Vegetation Surveys (by Alice Hadley)

Background

In 1979 270 vegetation quadrats were set up of which 90 were made permanent. In 1998 76 of these were resurveyed and 13 in 2015. Due to time constraints and the fact that the position of most plots is unknown only 13 were surveyed in 2015. A lot of time was spent searching for the plot markers hidden in the vegetation.

The vegetation on Skomer has changed over the years; long time visitors and volunteers often make remarks as to how Heather is less apparent and Bracken more so. Therefore the study was meant to show if the following statements are true for relevant quadrats:

1. The percentage frequency of *Calluna vulgaris* (Heather) has decreased.
2. The percentage frequency of *Pteridium aquilinum* (Bracken) has increased.
3. The percentage frequency for highly tolerant species has increased.
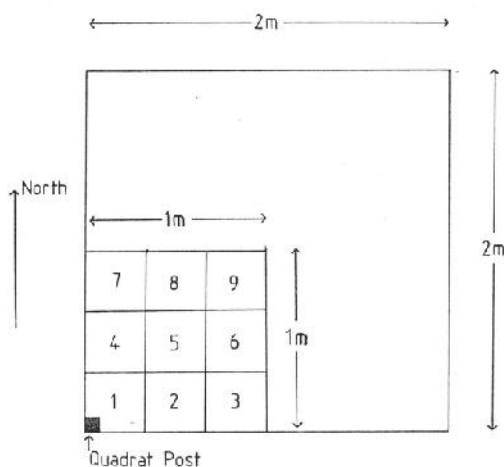
Methodology.

Figure 1-2   Vegetation survey set up. For each of the 13 points surveyed, a 2x2 meter area was set up in a northerly direction (marked by the bamboo canes). A 1x1 meter quadrat was then placed in the left hand corner (starting at the yellow marker). The 1x1 meter quadrat was split into 9 squares.

Species present within the 1 x 1 meter quadrat were listed and assigned a percentage frequency and domin value. Percentage frequency was calculated by counting the number of squares the given species occurred in, divided by the total number of squares and multiplied by 100. I.e. *Hyacinthoides non-scripta* (Bluebell) was present in 4 out of 9 squares, and thus 4/9 x 100 gives a percentage frequency of 44%. Domin value was assigned by estimating the percentage of the 1x1 meter quadrat a given species covered, and giving it a pre-determined domin value (Table 1).

Any extra species occurring in the 2x2 meter area were noted.

Table 1   Domin values for given percentage cover.

Percentage cover	Domin value
c.100	10
75-100	9
50-75	8
33-50	7
25-33	6
Abundant c.20	5
Abundant c.5	4
Scattered, cover small	3
Very scattered, cover small	2
Scarce, cover small	1
Isolated, cover small	X

Results and discussion

1. For relevant quadrats, the percentage frequency of *Calluna vulgaris* (Heather) has decreased.

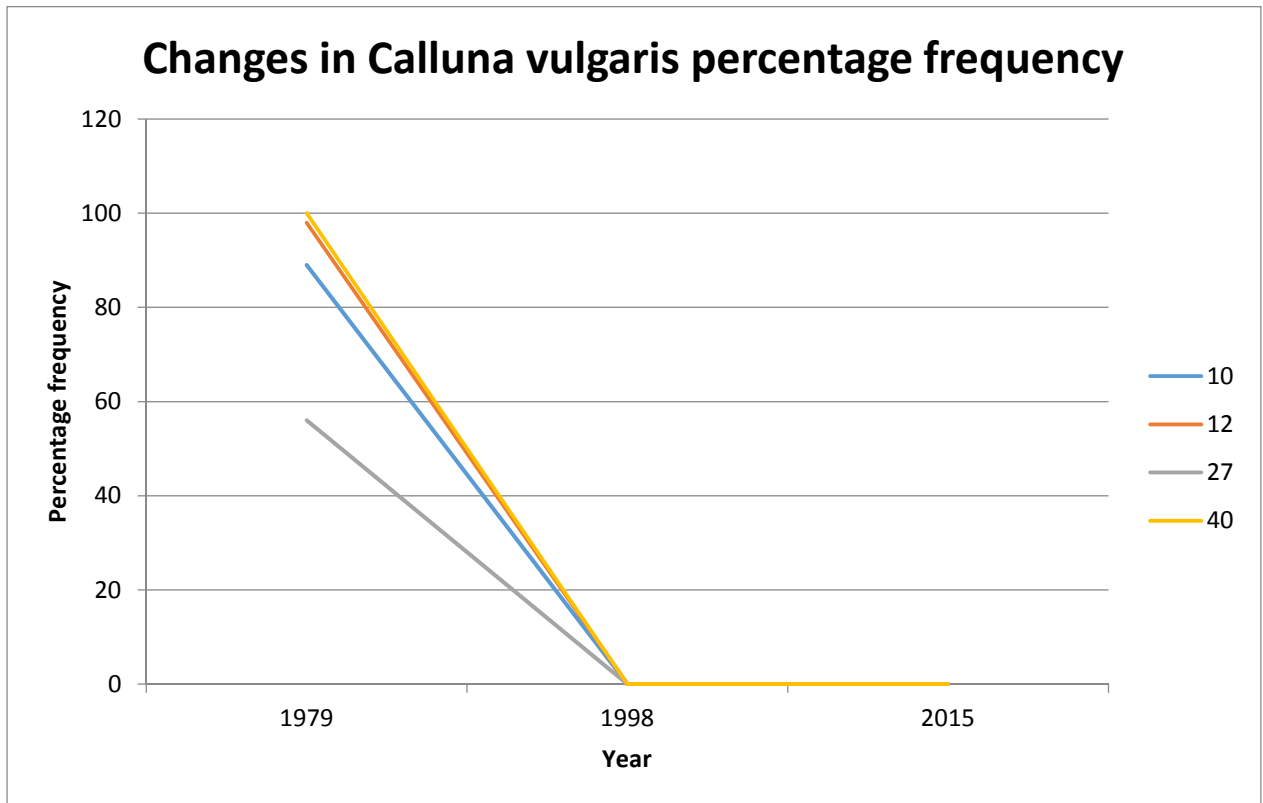**Changes in Calluna vulgaris percentage frequency**

Figure 3   *Calluna vulgaris* was apparent in four out of the 13 quadrats back in 1979. Presence drastically alters by 1998, with percentage frequency plummeting to 0% for all four plots. Percentage frequency still remains at 0% in 2015. The decline in *Calluna vulgaris* has long been studied on Skomer; this small dataset is in fitting with the trend.

2. For relevant quadrats, the percentage frequency of *Pteridium aquilinum* (Bracken) has increased.
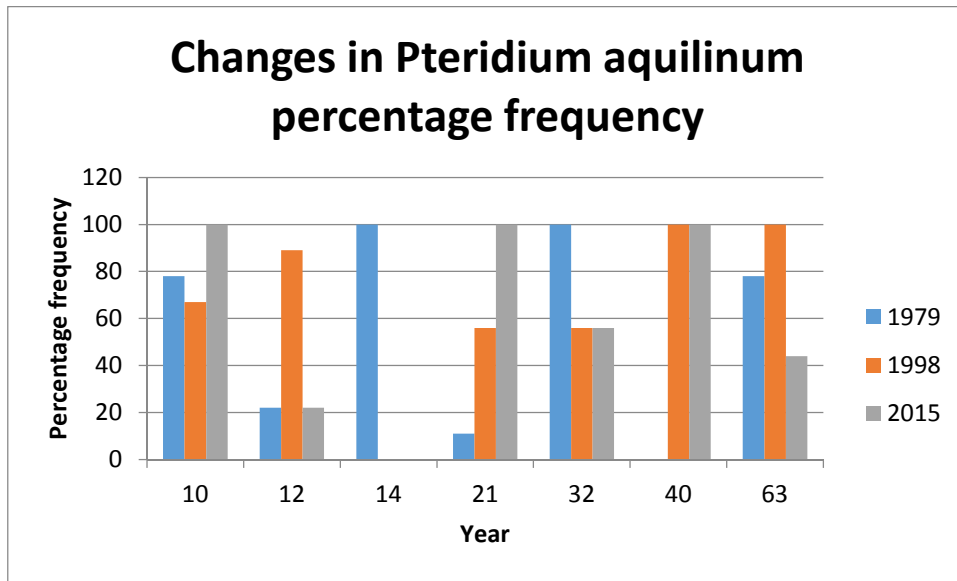

Figure 4   *Pteridium aquilinum* was present in seven out of the 13 quadrat. Percentage frequency has generally increased in three of these plots, has fluctuated in two plots and has actually experienced a general decrease in two plots.

3. For relevant plots, the percentage frequency of highly tolerant species has increased.
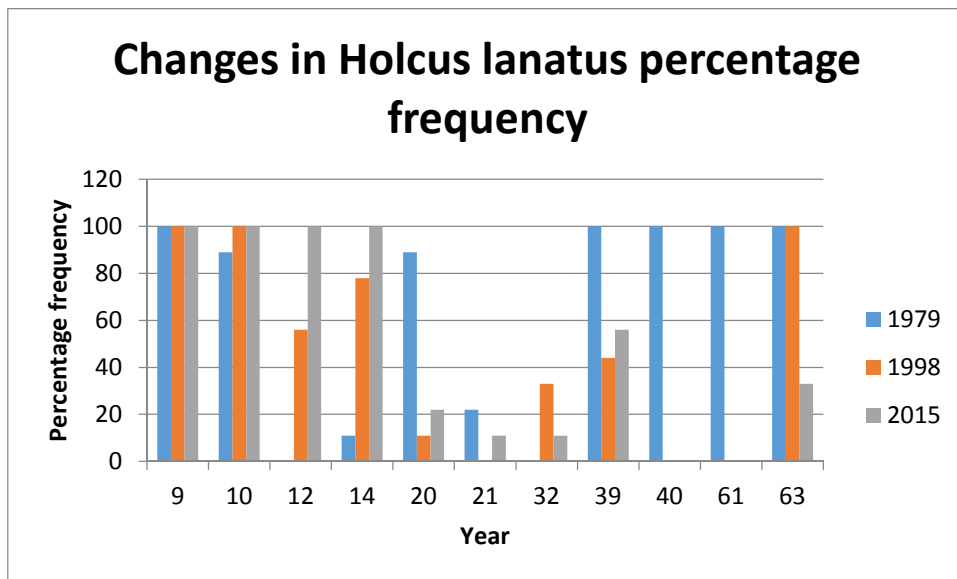

Figure 5   *Holcus lanatus* (Yorkshire fog) was present in eleven of the 13 plots. Three plots have experienced a general increase in percentage frequency, whereas seven have experienced a general decrease. Percentage frequency in plot nine has stayed the same.
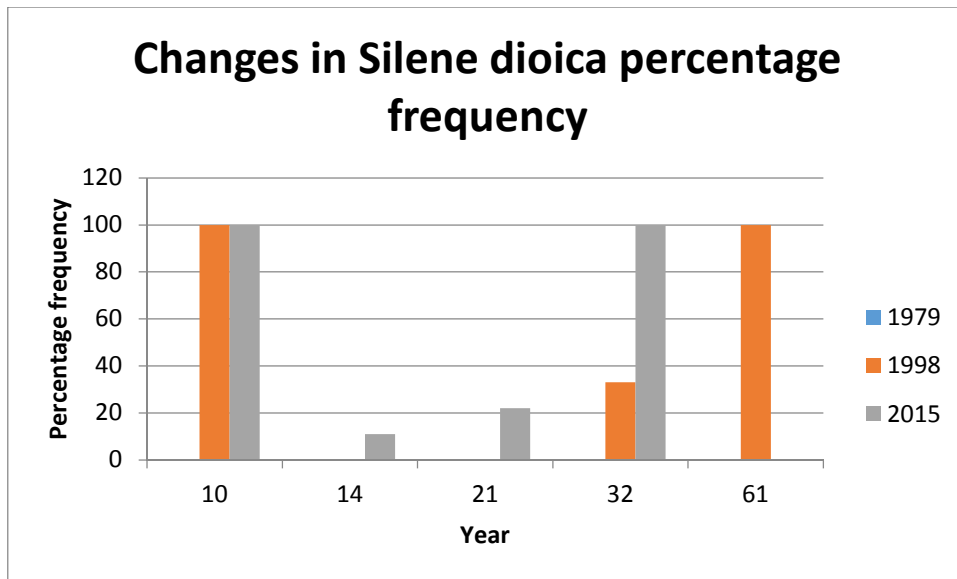
Changes in Silene dioica percentage frequency

Figure 6   *Silene dioica* (Red Campion) was present in five plots. All plots have experienced a general increase in percentage frequency since 1979.
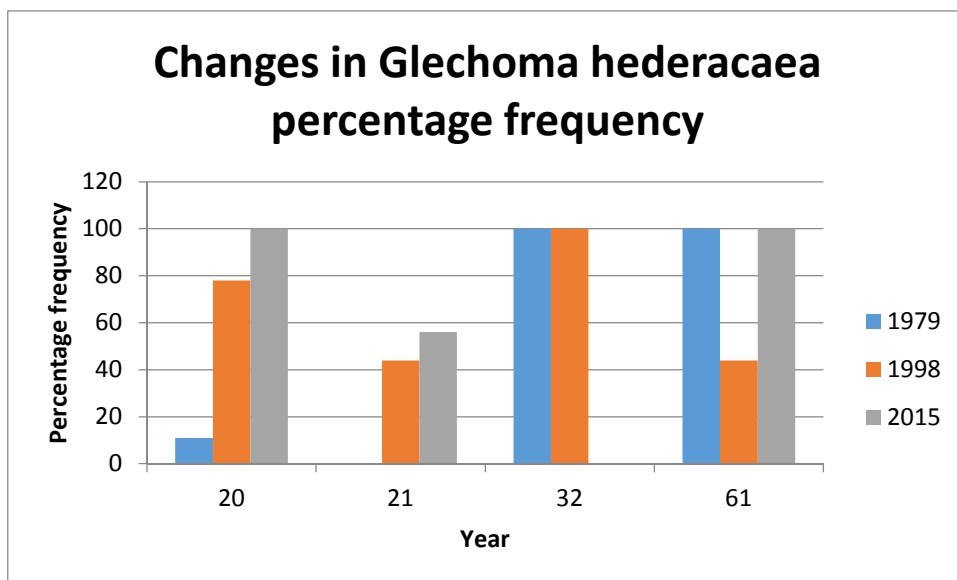

Changes in Glechoma hederacaea percentage frequency

Figure 7   *Glechoma hederacaea* (Ground ivy) was present in four plots; two plots have experienced a general increase, one8 plot a decrease and percentage frequency in plot 61 has fluctuated.

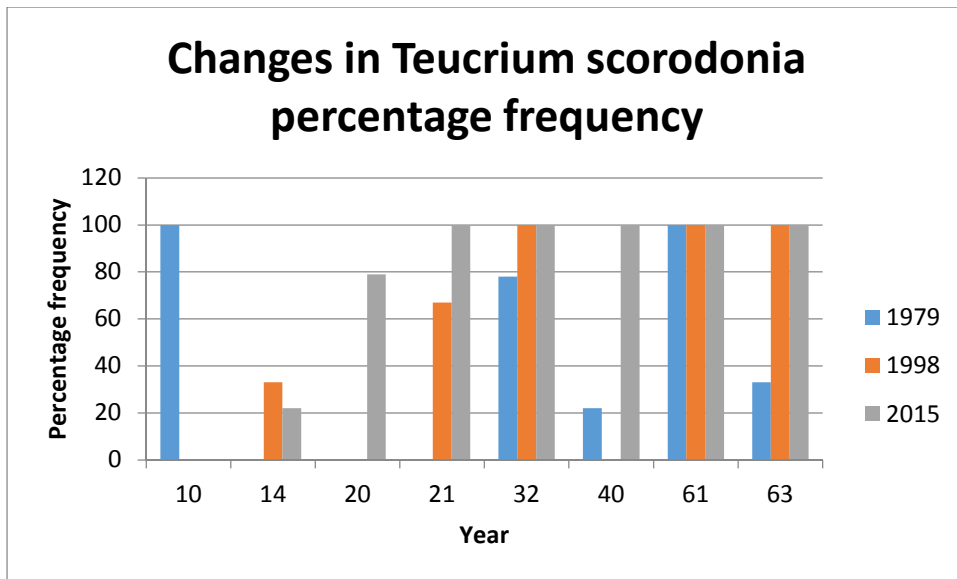**Changes in Teucrium scorodonia percentage frequency**

Figure 8   *Teucrium scorodonia* (Wood sage) was present in eight plots. A general increase was experienced in five of the plots, a general decrease two of the plots, and in plot 61 frequency stayed the same.

Conclusion

Any general trends drawn from the results of this study must be seen more as an indicator as to trends that could potentially be apparent, rather than trends that are apparent, due to the data set being rather small, and thus holding little power. They should act more as a point of interest and inspiration to further study how vegetation is changing on Skomer. If more of the original 1979 plots could be surveyed in the future, it would provide a greater basis on which to formulate patterns in Skomer's vegetation.