

TABLE 1 Recommendations for plant and animal pest control

Target	Timing	Method	Comment
Control of willows and Sycamore			
Small willow saplings	Autumn	Hand pulling MUST pull all of plant as roots and dropped branch fragments are capable of re-shooting ³ . Place saplings on plastic and remove from site to avoid fragments being left behind to reshoot ⁵ .	Labour intensive. Hand pulling can occur at any time.
Small willow saplings too numerous or large to hand pull	Autumn, just before leaves turn yellow while sap is still in the leaves, before the 3 rd week in March to avoid spawning of brown trout ⁷ . Plants must be in full leaf.	Spraying with a back pack spray unit ³ with a guard on the nozzle. Foliar spray using a solution containing Roundup Renew with an improved surfactant ³ .	Herbicide will be drawn through leaves and carried by sap down into the root system of the plant killing it ³ . Care should be taken to avoid spraying non-target species.
Re-growth	Autumn, just before leaves turn yellow while sap is still in the leaves. Plants must be in full leaf.	Cut and paint the stump ('stump swabbing) – using a 2 person team Cut Stumps can be swabbed with a thick solution of Roundup Renew.	Stumps must be painted <i>immediately</i> , before the plant 'seals' the wound and while the sap is still flowing down through the cambium/ phloem found around the circumference of the stem.
Control of other weeds			
Russell lupins	Year round – hand pulling or cut stump treatments ⁸	Hand pull or dig out small plants, leave on site to rot down. Cut stump application of glyphosate (200MI/L)	Foliar spray treatments should target the plants during their period of active growth (spring/ summer) Plants are difficult to pull out in winter as annual foliage has rotted.
Old Man's Beard	Spring	Hand pull seedlings and cut vine stem and apply glyphosate to cut stump. Spray	Care in removing vine from established plants is required as these can be

		heads with glyphosate to prevent germination. The vines can be cut at any time but re-growth from the stump must be checked and treated where required.	damaged.
Buddleia, Broom, hawthorn, Cotoneaster and Conifer	late summer	<p>Treat prior to the production of new fruit / seed release where possible.</p> <p><u>Conifers</u> – can be felled and hand pulled any time. Ensure that stumps are cut as low to ground as possible and that they are clean of all needles/ foliage.</p> <p><u>Hawthorn</u> – Hand pull seedlings, cut and paint stumps in summer / autumn after flowering, and while actively growing, follow up if required the following summer/ autumn with foliar spray using Glyphosate, following manufacturer's advice.</p> <p><u>Broom/ Buddleia/ Cotoneaster</u> – Hand pull seedlings, cut and paint stumps in spring – summer, follow up if required the following spring – summer with foliar spray using Glyphosate, following manufacturer's advice.</p>	This reduces the amount of herbicide applied to the site and rapidly reduces the visual impact of the pest plant population while releasing natives from competition (shading/ nutrients)
Sycamore	As for willow.		
Control of animal pests			
Possums	Autumn/ winter or as required	In autumn/ winter bait stations can be placed on trees adjoining the wetland on Queenstown Hill and on the lower hill slopes adjacent to the Gorge Road on the	If possum traps (e.g. Timms traps) are set, these must be regularly checked and serviced.

		base of Bowen Peak. Where browsing occurs in the spring or summer, a combination of bait stations and traps may be effective in reducing possum densities.	Recommended spacing for bait stations is 50 metres.
Goats	Year round	Control by shooting or relocation of goats will be required to reduce browsing on establishing plants.	

References

- 1 Graham Cochrane, ORC pers comm... 14/2/03
- 2 Lindsay Chadderton, DOC, Hamilton, pers comm.. 13/2/03
- 3 Mark Sanders, DOC, Twizel, pers comm... 14/2/03.
- 4 Peter Thompson, Agri-spray and equipment Ltd, pers comm... 14/2/03
- 5 Pete Raal, DOC, Dunedin, unpublished report (2002): *Willow control and management at the Glenorchy Wetland and Earnslaw area.*
- 6 Johnson, P. and Brooke, P (1989): *Wetland plants in New Zealand.* Botany Division, DSIR. Wellington, New Zealand.
- 7 Cliff Halford at Fish and Game in Cromwell, pers comm... 19/2/09
- 8 Weedbusters website retrieved November 2008.