

Rhododendron control workshop –
NTS Visitor Centre Glencoe
25th October 2006



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Workshop objectives

- Present up-to-date information on *rhododendron* management and control.
- Stimulate discussion on current techniques and the efficacy of control strategies.
- Demonstrate correct application techniques to achieve good control.
- Identify areas for future research.



Structure of workshop

Session one

- 0945 - Objectives for workshop, research update. – CE
- 1015 - NTS operational experiences – KS
- 1045 - Professional training & Contract experience - ND
- 1115 - Coffee break

Session two

- 1145 - Research on cut stump treatment – DN
- 1215 - Predicting seed dispersal –JT
- 1245 - Open discussion (all presenters to front)

- 1315 - Lunch (leaving 1400 sharp)



Structure of workshop

1415 - Application demonstrations - [45 mins]

Stem treatment

Foliar application

Hand pulling seedlings

Cut stump treatment

1500 - Site visit Glencoe Lochan



Order to visit Demonstrations (15 mins each)

Stem treatment 1

Stuart Findlay

Colin Leslie

Neil Beaton

Helen Watt

Donald Kennedy

John Mulgrew

Professor Rory Putman

Lucy Sumsion

Janet Beveridge

Fran Lockhart

Foliar spray 2

Keith Miller

Dave Bruce

Donald Sansom

Nigel Barrass

Alison Devey

Andy Malcolm

James Gilmour

Grant Moir

Chris Stark

Paul Schofield

Hand pull 3

Roddy Macleod

Andy Walker

Malcolm Hobson

David Anderson

Gordon French

Fraser MacDonald

Gill Calver

Marina Curran-Colthart

Marina Smith

Mark Foxwell

Cut Stump 4

Margaret MacCallum

Malcolm Macdougall

Kirsty Park

Lisa Cowling

Graham Lorimar

Ian Adams

Iain McNicol

Andrew Jarrott

Ross Martin

Jake Willis

Sandy Coppins



Research Update

- Publication of Practice Guide
- Modelling expansion & Growth
- Prioritising control efforts
- Restoration of sites following control operations

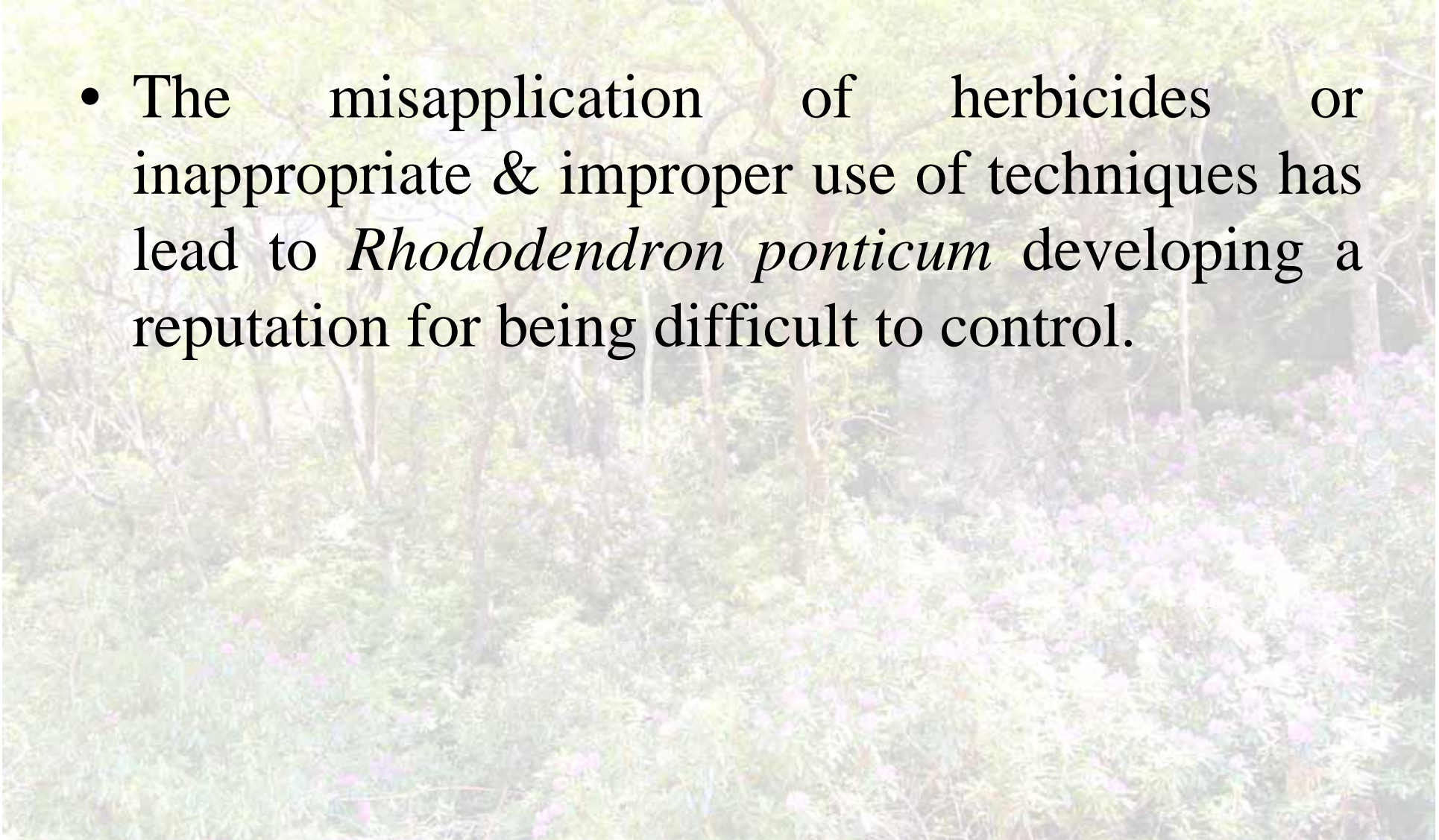


Why so successful? – A Problem statement



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- The misapplication of herbicides or inappropriate & improper use of techniques has lead to *Rhododendron ponticum* developing a reputation for being difficult to control.
- There has been no systematic approach to, or the development of, an eradication program for *Rhododendron ponticum* control.

Think of control in terms of a simple predictive model

$$I = (S * R) - K$$



Where:

I = plant invasion of a site

S = seed source or vegetative expansion

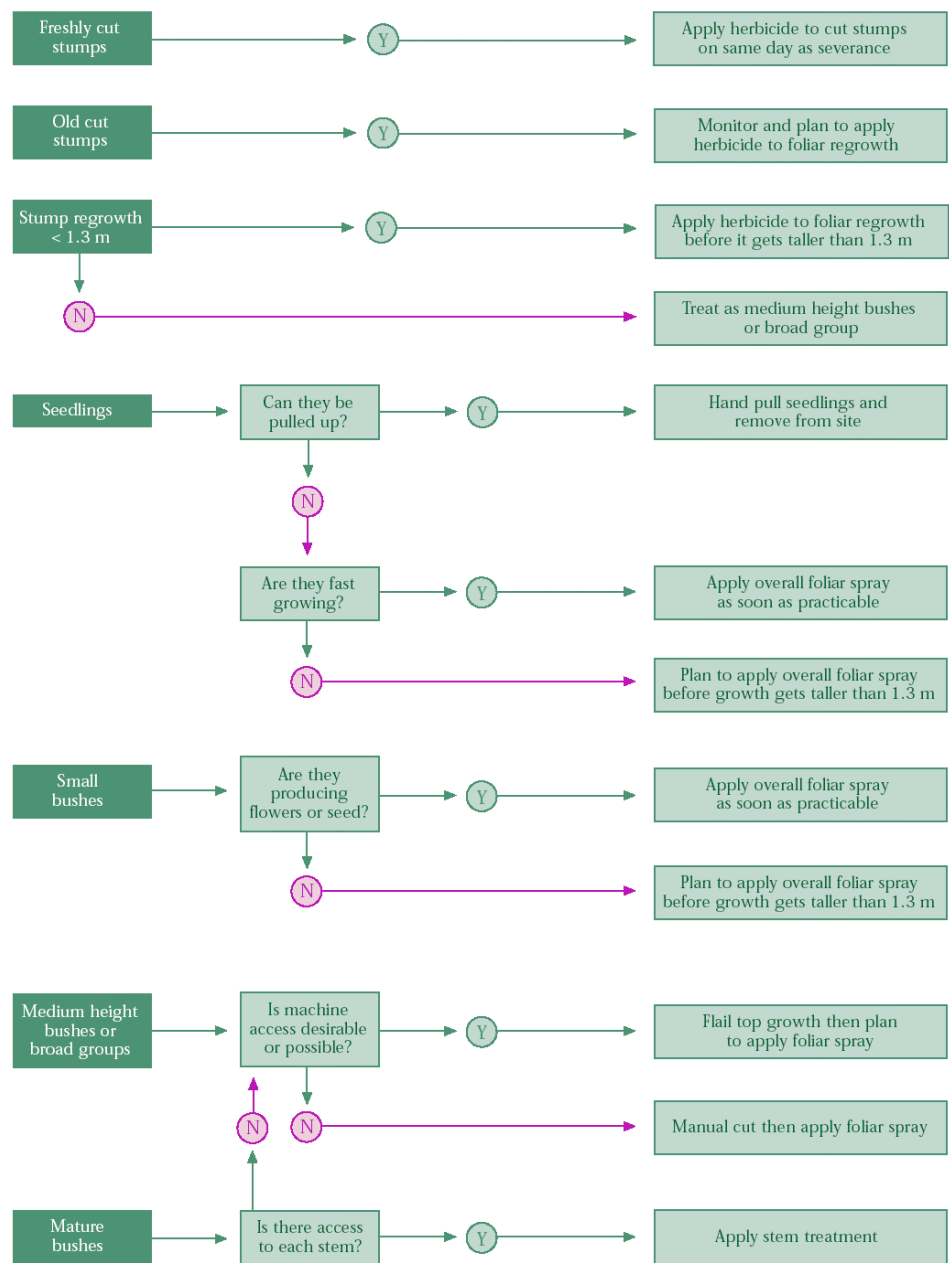
R = rate of seedling recruitment

K = mortality, either natural or artificial



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Decision chart - to identify the recommended control methods for bushes of a specific type (see table 1).



Methods of control

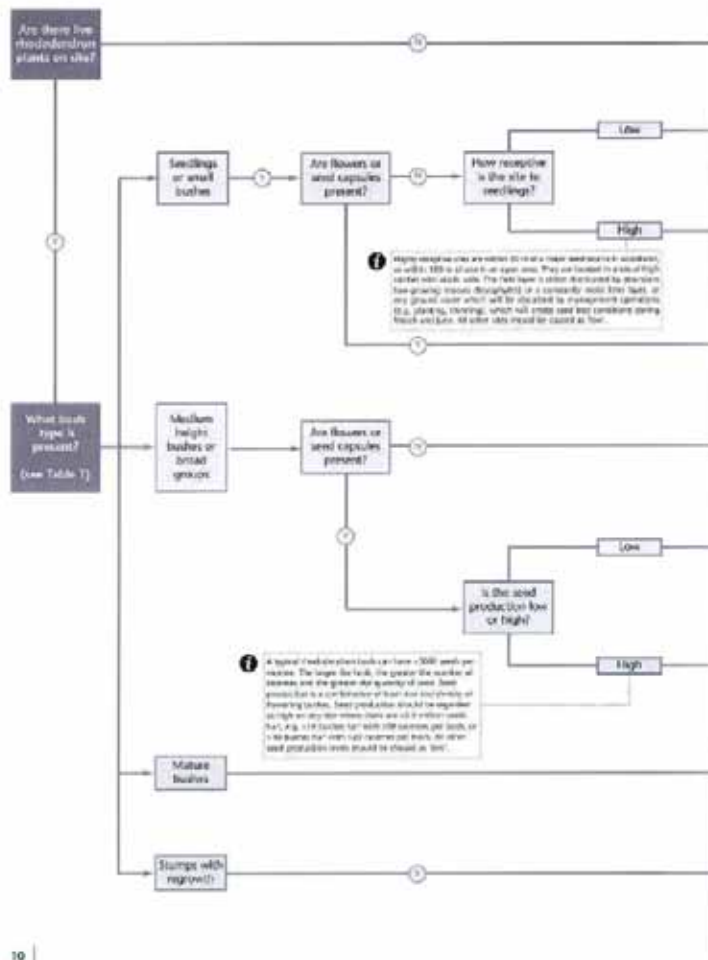


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Figure 15 – control priority



Figure 15 Description of the site, site class, potential site development, and suggested priority and control options.



Class	Detailed site description	Potential site development	Priority for control
I	Site that has rhododendron plants on site.	Highly receptive site for rhododendron growth. Rhododendron plants that are likely to have the greatest potential for seed production.	High priority site.
II	Sites that are highly receptive to seed inflow and potential establishment of bushes. Rhododendron plants that are likely to have the greatest potential for seed production. Current bush growth is low (Class II), but still early in stage of bush development. 10 years before seed production and further expansion expected.	Highly receptive site for rhododendron growth. Rhododendron plants that are likely to have the greatest potential for seed production. Current bush growth is low (Class II), but still early in stage of bush development. 10 years before seed production and further expansion expected.	High priority site that will need control to allow application with herbicide. Seed capsules and small seedlings can be easily pulled by hand.
III	Sites that are acting as minor seed source, dispersal and potential establishment of bushes onto adjacent sites very low. Bush growth slow (Class II) and rarely receptive, although a few flowers produced annually. Low at levels for bush survival, either on permanently dry or just soils high pH or exposed sites. Seed production low.	Should not be left if very close to nearby rhododendron sites. Likely to develop into low class V unless major site changes.	Low priority sites that are easy to treat but should not be left too long or they will be too large to treat without cutting down. Site clearing or felling required before herbicide control is possible.
IV	Sites that are highly receptive to seed inflow and potentially new germination and establishment of bushes. Bush growth rapid with 10 years to flowering age (Class II). Late in stage of bush development with limited time before seed production.	Will rapidly become Site class V.	Medium priority sites with bushes that are too large to treat without cutting down. Site clearing or felling required before herbicide can be applied.
V	Sites that are acting as minor seed source, dispersal and potential new establishment of bushes onto adjacent sites low. Bush growth rapid although flowering still only partial. Seed production low, but potential for increase in bushing early years. Likely to be under about shade from a tree canopy, which if reduced or completely removed will result in rapid growth and onset of flowering.	Likely to develop rapidly into Site class VI or VII. Should not be left if very close to nearby rhododendron sites.	High priority sites that are not easy to treat, but can be left while still producing low levels seed. Higher priority Site class VI and VII cleared. Site clearing or felling required before herbicide can be applied.
VI	Sites straightened by mature bushes that are acting as a major seed source. Bush growth rapid, with a high seed source and/or a high seed source. Seed production low, but potential for increase in bushing early years. Seed production high. 10m-1.5m bushes (seed 1 year).	Expected to develop rapidly into Site class VII. Should not be left if very close to nearby rhododendron sites.	Second highest priority sites that are not easy to treat but should be cleared first along with Site class VII. Must be done first to allow access to other sites. Removal of bushes can be applied. Site clearing or felling required before herbicide can be applied.
VII	Sites that are acting as minor seed source, dispersal and potential new establishment of bushes onto adjacent sites very low. Bush growth slow (Class II) and rarely receptive, although a few flowers produced annually. Low at levels for bush survival, either on permanently dry or just soils high pH or exposed sites. Seed production low.	Should not be left if very close to nearby rhododendron sites.	Highest priority sites that are not easy to treat but should be cleared first along with Site class VII. Must be done first to allow access to other sites. Removal of bushes can be applied. Site clearing or felling required before herbicide can be applied.
VIII	Highly receptive site for rhododendron growth. Rhododendron plants that are likely to have the greatest potential for seed production. Current bush growth is low (Class II), but still early in stage of bush development. 10 years before seed production and further expansion expected.	Should not be left if very close to nearby rhododendron sites.	High priority. Site clearing or felling required before herbicide can be applied. Site clearing or felling required before herbicide can be applied.

Approved Herbicide Methods & Rates

Herbicide	Hazard classification for products	Selectivity	Application method & rates
Glyphosate	Roundup ProBiactive and Envision – none. For other products, refer to FC Practice Guide and product labels	Non-selective	Cut stump – 20 % solution Foliar spray – 2% solution (plus 2% Mixture B) ‡ Stem injection – 25% solution
Triclopyr	Irritant to eyes and skin Harmful if swallowed or in contact with skin Harmful to aquatic life	Perennials and woody weeds	Cut stump – 8 % solution Foliar spray – 2.5% solution
2,4-D/dicamba/triclopyr	Irritant to eyes and skin Harmful if swallowed Harmful to aquatic life	Annuals, perennials and woody weeds	Foliar spray – 7.5 % solution
Ammonium sulphamate (Amcide)	None Harmful to fish	Non-selective	Cut stump – 40 % solution Foliar spray –40% solution
Adjuvant (High Trees Mixture B)	Irritant to eyes and skin Harmful if swallowed Harmful to fish	n/a	Foliar spray - 2% total spray volume

‡When near water do not use Mixture B – apply 10 l ha⁻¹ or 2.5% solution.

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<p>Indications are this product is unlikely to be given Annex 1 listing by PSD, and may no longer be available from the end of 2006</p>			
Ammonium sulphamate (Amcide)	None Harmful to fish	Non-selective	Cut stump – 40 % solution Foliar spray – 40% solution
Adjuvant (High Trees Mixture B)	Irritant to eyes and skin Harmful if swallowed Harmful to fish	n/a	Foliar spray - 2% total spray volume

‡When near water do not use Mixture B – apply 10 l ha⁻¹ or 2.5% solution.

Age of regrowth at application of glyphosate.

Health scored 1-6, where 1 = healthy; 6 = dead.



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Health scored 1-6, where 1 = healthy; 6 = dead.

Age of regrowth when herbicide applied	Date of assessment	
	6 month	12 month
Control (no herbicide)	1	1
3 months	6	6
4 months	6	6
5 months	6	6
7 months	5.5	6
13 months	6	6
16 months	6	6



Date of foliar application.

Health scored 1-6, where 1 = healthy; 6 = dead



Date of foliar application.

Health scored 1-6, where 1 = healthy; 6 = dead

Application date	Date of health assessment		
	6 month	12 month	18 month
16 May 2002	5.8	6	6
20 June 2002	6	6	6
5 July 2002	5.7	6	6
16 Aug 2002	5.8	6	6
16 Sept 2002	6	6	6
19 Oct 2001	5	6	6
Control	1	1	1



Health score of treated stems 12 & 30 months after application (Kintyre 21).

Health scored 1 – 6, where 1 = healthy and 6 = dead.

Treatment	12 month assessment	30 month assessment
Control	1.4	1.2
Water	2.6	1.6
Girdling	1.8	3.6
Undiluted Glyphosate	6.0	6.0
50% Solution Glyphosate	6.0	6.0
25% Solution Glyphosate	6.0	6.0



Summary

- Select the correct application technique to fit bush size/type
- Apply herbicides at correct rate & correct manner
- Strategic planning is going to be more important in future if objective is eradication
- Think beyond simply bush control to consider seed source and recruitment

