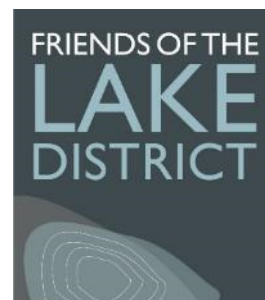

Control of infestations of Himalayan balsam in the Rothay Catchment



Report for 2022 and Proposals for 2023 and beyond

November 2022



Executive Summary

The 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, is now mainly under control.

As in past years, nearly all major landowners with affected land contributed resources to assist in the control. This year's Fight the Aliens Day saw around 30 people turn out to pull plants, each group led by an experienced volunteer 'basher'. A programme of mini-bashes then followed, occurring every 2-3 weeks until the end of September, populated mainly by the regular bashers. The focus of these was mainly at White Moss. Many thanks are due to this small band of experienced group leaders who each turned out on several occasions to lead work parties. Total inputs from volunteers was about 270 person hours of pulling.

These estimates relate to time spent in-the-field only. The volunteer inputs have a putative value of around £5,400 (although, because more skill is now needed to identify HB plants from amongst the re-bounding native vegetation, the rate used is £20/hr). 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 £750 was spent by SCRT staff time to organise the events. This remains 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 continues to be significant progress;
- ALL PATCHES show significant improvement from previous years;
- Relatively few plants have been allowed to set seed this year;
- Prospects for 2023 are that far fewer HB plants will germinate and require control.

In 2023, it is proposed to divide the patches into two types. First are those where eradication is becoming a clear target but final extinction depends on maintaining a high vigilance. The aim is to have a named individual who has agreed to take on the role of visiting the site frequently – as often as every 2-3 weeks – to ensure NO PLANTS SET seed. Most of these patches have been allocated but individuals are sought for 2 others. It is hoped that organisations such as SCRT, FOLD and NT could help identify suitable people.

In other patches, the aim will be to 'keep-the-lid' on the infestation. This will require work parties and it is proposed that a series of dates be identified as per the 2021 and 2022 seasons.

Front cover photographs – Patch 6 (Rydal) in 2018 and 2021.

Other pictures taken during bashes in 2022

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1. Introduction

Control of Himalayan balsam (HB - *Impatiens glandulifera*) in the Rothay catchment has been in progress for six 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 years between 2019 and 2021. Three areas of ‘new’ infestation were identified in 2022 (all at White Moss):

- The field alongside Patch 8 – found early enough to pull plants before seeding;
- A section of wet grass/woodland Patch 11C – found too late to prevent seeding;
- An extension to Patch 12 - very thinly infested and plants pulled before they could seed.

These ‘new’ patches are shown in **Map 1.1**.

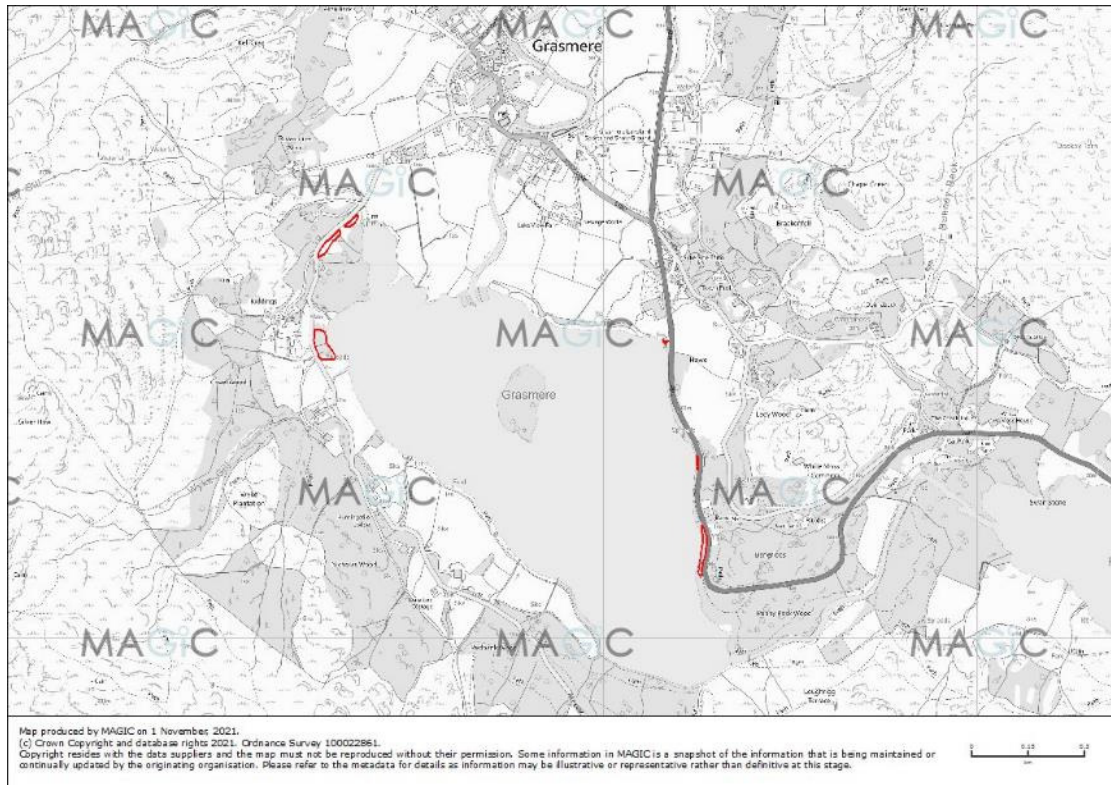
Map 1.1: New areas found during 2022 (all at White Moss)



The footprint of the infestation (i.e. the places that have to be visited and checked) has not really reduced to any significant degree. This is a function of the fact that seeds can remain viable in the soil for several years and so, potentially, plants could still be found anywhere within the established patches. However, the key indicator is not footprint extent but number of plants found within each patch. The infestation is getting sufficiently low in some patches/sub-patches, that it is possible to record and report the number of plants pulled (see **Section 2.4**). In some areas (notably some of the White Moss patches), too many are found to justify counting but numbers are still in decline.

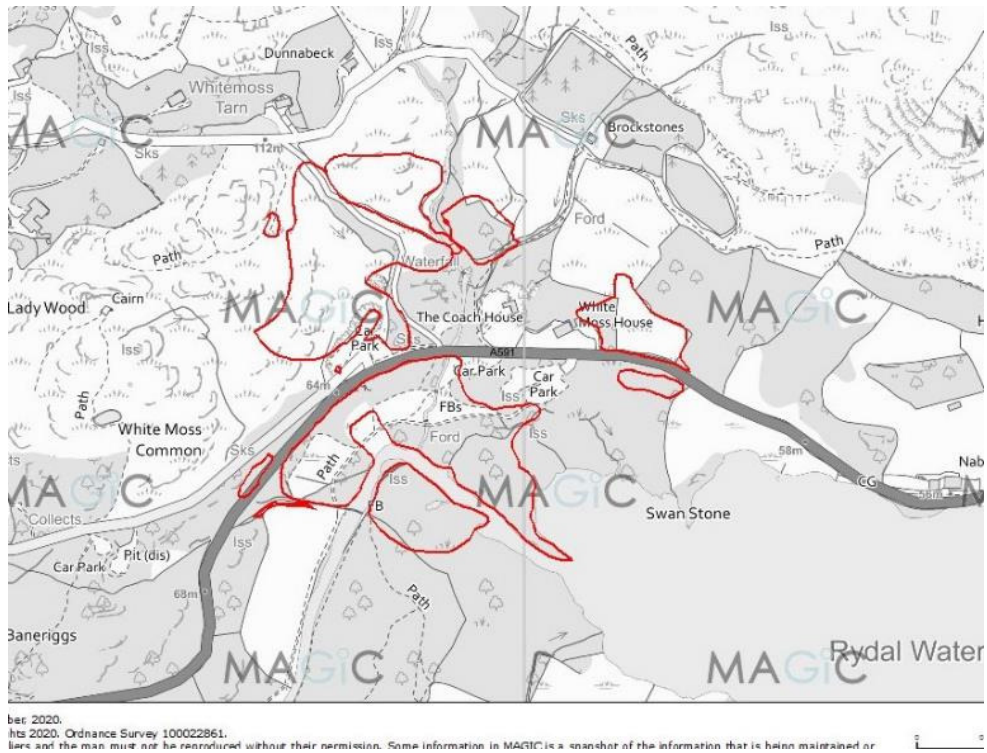
For completeness, **Maps 1.2 to 1.5** below are reproduced unchanged from 2021 (i.e. the ‘new’ areas have not been added).

Map 1.2: Known extent of balsam in autumn 2022 at Grasmere

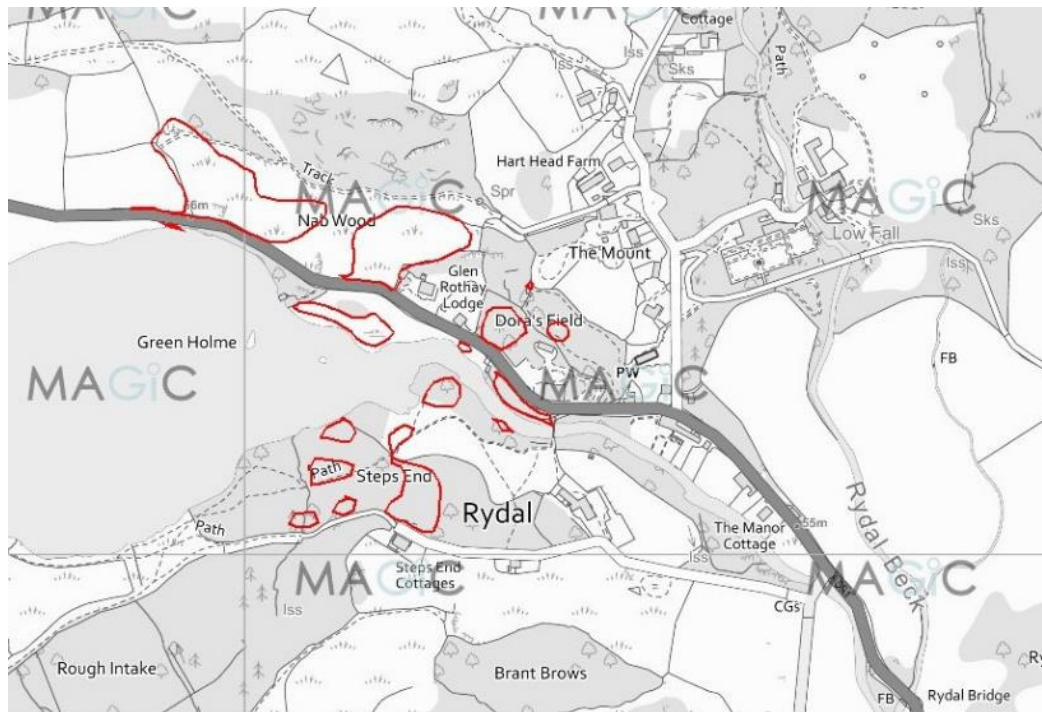


Note that scales of the maps vary.

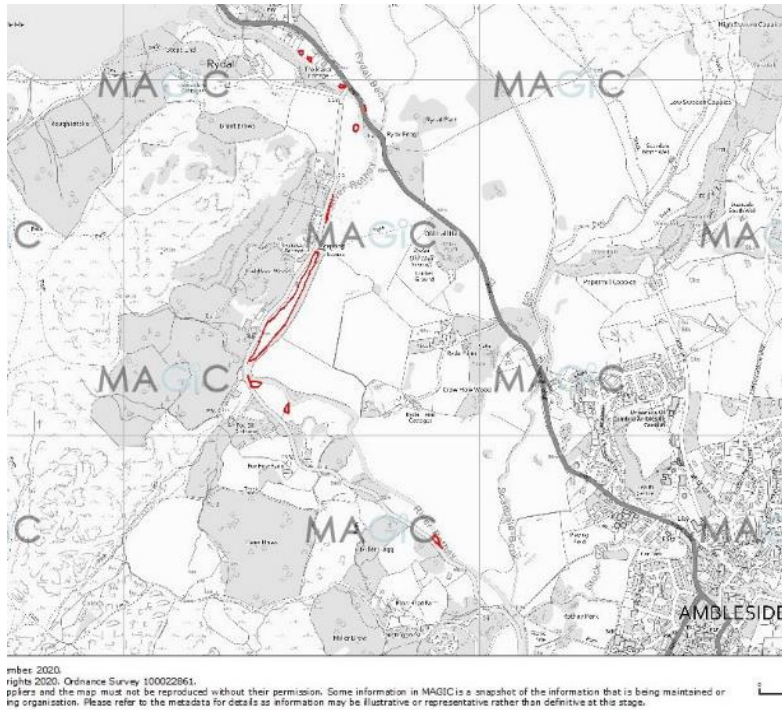
Map 1.3: Known extent of balsam in autumn 2022 at White Moss



Map 1.4: Known extent of balsam in autumn 2022 at Rydal



Map 1.5: Known extent of balsam in autumn 2022 at Under Loughrigg



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 the plants become taller). There is a need to remain open to the possibility of further discoveries and continued vigilance is required.



2. Activities in 2022

2.1 Introduction

HB occurred in all the patches (apart from the new patch alongside Patch 11C). The continuing support of most of the major landowners with affected land (C&S Hodgson, Lowther Estate, Rydal Estate) is encouraging and all contributed in cash or in kind to the control programme. SCRT also received a small cash donation from the Lake District National Park Authority this year. Free parking was provided to some group leaders by the owners of White Moss House. Land ownership at Grasmere is more fragmented (especially on the western shore) and Sharon (Savasi) is to be congratulated on her continuing efforts to persuade all property owners with affected land to allow access for HB control work.

As in 2021, a 'Fight the Aliens Day' was held in mid-July with a programme of follow-up days which focused primarily on White Moss. In contrast to earlier years:

- No strimming was needed;
- The Rydal patches were visited by 2 volunteers on a separate occasion, meaning that effort on Fight the Aliens Day were focused at White Moss and limited to just patches 5 and 6 at Rydal.

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.

It is also worth noting the much smaller and declining numbers of volunteers signing up for the Fight the Aliens Day. In some ways, this is a good thing – there is not enough HB now to justify a large group. However, it signals reducing interest, possibly a result of the successes achieved: it may no longer be perceived as a major problem. It is also likely that pulling conditions are now more challenging – plants have to be tracked down from amongst resurgent native vegetation creating a less rewarding experience.

2.2 Grasmere

Activities around Grasmere were organised by Sharon Savasi. Sharon reports that:

- 20th June – I have walked round to Polly's garden this afternoon, looked over all the walls. I cannot see anything from the wall and certainly no flowers as yet!
- 5th August - 5 of us tackled the balsam on our side of the lake gardens. Good to say both the Fairy tea gardens had little, and although still a lot at the boat house of Silver Howe, not much elsewhere. The other gardens same as usual. However the culprits next to Polly and the following one absolutely full of it and 10foot tall. We spent 2 1/2 hours pulling, before exhaustion overtook us.

- c10th August - One member says he will tackle the lake shore on the main road from the daffodil to Penny rock corner.
- Late August – 4 of us, 2.5 hours
- c20th September - Simon has done the lake shore by the 591. Needed a machete and other tools to get through it, he said!!

In addition, others made visits to the lakeshore (12th July) and Polly’s Patch (8th September).

The timing and scale of activity is shown in **Table 2.1**. Inputs total around 28 hrs.

Table 2.1: Scale and location of follow-up activities (excluding Fight the Aliens Day)

Date	Numbers of volunteers	Patches
20 th June	1	All
12 th July	1	Lakeshore
5 th August	5	North west patches (Polly's and boat hire)
c10 th August	1	Lakeshore
Late August	4	All
8 th September	2	Polly's Patch
c20 th September	1	Lakeshore

2.3 White Moss

2.3.1 Fight the Aliens Day – 16th July 2022

On 16th July, the volunteer workforce of 21 was divided into 6 groups, each with a leader experienced in leading groups for HB pulling. Groups got to work by 09.30 and continued through until lunchtime. We were again treated to the ‘tea and cakes’ post-event gathering, which was hosted by Chris and Sharon Hodgson.

Even so, this adds up to 21 half days of volunteer effort, each of about 3.5 hours (73.5hrs in total).

2.3.2 Extended programme – July - September

Follow-up events took place as follows, with numbers and deployment shown in **Table 2.2**.

Table 2.2: Scale and location of follow-up activities (excluding Fight the Aliens Day)

Date	Numbers of volunteers	Patches
25 th May	2	All
20 th July	2	11+12
25 th July	1	10A

4 th August	5	All
8 th August	5	11+12
22 nd August	8	7+11+12
28 th August	2	8+9+10
23 rd September	8	All

On 8th August, Sten and Angela Sture pulled plants from the riverbanks by canoe. No plants were seen behind the waterfall in the disused quarry that now forms White Moss upper car park, so no abseiling was needed.



This amounts to 33 half days, each of about 3.5 hours (115.5hrs).

2.4 Rydal

2.4.1 Fight the Aliens Day – 16th July 2022

Four volunteers were deployed at Rydal (Patches 5 and 6 only). The group got to work by 09.30 and continued through until lunchtime before heading to Rydal Farm for tea and cakes. The four half days of volunteer effort, equate to a total of 14hrs.

2.4.2 Extended programme – July - September

Further visits were made during the summer; details are provided in **Table 2.3**.

Table 2.3: Scale and location of follow-up activities (excluding Fight the Aliens Day)

Date	Numbers of volunteers	Patches
4 th July	1	1 – 4
6 th July	2	1 – 6
17 th July	1	3c (inputs by Chris Hodgson)
20 th July	1	4
21 st July	1	6
2 nd August	1	1 – 6
22 nd August	2	1 – 6
8 th September	2	1 – 6
19 th October	2	1 - 3

It normally takes only 2 – 2.5 hours to undertake a ‘tour’ of the patches at Rydal now. The total estimated time for these inputs is 25.5 hrs.

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.

Given that numbers of plants found are getting much lower, a record has been kept of the numbers of plants found. The findings are reported in **Table 2.4**. These are not precise figures – it can be easy to lose count when numbers exceed 100 in one pull; different people have pulled and, in some cases, not recorded the numbers pulled (where this is known to have happened, there is a ‘+’ after the figure in the right hand column). Even so, the figures are indicative. It should be borne in mind that these patches would have produced tens of thousands, if not hundreds of thousands of plants prior to our intervention.



Table 2.4: Approximate number of plants pulled by patch

Patch	Sub-patch	Total Numbers Pulled
1	1a	176
	1b	13
	1c	0
	1d	71
2	2a	3
	2b	11
	2c	17
3	3a	8
	3b	202
	3c	62+
4	4a	383
	4b (Dora's Field)	23
	4c (Rydal Mount)	Not known (pulled by gardener)
5		226+
6		331+

When looking at these figures, they can be perhaps grouped into 4 types of patch/sub-patch:

- those which are almost clear of infestation (1b, 1c, 2a, 2b, 2c, 3a, 4b);

- very large patches where infestation is largely under control but care is needed to avoid a resurgence (5 and 6);
- small patches where inadequacies in pulling has allowed a resurgence (1a, 1d, 3c, 4);
- patch with persistent recurrence (3b – previously, this patch was ‘fed’ new seeds from Patch 5 which lies above it).



Those almost clear of infestation are all quite small. In some ways, this highlights the challenge of eradication. Despite repeated visits to such small areas, seeds continue to germinate and create a risk of resurgence. Ideally, these should be targeted hard over the next year to complete eradication.

Similar data are not (yet) available for patches at White Moss because numbers are still too high to count in most areas.

2.5 Under Loughrigg

Jane Moreland took the lead again this year, ably supported by Roland Wicksteed (in 2023, roles will be reversed). She reports as follows:

- 27th June - I didn't dare get into the river yesterday, it was really in spate. I found a total of just 100 HB plants along my patch which was an amazing reduction compared to previous years at this time. The continued pulling is doing the trick!
- 11th July - Last evening I did another trawl along Under Loughrigg, this time using waders, and found about three dozen plants along the river edge of the dense thicket near the stepping stones - you and Ros helped me there last year. Otherwise all is looking good for the time being at least. I still haven't been along to the Hermitage, which was bad in previous years
- 8th September - We trawled 90% of the patch from the Badger Bar to Miller Bridge by 12:30 (Roland will check the final field) and found around 100 plants in total, a lot of them at the Hermitage as expected. Otherwise random plants mostly in the usual black spots, a few monsters and quite a few popping. A good pile was left by the barn.

In addition, 2 plants were pulled from the roadside patch near the confluence of Rydal Beck and River Rothay.

Jane concludes by saying “Overall I'd say it's a success story with many stretches completely clear.”

Estimated volunteer input was 12 hours of pulling. Using the data gathered, around 238 plants were destroyed.

2.6 Results

2.6.1 Total Inputs

Total inputs are shown in **Table 2.5** below.

Table 2.5: Summary of inputs in 2022 (field work only)

Event	Estimated volunteer time (hrs)
Grasmere	28.0
White Moss (FtAD)	73.5
White Moss (other)	115.5
Rydal (FtAD)	14.0
Rydal (other)	25.5
Under Loughrigg	12.0
Total	268.5

The value of the volunteer time can be put at £5,370 (using a standard value of £20/hr for all volunteers, given that they are now required to be able to identify HB from amongst resurgent native plants, and nearly all of the inputs are now from group leaders). This is virtually the same as last year in terms of value (£5,367.50) and but lower in terms of hours (437.25, plus 38.5 hrs of strimming).

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 19 hours of person time, amounting to £950.

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 11ha (27 acres). Each patch has received multiple visits, so the cumulative area pulled/strimmed extends to many times this. In terms of ‘Outcomes’ the key measure is how many plants escaped attention and managed to produce seeds that hit the ground. This is, in essence, unknowable. However, **Table 2.6** below provides a ‘best estimate’ of the status for each patch/sub-patch as at October 2022.

Table 2.6: Status of each patch – October 2022

Patch	No. of visits	How did it go?
Polly's Patch	2 Visits	Ended badly – many plants grew to maturity and seed pods popped. Strimming will be needed next year.
Boat Hire	2 visits	Probably no plants seeded (low level of certainty)
A591/ Grasmere	3 visits	Probably no plants seeded (low level of certainty)
WM (7)	5 visits	Main area - May have missed isolated plants but 95+% sure no seeding White Moss House garden – seed from mature plants captured but a few dropped to the ground
WM (8)	4 visits	Main area - May have missed isolated plants but 95+% sure no seeding New area - 95+% sure no seeding
WM (9)	4 visits	Relatively few plants remaining but two small clusters remain problematic <ul style="list-style-type: none"> - Around fallen tree – mature plants popped and not all seed captured - Cluster of 3 plants found late in season, popping and not all see captured
WM (10)	5 visits	Large area but easy access for spotting plants. 95+% sure no seeding
WM (11)	7 visits	Large area. Existing patch well under control with little seeding. New area – many matured and seed popped. Will need strimming next year.
WM (12)	7 visits	Large area. Existing patch well under control with little seeding. New area – few plants and easy to bring under control, with little seeding this year.
Rydal (1)	6 visits	Well under control, but 'missed patch' allowed some plants to mature and a few seeds escaped
Rydal (2)	6 visits	99% certain no seeds escaped
Rydal (3)	7 visits	Well under control, but 'missed patch' allowed some plants to mature and a few seeds escaped
Rydal (4)	6 visits	99% certain no seeds escaped
Rydal (5)	5 visits	Large area and very few plants grew to maturity and 99% certain all seeds captured
Rydal (6)	5 visits	Large area and very few plants grew to maturity apart from resurgence in 2 clusters high up the slope. Most plants were pulled before popping but some seeds escaped capture
Under Loughrigg	At least 3 visits	Many stretches completely clear, although some plants seeded.

The overall assessment is that:

- There has again been significant progress in 2022;
- MOST PATCHES show significant improvement from previous years;
- Again, some seeds have escaped capture, meaning risk of resurgence;
- As numbers are getting fewer, rate of progress is slowing and become more marginal;
- The pressure needs to be maintained to avoid the infestation taking hold again.



3. Proposals for 2023 and Beyond

3.1 Approach

It is anticipated that by summer 2023, the infestation will have reached a stage where no further Fight the Aliens Day or large work groups will be needed. Rather, a two-tier approach is advocated. The approach is predicated on the observations that:

- The extent of the infested area along the Rothay down to Miller Bridge, Ambleside, is too large to expect that it can be eradicated in all patches at the same rate. It is impossible for the remaining enthusiastic and skilled volunteers to visit all areas and cover the ground with sufficient vigilance to capture all plants before seeding. (Many of these volunteers also have patches which they monitor elsewhere.)
- Some patches are now producing very few plants and one or two more years of zero seeding should see the infestation being eradicated. It makes sense, to focus our limited resources in these areas (primary targets), whilst trying to ‘keep the lid’ on other areas.
- When some patches can be said to be clear, the focus can shift to others.
- Over time, all patches should become clear. However, the length of the ‘tail’ (i.e. the period between reducing the infestation to just a few plants to zero plants) is depressingly long!

3.2 Primary Targets

Assuming the above approach is to be followed, the ideal would be to have named individuals allocated to the primary target. The suggested primary targets, with allocations where possible, are shown in **Table 3.1**. The idea behind this is that the named individual will be trusted to work on their patches at their own discretion, working alone or with companions they have recruited, as frequently as they feel necessary. The aim will be to not let any seeds reach the ground. Obviously, it is anticipated that they will report their activities to SCRT and ask for help if needed.

Table 3.1: Primary Targets for 2023/24

Patch	Person taking on responsibility
White Moss (Patch 7)	To be identified (perhaps with some support to start with)
White Moss (Patch 9)	National Trust (To be confirmed)
White Moss (Patch 10)	To be identified
White Moss (Patch 12)	Yvonne Cannon
Rydal (Patch 1)	Ken and Ros Taylor

Rydal (Patch 2)	Ken and Ros Taylor
Rydal (Patch 4a)	Ken and Ros Taylor
Rydal (Patch 4b – Dora’s Field)	National Trust (to be confirmed)
Rydal (Patch 4c – Rydal Mount)	Helen Green (to be confirmed)
Under Loughrigg	Roland Wicksteed

A meeting is to be held with National Trust shortly, at which it is hoped that the above arrangements can be confirmed. The arrangement with Helen is already operating to some degree, although it is hoped that this can be formalised so that she can continue the control measures to the point of eradication without prompting from SCRT volunteers.

This leaves two Primary Targets without a named individual to care for them. It may be possible to recruit someone from volunteers who have already worked at White Moss. The ideal candidate(s) would be someone who:

- Lives locally;
- Is ‘self-starting’ (dog owners would be ideal because of the need to take their dog out each day);
- Is mobile and happy to work on their own;
- Is enthusiastic to the point of obsession about controlling balsam;
- Maintain links with and report back to SCRT as necessary.

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

The best places for recruiting suitable individuals are:

- The local parish council
- SCRT
- LDNPA/NT/FOLD

3.3 Secondary Targets

In order to ‘keep the lid’ on the other patches, then it is suggested that the approach will be to organise a programme of small-scale events, with reliance on the dependable team of group leaders who have worked on the Rothay patches in the past, supplemented as much as possible by volunteers recruited from amongst relevant organisations – Lakes Parish Council, SCRT, FOLD, NT and possibly LDNPA. The way to do this is to set out a number of dates from mid/early July through to late September/early October, about 3 weeks apart, and seek to recruit group leaders and volunteers to each of these events. Patches to be targeted will be determined shortly in advance of each event, modified in the light of how the season progresses.

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	SCRT	Management of events from SCRT perspective and group leader
Kay Andrews	FOLD	Management of events from FOLD perspective and group leader
Julian Lambton	Rydal Estates	Financial and moral support, provision of access
Andy Whitworth	Lowther Estate	Provision of 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 and some pulling!
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, cash donation
Laura Whittaker	National Trust	Access to site, cutting back fallen tree
Yvonne Cannon, Judith Wallen, Mary and John Chapman, Paul Woods, Janet Antrobus, Richard Langthorp, Steve & Pam Livingston	SCRT Volunteers	Leading groups (each at several events)
Sten and Angela Sture	SCRT Volunteers	Pulling plants in riverbanks from canoe
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 – and leading groups
Sharon Savasi	SCRT Volunteer	Lead in Grasmere, and pulling
Jane Moreland	SCRT Volunteer	Lead in the Under Loughrigg area, leading groups and pulling

SCRT and FOLD