

# Research note

## Introduced *Agrostis* species at sub-Antarctic Marion Island

Marion Island has escaped the intentional or accidental introduction of large numbers of species which has occurred at many other oceanic islands (see e.g. Holdgate 1967). As this relatively undisturbed status of the island is important from a scientific as well as from a nature conservation viewpoint (Smith & Smith 1987), there has been a long-standing interest in the occurrence of alien species (reviewed by Watkins & Cooper 1986). Several surveys of the distribution of alien plants on the island have been made during the past decades (Huntley 1971, Gremmen 1975, 1981, 1982, Bergstrom & Smith 1990), resulting in a list of 14 species of alien vascular plants. This list contained one species of *Agrostis*: *A. stolonifera* L.

In 1994 several colonies of a grass of the genus *Agrostis*, clearly different from *A. stolonifera*, were discovered near the Meteorological Station at Transvaal Cove. A study of these plants, and of older collections by Gremmen, showed the presence of the following three introduced *Agrostis* species on Marion Island.

### *Agrostis castellana* Boiss. & Reuter (Highland Bent)

The species is recognised by the two extruding nerves at the top of the lemma. Ligules are 0.5 - 2 mm long.

Gremmen collected this species in 1975 in Prion Valley, near the Meteorological Station, and from streambanks in the Albatross Lakes area. The species occurs outside areas disturbed by man. It has been present on the island for at least two decades and has spread to Albatross Lakes presumably by natural means. Therefore *A. castellana* is considered as a naturalised alien.

*A. castellana* is probably of Mediterranean origin. It was introduced into North America, northern Europe, New Zealand and other parts of the world (Hubbard 1992). It has probably been overlooked in many areas. Wace (1986) reports the species as introduced on Gough Island.

### *Agrostis gigantea* Roth (Black Bent)

These are much larger plants than *A. stolonifera*, with a more than 10 cm long, very loose inflorescence. Ligules are very blunt, toothed, 1.5 - 6 mm long.

A number of colonies of this species were found in May 1994, between the Meteorological Station and Gentoo Lake, growing on well drained peat soil.

This species occurs naturally in Europe and temperate Asia and was introduced in North America and other areas (Hubbard 1992).

### *Agrostis stolonifera* L. (Creeping Bent)

These plants are smaller than *A. gigantea*, panicles contracted after flowering. Ligules are blunt, 1 - 6 mm long.

The first collection was made by Huntley in 1965 at the Meteorological Station (Gremmen & Smith 1981). Presently the species is widely spread on the island (Bergstrom & Smith 1990). *A. stolonifera* has become dominant in the vegetation of drainage lines, stream banks and coastal slopes in large parts of the island. Here it crowds out the native *Acaena magellanica* and causes a considerable reduction in the number of native plant species in these communities.

*A. stolonifera* is a Northern Hemisphere species and has been introduced into South America, Australia, New Zealand and southern Africa (Hubbard 1992, Hulten 1971). It is reported from many southern temperate and sub-Antarctic islands, e.g. Tristan da Cunha, Gough (Wace 1986), the Falkland Islands (Moore 1968), Iles Crozet (Davies & Greene 1976), Kerguelen (Greene & Walton 1976), Ile Amsterdam (Jolinon 1987) and Auckland Islands (Muerk 1982).

All three introduced species of *Agrostis* flower profusely on Marion Island, but seeds seem to be produced only on favourable years. Often flowers have not yet opened by the onset of winter and flower stalks die off without seed being produced.

These additions to the Marion Island flora bring the number of alien vascular plant species collected on the island to 18, out of a total vascular flora of 42 species. From the date of the first collections and from the distribution data it is inferred that *A. stolonifera* and *A. castellana* have been introduced at the Meteorological Station, in the first decade or so after the establishment of the station (cf. Gremmen & Smith 1981). *A. gigantea* is believed to be a recent introduction, as it was not noted during previous surveys. It is conspicuously larger than the other *Agrostis* species on the island and it is unlikely that it has been overlooked. As it occurs in similar habitats as *A. stolonifera*, and has similar reproductive strategies (Grime *et al* 1988), *A. gigantea* may be expected to spread into the surrounding area. It seems advisable to try and eradicate the species before it becomes widespread.

Specimens have been deposited at the Rijksherbarium, Leiden, The Netherlands.

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