

The effects of the Alderney Grazing Animals Project on floral species richness on Longis Common

Background

Alderney Grazing Animals Project was launched in 2003 to manage the species rich grassland on Longis Common. In the past, the Common was grazed using traditional methods. Since the traditional grazing declined after the second world war, the Common was invaded by much coarse vegetation, e.g. bramble, bracken and coarse grasses. The grazing project was introduced to counteract the scrub invasion and to maintain the diversity of the species rich grassland on Longis Common.

Floral surveys

Several floral surveys have been conducted on Longis Common since the project started in 2003. This analysis is based on three surveys carried out in 2004, 2011 and 2019. The details of the surveys are described below. It should be noted that all the surveys were done by different surveyors and during different time of the growing season, thus making it difficult to compare the results.

2004

Surveyors: C.T. David and B.J. Ozanne

Timing: July 2004

Methodology: The grazed areas were surveyed using transects. 0,25 m² quadrats were placed every 5m in smaller areas and every 10m in larger areas. Five areas were surveyed. In this analysis only data from the areas B and C will be discussed. In area B, two transects were taken. Both of the transects consisted of 12 quadrats (0,25m² each). In area C, only one transect was taken. That transect consisted of 11 quadrats.



Picture 1. The locations of 2004 transects.

2011

Surveyors: C. David and J. Henney

Timing: September 2011

Methodology: Floral species presence was measured in five 2m² quadrats on lower/older grazing area, upper/newer grazing area and ungrazed area. So total of 15 quadrats (2m² each) were surveyed. Quadrats were placed randomly within each section.



Picture 2. The locations of 2011 quadrats.

2019

Surveyors: A. Haden and L. Pyne

Timing: May 2019

Methodology: The survey was conducted using same quadrats as in 2011. Due to time constraints, 11 out of 15 quadrats (2m² each) were re-evaluated. 5 quadrats on lower/older grazing area (1, 2, 3, 4 and 5), 3 on upper/newer grazing area (6, 8 and 10) and 3 on ungrazed area (11, 12 and 15).

Results

This analysis will focus mainly on species richness. Species richness is the number of species present. Species diversity takes into account not only the number of species present but also their abundance. Since the abundance was not recorded in all of the surveys, species diversity will not be discussed here. At the end there is some discussion about the changes in species composition. Species composition basically defines which species grow together.

2011 vs. 2019

Lower grazing area

The lowest parts of the grassland at Longis Common have been grazed since the Alderney Grazing Animals Project started in 2003. This area, that is located closest to the sea, is the most species rich part of the grassland. All 5 quadrats, that were surveyed in 2011, were re-evaluated in 2019. The locations of the quadrats can be seen in the picture below.



Picture 3. The locations of the quadrats on the lower grazing area.

The species richness increased in 4 out of 5 quadrats and decreased in 1 quadrat. The total number of plant species found in the lower grazing area increased from 26 to 36. It should be noted that the species richness increased especially in the east corner of the area (quadrats 4 and 5). In this area the species richness was very low in 2011. The number of plant species recorded in the quadrat 5 more than doubled from 11 to 26 species. In 2019 the species richness was higher in quadrats 4 and 5 than in quadrats 1, 2 and 3. These results will be discussed in more detail when comparing the results to the 2004 results.

	Quadrat 1		Quadrat 2		Quadrat 3		Quadrat 4		Quadrat 5		Lower grazing area TOTAL	
	2011	2019	2011	2019	2011	2019	2011	2019	2011	2019	2011	2019
Total number of species	17	20 ↑	16	22 ↑	21	18 ↓	16	24 ↑	11	26 ↑	26	36 ↑

Table 1. 2011 vs. 2019 results of the lower grazing area.

Upper grazing area

The grassland at the higher levels of Longis Common have been added to the grazing scheme later. This area is less diverse than the lower area discussed in previous section. Currently the grazing area extends almost all the way to the road on the top. However, all the five quadrats surveyed in 2011 are located in lower parts of the slope. 3 out of 5 quadrats were re-evaluated in 2019. Their locations are shown below.



Picture 4. The locations of the quadrats on upper grazing area.

Species richness increased in 2 out of 3 quadrats and stayed the same in 1 quadrat. The total number of species found in these three quadrats increased from 19 to 28. It should be noted that in 2011 the total number of species found in the upper grazing area was lower than in the ungrazed control area. 2019 this had changed and species richness was higher in the upper grazing area compared to the ungrazed control area.

	Quadrat 6		Quadrat 8		Quadrat 10		Upper grazing area TOTAL	
	2011	2019	2011	2019	2011	2019	2011	2019
Total number of species	13	19 ↑	11	19 ↑	14	14	19	28 ↑

Table 2. 2011 vs. 2019 results of the upper grazing area.

Ungrazed control area

Part of the grassland on Longis Common has been left as ungrazed control area to enable the monitoring of the effects of the Alderney Grazing Animals Project. 3 out of 5 quadrats were re-evaluated in 2019. The locations of the quadrat can be seen in the picture below.



Picture 5. The locations of the quadrats on ungrazed control area.

Before comparing the results, it is good to mention that in 2019 the control area differed significantly from the grazed areas. The control area is dominated by Red Fescue (*Festuca rubra*), Barren Brome (*Bromus sterilis*), Spear Thistle (*Cirsium vulgare*) and Sea Radish (*Raphanus raphanistrum* ssp. *maritimus*). There is fewer little flowering plants. Since abundance was not recorded in 2019, the data doesn't quite fully highlight the difference. Quadrat 11 is located right next to a footpath and is probably trampled a lot more. Thus allowing also smaller plants to grow. Quadrat 11 was more similar to the quadrats in the upper grazing area than the quadrats 12 and 15.

In the control area species richness increased in 2 out of 3 quadrats and decreased in 1 quadrat. The total number of species found in the ungrazed control area increased from 23 to 27, so 17%. In the upper grazing area the total species richness increased 47% and in the lower grazing area 38%. Since species richness increased also in the control area, some of the increases detected in the lower and upper grazing areas are probably explained by other factors than grazing. 2019 the survey was carried out in May, where as 2011 it was done in September. Such a big difference in timing will affect on which species are found and detected. However, since species richness increased significantly more in the grazed areas than it did in the control area, grazing can be argued to have had a positive impact on the species richness.

	Quadrat 11		Quadrat 12		Quadrat 15		Control area TOTAL	
	2011	2019	2011	2019	2011	2019	2011	2019
Total number of species	11	20 ↑	14	16 ↑	12	10 ↓	23	27 ↑

Table 3. 2011 vs. 2019 results of the ungrazed control area.

2004 vs. 2019

First, it should be highlighted that the methodologies used in 2004 and 2019 differ a lot. This should be kept in mind when interpreting the data. The analysis will focus on two areas: the east corner of the lower grazing area (2004: area C, 2019: quadrats 4 and 5) and the middle of the lower grazing area (2004: area B, 2019: quadrats 2 and 3). The picture below shows how these two sampling areas correspond each other.



Picture 6. 2004 vs. 2019 sampling areas.

Area C/Quadrats 4 and 5

The species richness in the east corner of the lower grazing area was relatively low at the beginning of the grazing project. In 2004 19 plant species were found in a total sample area of 2,75m² (11 x 0,25m² quadrats). In 2019 24 species were found in the quadrat 4 and 26 species in the quadrat 5. The species richness was significantly higher in 2019, even though the quadrat size (2m²) was smaller than the total sample area (2,75m²) in 2004. As discussed before, the species richness increased significantly in quadrats 4 and 5 between 2011 and 2019. These results indicate that the grazing has had a positive impact on species richness in the east corner of the lower grazing area. Besides grazing, lower water levels might explain at least part of the increases seen in the results. In 2004 area C, that is located south of Longis pond, was described as somewhat damper graasland than the area B.

	2004 Area C, transect 1	2019 Quadrat 4	2019 Quadrat 5
Total sample area	2,75 m ² (11 x 0,25 m ²)	2 m ² (1 x 2 m ²)	2 m ² (1 x 2 m ²)
Total number of species	19	24 ↑	26 ↑

Table 4. 2004 vs. 2019 results of the east corner of the lower grazing area.

Area B/Quadrats 2 and 3

In 2004, two transects were surveyed in area B. Twelve 0,25m² quadrats were surveyed along each transect, making the total sample area 3m² per transect. 19 plant species were found in transect 1 and 26 species in transect 2. In 2019 two 2m² quadrats were surveyed in the middle of the lower grazing area. 22 species were found in quadrat 2 and 18 species in quadrat 3. The slightly lower numbers might simply be explained by the lower total sample area. When comparing the 2011 and 2019 results, species richness increased in quadrat 2 from 16 to 22, and decreased in quadrat 3 from 21 to 18. With the data available it is impossible to say with certainty whether the grazing project has managed to maintain species richness in the middle parts of the lower grazing area.

	2004 Area B, transect 1	2004 Area B, transect 2	2019 Quadrat 2	2019 Quadrat 3
Total sample area	3 m ² (12 x 0,25 m ²)	3 m ² (12 x 0,25 m ²)	2 m ² (1 x 2 m ²)	2 m ² (1 x 2 m ²)
Total number of species	19	26	22	18 ↓

Table 5. 2004 vs. 2019 results of the middle of the lower grazing area.

Species composition

The following analysis of the changes in species composition will focus on the lower grazing area that has been grazed since the project started in 2003. Probably the biggest change in the species composition between 2004 and 2019 is the disappearance of Sea Couch (*Elytrigia atherica*). In 2004 Sea Couch was found in 27 of 35 quadrats (35 x 0.25m² quadrats along 3 transects in areas B and C). In 2007 Amanda Strevens classified Longis Common as a mosaic of coastal grassland

habitats dominated by *Festuca rubra*, *Dactylis glomerata*, *Elytrigia atherica* and *Raphanus raphanistrum* in her dissertation. She recommended that grazing could be kept for longer periods of time in larger plots to encourage grazing pressure on dominant species such as Sea Couch and scrub, thereby opening up Longis Common. In 2011 Sea Couch was found in 3 of 5 quadrats in the lower grazing area. In 2019 Sea Couch was not recorded in any of the quadrats surveyed.

In 2004 Scarlet Pimpernel (*Anagallis arvensis*) was not recorded in any of the quadrats. In 2019 it was recorded in both quadrats 4 and 5. As a small plant it requires short sward height to grow. Thus, it is a good signal that grazing has had a positive effect. Especially in the east corner of the grassland that was more degraded at the beginning of the grazing project. Thyme-leaved Sandwort (*Arenaria serpyllifolia*) and Dove's-foot Crane's-bill (*Geranium molle*) were not recorded in 2004, but were found in all the five quadrats in the lower grazing area in 2019. In 2011 Thyme-leaved Sandwort was found in 1 of 5 quadrats. Dove's-foot Crane's -bill was not found in 2011. Other small flowers not recorded in 2004 or 2011, but commonly recorded in 2019 were Early Forget-me-not (*Myosotis ramosissima*) and Speedwell (*Veronica arvensis*). One reason why they were not found in the other surveys might be the later timing of those surveys.

As a more negative signal, Spear Thistle (*Cirsium vulgare*), a herbaceous species well protected against grazing, was not recorded in 2004. In 2011 thistle was found in 1 of 5 quadrats in the lower grazing area. In 2019 Spear Thistle was found in 4 of 5 quadrats.

Highlights:

- The grazing seems to have had a positive impact on species richness at least in the east corner of the lower grazing area and in the upper grazing area. Both of these areas had relatively low species richness at the beginning of the grazing scheme.
- With the data available it is impossible to say with certainty whether the grazing project has managed to maintain species richness in the middle parts of the lower grazing area.
- The grazing intensity has varied considerably since 2003. It was agreed during the 2019 field survey that the current grazing intensity is not enough (only 3 cattle).

Recommendations for the future:

- If another floral survey is conducted at Longis Common, it would make sense to replicate the 2004 survey (both sampling and timing) as it was meant as a baseline against which the flora can be compared at a future date. No statistical analysis was attempted with the 2019 data due to the differences in sampling and timing.
- It should be noted that both the field survey and the data analysis requires lots of botanical knowledge. Especially if the aim is to analyse changes in species composition, not just the amount of species recorded (species richness).

		Quadrat 1		Quadrat 2		Quadrat 3		Quadrat 4		Quadrat 5		Lower grazing area TOTAL	
		2011	2019	2011	2019	2011	2019	2011	2019	2011	2019	2011	2019
<i>Achillea millefolium</i>	Yarrow	x	x	x		x		x	x			x	x
<i>Anagallis arvensis</i>	Scarlet Pimpernel								x		x		x
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort		x		x		x		x	x	x	x	x
<i>Bellis perennis</i>	Daisy										x		x
<i>Brachythecium albicans</i>	Whitish Feather-moss						x				x		x
<i>Carex arenaria</i>	Sand Sedge	x		x	x	x	x	x	x	x	x	x	x
<i>Catapodium rigidum</i>	Fern-grass										x		x
<i>Cerastium diffusum</i>	Sea Mouse-ear		x										x
<i>Cerastium fontanum</i>	Common Mouse-ear	x		x	x	x	x	x	x		x		x
<i>Cirsium sp.</i>	Thistle								x				x
<i>Cirsium vulgare</i>	Spear Thistle		x		x		x		x				x
<i>Convolvulus arvensis</i>	Field Bindweed	x				x		x					x
<i>Cuscuta epithymum</i>	Dodder	x				x							x
<i>Dactylis glomerata</i>	Cock's-foot	x	x	x	x	x	x	x	x	x	x	x	x
<i>Elytrigia atherica</i>	Sea Couch					x		x		x			x
<i>Erodium cicutarium</i>	Common Stork's-bill										x		x
<i>Euphrasia sp.</i>	Eyebright					x							x
<i>Festuca ovina</i>	Sheep's Fescue				x		x		x		x		x
<i>Festuca rubra</i>	Red Fescue	x	x	x	x	x		x	x	x	x	x	x
<i>Galium verum</i>	Lady's Bedstraw	x	x	x	x	x	x	x	x	x	x	x	x
<i>Geranium molle</i>	Dove's-foot Crane's-bill		x		x		x		x		x		x
<i>Homalothecium sericeum</i>	Silky Wall Feather-moss				x		x						x
<i>Hypochoeris radicata</i>	Cat's-ear		x		x		x		x		x		x
<i>Koeleria macrantha</i>	Crested Hair-grass	x		x		x							x
<i>Leontodon saxatilis</i>	Lesser Hawkbit	x		x		x		x		x	x	x	x
<i>Lolium perenne</i>	Perennial Rye-grass								x				x
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	x	x	x	x	x	x	x	x	x	x	x	x
<i>Luzula campestris</i>	Field Wood-rush		x		x				x				x
<i>Medicago lupulina</i>	Black Medick					x							x
<i>Myosotis ramosissima</i>	Early Forget-me-not		x		x				x		x		x
<i>Ononis repens</i>	Common Restharrow	x	x	x		x		x		x		x	x
<i>Plantago lanceolata</i>	Ribwort Plantain	x	x	x	x	x	x	x	x	x	x	x	x
<i>Poa annua</i>	Annual Meadow-grass		x								x		x
<i>Ranunculus bulbosus</i>	Bulbous Buttercup	x	x	x	x	x	x	x	x		x		x
<i>Raphanus raphanistrum ssp. maritimus</i>	Sea Radish	x	x		x				x	x	x	x	x
<i>Senecio jacobaea</i>	Common Ragwort	x		x	x		x		x		x		x
<i>Sonchus asper</i>	Prickly Sow-thistle		x						x		x		x
<i>Taraxacum spp.</i>	Dandelion				x		x				x		x
<i>Thymus polytrichus</i>	Wild Thyme	x		x	x	x	x		x		x		x
<i>Trifolium dubium</i>	Lesser Trefoil				x				x				x
<i>Trifolium occidentale</i>	Western Clover				x		x		x		x		x
<i>Veronica arvensis</i>	Speedwell		x		x		x		x				x
<i>Vicia sp.</i>	Vetch		x										x
<i>Vicia sativa</i>	Common Vetch				x		x						x
	Total number of species	17	20 ↑	16	22 ↑	21	18 ↓	16	24 ↑	11	26 ↑	26	36 ↑

Table 6. Detailed comparison of 2011 and 2019 results in the lower grazing area (quadrats 1, 2, 3, 4 and 5).

		Quadrat 6		Quadrat 8		Quadrat 10		Upper grazing area TOTAL	
		2011	2019	2011	2019	2011	2019	2011	2019
<i>Achillea millefolium</i>	Yarrow					x	x	x	x
<i>Anagallis arvensis</i>	Scarlet Pimpernel	x		x				x	
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort		x		x				x
<i>Bromus sterilis</i>	Barren Brome				x				x
<i>Carex arenaria</i>	Sand Sedge	x		x		x		x	
<i>Cerastium fontanum</i>	Common Mouse-ear		x		x				x
<i>Cirsium vulgare</i>	Spear Thistle					x		x	
<i>Crepis capillaris</i>	Smooth Hawk's-beard			x				x	
<i>Dactylis glomerata</i>	Cock's-foot	x	x	x	x	x	x	x	x
<i>Elytrigia atherica</i>	Sea Couch	x				x		x	
<i>Festuca ovina</i>	Sheep's Fescue						x		x
<i>Festuca rubra</i>	Red Fescue	x	x	x	x	x	x	x	x
<i>Galium verum</i>	Lady's Bedstraw	x	x	x	x	x	x	x	x
<i>Geranium molle</i>	Dove's-foot Crane's-bill		x		x		x		x
<i>Holcus lanatus</i>	Yorkshire-fog						x		x
<i>Hypochaeris radicata</i>	Cat's-ear				x				x
<i>Leontodon Saxatilis</i>	Lesser Hawkbit		x						x
<i>Lolium perenne</i>	Perennial Rye-grass		x						x
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil		x		x	x	x	x	x
<i>Luzula campestris</i>	Good Friday Grass		x		x				x
<i>Medicago lupulina</i>	Black Medick	x		x				x	
<i>Myosotis ramosissima</i>	Early Forget-me-not		x		x				x
<i>Ononis repens</i>	Common Restharrow		x			x	x	x	x
<i>Plantago lanceolata</i>	Ribwort Plantain	x	x	x	x	x	x	x	x
<i>Poa annua</i>	Annual Meadow-grass		x		x				x
<i>Ranunculus bulbosus</i>	Bulbous Buttercup	x	x	x		x	x	x	x
<i>Raphanus raphanistrum ssp. maritimus</i>	Sea Radish	x	x	x	x	x		x	x
<i>Rumex acetosa</i>	Common Sorrel						x		x
<i>Sonchus asper</i>	Prickly Sow-thistle				x	x		x	x
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	x	x		x			x	x
<i>Taraxacum spp.</i>	Dandelion		x						x
<i>Trifolium dubium</i>	Lesser Trefoil				x				x
<i>Trifolium occidentale</i>	Western Clover	x						x	
<i>Veronica arvensis</i>	Speedwell				x		x		x
<i>Vicia sp.</i>	Vetch	x		x		x		x	
<i>Vicia sativa</i>	Common Vetch		x		x		x		x
Total number of species		13	19 ↑	11	19 ↑	14	14	19	28 ↑

Table 7. Detailed comparison of 2011 and 2019 results in the upper grazing area (quadrats 6, 8 and 10).

		Quadrat 11		Quadrat 12		Quadrat 15		Control area TOTAL	
		2011	2019	2011	2019	2011	2019	2011	2019
<i>Anagallis arvensis</i>	Scarlet Pimpernel		x			x		x	x
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	x		x				x	
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort		x						x
<i>Brachythecium albicans</i>	Whitish Feather-moss		x						x
<i>Bromus sterilis</i>	Barren Brome				x		x		x
<i>Carduus tenuiflorus</i>	Slender-flower Thistle						x		x
<i>Carex arenaria</i>	Sand Sedge		x		x				x
<i>Carex flacca</i>	Glaucous Sedge					x		x	
<i>Cerastium fontanum</i>	Common Mouse-ear		x						x
<i>Cirsium vulgare</i>	Spear Thistle				x	x	x	x	x
<i>Convolvulus arvensis</i>	Field Bindweed				x	x	x	x	x
<i>Dactylis glomerata</i>	Cock's-foot	x	x	x	x		x	x	x
<i>Echium vulgare</i>	Vipers Bugloss					x		x	
<i>Festuca ovina</i>	Sheep's Fescue		x		x				x
<i>Festuca rubra</i>	Red Fescue	x	x	x	x	x	x	x	x
<i>Galium verum</i>	Lady's Bedstraw	x	x	x	x	x	x	x	x
<i>Geranium molle</i>	Dove's-foot Crane's-bill		x		x				x
<i>Holcus lanatus</i>	Yorkshire-fog	x		x		x		x	
<i>Hypochaeris radicata</i>	Cat's-ear		x						x
<i>Leontodon Saxatilis</i>	Lesser Hawkbit			x	x			x	x
<i>Lolium perenne</i>	Perennial Rye-grass		x						x
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil			x	x		x	x	x
<i>Myosotis ramosissima</i>	Early Forget-me-not		x		x				x
<i>Ononis repens</i>	Common Restharrow					x		x	
<i>Picris echioides</i>	Bristly Ox Tongue			x				x	
<i>Plantago lanceolata</i>	Ribwort Plantain	x		x				x	
<i>Poa annua</i>	Annual Meadow-grass		x						x
<i>Ranunculus bulbosus</i>	Bulbous Buttercup				x				x
<i>Raphanus raphanistrum ssp. maritimus</i>	Sea Radish	x	x	x	x	x	x	x	x
<i>Rumex acetosa</i>	Common Sorrel	x						x	
<i>Senecio jacobaea</i>	Common Ragwort		x						x
<i>Sonchus asper</i>	Prickly Sow-thistle	x	x		x	x		x	x
<i>Stellaria media</i>	Common Chickweed			x				x	
<i>Thymus polytrichus</i>	Wild Thyme		x						x
<i>Trifolium occidentale</i>	Western Clover					x		x	
<i>Trisetum flavescens</i>	Yellow Oat-grass			x				x	
<i>Veronica arvensis</i>	Speedwell		x						x
<i>Veronica chamaedrys</i>	Germander Speedwell	x		x				x	
<i>Vicia sp.</i>	Vetch	x		x				x	
<i>Vicia sativa</i>	Common Vetch		x		x		x		x
Total number of species		11	20 ↑	14	16 ↑	12	10 ↓	23	27 ↑

Table 8. Detailed comparison of 2011 and 2019 results in the ungrazed control area (quadrats 11, 12 and 15).

		2004 Area B, transect 1 total sample area: 3 m ²		2004 Area B, transect 2 total sample area: 3 m ²		2019 Quadrat 2 total sample area: 2 m ²	2019 Quadrat 3 total sample area: 2 m ²
		presence	frequency*	presence	frequency*	presence	presence
<i>Achillea millefolium</i>	Yarrow	x	10/12	x	8/12		
<i>Agrostis sp.</i>	Bent			x	2/12		
<i>Aira praecox</i>	Early Hair-grass	x	1/12	x	2/12		
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	x	1/12				
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort					x	x
<i>Brachythecium albicans</i>	Whitish Feather-moss						x
<i>Carex arenaria</i>	Sand Sedge	x	7/12	x	10/12	x	x
<i>Catapodium marinum</i>	Sea Fern-grass	x	1/12				
<i>Cerastium fontanum</i>	Common Mouse-ear					x	x
<i>Cerastium glomeratum</i>	Sticky Mouse-ear	x	1/12	x	2/12		
<i>Cirsium vulgare</i>	Spear Thistle					x	x
<i>Convolvulus arvensis</i>	Field Bindweed	x	3/12	x	1/12		
<i>Crepis capillaris</i>	Smooth Hawk's-beard	x	1/12	x	1/12		
<i>Cuscuta epithymum</i>	Dodder			x	2/12		
<i>Dactylis glomerata</i>	Cock's-foot	x	3/12	x	4/12	x	x
<i>Elytrigia atherica</i>	Sea Couch	x	11/12	x	7/12		
<i>Euphrasia sp.</i>	Eyebright			x	1/12		
<i>Festuca ovina</i>	Sheep's Fescue					x	x
<i>Festuca rubra</i>	Red Fescue	x	9/12	x	10/12	x	
<i>Galium verum</i>	Lady's Bedstraw	x	6/12	x	10/12	x	x
<i>Geranium molle</i>	Dove's-foot Crane's-bill					x	x
<i>Helictotrichon pubescens</i>	Downy Oat-grass			x	2/12		
<i>Holcus lanatus</i>	Yorkshire-fog			x	2/12		
<i>Homalothecium sericeum</i>	Silky Wall Feather-moss	x	1/12	x	2/12		
<i>Hypochaeris radicata</i>	Cat's-ear	x	2/12			x	x
<i>Lolium perenne</i>	Perennial Rye-grass	x	1/12				
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil			x	4/12	x	x
<i>Luzula campestris</i>	Good Friday Grass					x	
<i>Myosotis ramossissima</i>	Early Forget-me-not					x	
<i>Ononis repens</i>	Common Restharrow	x	8/12	x	3/12		
<i>Phleum arenarium</i>	Sand Cat's-tail			x	2/12		
<i>Plantago lanceolata</i>	Ribwort Plantain	x	6/12	x	6/12	x	x
<i>Ranunculus bulbosus</i>	Bulbous Buttercup					x	x
<i>Raphanus raphanistrum ssp. maritimus</i>	Sea Radish	x	5/12	x	2/12	x	x
<i>Senecio jacobaea</i>	Common Ragwort					x	
<i>Taraxacum spp.</i>	Dandelion			x	1/12	x	x
<i>Thymus polytrichus</i>	Wild Thyme	x	8/12	x	7/12	x	x
<i>Trifolium dubium</i>	Lesser Trefoil					x	
<i>Trifolium repens</i>	White Clover			x	1/12		
<i>Trisetum flavescens</i>	Yellow Oat-grass			x	2/12		
<i>Veronica arvensis</i>	Speedwell					x	x
<i>Vicia sativa</i>	Common Vetch			x	1/12	x	x
Total number of species		19		26		22	18 ↓

Table 9. Detailed comparison of 2004 and 2019 results in the middle of the lower grazing area.

		2004 Area C, transect 1 total sample area: 2,75 m ²		2019 Quadrat 4 total sample area: 2 m ²	2019 Quadrat 5 total sample area: 2 m ²
		presence	frequency*	presence	presence
<i>Achillea millefolium</i>	Yarrow	X	4/11	X	
<i>Agrostis sp.</i>	Bent	X	2/11		
<i>Aira praecox</i>	Early Hair-grass	X	1/11		
<i>Anagallis arvensis</i>	Scarlet Pimpernel			X	X
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort			X	X
<i>Bellis perennis</i>	Daisy				X
<i>Brachythecium albicans</i>	Whitish Feather-moss				X
<i>Carex arenaria</i>	Sand Sedge	X	4/11	X	X
<i>Catapodium rigidum</i>	Fern-grass				X
<i>Cerastium fontanum</i>	Common Mouse-ear			X	X
<i>Cirsium vulgare</i>	Spear Thistle			X	
<i>Dactylis glomerata</i>	Cock's-foot	X	4/11	X	X
<i>Elytrigia atherica</i>	Sea Couch	X	9/11		
<i>Erodium cicutarium</i>	Common Stork's-bill				X
<i>Festuca ovina</i>	Sheep's Fescue			X	X
<i>Festuca rubra</i>	Red Fescue	X	8/11	X	X
<i>Galium verum</i>	Lady's Bedstraw	X	7/11	X	X
<i>Geranium molle</i>	Dove's-foot Crane's-bill			X	X
<i>Hypochaeris radicata</i>	Cat's-ear	X	1/11	X	X
<i>Leontodon saxatilis</i>	Lesser Hawkbit				X
<i>Lolium perenne</i>	Perennial Rye-grass			X	
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	X	4/11	X	X
<i>Luzula campestris</i>	Field Wood-rush			X	X
<i>Myosotis ramosissima</i>	Early Forget-me-not			X	X
<i>Ononis repens</i>	Common Restharrow	X	6/11		X
<i>Plantago lanceolata</i>	Ribwort Plantain	X	7/11	X	X
<i>Poa annua</i>	Annual Meadow-grass				X
<i>Ranunculus bulbosus</i>	Bulbous Buttercup			X	X
<i>Raphanus raphanistrum ssp. maritimus</i>	Sea Radish	X	10/11	X	X
<i>Senecio jacobaea</i>	Common Ragwort	X	1/11		
<i>Sonchus asper</i>	Prickly Sow-thistle			X	
<i>Taraxacum sp.</i>	Dandelion			X	X
<i>Thymus polytrichus</i>	Wild Thyme	X	4/11	X	X
<i>Trifolium dubium</i>	Lesser Trefoil	X	1/11	X	
<i>Trifolium occidentale</i>	Western Clover				X
<i>Trifolium repens</i>	White Clover	X	2/11		
<i>Trisetum flavescens</i>	Yellow Oat-grass	X	1/11		
<i>Veronica arvensis</i>	Speedwell			X	
<i>Vicia sativa</i>	Common Vetch	X	4/11		
Total number of species		19		24 ↑	26 ↑

Table 10. Detailed comparison of 2004 and 2019 results in the east corner of the lower grazing area.

References:

David, C.D. and Ozanne, B.J. (2004). Initial Survey of the Alderney Environmental Grazing Scheme at Longis and Mannez. Guernsey Biological Records Centre.

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