Valerianella eriocarpa Desv. in Dorset, and a reassessment of its status as a presumed introduction in Britain

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ABSTRACT

Valerianella eriocarpa has usually been considered an introduction in Britain. Although long known from one semi-natural site on the Dorset (v.c. 9) coast, recent fieldwork has disclosed many new similar sites in Dorset, and also in the Isle of Wight (v.c. 10), all on limestone or hard chalk. In these sites *V. eriocarpa* is part of the annual, early-flowering cliff-verge communities and it is concluded that it is probably a native species there.

KEYWORDS: Hairy-fruited Cornsalad, rare species, distribution, maritime species, persistence.

INTRODUCTION

Valerianella is a genus comprising about 50 species of annual plants. Europe has about 22 species, all found in disturbed ground or in dry open habitats, many of them principally as weeds of cultivated ground. *V. eriocarpa*, like most of the species, is an early-flowering annual, probably a winter annual, and is part of a relatively ill-defined complex of species with *V. microcarpa* and, in some authorities, *V. muricata*. Neither of these occur in Britain, where *V. eriocarpa*, *V. dentata*, *V. rimosa*, *V. carinata* and *V. locusta* are the only species recorded. *V. dentata* and *V. rimosa* are almost confined to arable fields, whereas the last two are widespread weeds of many habitats.

V. eriocarpa is found around the Mediterranean from Turkey to Spain, and in North Africa. In *Flora Europaea* (Tutin *et al*. 1976) the section on *Valerianella* is prefaced by "it is impossible to determine the northern limit of many species …". The national floras describe the habitat as "dry and arid places" (Coste 1937) and "infesting the cultivation of cereals", uncultivated land and garigue (Pignatti 1982). There is no evidence here of anything other than a species which likes open ground.

In some of the late Victorian floras *V. eriocarpa* was listed as a variety of *V. dentata* (var. *mixta*), or confused with that variety, but since then all British national and regional floras have treated it as a separate species and as an alien, except Stace (1999), who may have been influenced by the account in Wigginton (1999). The only other contrary view was that of the Rev. E. S. Marshall who wrote (Marshall 1908), that it "may be truly wild in the Portland station being a native of West France".

The purpose of this article is to show that recent research into the habitat of *V. eriocarpa* in Dorset produces evidence which indicates a need to reassess its status in Britain. *V. eriocarpa* has traditionally been described in Britain as a plant of waste places, or as an arable weed, despite the fact that almost the earliest record and the most long-standing site is from the limestone scree of Church Ope Cove, on Portland, in Dorset (v.c. 9). Although it has been recorded from other parts

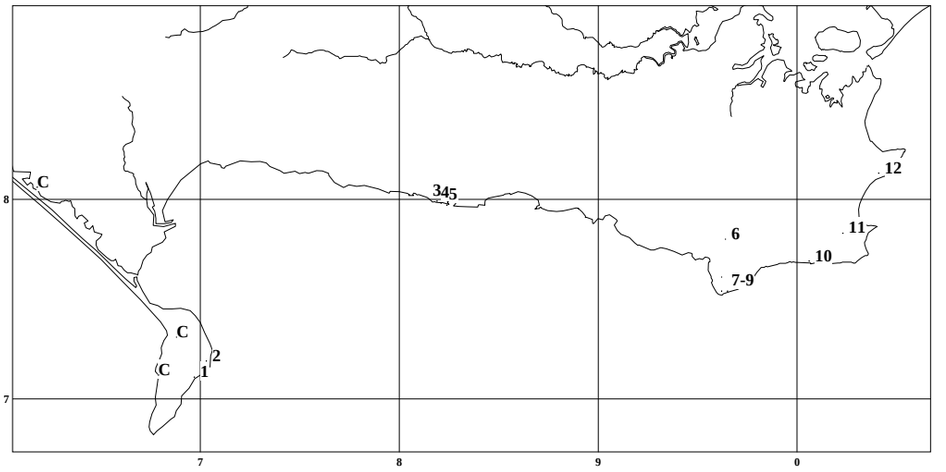

FIGURE 1. Distribution of *Valerianella eriocarpa* along the Dorset coast. The numbers refer to the sites referred to in Descriptions of the Dorset sites. C = casual records.

of Dorset in the last hundred years, it was not until detailed coastal survey work was undertaken in the last few years that we, with colleagues, began to find colonies in relatively similar situations all along the coast of central and east Dorset. Twelve seemingly natural sites are now known along the 50 km of coast from Portland to Ballard Down, north of Swanage (Figure 1). Some 30 km of that coast is seemingly unsuitable, comprising calcareous clays, soft chalk or urban development, but the twelve sites are scattered over the remaining stretches of limestone and hard chalk. *V. eriocarpa* is found typically in a summer-parched community on the edges of cliffs, or on rocky slopes facing the sea. There are a great number of plants over a wide area at Church Ope Cove, but relatively small areas of large numbers of plants at the other sites, which are widely separated from one another.

HISTORY OF THE DORSET SITES

Valerianella eriocarpa was first recorded in Dorset in 1874, when J. C. Mansel-Pleydell collected it from the churchyard wall in Church Ope Cove (Mansel-Pleydell 1895).

Table 1 gives the subsequent history; some of the repetitive collections for the Church Ope area have been omitted, but all other Dorset records are included.

The Portland site at the Lighthouse has not been refound. It is not known whether the 1955 and 1960 sites in the Fleet are the same as the 1993 site, which is on the roof of a wartime blockhouse and has been treated here as a casual, as is the site at Blacknor, Portland, refound in 2000.

HABITATS

Quadrats (2m × 2m, or in places 4m × 1m) were recorded for all of the known Dorset sites that were considered native during April, May and June 1999. Quadrats were selected at random but to include as much short vegetation as possible, but most of the sites are so small that selection was an automatic exercise.

In Dorset *V. eriocarpa* occurs in open vegetation on thin calcareous soils overlying Jurassic (Portland and Purbeck) limestones, or more rarely Upper cretaceous. The majority of sites occur in either open calcareous grassland or parched maritime grassland. Communities are assigned here to NVC communities (Rodwell 1992, 2000).

TABLE 1. HISTORY OF *VALERIANELLA ERIOCARPA* IN DORSET

Date	Location	Recorder	Source
1874	Church Ope – churchyard wall	J.C. Mansel-Pleydell	Mansel-Pleydell (1895)
1878 and later	Rather frequent in cultivated ground between the Prison and Church Ope		Bowles Barrett (1912)
1881	Blacknor (west coast of Portland)		Bowles Barrett (1912)
1883	Cliffs 200 yards south of Portland Prison		Hb. Bowles Barrett
1885	West Portland, cornfields	J. W. White	**BRIST**
1908	By the lighthouse, Portland	H. J. Riddlesdell	Druce (1908)
1924	Church Ope	A. W. Graveson	**BDK**
1928	Church Ope	J. E. Lousley	**RNG**
1935	Lulworth (exact site not known)	L. B. Hall	**BM**
1951	The Grove (Portland Prison)	W. A. Cocks	Hb. W. A. Cocks
1955	The Fleet (site not known)	W. A. Cocks	Hb. W. A. Cocks
1960	The Fleet (site not known)	R. D. Good	Good (1961)
1983	St Aldhelm's Head	A. J. Byfield	Field record at D.E.R.C.
1993	Shepherd's Dinner, Portland	R. FitzGerald	Field record at D.E.R.C.
1993	West of Moonfleet Hotel, Fleet	S. M. Eden	Field record at D.E.R.C.
1996	Dungy Head, west of Lulworth	H. J. M. Bowen	Field record at D.E.R.C.
1997	Portland Heights	B.S.B.I. AGM	Field record at D.E.R.C.
1997	Hill Bottom, Worth Matravers	B. Edwards	Field record at D.E.R.C.
1997	Emmett's Hill	B. Edwards	Field record at D.E.R.C.
1997	Above Blacker's Hole, west of Durlston	B. Edwards & D. Pearman	Field record at D.E.R.C.
1997	Townsend, Swanage	B. Edwards	Field record at D.E.R.C.
1998	Lulworth Cove	D. Pearman	Field record at D.E.R.C.
1998	Ballard Down	E. A. Pratt	Field record at D.E.R.C.
2000	Blacknor, Portland	H. J. M. Bowen	Field record at D.E.R.C.

i). Calcareous grassland. (Table 2)
The sites at Blacker's Hole, Ballard Down and Hill Bottom are all in short, open *Brachypodium pinnatum* dominated grasslands, referable to the *Avenula pratensis-Thymus praecox* sub-community of the *Brachypodium pinnatum* grassland, CG4a. The sward also supports *Festuca ovina*, *F. rubra*, *Dactylis glomerata* and *Koeleria macrantha*. Herbs include typical calcicoles such as *Sanguisorba minor*, *Thymus polytrichus* and *Pilosella officinarum*. Within these grasslands *V. eriocarpa* occupies pockets of bare soil along with other small annuals including *Aphanes arvensis*, *Erophila verna*, *Ranunculus parviflorus* and *Veronica arvensis*. At Townsend it is found in a rather different community on the south-facing slope of an old spoil heap. The grassland here is referable to the *Koeleria macrantha* sub-community of the *Festuca ovina-Hieracium pilosella-Thymus* spp. grassland CG7a. *Festuca ovina* dominates the sward, with *Koeleria macrantha* locally prominent. *V. eriocarpa* again exploits pockets of bare soil, along with other annuals including *Arenaria serpyllifolia*, *Erophila verna* and the nationally scarce *Cerastium pumilum*.

ii). Maritime grassland. (Table 2)
The sites at Shepherd's Dinner, Dungy Head, Stair Hole, Lulworth Cove and St Aldhelm's Head are all within open maritime grassland on cliff edges. Two main communities are involved. The first is the *Arenaria serpyllifolia* sub-community of *Armeria maritima-Cerastium diffusum* maritime therophyte community, MC5d. Here *Festuca rubra* and *Dactylis glomerata* form scattered clumps in an open sward. The small annual grasses *Catapodium marinum* and *Bromus hordeaceus* ssp. *ferronii* are locally abundant on bare soil. Herbs include rosette-forming perennials such as *Daucus carota*, *Plantago coronopus*, *P. lanceolata* and *Salvia verbenaca*, plus *Sedum acre* and *S. album*, which are particularly prominent in the Lulworth sites. Bare soil is exploited by annuals, particularly *Arenaria serpyllifolia*, *Cerastium diffusum* and *V. eriocarpa*. At Shepherd's Dinner, on the east side of Portland, *V. eriocarpa* is found in similar very open vegetation on the cliff top. This vegetation supports frequent *Daucus carota*, and is probably referable to the *Bromus hordeaceus* ssp. *ferronii* sub-community of the *Festuca rubra-Daucus carota* grassland, MC11a.

TABLE 2. PLANT COMMUNITIES SUPPORTING *VALERIANELLA ERIOCARPA* IN DORSET

Species	Calcareous grassland	Maritime grassland	Other
Valerianella eriocarpa	V	V	V
Plantago lanceolata	V	V	V
Bellis perennis	V	II	IV
Dactylis glomerata	IV	V	V
Galium mollugo	IV	IV	III
Koeleria macrantha	IV	II	III
Medicago lupulina	IV	I	III
Scorpiurium circinatum (moss)	I	I	I
Brachypodium pinnatum	V	II	
Thymus polytrichus	V	I	
Festuca rubra		V	III
Ranunculus bulbosus	IV		III
Daucus carota		IV	III
Erophila verna	III		III
Hippocrepis comosa	III	II	
Leontodon saxatilis	II		III
Aphanes arvensis	II		IV
Taraxacum agg.		II	III
Arenaria serpyllifolia	I	IV	
Festuca ovina	V		
Sanguisorba minor	V		
Veronica arvensis	IV		
Lotus corniculatus	III		
Sonchus oleraceus	II		
Ranunculus parviflorus	II		
Carex flacca	II		
Senecio jacobaea	II		
Catapodium rigidum	II		
Briza media	II		
Helictotrichon pratense	II		
Cerastium fontanum	II		
Bromus hordeaceus subsp. *ferronii*		V	
Catapodium marinum		V	
Sedum album		III	
Beta vulgaris subsp. *maritima*		II	
Sedum acre		II	
Collema tenax (lichen)		II	
Armeria maritima		II	
Cerastium diffusum		II	
Plantago coronopus		II	
Ononis repens		II	
Salvia verbenaca		II	
Cochlearia danica		II	
Euphorbia portlandica		II	
Sonchus oleraceus		II	
Linum bienne		II	
Teucrium scorodonia		II	
Echium vulgare		II	
Rumex acetosa			IV
Sonchus oleraceus			IV
Trifolium scabrum			IV
Pilosella officinarum			III
Geranium rotundifolium			III
Myosotis ramosissima			III
Torilis nodosa			III
Achillea millefolium			III

iii). Other communities. (Table 2)
Four quadrats were taken in habitats which are not easily referable to any described NVC community. At Church Ope Cove two quadrats were taken in very open habitat next to the steps down to the cove and on old spoil heaps. This vegetation supports many annuals, alongside *V. eriocarpa*, which are characteristic of the communities described above. These include *Erophila verna*, *Trifolium scabrum*, *Aphanes arvensis*, *Erodium cicutarium* and *Saxifraga tridactylites*. There are also ruderal species present such as *Dactylis glomerata*, *Poa annua*, *P. trivialis*, *Smyrnium olusatrum*, *Cardamine hirsuta* and *Geranium rotundifolium*. However, it must be stressed that this pioneer vegetation has developed on old spoil heaps which are subject to summer parching, and receive a lot of recreational pressure. One quadrat was taken at Emmett's Hill, and one to the east of St Aldhelm's Head, where *V. eriocarpa* is found in rather atypical, but species-rich, vegetation. It occurs in pockets of bare soil along with annuals such as *Erophila verna*, *Arenaria serpyllifolia*, *Aphanes arvensis*, *Sherardia arvensis* and *Veronica arvensis*. Other species typical of somewhat parched grassland also occur including *Stellaria pallida*, *Trifolium scabrum*, *T. subterraneum* and *Sedum acre*. The surrounding turf is closed and dominated by *Festuca rubra*. The vegetation here has elements of calcareous, maritime and mesotrophic grasslands.

All the sites surveyed share the following important factors:

- they support open communities with pockets of bare soil.
- they are subjected to summer parching.
- they support many early flowering annual species.

DESCRIPTIONS OF THE DORSET SITES

A short description of each site is included here to complement the habitat data. As with all annuals, numbers fluctuate widely from year to year. The full details of the quadrats are available at Dorset Environmental Records Centre.

1. Church Ope Cove, Portland, SY697711
Quadrats 11 and 12 03/04/1999 No NVC community 1000–5000 plants
This cove lies below the summit plateau on the east side of Portland. Rufus Castle and a group of 17th century houses, including Portland Museum, overlook the cove, and stand on unquarried Portland Stone. The ruined parish church of Portland lies adjacent to the south on unquarried but slumped limestone and clays. There are no other sheer cliffs surrounding the cove, as there are to the north and south, but all the rest of the area is a mixture of quarry spoil, with steps and walls as further evidence of human influence. *V. eriocarpa* is frequent over much of the site seawards of the steps down, but there is much low scrub of *Hedera helix*, *Rubus fruticosus* and *Ligustrum vulgare* which limits bare ground to areas around the paths, the south side of low spoil heaps and by the sea. Quarrying ceased here around 1920. Many other annuals occur here, including one of Dorset's few remaining sites for *V. dentata*.

2. Shepherd's Dinner, Portland, SY703719
Quadrat 10 03/04/1999 NVC MC 11a 100–500 plants
This site is on broken rocks and scree just below the summit plateau at the top of sheer cliffs. The site is open and exposed, and little different from the areas in the intervening 800 m or so from Church Ope Cove to the south, but no other colonies have been found.

3. Dungy Head, W of Lulworth Cove, SY819799
Quadrat 7 03/04/1999 NVC MC 5d >1000 plants
A large colony on the very edge of a limestone cliff, the nearest hard rock to Portland, 18 km to the south west. Landward of the site is a large area of *Brachypodium pinnatum* grassland (possibly overlaying Kimmeridge clays), leading to steep chalk downland. No grazing takes place, and bare patches only exist on the very edge of the cliffs. A very minor footpath is behind the site, which only covers about 4 m^2.

4. Stair Hole, Lulworth Cove, SY821798
Quadrat 6 03/04/1999 NVC MC 5d 500–1000 plants
A series of small colonies to the west of Stair Hole, in the same setting as the previous site. Much of the area is rather long ungrazed *Brachypodium pinnatum*, but *V. eriocarpa* occurs in many of the areas which are kept open by exposure or by rabbits. A minor track leads to the site.

5. Lulworth Cove, SY824797
Quadrat 5 03/04/1999 NVC MC 5d <500 plants
A small patch almost at the mouth of the cove, on the seaward side of a track with the sea to the south and a slope to the cove to the north. There is much suitable habitat here, but no other *V. eriocarpa* was seen.

6. Hill Bottom, SY964780
Quadrat 2 18/04/1999 NVC CG 4a 15 and 200 plants
Two patches in bare places in a large expanse of limestone grassland on a steep southeast facing slope. The site is distant from any footpath, but below flat fields which are now *Lolium* leys. This site is just over 1 km from the sea (and the only one out of sight of it).

7. Emmett's Hill, SY962761
Quadrat 14 18/04/1999 No NVC community <50 plants
A few plants in several patches on a south-facing slope in closed limestone turf well above a footpath, and well below arable fields above the site to the north. The site is almost 500 m east of the sea.

8. St Aldhelm's Head, SY962754
Quadrats 8 and 9 18/04/1999 NVC MC 5d >5000 plants
Scattered colonies on spoil heaps on the floor of a small quarry just below the cliff-top plateau and on the stony, bare cliff-edge beyond. The whole site here is very bare and open.

9. Fields east of St Aldhem's Head, SY965754
Quadrat 13 18/04/1999 No NVC community >2000 plants
An atypical site, with many (at least 20 patches) plants of *V. eriocarpa* in a fairly open, calcareous permanent grassland, sloping down to the cliff path. *Cirsium acaule* and *Sanguisorba minor* are frequent here, but so are *Medicago polymorpha* and *Stellaria pallida*. Just to the east of this sward was a small quarry scrape, now infilled, where *V. eriocarpa* was frequent. Above this field, and separated from it by a small broken wall, is extensive arable, with *Adonis annua* and *Petroselinum segetum*, but no *Valerianella*.

10. Above Blacker's Hole, SZ006760 and area
Quadrat 1 26/04/1999 NVC CG 4a >1000 plants
At least ten patches on steep rocky slopes, just below the wall on the edge of summit plateau, and above the slumped ground leading down to the low cliffs. The colonies are spread over 500 m, with a very few plants (E. Pratt, pers. comm.) also on the north side of the wall, in flat fields that were formerly arable. A footpath runs just above these steep slopes which, although they support annuals such as *Torilis nodosa* and *Gentianella anglica*, are very herb-rich indeed, with plants such as *Ophrys sphegodes*, *Polygala calcarea* and *Salvia verbenaca*.

11. Townsend, SZ0278
Quadrat 4 18/04/1999 NVC CG 7a 1000–2000 plants
Townsend is a grassland site which has developed over old limestone quarry workings. Although there is plenty of suitable open short habitat, *V. eriocarpa* occurs in one species-rich site only. The whole area is open to public access, is horse-grazed and heavily used.

12. Ballard Down, SZ041813
Quadrat 3 25/05/1999 NVC CG 4a <50 plants
This is the only site in Dorset on the Chalk, but the rock here is the Lower Chalk, and is very hard. There are two small patches at the bottom of a slope in a large area of unimproved grassland. Arable fields lie below.

HISTORY OF THE OTHER BRITISH SITES

V. eriocarpa has been recorded since the mid 19th century in Britain, the first record being either from Dovedale, Derbys. (Watson 1837) or from "the side of the road between New Pool and the Hanley Turnpike Gate below Malvern Wells, Worcs." (Lees 1843). Amphlett and Rea (1909) say that "this first (Worcs.) record should be treated with caution; more probably it is in its right position under *V. dentata*, var b. *mixta*". We have our doubts over the Derbyshire record too.

Since that date it has been recorded in at least 27 vice-counties, but all have been only ephemeral, other than the Cornish and Isle of Wight sites described below. Of the fifty or so non-Dorset records traced, just over 60% are pre-1950 and only six post-1970. There is a current impression in Britain, perpetuated by the first author (in Wigginton, 1999) that the former ephemeral sites were principally arable. This is completely erroneous. Approximately 75% of those sites, where details are given, comprised waste ground, quarries and gardens. Some of the records are not supported by herbarium specimens and may be misidentifications, especially for *V. dentata*. Bowles Barrett (1912) describes sites for *V. eriocarpa* on Portland, including cultivated ground, but does not mention cornfields, whereas he describes *V. rimosa* and *V. dentata* as "not infrequent … in cornfields".

The Cornish sites deserve more attention. There have been a number of casual sites (many listed in Davey (1909)), but two areas with a longer history: at Phillack, near Hayle, where it has been known since 1927, and in the Constantine-Harlyn area near Padstow, where it was known from 1965 to at least 1989. FitzGerald (1990) writes that "in Cornwall it utilises a more man-influenced (than at the Dorset sites) but ecologically similar niche, growing in small open earth pockets and ledges on stone hedges. A site near Phillack surveyed in 1989 showed that these hedge plants can seed down into arable ground below, but do maintain a seedbank out of the way of intensive management up on the refugia of the hedge".

Even more interesting are these sites on the Isle of Wight:

1. Culver Cliff SZ6285. Discovered 1985, although rumoured that it was found in 1971, *V. eriocarpa* is still present in two small areas of calcareous clifftop grassland, particularly in turf heavily grazed by rabbits. Populations are up to 1000–2000 plants in good years, and frequent associates are *Bromus hordeaceus*, *Cerastium pumilum*, *Erodium cicutarium*, *Plantago coronopus*, *Poa bulbosa*, *Ranunculus parviflorus* and *Sherardia arvensis*.

2. Afton Down SZ3685. Discovered in 1999, on an anthill between the road and the cliff edge, with *Bromus hordeaceus, Carex flacca*, *Daucus carota* and *Plantago lanceolata*.

3. Carisbrooke Castle SZ4887. Recorded here from 1912 to 1931, and rediscovered in 2000, on a steep south-east facing chalk bank on bare terracettes produced by sheep grazing. Associates here include *Arenaria serpyllifolia*, *Catapodium rigidum*, *Festuca ovina* and *Rhinanthus minor*.

DISCUSSION

The Dorset sites, apart from that in the Fleet, are all on limestone or the Upper Chalk. The only other limestone on the southern English coast is around Torbay, where we have made a specific and unsuccessful search. Other limestones in southern Britain occur at Brean Down in Somerset and in the Gower: perhaps these should be investigated too.

V. eriocarpa occurs in communities in Dorset that are almost entirely comprised of natives. It does often occur by paths, but we suggest that this is because paths supply the short vegetation and open ground needed for low annuals, rather than solely being a vehicle for dispersal of seeds. It looks native in these Dorset sites and, though it is patchily distributed, and is absent from many suitable stretches of coast, it is no more disjunct than many of its associated rare species such as *Cerastium pumilum*, *Medicago polymorpha*, *Stellaria pallida* and *Trifolium scabrum*. The only alien that occurred in any quadrat was *Centranthus ruber*, although if a non-British botanist were visiting Dorset for the first time he or she might well consider that that species looked native too!

Many of the associates or near neighbours of *V. eriocarpa* fall into the Mediterranean-Atlantic floristic element (Preston & Hill 1997). These include *Beta vulgaris*, *Catapodium marinum*, *Crithmum maritimum*, *Inula crithmoides*, *Linum bienne*, *Parapholis incurva*, *Polypodium cambricum* and *Rubia peregrina*. Indeed, Fig. 29 in Preston & Hill's paper shows that Portland has one of the larger concentrations of species in this element in Britain.

There is an interesting further point to be made here. Among the other Mediterranean-Atlantic species found along the Dorset coast are *Oenanthe pimpinelloides*, very frequent on the clays, *Gaudinia fragilis*, also frequent on some of the coastal clays, and whose status as a British native is being re-examined (Leach & Pearman in prep.), and *Gastridium ventricosum*. This last is another species that was thought, for many years, to be an arable colonist, and county Floras hardly made mention of the sites that we now call native: that is, open habitats on calcareous rocks or clays (Trist 1986). Now that this native habitat is known, it has been discovered at many sites in Somerset, and at least six along the Dorset coast. One of these is very near the *Valerianella* site on the Fleet, two are on the calcareous clays east of Weymouth, one on the limestone of Durlston and one on Ballard Down, the last two adjacent to *Valerianella* sites. The presence of all these Mediterranean-Atlantic species, as natives or presumed natives, seems relevant.

The Dorset coast is well known for the occurrence of Mediterranean species. Bowen (2000) postulates that up to 16 vascular plant species, none of them maritime, are restricted to the coastal fringe, and that most of these are plants which are more at home in southern Europe. Portland in particular, and the Dorset limestone coast in general, has a very distinguished collection of Mediterranean thermophiles which also include:

Mediterranean-Atlantic bryophytes (from Hill & Preston 1998)

Bryum canariense	*Bryum torquescens*	*Cephaloziella baumgartneri*
Eurhynchium meridionale	*Gymnostomum viridulum*	*Leiocolea turbinata*
Microbryum rectum	*Scleropodium tourettii*	*Scorpiurum circinnatum*
Southbya nigrella	*Tortella nitida*	*Tortula marginata*
Tortula viridifolia		

Lepidoptera (from Emmet & Heath 1991)

Cynaeda dentalis ([D. & S.]) (a pyralid moth)
Leucochlaeana oditis (Hb.) (Beautiful Gothic)
Idaea degeneraria (Hb.) (Portland Ribbon Wave)

Some of these are restricted to Dorset; two of the Lepidoptera have old records from Torbay. Most of these species are widespread in southern Europe, and are mostly in a much broader niche there than in England. It may be that species behave differently at the edge of their range; there is no doubt that Portland and the south Dorset coast would be the nearest that this country comes to providing the microhabitats necessary for these Mediterranean species to survive this far north.

CONCLUSION

The habitat information listed above indicates that *V. eriocarpa* is a member of native annual, early-flowering cliff-edge communities in Dorset. The European distribution implies that it is a Mediterranean-Atlantic species, and many of its associates in Dorset are Mediterranean-Atlantic species. Taken together there seems a strong case for deducing native rather than introduced status for these coastal sites in Dorset and, possibly, in the Isle of Wight.

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