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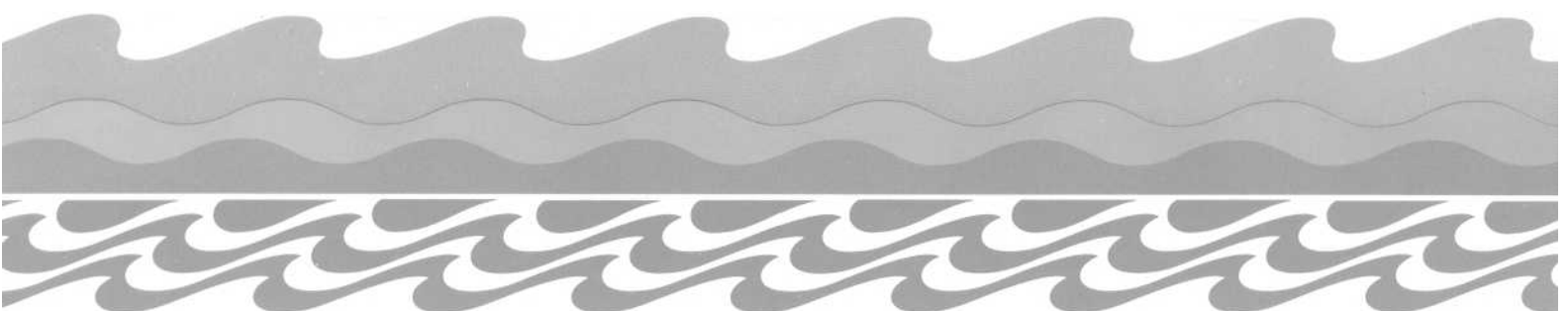
No. 24

HEATH RUSH, AN UNWANTED WEED IN FIORDLAND

(Short Answers in Conservation Science)

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**Heath Rush, an Unwanted Weed
in Fiordland**

P.N. Johnson

Manaaki Whenua - Landcare Research
Private Bag 1930
Dunedin

Landcare Research Contract Report LC 9293/56

PREPARED FOR.
Department of Conservation
Southland Conservancy
P.O. Box 743
Invercargill

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1. Summary

Heath rush, *Juncus squarrosus*, was observed as a weed at three sites in the Borland Valley, Fiordland, in March 1993. Because of the potential of this species to invade wetlands and gravelly sites it is recommended that urgent eradication measures be instigated.

2. *Juncus squarrosus* sites in Borland Valley

I noted *Juncus squarrosus* at the following sites on 9 March 1993:

- (a) Borland Saddle, NZMS 1 S.158/ 497794, altitude 3400 ft. On gravelly road end terrace, the second top such terrace excavated to the uppermost power pylons just above Borland Saddle. *Juncus squarrosus* covers an area 10 x 5 m, on the level gravel of the vehicle track, extending onto a moist mossy slope above. I removed all the flower heads from the plants here.
- (b) Lower Borland Road, S.158/ 590786, about 1 km west of the track leading to limestone cavern, and specifically midway between a vehicle track leading uphill to pylons to the SW, and the start of the South Borland Track. *J. squarrosus* is on NE side of road, as plants to 50 cm tall, in a 5-m wide strip of damp rush sward between road and bush edge.
- (c) Lower Borland Road, S.158/ 619761, c. 1.5 km west up the road from gate at Borland Lodge, 100m beyond where road takes a bend over a stream culvert, and within the elbow of a vehicle track that turns off to the SW. *J. squarrosus* grows on sloping moist ground here.

3. How to recognise *Juncus squarrosus*

Heath rush forms dense tufts, with rigid, grooved, shining leaves, that are squarrose (deflexed outwards) so as to lie almost flat on the ground or over other vegetation. The colour is a dark bright green, with yellowish leaf tips. Size is variable: small tufts may produce flower heads 10 cm tall, while big old clumps have flower heads up to 50 cm or so tall. The plants are very difficult to pull out of the ground.

Juncus squarrosus is illustrated in Fig. 1. Other leafy rush weeds that look a bit similar, and are already scattered through Fiordland, are shown in Fig. 2.



Slender rush (*Juncus tenuis*) has finer, less stiff leaves, and smaller flowers on a fan-shaped flower head. It is fairly common in damp swards and pastures, and especially characteristic on the hard-beaten ground along vehicle or walking tracks.

Jointed rush (*Juncus articulatus*) is one of the commonest naturalised wetland plants, and has an openly branched flower head and soft leaves that are tubular with transverse cross-walls inside.

See Johnson & Brooke (1989) for further descriptions and illustrations of these and other wetland *Juncus* species.

4. Distribution and weed potential of *Juncus squarrosus*

The species is native to Europe, N Africa, Iceland and Greenland. In New Zealand it is naturalised from Wellington to Stewart Island, being very scattered but locally abundant, in acid boggy sites, including wet tussock grassland, heathland, peat bogs, and damp gravelly places. As weedy rushes go, it can grow at relatively high altitudes (Borland Saddle is an example, and it is on the Stewart Island tops - Wilson, 1982). While many naturalised rushes become invasive only on disturbed or fertile ground, *J. squarrosus* seems able to invade infertile habitats and intact native communities.

Juncus squarrosus is a perennial plant, and like most *Juncus* species, it produces numerous tiny seeds which may be dispersed by wind or along waterways. Wilson (1982) gives the fruiting time as March - April. The plants on Borland Saddle on 9.3.93 had just finished flowering but did not have ripe seed. *Juncus* seed is viable for long periods, reputedly 30 to 40 years (Matthews 1975).

Juncus squarrosus has not been previously recorded from Fiordland (Johnson, 1982). My concern is that this species has the potential to colonise not only roadsides in Fiordland, but that it could invade and perhaps displace native plants on gravelly stream and river sides, in bogs, and on lake edges. The population on Borland Saddle itself, being poised on the watershed of two catchments, is a potential infestation source for the streamsides and bogs of the South Borland Valley, as well as those of the Grebe Valley, and thence the shores of Lake Manapouri.



5. Recommendations

- 5.1 Adoption by DOC of a policy whereby *Juncus squarrosus* should be eliminated from Fiordland National Park
- 5.2 Urgent action (this autumn) to initiate eradication of the plant at the three known Borland Valley sites.
- (a) Cut off seed heads, bag carefully, remove, and burn off-site, bags included.
 - (b) Spray with herbicide suitable for rush control.
 - (c) Follow-up spraying twice-yearly in early summer, and early autumn, followed by site checks for at least five years after last flowering plants seen.
- 5.3 Check roadsides and gravelly adjacent sites on road from Borland Saddle to South Arm of Lake Manapouri (soon).
- 5.4 Bring the plant to the attention of DOC staff in Te Anau, Tuatapere, and Invercargill, with the aim of them looking out for further sites, both within Fiordland, and anywhere close to the National Park eastern boundaries.

6. References

- Johnson, P.N.1982. Naturalised plants in south-west South Island, New Zealand. *New Zealand Journal of Botany* 20: 131-142.
- Johnson, Peter N.; Brooke, Pat A.1989: *Wetland Plants in New Zealand*. DSIR Publishing, Wellington. 319 p.
- Matthews, L.J.1975. *Weed Control by Chemical Methods*. N.Z. Ministry of Agriculture and Fisheries Bulletin no. 329. Government Printer, Wellington. 710 p.
- Wilson, Hugh D. 1982. *Stewart Island Plants*. Field Guide Publications, Christchurch. 527 p.





Fig. 1 Heath rush, *Juncus squarrosus*, natural size.



Fig. 2 Slender rush, *Juncus tenuis* (left), and jointed rush, *Juncus articulatus* (right), both natural size.