The Juniper Population on Porton Ranges 1970 and 2010-13.

The Defence Science and Technology Laboratory (Dstl) at Porton Down is home to a large and rare Chalk Downland and Juniper population. Its 1559 hectares of land is designated as a Site of Special Scientific Interest (SSSI) and Special Area of Conservation. Dstl actively manages this area for the benefit of this habitat and species.

The Porton ranges were surveyed to establish the extent of the Juniper population in 1970. The study was carried out by Lena Ward et al and, for the larger, dense areas of bushes, an estimate was made. The information was made available in the form of a map which showed individual groups of bushes, an estimated number and a breakdown of age (young, mature and old).

Forty years later it was decided that this study should be repeated, especially as the decline in Juniper in lowland Britain was fully appreciated and documented. (Ward, L.K. and Shellswell, C.H. 2017: Looking after Juniper: Ecology, Conservation and Folklore. Plantlife, Salisbury) A small number of members of the Porton Conservation Group undertook this task over three winter periods 2010 – 2013. The advent of hand-held GPS instruments provided opportunity for the task to be more detailed and an attempt was made to log the position of every bush so that the number per 100 metre square could be estimated (Map 1).

It should be noted that since the completion of the survey of bushes in 2013 evidence of Juniper natural regeneration has been found in some areas. These data have not been included in the figures calculated although the areas where young plants were found has been indicated on the maps.

The results are presented in the form of three maps:

1. Showing the number of bushes per 100 m square, the areas where the bushes are in poor health and the areas where some regeneration has been found.
2. Showing the areas and numbers of dead bushes and their position in relation to the areas of natural regeneration.
3. The results of the 1970 survey and an attempt to compare this data with that from 2010-13.

Some of the important points to be considered:

1970 counts were made by Lena Ward
2010 counts were made by A Appleyard, S Fitzpatrick, Ailsa McKee, Anthony Mundell, Pat Woodruffe et al. The field data were compiled by S Fitzpatrick and the maps plotted by P Woodruffe.

The methodology employed varied according to the GPS technology available at the time. This permitted the 2010 data to be mapped on a 100 metre square basis.

Overall counts of bushes: 1970 = 16129
2010 = 12294 this figure excludes seedlings and young bushes found subsequent to 2013.

There are some areas where changes have been particularly significant:

- Group 2, south of Pheasant Road where 1334 bushes dropped to just 71. This involved the loss of 385 old trees but also 700 young ones.
- Group 4, the bushes south of Moll Harris have increased from 250 to 775. These were young bushes in 1970.
- Group 5, 420 young bushes have increased to 820 implying regeneration since 1970.

- Group 7, the area around BM21, which we assume was not constructed in 1970, now supports a flourishing population of some 821 healthy bushes. (Accessed by Stuart Corbett, former Conservation Officer at Dstl).
- Group 19 and 23, west and north of car park 1. These two groups are better treated together because of the different counting techniques used and the tarmac road which splits the population. There has been a reduction in the number of mature bushes but this is accompanied by a substantial level of regeneration (not included in these shown).
- Group 21, NE corner of Isle of Wight Woods. Old bushes in 1970 are no longer found.
- Group 24 and 25, Tower Hill. 200+ young bushes are no longer present.
- Group 29 and 30, X Pad area. Approx. 900 young bushes no longer present.
- Group 32 and 33, Martin's Clump and Farm. Reduction of 1100 young bushes to 165.

Inevitably, bushes regarded as old in 1970 are now dead and can be seen, still standing, in places such as Easton Down.

Many young bushes in 1970 are no longer present. We do not have information concerning past management of the site and the reasons for lack of bushes in some areas. We are assured that although some scrub clearance has taken place , this would not have removed juniper directly, as it is carefully undertaken to ensure Juniper bushes are not damaged and are left. This suggests that there must be another reason. One option is micro climate changes after scrub clearance around the areas, such as more wind causing falling or damage. Another reason could be changes in climate generally with drier warmer years adversely affecting the population.

Current areas of natural regeneration do not coincide, in the main, with areas of dead bushes, see Maps 1 and 2. Areas of current regeneration occur both in squares where there is a high density of bushes but also where there are relatively few. It appears that in several instances waves of regeneration occur along the leading edge of existing colonies so that areas of older bushes now have younger bushes close by and these, in turn, are now providing the seedlings which are being found currently. There is a very low rate of seedling survival where they occur under mature female bushes. The majority of those which have survived for several years are some distance from adult bushes and away from canopy cover.
Preliminary studies of juniper regeneration found at this site are reported on the website of the Wiltshire Botanical Society (www.wiltsbotsoc.co.uk). This work is ongoing but access to the site has not been available from 2020 – 2023 during the Covid pandemic.

It should be stressed that the entire estate has not been searched for signs of natural regeneration.

We would like to thank Dstl for allowing access to the site for research purposes and for providing a passage on past management for inclusion.

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