

## Vascular plants of a scrub-cleared area at Cabin Hill NNR

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### Introduction

As part of management for the Natterjack Toad (*Bufo calamita*) at Cabin Hill NNR, in November/December 2005, a large patch of mainly willow (*Salix*) scrub adjacent to the main borrow-pit was cut down and stump-treated. This area (SD 283 051), approaching 1ha in size, was originally a basin site with a seasonally-flooded wet-slack in the centre (Site 2). However, during the 1970s and 1980s, it became increasingly colonised by scrub, mainly Grey Willow (*Salix cinerea*), with hybrid willows (largely *Salix x friesiana*) around the periphery. By 2005, the site was densely wooded with trees and bushes up to 4m high. When the scrub was removed, the hybrid willows were retained.

Ring-counts of a random sample of 16 newly-felled trees on 2<sup>nd</sup> December 2005 gave a range of 15 to 35 years and a mean age of 23.8 years. Despite their relative youth, some of the tree-stumps are up to 60cm in diameter

Visits in late summer 2006 revealed a remarkable diversity of ruderal and slack plants colonising the site, including several new to the reserve according to Gateley's (1987) list. It was therefore decided to conduct a thorough survey of vascular plants so that changes in species-composition and relative abundance could be followed over a period of time.

### Methods

The main surveys took place on 1<sup>st</sup>, 10<sup>th</sup>, 19<sup>th</sup>, 22<sup>nd</sup> and 28<sup>th</sup> September 2006. All vascular taxa found were listed, their relative abundance being assessed on the DAFOR scale. Some additional records from a visit with M.P. Wilcox on 24<sup>th</sup> August 2006 were included. Notes were made on habitat conditions.

## Results

About 20% of the site is bare ground, the substrate over most of the area consisting of a deep peaty organic matter with abundant dead twigs on the surface. Judging by the luxuriance of the colonising plants, soil nutrient-levels are high. The site held no surface water at the time of the study. The effects of Rabbit grazing are apparent throughout, the few *Salix cinerea* stumps with regrowth being heavily browsed.

A total of 109 vascular taxa was identified, only ten (9.2%) of these being non-native (Table 1). One taxon (*Salix x friesiana*) is nationally rare, being restricted to only about 10 sites in Britain, while six are Species of Conservation Importance in North West England (Regional Biodiversity Steering Group 1999). Four species (*Atriplex hortensis*, *Datura ferox*, *Physalis peruviana* and *Solanum physalifolium*) are new to the Sefton Coast (Smith 2005). Surprisingly, as many as 24 taxa were not recorded by Gateley (1987) and are therefore new to the reserve (Table 1). Most of these are plants of nutrient-rich disturbed or waste ground (ruderals), a habitat which was previously hardly represented on the site.

The most abundant plants are *Agrostis stolonifera*, *Epilobium ciliatum*, *Holcus lanatus*, *Hydrocotyle vulgaris*, *Lythrum salicaria*, *Mentha aquatica*, *Myosotis laxa*, *Rubus caesius*, *Solanum dulcamara* and *Urtica dioica*. These may be said to characterise the community. There are also occasional dense patches of *Festuca rubra*, *Juncus inflexus*, *J. subnodulosus*, *Phragmites australis* and *Salix repens*, which are likely to spread.

## Discussion

The plants of this former dune-slack currently comprise a roughly 50:50 mixture of ruderal and typical slack species. Judging from observations of other scrub-cleared slacks on the coast, the ruderal component is likely to decline with time as nutrients are leached away and organic matter oxidises. However, the process here may be slow due to the particularly deep layer of organic matter that has accumulated over a period of more than 30 years.

The ruderal plant community has a close similarity to the National Vegetation Classification's OV33 (*Polygonum lapathifolium* – *Poa annua* community), a very common lowland type in disturbed places where the soil is wet and high in nitrogen.

The most surprising discovery was of several uncommon alien plants (*Atriplex hortensis*, *Physalis peruviana*, *Solanum physalifolium*, *Datura ferox*, *Datura stramonium* and *Amaranthus retroflexus*), the first four being new to the Sefton Coast and *D. ferox* new to the vice-county. They are all casuals found on richly fertile, disturbed soils; some often originate from bird-seed, wool or soya-bean waste but how they got to Cabin Hill is a mystery. One possibility is that the site was used for Pheasant-rearing in the distant past, another is that the seeds originated in supplemental food for cattle or horses which grazed here in the 1970s.

The proportion of non-native plants in the study area (9.2%) is very low compared with the figure of 33% aliens recorded for the dune system as a whole (Smith 2005). This is probably due to the fact that Cabin Hill is a long way from the nearest gardens, which are the source of many introduced species.

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### **References**

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**Table 1. Frequency and status of vascular taxa recorded at the study site.**

\* = non-native taxon; NR = nationally rare; NS = nationally scarce; SCI = Species of Conservation Importance in North West England; New = new to the Sefton Coast; \$ = new to Cabin Hill NNR.

<b>Taxon</b>	<b>English name</b>	<b>Frequency</b>	<b>Status</b>
<i>Agrostis stolonifera</i>	Creeping Bent	la	
<i>Amaranthus retroflexus</i> *	Common Amaranth	r	\$
<i>Anchusa arvensis</i>	Bugloss	r	
<i>Arctium minus</i>	Lesser Burdock	o	
<i>Asparagus officinalis</i> *	Garden Asparagus	r	
<i>Atriplex hortensis</i> *	Garden Orache	r	New NS \$
<i>Atriplex patula</i>	Common Orache	r	\$
<i>Cardamine hirsuta</i>	Hairy Bitter-cress	r	
<i>Cardamine pratensis</i>	Cuckooflower	r	
<i>Carex arenaria</i>	Sand Sedge	r	
<i>Carex hirta</i>	Hairy Sedge	vlf	
<i>Carex otrubae</i>	False Fox Sedge	r	
<i>Carex viridula viridula</i>	Small-fruited Yellow-sedge	r	SCI
<i>Centaureum erythraea</i>	Common Centaury	r	
<i>Cerastium fontanum</i>	Common Mouse-ear	o	
<i>Chamerion angustifolium</i>	Rosebay Willowherb	r	
<i>Chenopodium album</i>	Fat-hen	o	
<i>Chenopodium rubrum</i>	Red Goosefoot	o	SCI \$
<i>Cirsium arvense</i>	Creeping Thistle	o	
<i>Cirsium vulgare</i>	Spear-thistle	r	
<i>Conyza canadensis</i> *	Canadian Fleabane	r	\$
<i>Crepis capillaris</i>	Smooth Hawk's-beard	o	
<i>Cynoglossum officinale</i>	Hound's-tongue	r	SCI
<i>Datura ferox</i> *	Angel's-trumpets	r	NS New \$
<i>Datura stramonium</i> *	Thorn-apple	o	\$
<i>Epilobium ciliatum</i> x <i>E. obscurum</i>	Hybrid Willowherb	r	\$
<i>Epilobium ciliatum</i> *	American Willowherb	f	\$
<i>Epilobium hirsutum</i>	Great Willowherb	r	
<i>Epilobium montanum</i>	Broad-leaved Willowherb	r	

<i>Epilobium obscurum</i>	Short-fruited Willowherb	o	
<i>Epilobium parviflorum</i>	Hoary Willowherb	o	
<i>Epilobium x rivulare</i>	Hybrid Willowherb	r	\$
<i>Equisetum arvense</i>	Field Horsetail	r	
<i>Equisetum fluviatile</i>	Water Horsetail	r	
<i>Equisetum palustre</i>	Marsh Horsetail	vlf	
<i>Equisetum x litorale</i>	Shore Horsetail	r	\$
<i>Erodium cicutarium</i>	Common Stork's-bill	r	
<i>Fallopia convolvulus</i>	Black Bindweed	r	\$
<i>Festuca rubra</i>	Red Fescue	vla	
<i>Fumaria muralis</i>	Common Ramping-fumitary	r	\$
<i>Galium palustre</i>	Marsh Bedstraw	o	
<i>Geranium molle</i>	Dove's-foot Crane's-bill	r	
<i>Gnaphalium uliginosum</i>	Marsh Cudweed	r	
<i>Holcus lanatus</i>	Yorkshire-fog	f	
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	la	
<i>Hypochaeris radicata</i>	Cat's-ear	r	
<i>Juncus articulatus</i>	Jointed Rush	r	
<i>Juncus bufonius</i>	Toad Rush	r	
<i>Juncus inflexus</i>	Hard Rush	vlf	
<i>Juncus subnodulosus</i>	Blunt-flowered Rush	vla	SCI \$
<i>Lathyrus pratensis</i>	Meadow Vetchling	r	
<i>Leontodon autumnalis</i>	Autumn Hawkbit	vlf	
<i>Linum catharticum</i>	Fairy-flax	lo	
<i>Luzula campestris</i>	Field Woodrush	r	
<i>Lycopersicon esculentum*</i>	Tomato	r	\$
<i>Lycopus europaeus</i>	Gypsywort	vlf	
<i>Lythrum salicaria</i>	Purple Loosestrife	a	
<i>Mentha aquatica</i>	Water Mint	f	
<i>Myosotis laxa</i>	Tufted Forget-me-not	la	
<i>Odontites vernus</i>	Red Bartsia	r	
<i>Ononis repens</i>	Common Restharrow	r	
<i>Parentucellia viscosa</i>	Yellow Bartsia	r	SCI
<i>Persicaria hydropiper</i>	Peppercress	r	\$
<i>Persicaria maculosa</i>	Redshank	o	
<i>Phalaris arundinacea</i>	Reed Canary-grass	vla	
<i>Phragmites australis</i>	Common Reed	vla	
<i>Physalis peruviana*</i>	Cape-gooseberry	o	NS New \$
<i>Plantago lanceolata</i>	Ribwort Plantain	lo	
<i>Plantago major</i>	Greater Plantain	r	
<i>Poa annua</i>	Annual Meadow-grass	r	
<i>Poa annua</i>	Annual Meadow-grass	o	
<i>Polygonum arviculare</i>	Knotgrass	o	

<i>Potentilla anserina</i>	Silverweed	o	
<i>Potentilla reptans</i>	Creeping Cinquefoil	o	
<i>Prunella vulgaris</i>	Seal-heal	r	
<i>Ranunculus acris</i>	Field Buttercup	r	
<i>Ranunculus flammula</i>	Lesser Spearwort	o	
<i>Ranunculus repens</i>	Creeping Buttercup	o	
<i>Ranunculus sceleratus</i>	Celery-leaved Buttercup	r	
<i>Rorippa palustris</i>	Marsh Yellow-cress	r	\$
<i>Rubus caesius</i>	Dewberry	f	
<i>Rubus tuberculatus</i>	Bramble	r	\$
<i>Rumex conglomeratus</i>	Clustered Dock	r	
<i>Rumex crispus</i>	Curled Dock	o	
<i>Rumex obtusifolius</i>	Broad-leaved Dock	o	
<i>Sagina procumbens</i>	Procumbent Pearlwort	o	
<i>Salix cinerea</i>	Grey Willow	o	
<i>Salix repens</i> var. <i>argentea</i>	Creeping Willow	vla	
<i>Salix x friesiana</i>	Hybrid Willow	o	NR
<i>Sambucus niger</i>	Elder	r	
<i>Samolus valerandi</i>	Brookweed	r	SCI
<i>Senecio jacobaea</i>	Common Ragwort	o	
<i>Senecio vulgaris</i>	Groundsel	r	
<i>Silene latifolia</i>	White Campion	r	
<i>Solanum dulcamara</i>	Bittersweet	f	
<i>Solanum nigrum</i>	Black Nightshade	o	\$
<i>Solanum physalifolium</i> *	Green Nightshade	r	New \$
<i>Sonchus arvensis</i>	Perennial Sow-thistle	r	
<i>Sonchus asper</i>	Prickly Sow-thistle	f	
<i>Stellaria media</i>	Common Chickweed	r	
<i>Taraxacum</i> sp.	Dandelion	r	
<i>Trifolium repens</i>	White Clover	r	
<i>Urtica dioica</i>	Common Nettle	f	
<i>Urtica urens</i>	Small Nettle	r	\$
<i>Veronica catenata</i>	Pink Water-speedwell	r	\$
<i>Veronica scutellata</i>	Marsh Speedwell	r	
<i>Vicia cracca</i>	Tufted Vetch	r	
<i>Vicia sepium</i>	Bush Vetch	r	
<i>Viola arvensis</i>	Field Pansy	o	\$

**Total taxa 109**