Ashmolean Natural History Society of Oxfordshire

Rare Plants Group

Veronica praecox, Breckland Speedwell: 2010: Twelve years on

History

Breckland Speedwell, *Veronica praecox* was first found at its Standlake site by Humphrey Bowen. In 1966 it was found again by Richard Palmer. John Killick and Reg Crossley saw huge numbers in 1975, several hundreds. The site was visited again by the Ashmolean Natural History Society of Oxfordshire Rare Plants Group in 1994 when Richard Palmer helped us to find the *Veronica* and 170 plants were counted. In 1998, the Rare Plants Group began systematic monitoring and there has been an annual count of plants only excepting 2001, the year of the foot-and-mouth outbreak.

Veronica praecox is a native of southern Europe. Though found in western Europe it is not native there. Thus neither is it native in Britain; it is in fact a neophyte, known to have been cultivated in 1775. It occurs mainly in Breckland on several sites but has one other British site near Standlake in Oxfordshire. It does best on free-draining sandy soils and needs regular disturbance.

The Oxfordshire site is a steep bank on the side of a field which was once a gravel pit. When gravel extraction finished, the cliff face at the side of the field was originally left rough but was graded down in about 1979. It is in this steep grading that *V. praecox* grows and the assumption must be that the seed came with the material which was used to create the slope. The gravel extracted was mostly used at Brize Norton airfield but it is not clear where the material which constitutes the slope came from.

The field was used from about 1998 until 2004 for pigs. The whole field was churned up by the pigs and was dotted with their sties. Their grunting was a weird accompaniment to the Rare Plants Group surveys. Following the removal of the pigs, a flush of annual weeds was observed in the field, including *Urtica ur*ens, annual nettle and *Cerastium semidecandrum*, little mouse-ear. At the time of writing, though, the vegetation has become dominated by perennial weeds.

There is a large rabbit warren in the bank and a quiet approach by a lone botanist usually enables lots of rabbits to be seen before they disappear into their burrows. Their busy activity keeps the sandy soil of the slope in constant motion with a net tendency for the gradient of the bank to lessen over the years and for its base to slowly move out into the field.

As well as *Veronica praecox* there is a long list of unusual annuals and other plants which thrive on the slope. These include *Cerastium semidecandrum*, little mouse-ear and *Stellaria pallida*, lesser chickweed. The slope has a south-west facing aspect which I believe is an important factor in its biodiversity. Whatever the future of *V. praecox* at this site, we think that the site is worth conserving for its total ecology.

Yearly counts

	1975	1994	1998	1999	2000	2002	2003
Number of plants	100s	170	0	7	51	3	14
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Number of plants	14	17	3	0	2	0	0

There has been a steady dwindling in numbers over the monitoring period to the present zero count, and much thought has gone into trying to account for this.

Cage Experiments

Initially we wondered whether browsing by rabbits was causing the decline and experiments were done in 2000 with an exclusion cage to test this idea. A chicken-wire cage of approximately 1 m by 1.5 m and with a height of approximately 20 cm was pegged down in one of the areas where *V praecox* had been observed and a control rectangle of the same dimensions was pegged out nearby. Hardly any *V. praecox* was observed in the exclusion cage and over the two years it was in place it became heavily vegetated, mainly with nettles. We concluded that the net effect of the rabbits was beneficial in that they were keeping down the vegetation and thus reducing the competition for the *Veronica*.

The Time of the Annual Count

Next we investigated the idea was that we were not visiting for the annual count at the right time so that we were missing the main flush of flowers. This idea was tested by visiting at roughly weekly intervals in 2002 during late March and early April. We found that the time at which we were normally counting was correct and this conclusion was borne out in 2003.

The Breckland Sites

In October 2002, I visited most of the Norfolk and Suffolk sites for *V. praecox*. It is clear from what I saw there that annual autumn ploughing provides the best management regime for *V. praecox* and this is adhered to in four of the sites I visited. Of the other three sites, one has *V. praecox* only where the soil is disturbed by rabbits, one is scarified annually and the last is not considered suitable because such management is not possible.

Implications for Standlake

The implication for the Standlake site was clearly that the soil needed more disturbance than was currently being provided by the rabbits. *Sedum acre*, biting stonecrop, was becoming dominant and no *Veronica* of any species was competing with it. This may well be because the rabbits leave the *Sedum* alone due to its bitter taste. We scarified an experimental area in the autumn of 2002. This amounted to weeding out *Sedum acre* and throwing it out into the field so that we had disturbed the soil to a depth of 7 to 10 cm. In the 2003 count the majority of the plants were found in the scarified area and in another area where there was a great deal of rabbit disturbance. We therefore decided to scarify much larger areas of the slope in autumn

2003, removing the *Sedum*. This was done but the numbers of V. praecox did not increase in 2004.

Deeper Scarification

Having established that shallow scarification was not obviously increasing the numbers of V. *praecox* plants, we decided to take tougher measures in 2004. Three alternate strips to the ones weeded in 2003 were more deeply cultivated, using a garden fork, and most perennial weeds were removed. (In addition, several elders which were becoming established at the bottom of the bank were cut down and the regrowth and the stumps treated with glyphosate.) The count, carried out in April, was exactly the same as in 2003, 14 plants. In 2005, 17 plants were counted and though this was a marginal improvement, it did not really represent a recovery in the population.

The Present Situation

It is clear that the management carried out in 2003 and 2004 did not have any effect. Rabbit activity still continues and ensures that there is bare ground where seed could germinate but we think that their diggings have buried the seed bank too deeply for seeds to germinate. Alternatively the seed bank may have become exhausted. To test these theories would involve using a digger to regrade the slope, pushing the soil upwards in the hope that seed might be exposed. This solution is deemed to be too expensive for a plant which is not native to Oxfordshire and has arrived at this site as a result of human activity.

So there the situation rests and formal monitoring has ceased though we continue to keep an eye on the site informally in case an unexpected recovery takes place.

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References

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