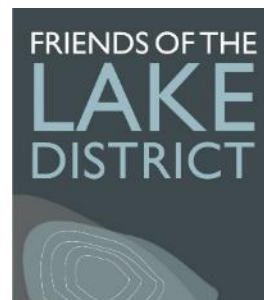

Control of infestations of Himalayan balsam in the Rothay Catchment



Report for 2021 and Proposals for 2022 and beyond

November 2021

Report produced by SCRT Volunteer



Executive Summary

There is a major infestation of the invasive non-native species Himalayan Balsam (HB) in the upper catchment of the River Rothay, at the very heart of the Lake District National Park. It extends from Grasmere downstream to Miller Bridge, Ambleside.

As in past years, nearly all major landowners with affected land contributed resources to assist in the control, and support was provided by householders and the local community, as well as volunteers drawn from far and wide. This year, strimming of some patches preceded a major Fight the Aliens Day (with around 55 participants). A programme of mini-bashes then followed, occurring every 2-3 weeks until the end of September; the focus of these was mainly at White Moss. Many thanks are due to the small band of experienced group leaders who each turned out on several occasions to lead work parties.

Inputs in total were around:

- 38.5 hours of strimming time; and
- Nearly 440 person hours of pulling (mainly at Rydal/White Moss).

These estimates relate to time spent in-the-field only. Strimming costs are estimated at between £770 and £1,000. The volunteer inputs have a putative value of around £5,400. They do not include time spent travelling to/from site, survey work (unless as part of a 'pull') and volunteer time spent on management/organisation. Additionally £1,050 was spent by SCRT staff time to organise the events. This is a very impressive performance and thanks are due to many people for making it happen. A list of those due acknowledgement and thanks is provided in **Section 4**.

The overall assessment is that:

- There has been significant progress in 2021;
- ALL PATCHES show significant improvement from previous years;
- Relatively few plants have been allowed to set seed this year;
- Prospects for 2022 are that far fewer HB plants will germinate and require control.

In 2022, it is proposed to follow a similar pattern of control provided that we continue to receive support from all who helped this year (see **Section 4**).

By 2023, the infestations in the whole area covered by this report are expected to be at a minimal level and control will take the form of 'vigilance'. For this, a small dedicated team of a few suitable individuals will be needed to make regular patrols of the patches, pulling any plants they see. During this winter and next year, attempts should be made to recruit these vigilantes and provide support and training so that they are ready to act in spring 2023.

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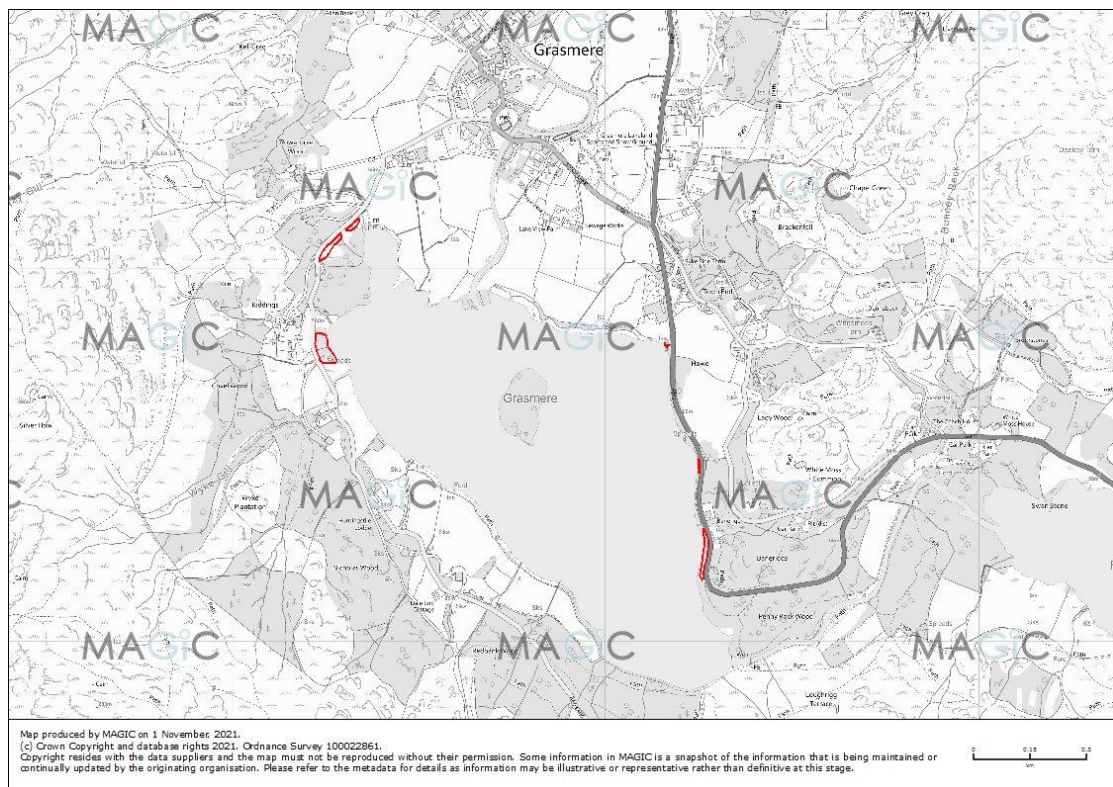
1. Introduction

Control of Himalayan balsam (HB - *Impatiens glandulifera*) in the Rothay catchment has been in progress for five years now. The area discovered to have been infected has expanded over this time and so too has the application of the control measures, especially over the last three years (2019-2021).

As of late 2021, the extent is thought to be as shown in **Maps 1.1** to **1.4**, below. These cover Grasmere, White Moss, Rydal and Under Loughrigg respectively. The downstream limit of the area covered by this report is Miller Bridge, Ambleside.

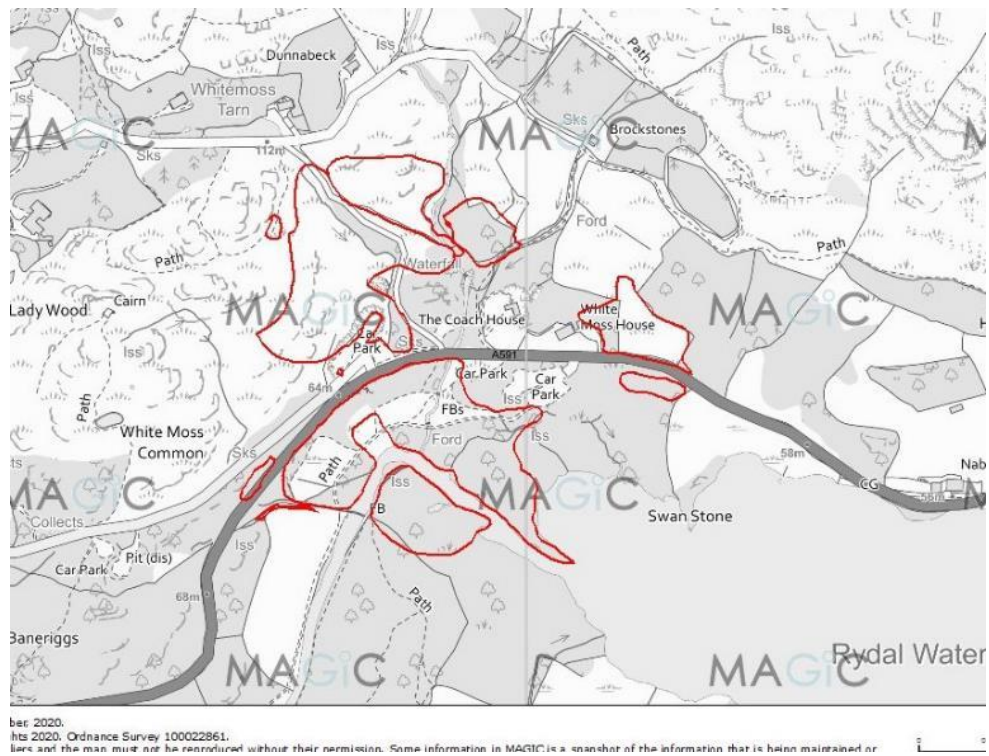
The main patches of infestation are shown ringed in red, although density of HB plants will vary within each patch. In addition to the areas ringed in red, ‘outliers’ – individual or small groups of plants – have been observed. Perhaps the most worrying are those near the ‘Coffin Route’, suggesting that the infestation is spreading uphill and not just by seeds transported in water flows.

Map 1.1: Known extent of balsam in autumn 2021 at Grasmere

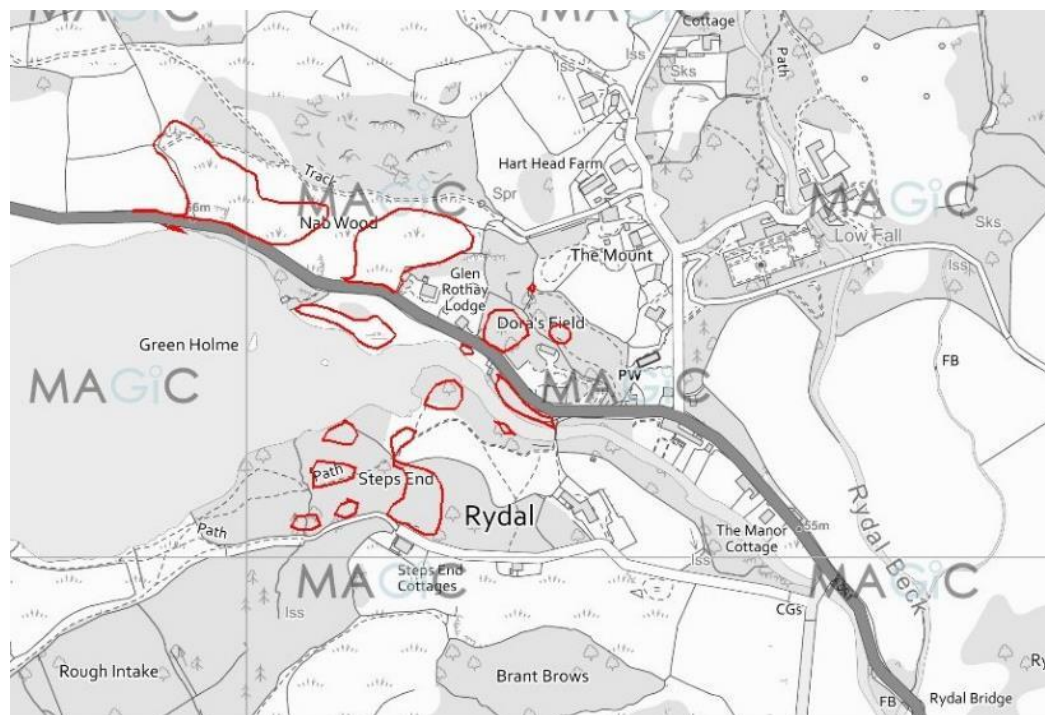


Note that scales of the maps vary.

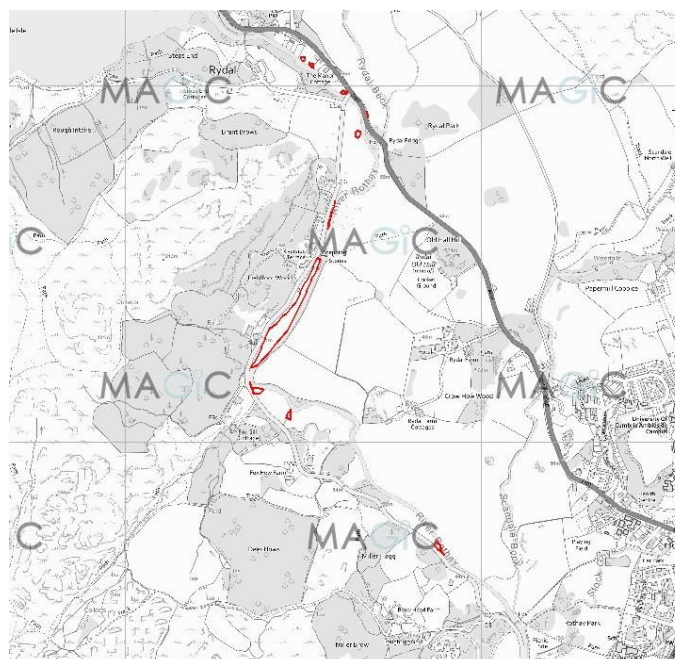
Map 1.2: Known extent of balsam in autumn 2021 at White Moss



Map 1.3: Known extent of balsam in autumn 2021 at Rydal



Map 1.4: Known extent of balsam in autumn 2021 at Under Loughrigg



Imbex 2020.
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ppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being ma
ing organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.



While it remains possible that further infestations will be found, they are likely to be small in extent (but possibly hard to spot as a result until they become larger). There is a need to remain open to the possibility of further discoveries and continued vigilance is required.

2. Activities in 2021

2.1 Introduction

It is good to report that actions to control the HB occurred in all the patches reported in Section 1. The continuing support of most of the major landowners with affected land (C&S Hodgson, Lowther Estate, Rydal Estate, National Trust) is encouraging and all contributed in cash or in kind to the control programme. Land ownership at Grasmere is more fragmented (especially on the western shore) and Sharon (Savasi) is to be congratulated on her efforts to persuade all property owners with affected land to allow access for HB control work.



The approach to tackling HB at White Moss this year was slightly different than previous years. Until this year, the infestation here was so extensive and dense that it proved impossible to cover all areas for long enough to really get on top of the infestation. So, this year, the approach was to hold the 'Fight the Aliens Day' in mid-July (preceded by strimming of the densest patches) but with a programme of follow-up days which focused primarily on White Moss. These events were about 15 -18 days apart, which meant that effort could be diverted to wherever they were most needed. A fighting fund was also available to allow a strimming contractor to be engaged at one point, when it appeared that the HB was gaining the upper hand.

In other areas, ad hoc pulling was undertaken by various volunteers, as and when necessary.

More detailed accounts for each area are given below.

It should be noted that estimates of inputs relate to time spent in-the-field. It does not include time spent travelling to/from site, survey work (unless as part of a 'pull') and management/organisation effort spent in the office. The last of these burdens fell mainly onto SCRT volunteers, SCRT and FOLD staff.

2.2 Grasmere

Activities around Grasmere were organised by Sharon Savasi. Three pulls were conducted, in mid-July, mid-August and late September. Each pull was attended by 2 or 3 people, making a total of 18.5 hours of pulling time. A further 0.5 hours of strimming time was deployed in support.

The infestation alongside the A591 was reported mid-season. A quick response was made, with 1.25 hours of inputs over two visits resulting in around 85 plants being destroyed before any seed heads had ‘popped’.

With respect to the known areas, few plants have been allowed to shed seeds onto the ground this year – which augurs well for 2022. A word of caution, though – in this area of fragmented land ownership, the possibility remains of further infestations as yet undiscovered.

2.3 White Moss

2.3.1 Cutting

Cutting activities preceded, and were separated from, hand pulling giving advantages both in health and safety as well as adding to effectiveness of effort. The strimmers in early July were provided and funded by Lowther Estate. Further strimming was undertaken in August by a different contractor.

Patches strimmed were:

- In early July: Patches 10, 11 and 12;
- In mid-August: Patches 10 and 11;

In total, about 5 person days of effort were spent on strimming (down from 13 in 2020).



2.3.2 Fight the Aliens Day – 10th July 2021

Pre-planning

Pre-planning followed a pattern similar to 2020. FOLD took the lead in publicising and recruiting for the event, although other organisations (e.g. the National Trust) advertised the event on their website and directed interested individuals to the FOLD website. The day of the ‘big bash’

unfortunately occurred during the height of the Covid ‘pinging epidemic’, resulting in a significant drop out of volunteers on the day of, and day before, the event.

Activities on the day

On 10th July, the volunteer ‘army’ was divided into 11 groups, each with a leader experienced in leading groups for HB pulling. Eight of the groups were deployed at White Moss. This should have totalled 47 volunteers plus 8 leaders but last minute drop outs reduced this to about 35 plus 8 leaders.

Most groups got to work by 09.30 and continued through until lunchtime. This year, we were able to re-instate the ‘tea and cakes’ post-event gathering, which was hosted by Chris and Sharon Hodgson.

Inputs can be summarised quantitatively:

- 35 hand pullers;
- 8 group leaders;
- 1 organiser with no specific group.

This adds up to 44 half days of volunteer effort, each of about 3.5 hours (154hrs). Outputs and outcomes are discussed at **Section 2.6** below.



2.3.3 Extended programme – July - September

A decision was taken to have a series of follow-up events, the organisation of which would be determined as the season progressed. However, by setting the programme dates well ahead of schedule, it was possible to secure the help of sufficient experienced group leaders and encourage other volunteers to be more active should they so wish. As a result, several new enthusiasts have emerged. Follow-up events took place as follows, with numbers and deployment shown in **Table 2.1**.

Table 2.1: Scale and location of follow-up activities

Date	Numbers	Patches
23 rd July	7	9, 10 and 11
10 th August	12	7, 8, 9, 10, 11 and 12
25 th August	12	11 and 12
9 th September	6	7, 8, 9, 10, 11 and 12
27 th September	11	7, 8, 9, 10, 11 and 12

At the 10th August event, 4 plants were pulled from behind the waterfall in the disused quarry that now forms White Moss upper car park. These were reached by abseil.

This amounts to 48 half days, each of about 3.5 hours (168hrs). In addition, various ‘ad hoc’ visits were made by individuals, totalling about 8 hours.





2.4 Rydal

2.4.1 Cutting

It is pleasing to report that there is now insufficient HB to justify machine cutting – it is easier (and more effective) to hand pull.

2.4.2 Fight the Aliens Day – 10th July 2021

Pre-planning

See above.

Activities on the day

Of the 11 groups, each with a leader experienced in leading groups for HB pulling, three were deployed at Rydal. This should have totalled 14 volunteers plus 3 leaders but last minute drop outs reduced this to 10 plus 3 leaders.

Most groups got to work by 09.30 and continued through until lunchtime. This year, we were able to re-instate the ‘tea and cakes’ post-event gathering, which was hosted by Chris and Sharon Hodgson.

Inputs can be summarised quantitatively:

- 10 hand pullers;
- 3 group leaders;
- 1 organiser with no specific group (not counted in total below, as it was counted in the White Moss total).

This adds up to 13 half days of volunteer effort, each of about 3.5 hours (45.5hrs). Outputs and outcomes are discussed at **Section 2.6** below.

2.4.3 Extended programme – July - September

As noted above, much of the focus after Fight the Aliens Day was at White Moss. This was made acceptable because of successful efforts in previous years to get on top of the infestation here at Rydal. It was not neglected however. A series of ad hoc visits were made during this period, plus the Rydal patches were included in the programmed bash on 27th September. This amounted to some 20 hours, spread across the three month period (excluding the Fight the Aliens Day).

In addition:

- the National Trust deployed staff and volunteers in Dora’s Field on maintenance work, which included HB pulling;
- the head gardener at Rydal Mount dealt with a small but persistent infestation in their gardens.

Time inputs specifically for HB pulling are not known for these two organisations.

2.5 Under Loughrigg

2.5.1 Cutting

This area lies between the foot bridge near Badger Bar (the lower limit of the efforts at Rydal – see above) to Miller Bridge, Ambleside. Jane Moreland took the lead and co-ordinated efforts.

It is pleasing to report that there is now insufficient HB to justify machine cutting – it was easier (and more effective) to hand pull. HB was late to appear this year and was significantly less widespread and thinner on the ground than in 2020, especially where last year’s pulling efforts had been focused (such as the large water meadow). Work at The Priory had significantly reduced the infestation in the garden and the owners of Fox Ghyll had trimmed brambles over the winter which made access in the early part of the season easier. The late season did make pulling quite a challenge once HB emerged in thick undergrowth north of the stepping stones and at Fox Ghyll, with one large plant ‘guarded’ by a wasps’ nest.

Liaison with the National Trust led to the identification of scattered infestations in two fields and a patch was identified near Rydal Beck. Overall the reduction in HB meant that after the initial

working party, Under Loughrigg could mostly be managed by one person, with support for some of the difficult sections and stretches of the riverbank accessible only from the river.



Volunteers worked for over 22 hours of pulling and 0.5 hours of strimming.

A further positive note is that a single specimen of the native Touch-me-not balsam was discovered in the wet meadows.

2.6 Results

2.6.1 Total Inputs

Total inputs are shown in **Table 2.2** below.

Table 2.2: Summary of inputs in 2021 (field work only)

Event	Volunteer time (hrs)	Strimmer time (hrs)
Grasmere ad hoc	19.75	0.5
White Moss (FtAD)	154	30
White Moss (mini-bashes)	168	7.5
White Moss ad hoc	8	-
Rydal (FtAD)	45.5	-
Rydal (ad hoc)	20	-
Under Loughrigg as hoc	22	0.5
Total	437.25	38.5

The value of the volunteer time can be put at £5,367.5 (using a standard value of £10/hr for unskilled hand pullers and £20/hr for group leaders). Hiring a contract trimmer for a day costs between £150 and £200, so the value of the strimming can be estimated at between £770 and £1,000.

In addition to time in the field, SCRT volunteers also committed substantial amounts of time (cumulatively – given that many volunteers came to several events) in the form of:

- Planning events;
- Reading briefing materials
- Travelling to and from the sites.

As noted earlier, the events were hosted by either FOLD or SCRT. Although much of the planning was done by volunteers, time was devoted by staff from both organisations to the event. SCRT estimate that they expended 3 days of person time, amounting to £1,050.

2.6.2 Outputs/Outcomes

One key measure of impact is the area of HB infestation subjected to control measures. This is now estimated to be over 10 ha (25 acres). Each patch has received multiple visits, so the cumulative area pulled/trimmed extends to many times this.

It is no longer relevant to measure success in terms of numbers of HB plants destroyed. It is better to focus on numbers of plants that remain, and even more specifically the number of plants allowed to mature to a point where seed pods ‘popped’ and seeds hit the ground. It is impossible to give anything but an educated guess but valuable nonetheless. So, with suitable caveats about the level of confidence, it can be said that:

VERY FEW PLANTS WERE ALLOWED TO SET SEED THIS YEAR

The significance of this statement should not be under-estimated. If no new seeds are added to the seedbank, then the infestation will go into steep decline. Most of the patches around Rydal reached that state in 2020. There is reason to hope that other patches in the Rothay catchment down to Miller Bridge will have reached the same state in 2021. **Table 2.3** below provides a ‘best estimate’ of the status for each patch/sub-patch as at October 2021.

Table 2.3: Status of each patch – October 2021

Patch	Summary of Treatments	Final state
Polly's Patch	Pulled three times	95+% control – very few mature seeds hit the ground from popping
Boat Hire	Strimmed in August Pulled three times	95+% control – very few mature seeds hit the ground from popping
A591/ Grasmere	Pulled twice	95+% control – a few mature seeds hit the ground

WM (7)	White Moss House - Garden was hand pulled on 3 occasions Field was hand pulled/slashed on two occasions	White Moss House garden and roadside verge: 95+% control – a few mature seeds hit the ground (behind the house) Field: 95+% control – a few mature seeds hit the ground, although risk of smaller plants having seeded in the high bracken
WM (8)	Hand pulled three times between July and September.	95+% control – a few mature seeds hit the ground (mainly in one spot which had previously been missed) , although risk of smaller plants having seeded in the high bracken
WM (9)	Hand pulled four times between July and September.	95+% control – a few mature seeds hit the ground (mainly around the fallen oak tree), although risk of smaller plants having seeded in the high bracken
WM (10)	Most parts strimmed in July and again in August Pulling took place somewhere on this patch on 6 separate occasions. Quarry face cleared by abseil once	95+% control – a few mature seeds hit the ground (mainly around the fallen oak tree), although risk of smaller plants having seeded in the high bracken
WM (11)	Some parts strimmed in July and again in August Pulling took place somewhere on this patch on 10 separate occasions.	This is a large complex patch but, overall, 95+% control – a few mature seeds hit the ground Nothing was done to control plants growing on the river banks
WM (12)	Some parts strimmed in July and again in August Pulling took place somewhere on this patch on 3 separate occasions.	This is a large complex patch but, overall, 85/90+% control – some mature seeds hit the ground Nothing was done to control plants growing on the vertical sides of the river banks
Rydal (1)	Sweep through on 6 occasions between June and October	C100% control – as confident as one can be that no mature seed hit the ground
Rydal (2)	Sweep through on 6 occasions between June and October	C100% control – as confident as one can be that no mature seed hit the ground
Rydal (3)	Sweep through on 6 occasions between June and October	C100% control – as confident as one can be that no mature seed hit the ground
Rydal (4)	Above Glen Rothay Hotel - Sweep through on 6 occasions between June and October Dora's Field – Hand pulled twice plus by NT Rydal Mount – Hand pulled twice (?)	95+% control – a few mature seeds hit the ground
Rydal (5)	Hand pulled frequently (5 or 6 times) through July to September	95+% control – a few mature seeds hit the ground, although risk of smaller plants having seeded in the high bracken
Rydal (6)	Hand pulled frequently (5 or 6 times) through July to September	95+% control – a few mature seeds hit the ground, although risk of smaller plants having seeded in the high bracken
Under Loughrigg	Pulling took place on 3 separate occasions Area by Rydal Bridge strimmed once	C95+% control – as confident as one can be that no mature seed hit the ground

In past years, the effect of our efforts has been demonstrated by 'before' and 'after' pictures. Given the much lower levels of infestation now being encountered, such comparisons are no longer as dramatic as before. More telling is to show comparisons of the situation prior to us

commencing our efforts in 2018 or 2019 and the situation prior to Fight the Aliens Day in 2021. A series of pairs of pictures are included below. Obviously, these have been picked to show the beneficial effects but this reduction in the infestation is evident at most patches but photographs are not available to make the comparison.

Photos - Patch 1 (July 2019 on the left, July 2021 on the right)



Photos - Patch 6 (2018 on the left, 2021 on the right)



Photos - Patch 7 (2018 on the left, 2021 on the right)



The overall assessment is that:

- There has been significant progress in 2021;
- ALL PATCHES show significant improvement from previous years;
- Very few plants have been allowed to set seed this year;
- Prospects for 2022 are that far fewer HB plants will germinate and require control.

3. Proposals for 2022 and Beyond

3.1 Proposals for 2022

Assuming we now know the full extent of the HB, then proposals for 2022 should recognise the likelihood that there will be far fewer plants to deal with, albeit spread across a more or less the same area.

A phased approach is proposed again for next year, involving:

- strimming once, possibly twice depending on season in Patches 10, 11 and 12;
- hand pulling using volunteers in a re-run of 'Fight the Aliens' day (in mid-July);
- development of a programme of frequent visits (say every 2-3 weeks) between early August and October (depending on season) involving small groups of volunteers, as per 2021. It is hoped that SCRT recruitment efforts will be supplemented by those of FOLD, the National Trust and possibly LDNPA.

On the assumption that plant density will be even lower in 2022 than 2021, then resource requirements are for:

- Maximum of 4 person days of trimmer time (in cash or in kind);
- Around 40-50 volunteers for a Fight the Aliens Day (provisional suggestion of Saturday 16th July), hosted by FOLD;
- Around 8-12 volunteers for a series of mini-bashes (hosted by SCRT);
- Specialist support for abseiling down the quarry face (probably just once) and canoe access to the river banks on Patches 11 and 12 (probably on 2 or 3 occasions).

Two experienced canoeists have volunteered to tackle the river banks, but their deployment is dependent on SCRT being able to complete risk assessments and gain clearance from insurers (which we hope/expect will be complete by early 2022).

3.2 Proposals for 2023 and Beyond

It is anticipated that by 2023, the infestation will have reached a stage where no further Fight the Aliens Day or large work groups will be needed. Vigilance will be the key – pulling the relatively few plants that emerge and not letting ANY plants go to seed. What this will mean in practice is for an individual, or more likely several individuals would walk around their patch(es) several/many times during the season, pulling any plants they see. Ideally, the people doing this would:

- Live locally
- Be 'self-starting' (dog owners would be ideal because of the need to take their dog out each day)

- Be reasonably mobile and happy to work on their own
- Be enthusiastic to the point of paranoia about controlling balsam
- Maintain links with landowners and SCRT
- Report back to SCRT and seek help with difficulties (e.g. a need to abseil).

Training and support would be made available by SCRT and current volunteers.

This proposal can and should be reviewed at the end of 2022 but effort should be made to recruit and train suitable people during the next year. To this end, some sort of campaign needs to be launched, through (for example):

- The local parish council
- SCRT
- LDNPA/NT/FOLD
- Westmorland Gazette article
- Local landowners and tenants
- SLDC

4. Acknowledgements

The progress made this year has been the result of help from many diverse organisations and individuals. With apologies to anyone omitted, and in no particular order of priority, thanks are due to:

Who	Affiliation	What
Volunteers	Recruited by FOLD and SCRT	Pulling balsam!!!
Ken and Ros Taylor	SCRT volunteers	Organising and co-ordination of all the events
Jayne Wilkinson and Kath Smith	SCRT	Management of events from SCRT perspective and group leader
Ruth Kirk and colleagues	FOLD	Management of events from FOLD perspective and group leader
Julian Lambton	Rydal Estates	Financial and moral support, provision of access
Andy Whitworth and his team	Lowther Estate	Provision of contract workers, access to sites, car parking
Chris and Sharon Hodgson	Rydal Farm	Enthusiastic support of our work, provision of access, free car parking, hosting of 'tea and cake' post-pulling events
Judith Furniss	Glen Rothay Lodge	Free parking, access to sites
Caroline Langham	Cote Howe	Access to sites
Mr and Mrs Walker	Rydal Holme	Access to site
Peter and Sue Dixon	White Moss House	Access to site, free parking
Helen Lancaster	Lake District NPA	Access to site
Neil Winder, Sarah Anderson	National Trust	Access to site, pulling at Dora's Field
Yvonne Cannon, Judith Wallen, Mary and Ian Chapman, Paul Woods, Janet Antrobus, Richard Langthorp	SCRT Volunteers	Leading groups (each at several events)
Steve Livingston	SCRT Volunteers	Abseiling and leading groups
Paul	Badger Bar	Access to site
Helen Green	Rydal Mount	Pulling balsam in Rydal Mount grounds
Roland Wicksteed	Independent Volunteer	Support with pulling throughout the season – on many occasions
Sharon Savasi	SCRT Volunteer	Lead in the Grasmere
Jane Moreland	SCRT Volunteer	Lead in the Under Loughrigg area, leading groups
Giles Archibald	SLDC	Financial support
