potentially allow for bare ground to be created which would assist with the germination of new plants. It is possible that heavy cattle may provide a greater level of disturbance than goats and sheep. This method would not work however if the site was grass dominated, as a lack of grazing through the summer would lead to the grasses crowding out any cabbage plants.

Lundy Cabbage does not grow well in dense grass (Compton et al 2002) and if there are plants that suppress the growth of grasses already present on Lundy such as Yellow Rattle (*Rhinanthus minor*), Red Bartsia (*Odontites vernus*), or Eyebright (*Euphrasia sp*.), then one option could be to use these to see whether they are able to suppress any grass growth enough to allow the Lundy Cabbage plants to successfully establish. All three of these plants are hemi-parasitic and extract their nutrients from the roots of grasses, reducing how tall and quickly they are able to grow. Ideally, any seed would be sourced from the island itself rather than brought in.

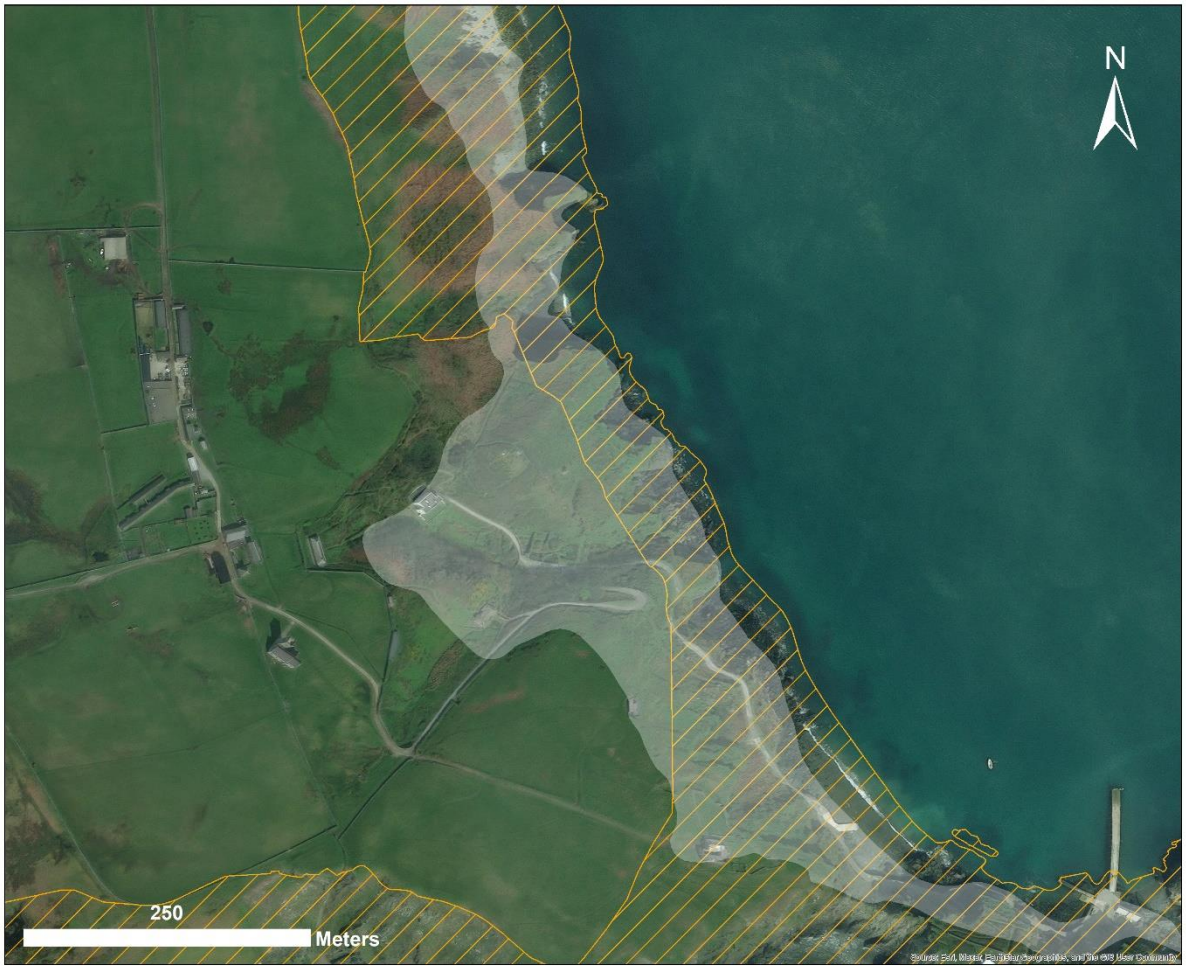
Lundy Cabbage is predominantly a pioneer plant that can easily and quickly colonise landslips and new areas of bare ground (Compton et al 2000). It would be good to test

whether it is possible to clear small areas of existing scrub and other vegetation and seed it with Lundy Cabbage with a view to link any of the existing areas of cabbage and reduce the fragmentation. Multiple small plots could potentially be cleared of vegetation and roots with differing conditions imposed on these to see which provides the best outcome for seed germination over the course of the next few seasons. These areas will need to be free of grazers to allow time for the seeds to establish and grow, or the trial will not be possible. If these areas could be sited where they are visible to island visitors they could also help to increase the visibility of both the cabbage and the beetle.
It would also be beneficial to trial seeding Lundy Cabbage into the open areas created by previous rhododendron clearance. Previously, cabbage seedlings have grown after rhododendron clearance where piles of brash have been left (Compton et al 2004), and so creating some kind of 'cabbage refugia' may be an option if it is not possible to exclude grazers from this area.

It is not advised that any new plantings be added to any areas currently containing Lundy Cabbage plants, and that if there is ever desire to increase the size of the wooded areas on the island, that this takes place elsewhere and not anywhere near Marisco Castle, Landing Bay, Milcombe or Sugar Loaf or anywhere within the Lundy Important Invertebrate Area. More information on the extent of this can be found at https://www.buglife.org.uk/our-work/important-invertebrate-areas/

Site of Special Scientific Interest
Much of the area where Lundy Cabbage grows has been designated as a Site of Special Scientific Interest (SSSI) and so permission for any works undertaken within this designated site will require the permission of Natural England. Lundy Cabbage itself is also protected under Schedule 8 of the Wildlife and Countryside Act, and so permission would also be required for any activities involving picking, uprooting or destruction of the plant.

A small area of Lundy Cabbage falls outside of the boundary of the current SSSI as can be seen on map 3 below. The SSSI is outlined in red and the Lundy Important Invertebrate Area, which denotes the key flea beetle habitat is in yellow. A lot of the vitally important beetle habitat around Milcombe is not within this protected area, but the SSSI citation also does not mention the beetle, and so it is likely this is why. We recommend that the Lundy Cabbage Flea Beetle is added to the SSSI citation as an interest feature, and that the boundary is extended to include all areas where Lundy Cabbage is regularly present. Neglecting the presence of this globally Critically Endangered endemic beetle within the SSSI citation and ongoing monitoring and management is a considerable oversight.



Map 3 – Lundy SSSI is shown in orange stripes, and Buglife's Lundy Important Invertebrate Area for the Lundy Cabbage Flea Beetle shown in grey. The SSSI does not offer statutory protection to key beetle hotspot around Milcombe, which is the grey area in the centre of the map.

Recommendations

Survey, monitoring and further research

We are currently unable to determine the health of the Lundy Cabbage Flea beetle population, and therefore do not know if it is sustainable, and resilient enough to cope with annual fluctuations in food plant availability or weather conditions. Further work is needed to gather more information about the abundance and distribution of the Lundy Cabbage Flea Beetle. We are aware that the beetle has hotspots in the south of the island amongst the Lundy Cabbage hotspots, but we are currently unable to draw population comparisons between these. There is also a reasonable chance that the beetle occurs on the island wherever the cabbage is found, but the inaccessibility of the plants severely reduces the chances of confirming this without significant expenditure.

A replicable and quantitative survey methodology would ideally be designed to help ascertain beetle abundance and distribution, particularly in the south of the island,

throughout the seasons. Having some structured monitoring in place would allow beetle numbers to be monitored over time so comparisons can be made with the annual cabbage counts. In an ideal world, this would be undertaken by people who are regularly present on the island.
If there is ever an opportunity to gain access to survey Lundy Cabbage plants in the more inaccessible parts the island, undertaking a mark-recapture study of the beetle would allow more to be learnt about the beetle's ability to disperse throughout the island and allow additional suggestions for how to help both the beetle and the cabbage thrive into the future. It would also be beneficial to undertake a Favourable Conservation Status assessment and produce a Species Recovery Plan for the Lundy Cabbage Flea Beetle.

We recommend that the Lundy Cabbage Flea Beetle is added to the Lundy SSSI citation as an interest feature, and that the boundary is extended to include all areas where Lundy Cabbage is regularly present. Neglecting the presence of this globally Critically Endangered endemic beetle within the SSSI citation and ongoing monitoring and management is a considerable oversight.

Habitat interventions
The abundance of flowering Lundy Cabbage plants can fluctuate wildly from year to year but appear to be generally stable over the longer term (Roger Key pers comm), however it is known that their current range is restricted by grazing animals (Compton et al 2000) and as a result many of the plants can only be found on vertical cliff faces where they are inaccessible to both grazing animals, surveyors and island visitors alike.

We recommend that management trials and interventions are undertaken to increase the abundance and distribution of Lundy Cabbage, particularly in the south of the island. Focus should be given to increasing the size of existing patches of the cabbage, and creating "stepping stones" of cabbage patches to improve habitat connectivity for the flea beetle.

Specific interventions include:

- further restricting access to or reducing numbers of grazing animals within the Important Invertebrate Area, at least between April and October each year.
- trialling whether winter only access to stock is beneficial to the cabbage plants by creating additional bare ground for germination.
- trialling the seeding of new areas with differing conditions/existing vegetation to determine which is most likely to be successful.
- trialling supressing the growth of any patches of dominant grasses with hemi-parasitic plant seeds sourced elsewhere on the island to see whether the cabbage and grass can grow together if the sward is not too thick.
- Creating accessible cabbage patches alongside footpaths and access routes providing an "opportunity to see" for visitors, as well as essential habitat for cabbage and flea beetles. Intensive "gardening" of such areas could be used to create super abundant stands of Lundy Cabbage which could be used to harvest seed from.

Education

Working to improve the structured monitoring of Lundy Cabbage Flea Beetle would provide an opportunity to raise awareness of both the beetle and the cabbage to island staff and visitors, and having these two endemic species growing and thriving in an easily accessible part of the island would also provide an additional opportunity for island visitors view them. Undertaking this vital conversation work in highly visible parts of the island, will enable everyone who steps foot on Lundy to not only experience being on this incredible island, but also to feel invested in and part of the future of two of Lundy's most special species.

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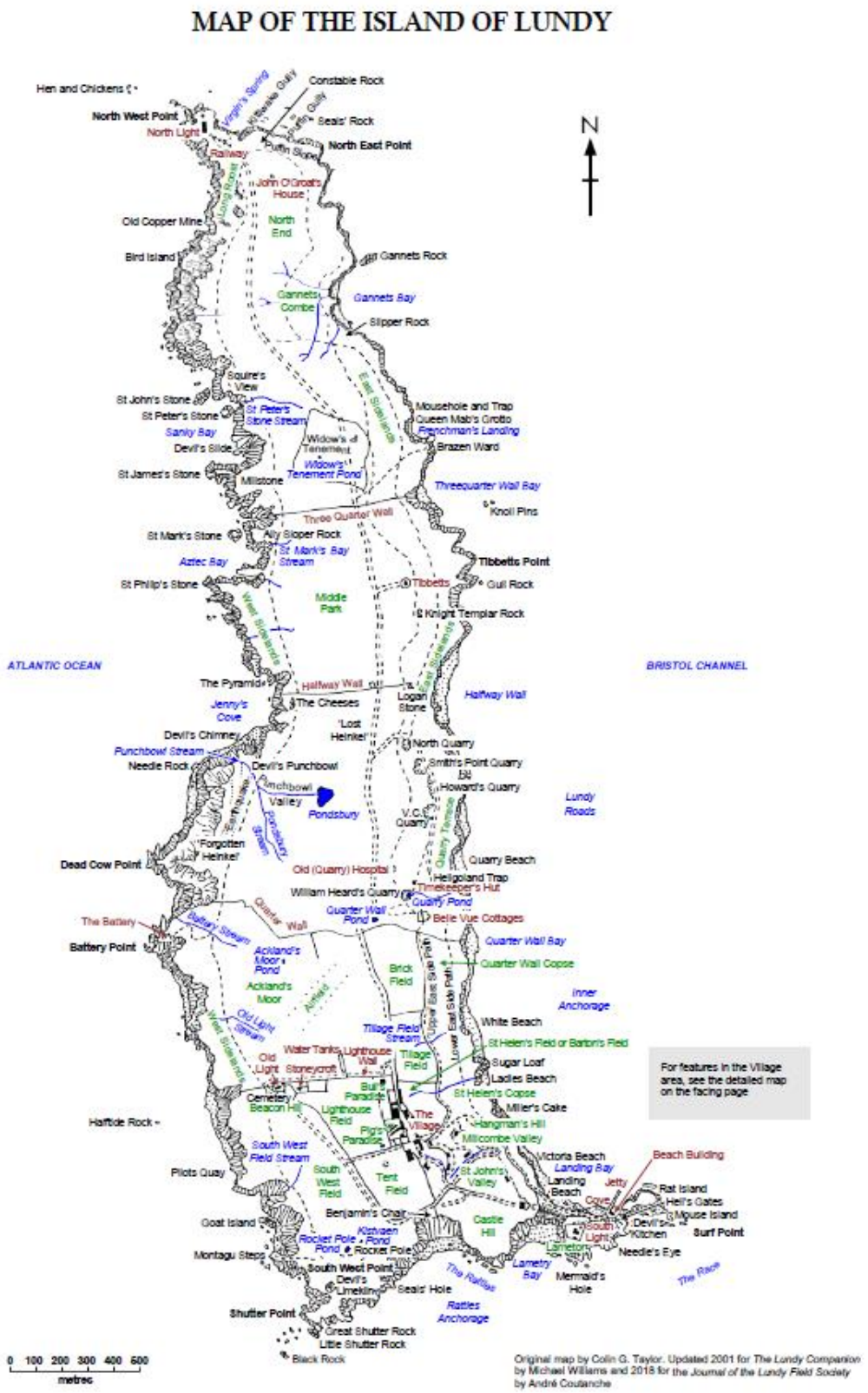
Appendix 1



Original map by Colin G. Taylor. Updated 2001 for *The Lundy Companion* by Michael Williams and 2018 for the *Journal of the Lundy Field Society* by André Coutanche

References

Buglife. 2025. Important Invertebrate Areas (*Buglife – The Invertebrate Conservation Trust*) https://www.buglife.org.uk/our-work/important-invertebrate-areas/ https://cdn.buglife.org.uk/2025/05/Lundy-IIA-profile.pdf

Compton, S.G. 1998. Conservation of the Lundy Cabbage and its associated fauna. (*Unpublished report*)

Compton, S.G. 1998. Conservation of the Lundy Cabbage and its associated fauna 1997-8 Report. (*Unpublished report*)

Compton, S.G. 1999. Conservation of the Lundy Cabbage and its associated fauna 1998-9 Report. (*Unpublished report*)

Compton, S.G. 1999. Conservation of the Lundy Cabbage and its associated fauna 1999 Report. (*Unpublished report*)

Compton, S.G., Key, R. & Key, R. 2000. Monitoring of Lundy Cabbage – Report of S.R.P project visit, May 27-31, 2000. (*Unpublished report*)

Compton, S.G. & Key, R.S. 2000. *Coincya wrightii* (O.E. Schulz) Stace (*Rhynchosinapis wrightii* (O.E. Schulz) Dandy ex A.R. Clapham) Biological Floral of the British Isles No. 211 List Br. Vasc. Pl. (1958) no. 69, 2. (*Journal of Ecology*) 88, 535-547

Compton, S., Key, R. & Key, R. 2001 Monitoring of Lundy Cabbage – Report of S.R.P project visit, May 26-31, 2001. (*Unpublished report*)

Compton, S.G., Key, R.S. & Key, R.J.D. 2002. Little Galapagos – Conserving our Little Galapagos – Lundy, Lundy Cabbage and its beetles. (*British Wildlife*) 184

Compton, S.G. & Key, R.S. 2003. Rabbits and Lundy Cabbage – a review. (*Unpublished report*)

Compton, S.G., Key, R.S., Key, R.J.D. & Parkes, E. 2004. Control of *Rhododendron ponticum* on Lundy in relation to the conservation of the endemic plant Lundy cabbage, *Coincya wrightii. (English Nature*)

Compton, S.G., Craven, J.C., Key, R.S. & Key, R.D. 2007. Lundy Cabbage, Past, Present, Future. Extract from J George, 'Lundy Studies'. (*Lundy Field Society*)

Compton, S., Key, R. & Key, R. 2018. Lundy Cabbage population monitoring summary. (*Unpublished report*)

Craven, J. 2002. The Ecology and Evolution of the Bronze Lundy Cabbage Flea Beetle (*Psylloides luridipennis*). (*MSc Thesis - University of Leeds*)

Craven, J.C. 2007. The Evolution and Conservation Ecology of the Lundy Cabbage and its Beetles. (*PhD Thesis - University of Leeds***)**

Hausmann, J., Heimbech, U., Gabriel, D. & Brandes, M. 2024. Effects of regional crop rotations on autumn insect pests in winter oilseed rape. (*Pest Manag Sci*.) 2024 May;80(5):2371-2382

Key, R. 1994. Visit to Lundy Island 4-9th June 1994. (*Unpublished report*)

Key, R. 1994 (1) Observations on Lundy, its flora & fauna & comment on grazing management prescriptions (*Unpublished report*)

Key, R. 1995. Visit to Lundy - 3rd-10th June 1995. (*Unpublished report*)

Key, R. & Compton, S. 1995. Monitoring studies on Lundy - 29/8-2/9/95. (*Unpublished report*).

Key, R. 1996. Visit to Lundy - 27th May - 2nd June 1996. (*Unpublished report*).

Key, R. Key, R., Compton, S. & Craven, J. 2002. Lundy Cabbage and its associated insects, Report on May-June 2002 visit to Lundy Island. (*Unpublished report*)

Key, R., Key, R. & Compton, S. 2004. Lundy Cabbage and associated insects – report of visit between 5th-10th June 2004. (*Unpublished report)*

Key, R., Key, R. & Compton, S. 2005. Lundy Cabbage and associated insects – report of visit between 5th-10th June 2004. (*Unpublished report*)

Key, R. Key, R., Compton, S. & Craven, J. 2006. Lundy Cabbage and associated insects – report of visit between 6th-13th June 2006. (*Unpublished report*)

Key, R., Key, R., Compton, S. & Chen, Y. 2008. Lundy Cabbage and associated insects – report of visit between 31st May- 7th June 2008. (*Unpublished report*)

Key, R., Key, R. & Compton, S. 2009. Lundy Cabbage and associated insects – report of visit 30th May- 6th June 2009. (*Unpublished report*)

Key, R., Key, R. & Compton, S. 2010. Lundy Cabbage and associated insects – report of visit 27th May- 5th June 2010. (*Unpublished report*)

Key, R., Key, R. & Compton, S. 2014. Lundy Cabbage and associated insects – report of visit 31st May– 7th June 2014. (*Unpublished report*)

Key, R., Key, R. & Compton, S. 2015. Lundy Cabbage and associated insects – report of visit 30th May– 6th June 2015. (*Unpublished report*)

Key, R., Key, R. & Compton, S. 2016. Lundy Cabbage and associated insects – report of visit 2nd–7th June 2016. (*Unpublished report*)

Macadam, C. 2022. *Psylliodes luridipennis*. The IUCN Red List of Threatened Species 2022: e.T123670403A123674284. https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T123670403A123674284.en.

Macadam, C.R. 2023. Britain's Endemic Invertebrates. (*Buglife - The Invertebrate Conservation Trust).* https://cdn.buglife.org.uk/2023/11/Endemic-Species-Report-2023-Final.pdf

Natural England. 2014. A review of the scarce and threatened beetles of Great Britain the leaf beetles and their allies Chrysomelidae, Megalopodidae and Orsodacnidae Species Status No.19 (*Natural England*)

Rowland. A. & Rowland, S. 2022. Lundy Cabbage Survey – 7th to 14th June 2022 Lundy Field Society. (*Unpublished report*)

Rowland, A. & Rowland, S. 2023. Lundy Cabbage Survey – 30th May to 6th June 2023. Lundy Field Society. (*Unpublished report*)

Smith, C.A. & Compton, S.G. 2008. Exclosures may overestimate the impact of rabbits on the vegetation of Lundy. (*Journal of the Lundy Field Society*), 1

Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D. & Taylor, I. 2014. A Vascular Plant Red List for England. (*Botanical Society of Britain and Ireland)* https://bsbi.org/wp-content/uploads/dlm_uploads/England_Red_List_1.pdf

UK Beetle Recording. 2025. *Psylliodes luridipennis* Kutschera, 1864. (*UK Beetle Recording Scheme*) https://coleoptera.org.uk/species/psylliodes-luridipennis

Wildlife and Countryside Act. 1981. (*Gov.UK*) https://www.legislation.gov.uk/ukpga/1981/69/schedule/8

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