

TROOPERS HILL PROPOSED FOOTPATH IMPROVEMENTS

INITIAL ECOLOGICAL REPORT

1 INTRODUCTION

The aim of this report is to provide an initial assessment of proposals to improve steps and footpaths on Troopers Hill, in particular to a flight of steps on the south facing slopes of the hill below the chimney. It is envisaged that a more detailed report will be produced in May 2011, after detailed design of the proposals and ecological survey work.

Troopers Hill is a Local Nature Reserve (LNR) and Site of Nature Conservation Interest (SNCI). It is of high nature conservation value for its heathland and acidic grassland plant communities and for its populations of invertebrates. The Hill is managed by Friends of Troopers Hill and Bristol City Council to maximise its biodiversity and amenity value.

2 PROPOSALS – MAIN STEPS

A variety of options for works is being considered. Most of these involve relatively minor alterations to existing paths and steps, which are unlikely to have any significant ecological impact.

Ecological concerns focus on proposals being considered to rebuild a major flight of steps in the southern part of the Hill, along a major footpath leading up a steep slope between Crews Hole Road and the chimney. Concerns have been voiced for many years (at least since 1986) that public access is creating a large and increasing area of bare and trampled soil on this slope. However, photographic monitoring has shown that this zone of bare and partially bare soil is not consistently increasing in extent; rather it appears that its size is determined by weather conditions, shrinking in wet years and expanding in dry years. Moreover, a series of surveys has shown that the bare and partially vegetated slopes in this area are a key feature of importance for invertebrates, including large and diverse populations of burrowing bees of the genus *Andrena*, and a good population of the bee-fly *Bombylius discolor*, which is a parasite of these bees and a UK Biodiversity Action Plan (BAP) priority species. The bare areas are kept open by a combination of moderate trampling, the steep slopes and the very poor nature of the underlying substrates. This slope has the largest and most important area of this habitat type on the LNR.

Steps were constructed on the slope in 1991, following ecological survey. Provision of these steps did not appear to have a marked impact on the extent of the bare ground, or on other features of ecological importance on the Hill, but they did allow greater numbers of people to enjoy the site and added to its

amenity value (a key feature in the management of LNRs). The steps are now, twenty years after construction, in a poor and deteriorating condition.

2.1 Options for Steps

The options for these steps being considered by Friends of Troopers Hill are as follows:

- a. Do nothing and allow the steps to further deteriorate.
- b. Remove the steps completely and allow people to find their own desire lines.
- c. Rebuild the steps to a similar design to the original 1991 construction.
- d. Rebuild the steps as above and add a handrail.
- e. Rebuild the steps to full DDA standards with handrails both sides, this would probably require a revised route to allow sufficient landings and even step spacing.

2.1.1 Implications of Options

Options a and b would, in the long term, probably have a similar impact, although this impact would be seen more quickly if option b was chosen. As the steps deteriorated people would be forced to find their own routes up the hill. This would mean that some areas that at present are lightly trampled and suitable for burrowing bees and other insects would be heavily trampled, whilst light trampling would extend into further areas of grassland. The net result would probably be that the area of insect habitat would remain similar, but at the expense of areas of grassland.

These options would probably have a slight adverse ecological impact, as well as a marked adverse impact on the amenity value of the LNR.

Option c would leave the situation much as it is today and would not have any significant ecological impacts, apart from the potential for slight impacts as works are carried out.

Option d would also have very little ecological impact, although establishment of footings for the handrail would involve greater opportunities for adverse impacts as some excavation would be required.

Option e would require further landtake for path construction. Careful design and routing of the path could minimise these impacts to some extent but it would be difficult to avoid adverse impacts as flat steps would have to be created in this area of key biodiversity value.

In summary, options a and b would have some minor adverse ecological impact, but a major adverse impact on amenity. Options c and d would have no ecological impact or a very slight impact, and option e might have a more significant adverse impact.

2.1.2 Construction Details

Options c and d would involve surfacing the steps. There are different surfacing methods that could be used:

i) Limestone aggregate with dust binding or resin bound surface. Much of the biodiversity interest of Troopers Hill is a result of the highly acidic soils, which support distinctive and unusual plant communities. Use of limestone, which has a high pH, would potentially alter the nature of these soils and therefore the vegetation, although any effects would be highly localised and there are areas of the hill where a similar effect can already be seen, and it could be argued that this has introduced ecological diversity. So long as the aggregate could be immobilised, for instance through use of resin surfacing, this method would probably not have a significant adverse impact. Whilst an increase in pH might change the species composition of small areas of grassland it would not change its structure, and therefore not have a significant impact on the key insect populations.

ii) Plastic grid with grass growing through. This method would appear more acceptable. However, it is unlikely that either turf or seed would establish readily without topsoil being imported. Topsoil would allow more vigorous vegetation to become established and it would be difficult to contain the more fertile soil within the steps. This option would therefore involve the possibility that a zone of lush grassland would become established alongside the path. This would deprive invertebrates of an area of the bare ground or very sparse vegetation that they require, and may shade adjacent areas to some extent. It might therefore have some adverse impact in a more widespread area. It is therefore considered that this would potentially have a more significant adverse impact than would the use of aggregate. If seeding is required in any area then fine grass species should be used, the most suitable being Chewing's fescue (*Festuca rubra ssp commutata*), which is clump forming but does not spread like some other commercially available fescues. Common bent (*Agrostis capillaris*) would also be acceptable but might not be sufficiently hard-wearing.

Concrete is relatively inert and its use for footing would probably not have any impact beyond that of the actual loss of small patches of vegetation.

2.1.3 Construction Methods

There are no items of environmental legislation that affect the proposed works, apart from the requirement to safeguard the nature conservation and amenity value of the LNR.

The timing of the works is probably not crucial; since life stages of the key invertebrates will be present in the ground throughout the year. The ground is very free-draining and therefore not vulnerable to water-logging and consequent compaction.

The main constraint on construction methodology would be the need to carefully site all works, including tipping areas from excavation and features such as compounds would also need to be carefully sited. The working corridor would have to be kept as narrow as possible and the importance of protecting a superficially unattractive habitat impressed on contractors.

2.2 Summary

In summary it should be possible to replace the steps, either with or without a handrail, without significant adverse impact, provided that working methods and routes are carefully designed. The use of a limestone aggregate would probably have lower impacts than importation of topsoil. Construction of steps to DDA standards would have a greater adverse impact, even with careful design, and might damage a key feature of Troopers Hill's biodiversity interest.

3 OTHER PROPOSALS

An initial assessment suggests that the other proposals should not have any significant adverse ecological impact. The aim of waymarking paths through the Crews Hole woodland would be to increase visitor numbers on the hill. This in line with the amenity aims of LNR management and is unlikely to have any significant adverse impact. A relatively high level of public use is beneficial to the Hill's habitats, since it maintains areas of short and sparse grassland in the absence of grazing or mowing. The main adverse impact associated with public access is dog fouling, which raises soil fertility, but it seems unlikely that the proposals will lead to a significant rise in the level of fouling.

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March 2011