



## Scottish HectAd Rare Plant Project

### Guidance on completing the SHARPP recording form

#### *Background*

The project uses a simplified version of the plant population recording method that the BSBI developed for the *Threatened Plant Project* (Walker *et al.*, 2017).

#### *Minimum details*

Whilst it would be great if everyone completed the form fully, sketching or photographing the population, listing the associated species and assessing their abundance, we realise it is time consuming and sometimes difficult – especially if the associated species are small or not in flower or fruit. So, we have indicated a minimum set of fields that should be completed by making them blue and bold on the RPPI recording form - and below. We hope this will also allow beginner or intermediate botanists to participate more easily.

#### **Site details**

Surveys should be undertaken at an appropriate time of year and all details recorded on the RPPI recording form. Participants should record the **species**, the **target grid reference** searched, the **name of the recorder(s)**, the **site name** visited, the **vice-county** and the **date of the survey**. If relocated the range in slope (in degrees), aspect (as cardinal compass points i.e. N, NE, E, SE, S, SW, W, NW) and altitude (in metres) of the population should also be recorded.

#### **Grid References**

Participants should search for the target species within suitable habitats at or near the target grid reference. Where the target species is relocated its distribution should be mapped at 10m (8 figure grid reference) or 100m (6 figure grid reference) resolution using a hand-held GPS depending on the size and extent of the populations. Use 10m resolution where populations are small and/or plants occur at low density and 100m resolution where populations are large and/or the plant is locally abundant. This choice will depend on the time available, which is likely to vary depending on how accessible the site is and the number of other target populations participants need to record.

#### *Sketch map*

If possible, sketch a map of the population location showing obvious landmarks to aid relocation. Sub-populations or outliers should be clearly marked on this map. It should also include a north arrow and the location and direction of any photographs taken or quadrats recorded.

#### *Photographs*

If possible, take photographs of the location of populations as these can help with relocation and are also useful to assess the habitat provide and any changes that have taken place between surveys. Ideally a selection should be taken to illustrate the location of the

population, its size and habitats. It is often useful to place small markers in the photograph to show where the target species occur. The location and direction of photographs should be indicated on the sketch map.

### **Null returns**

Even when the target species is not found the forms should be returned with the reason why it could not be relocated from the following list:

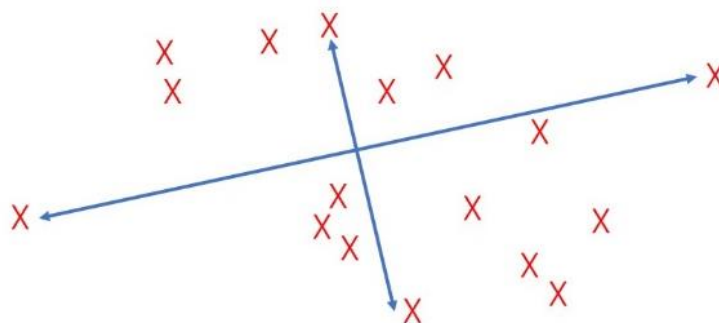
- Original identification was incorrect
- Original grid reference was incorrect
- Species no longer present (if known provide the reason under threats)
- Species not refound but possibly still present
- Unknown

### **Abundance**

When a population is relocated participants should count or estimate the number of individuals within each recording unit used (10 or 100 m) and fill in the **overall population count/estimate** on the recording form. It should be noted that for many species the number of individuals will be difficult to count or estimate, for example where a species forms large clonal patches. In these instances, participants should record which **unit they have counted**: discrete individuals, patches/clumps, flowering stems, etc.

### **Extent**

Participants should assess the extent of the population by estimating the distance in metres between the most distant individuals along perpendicular axes as shown below taking into account outliers:



**Figure 1.** How to calculate the extent of a population using perpendicular axes through a population.

### **Regeneration**

In order to assess whether a population is regenerating participants should provide an estimate of the percentage of individuals observed within each of the following categories:

- Seedlings
- Non-flowering
- Flowering / fruiting
- Vegetative spread only

## Habitat

Please provide a brief description of the habitat(s) in which the target species is found using the following habitat classification. These are described in full [here](#) and listed in Table 1 below. Further information on soil type, geology, NVC type, would be useful but not essential.

**Table 1.** Semi-natural habitats used for the National Plant Monitoring Scheme.

Broad habitat	Fine-scale habitat(s)	Quadrat size
1. Broadleaved woodland	Dry deciduous woodland / Wet Woodland / Hedgerows of native species	4 x 4* 2 x 8
2. Native Pinewood & juniper scrub	Conifer woods and juniper scrub	4 x 4
3. Arable field margins	Arable field margins	4 x 1
4. Lowland grassland	Dry acid grassland / Dry calcareous grassland / Neutral damp grassland / Neutral pastures and meadows	1 x 1 2 x 2
5. Upland grassland	Montane acid grassland / Montane calcareous grassland	1 x 1
6. Heathland	Dry heathland / Dry montane heathland	2 x 2
7. Bog & wet heath	Blanket bog / Raised bog / Wet heath	4 x 4
8. Marsh & fen	Acid fens, flushes, mires and springs / Base-rich fens, flushes, mires and springs	1 x 1
9. Freshwater	Nutrient-poor lakes and ponds / Nutrient-rich lakes and ponds / Rivers and streams	4 x 1
10. Rock outcrops, cliffs & screes	Inland rocks and scree / Montane rocks and scree	2 x 8
11. Coast	Saltmarsh / Coastal sand-dunes / Coastal vegetated shingle Machair / Maritime cliff-tops and slopes	4 x 4 2 x 2

\* Or 2 x 8 if along a linear feature

## Associated species

If possible, participants should record at least one list of associated species in a representative stand of vegetation containing the target species. This should be located in an area where the target species is abundant avoiding marginal areas that include other habitat types. Quadrat size should vary depending on the habitat being sampled as described in Table 1. The % cover of all vascular plants present should be recorded using the DOMIN scale as described in Table 2. The cover of all bryophytes and lichens should be combined into a single abundance category as well as bare ground (including soil, sand, gravel, rock) and the remains of plants (litter) such as dead stems, leaves, twigs and dead wood. Extra quadrats should be recorded to capture the variation in the vegetation in which it occurs or if occurs in more than one main habitat type. The precise location (using GPS) and size of the quadrat should be recorded. The height of the vegetation in each quadrat should be recorded within the following height classes: <10cm, 10-30cm, 30-100cm, 101-300cm, >300cm. Each class should be scored on a scale of 1-3 with 1 representing less than a third of the area (<33%), 2 representing a third to two-thirds (33-66%) and 3 representing more than two-thirds (>66%) of the area of the quadrat.

**Table 2.** DOMIN scale of cover abundance.

DOMIN	Percentage cover
1	<1%, 1-2 individuals
2	<1%, several individuals

3	1-4%
4	5-10%
5	11-25%
6	26-33%
7	34-50%
8	51-75%
9	76-90%
10	91-100%

### Management

If possible, participants should note any obvious recent management apparent at the time of the survey such as grazing, burning, tree-felling/coppicing, mowing, exclusion of grazing animals, tree-planting, ditch clearance, hedge-laying, water regime regulation, etc. The presence of faeces should be used as a proxy for grazing animals. Field observations should be supplemented with more detail where known, such as the recent history of grazing on the site, or the ditch maintenance regime.

Aspects of habitat condition included on the recording form include grazing intensity and the cover of shrubs and potentially competitive species. Each should be scored as low, moderate or high. Guidance on these categories is given in Table 3.

**Table 3.** Guidance on scoring the levels of grazing and shrub and competitive species cover.

	Low	Moderate	High
Grazing	Little or no evidence of grazing animals and the vegetation tall often with shrubs and trees present. Most herbs and grasses with flowering stems.	Evidence of grazing animals present but often a mix of long and short areas of vegetation. Most herbs and grasses with flowering stems.	Vegetation very short with visible signs of livestock being present (dung, water supply, etc.). Many species unable to flower.
Shrubs	<5% cover	5-30% cover	>30% cover
Competitive species	Vegetation often species-rich with no species with >30% cover	A mixture of more species-rich vegetation with no species with >30% cover and ranker areas with some species with >30% cover	Vegetation species-poor and dominated by a few species with >30% cover throughout

The height of the vegetation where a population occurs should also be recorded within the following height classes: <10cm, 10-30cm, 30-100cm, 101-300cm, >300cm. Each class should be scored on a scale of 1-3 with 1 representing less than a third of the area (33%), 2 representing a third to thirds (34-36%) and 3 representing more than two-thirds (>66%) of the area of the quadrat.

### Threats

Participants should **record any factor that they perceive as a threat** to the target species during the course of their visit. These could be direct threats such as destruction of habitat as

a result of construction, natural factors, burning or improvement or indirect threats such as scrub encroachment, presence of invasive species (both native and non-native), lack of grazing, or pollution. The 'threats' section should also be completed where a target species was not refound, as these will help to explain why a species has been lost from a site.

#### *Site history*

Often recorders will have an intimate knowledge of the botanical sites in their county having visited them many times. They are therefore likely to have a good understanding of the factors that have influenced the abundance of a species on a site such as changes in ownership or management, and severe events such as fires, floods, and droughts. This information should be captured briefly in site history. This can also be used to provide information on population sizes in the past or, in the case of null returns, the year the species was last seen.

#### ***Access permission***

Permission is rarely required in Scotland, but check [Scottish Outdoor Access Code](#) for specific guidance.

#### **References**

Walker, K.J., Stroh, P.A. & Ellis, R.W. 2017. *Threatened Plants in Britain and Ireland*. Botanical Society of Britain and Ireland, Bristol.