

Veld Grass (*Ehrharta erecta*) has Come to Stay

Colin Ogle¹
Wanganui

ABSTRACT

Veld grass (*Ehrharta erecta*), adventive from South Africa, was first recorded in New Zealand in 1943 in Wellington. Its spread to other parts of New Zealand is catalogued. Some aspects of its ecology are discussed, and it is concluded that the species is invading and modifying some types of native vegetation as well as being increasingly common and widespread in disturbed sites.

INTRODUCTION

There can be few gardeners in Wellington who have not been troubled by the recent explosive spread of veld grass (*Ehrharta erecta*). Those with an eye for plants in the wild will have seen it establish also in waste places and in many of the region's semi-natural areas.

APPEARANCE

Non-flowering veld grass resembles native meadow ricegrass (*Microlaena stipoides*), but is softer in texture, more yellow-green, and is easier to pull from the soil. The plants are tufted and erect, although their stems can root at the nodes if they touch the ground. Figure 1 shows a flowering plant and enlarged views of some parts of it. Clearly depicted at the blade/sheath junction are the distinctive auricles which bear a few long hairs, and a long, serrated ligule. Figures 2 and 3 respectively, show veld grass in typical habitat and a close-up of part of its flower head.

HABITS AND HABITATS

The capacity of veld grass to flower and seed in all months of the year means that to control it is a continuous task. One cannot help but be impressed by the rapidity with which seeds germinate and become flowering plants, and at the species' ability to thrive in conditions so shady that almost all other adventive grasses are unable to grow there. To locate every new plant before it seeds is a challenge, for even vigilant gardeners are liable to find patches of veld grass in places neglected for a few weeks. Short-distance spread of seed by wind and water is probably bolstered by bird dispersal, and birds must be the prime agent of much long-distance spread. The arrival of veld grass on the islands of Kapiti, Taputeranga (Island Bay), Tokomapuana (near Kapiti), Mana, and Moturoa (New Plymouth) (Table 1) may have been via starlings, since large numbers of starlings roost each night on the three last-named islands, at least.

My first acquaintance with this South African grass was in 1974 near my previous home, in Pukerua Bay, 30 km north of Wellington. It was a solitary plant (WELT 70919) near the coast, in the gorge of the Pukerua earthquake faultline. Within two or three years veld grass appeared in a number of urban sections of the village. Before I realised the weed potential of veld grass, I used

1. Science and Research Directorate, Department of Conservation, PO Box 10420, Wellington.

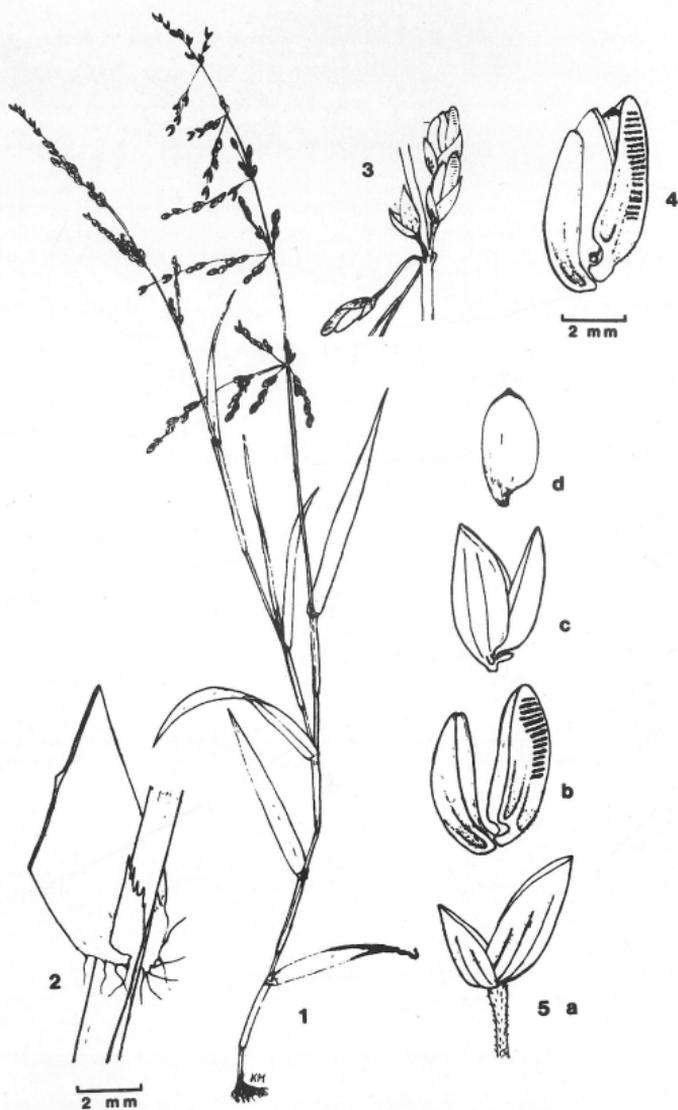


Figure 1. Veld grass (*Ehrharta erecta*): 1 whole plant; 2 junction of blade and sheath; 3 part of inflorescence; 4 spikelet; 5a glumes; 5b sterile lemmas; 5c fertile lemma and palea; 5d seed. Sketches: K Moore.



Fig. 2. Veld grass in manuka/kawakawa scrub, Pukerua Bay. Photo: Colin Ogle.

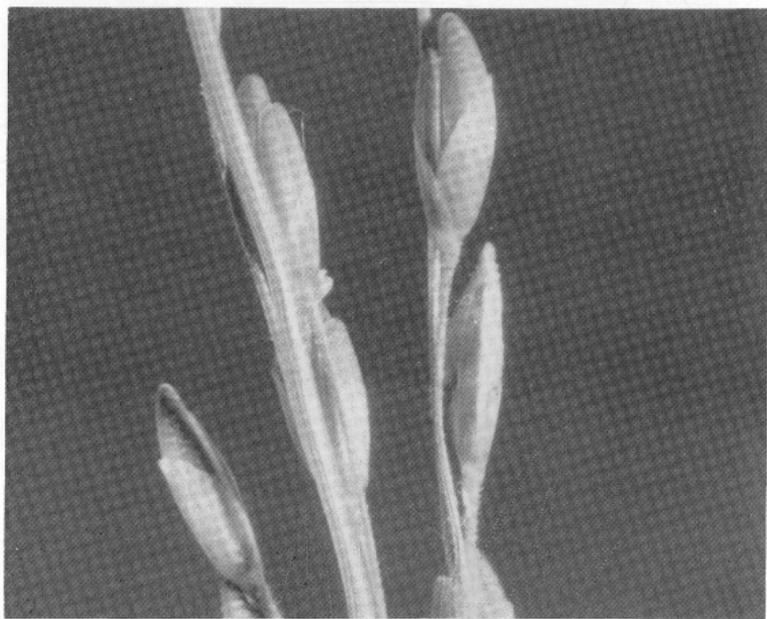


Fig. 3. Close-up of part of veld grass inflorescence. Photo Colin Ogle

Accession Number	Collector	Date	Location	Notes
CHR 168214	J Mitchell	-/3/43	Wellington	Garden area
CHR 35497	A J Healy	14/4/43	Wellington Terrace	Crevices in footpath
CHR 25710	Mrs M Samson	4/6/43	Dundas St, Seatoun	
CHR 62274	A L Poole	21/11/?	Lyall Bay	Shady bank
CHR 82612A	A J Healy	6/3/50	North of Paekakariki	Partly reclaimed sand-dunes
CHR 82048	V D Zotov	17/2/52	Wellington Zoo	
CHR 89534	P Merry	26/8/55	Waipipi, Pukekohe	
CHR 98326	H G Halliwell	18/6/58	Kohukohu, Hokianga	Tennis court fringe
CHR 267853	Ruakura Agric. Research Station	27/11/58	Waiuku, Auckland	Coastal sand-dunes "fairly common"
CHR 132370	Soil Test Station	20/10/60	Paraparaumu	
CHR 169006	R Mason	14/11/65	Thorndon, Wellington	Wasteland
CHR 219980	A E Esler	28/7/70	Alberton Avenue, Mt Albert	Street margin in hedge
WELT 70919	C C Ogle	30/1/74	Pukerua Bay	Coastal gully in open scrub
CHR 354593	M A Fleming	13/1/77	Wadestown, Wellington	
CHR 321100	B S Lill	6/8/77	Shelly Bay	Roadside bank
CHR 321137	M D Hampton	26/10/78	Otaki	
WELT 61301	P J Brownsey	4/12/78	S. Karori Road, Wellington	Garden weed (spreading rapidly)
CHR 365251	C C Ogle	14/12/79	Taputeranga Island, Island Bay	Abundant on dry grassed slopes
CHR 357419	B A Matthews	3/1/80	Unahi Road, Awanui	Weed in flower garden
CHR 366112	A P Druce	-/4/81	Soil Bureau, Taita	Roadside (first appearance on property, 2 plants)
CHR 407197	E K Cameron	29/7/81	Symonds St, Auckland	Between tarsal and concrete garage
CHR 371907	F Allen	27/8/81	Horotane Valley, Chch	Beside glasshouses
CHR 275995	S Watheu	15/2/82	Hamilton	Weed in home garden
WELT 70345a	A E Wright	14/4/82	Tokomapuana Island, off Kapiti Island	Dense swards in scrub canopy openings
CHR 404545	C C Ogle	28/4/82	Te Waiorua, Kapiti I	Under 6m kanuka
WELT 70534a	C C Ogle	23/10/82	Wainui Farm, Paekakariki	Under grazed-out kohekohe forest
WELT 70462	C C Ogle	28/11/83	Maungakotukutuku, Paekakariki	Small clearing in tawa forest
WELT 70449	C C Ogle	30/3/84	Mana Island	<i>Coprosma propinqua</i> coastal scrub
CHR 418911	W R Sykes	18/4/84	Kilmore Street, Chch	Garden
CHR 455214	C C Ogle	13/5/87	Riversdale Beach	2 patches under pines
CHR 439689	W R Sykes	27/7/87	Scarborough Hill, Chch	Scrub below garden on steep slope
CHR 440116	C C Ogle	16/1/88	St Johns Hill, Wanganui	Unkempt garden
CHR 432896	C C Ogle	12/4/88	Moturoa Island, N Plymouth	Under taupata scrub

Table 1: Collections of *Ehrharta erecta* in the herbaria of Botany Division (CHR) and National Museum (WELT), listed in chronological order. Where more than one specimen is known from the same general location only the earliest collection is cited although all are plotted on Figure 1.

soil from one infested section for potting mix in my garden, and a small area of veld grass established in and around the pots. Even though this colony was eradicated, others in nearby properties were a continuing source of seed.

Today there is probably not one of the 400 or so properties at Pukerua Bay which is without this weed. Veld grass grows particularly well in the district's low fertility, sandy, loess-based soils, especially in bases of hedges, untended shrubberies, and on banks, but it will also grow well in open cultivated ground. It even establishes and persists in mown lawns. Grazing by livestock seems to prevent its establishment, perhaps because young plants are more easily pulled up than other pasture grasses. It grows readily, too, in the heavier clay soils of Wellington city, and it tolerates both dry and damp conditions — plants can be seen beside streams in the Botanic Gardens, in crevices between bricks in street-side walls, and even in large shrub containers of inner city thoroughfares such as Lambton Quay.

ORIGIN AND SPREAD

As discussed by Connor and Edgar (1987), some recent authors have referred New Zealand species of *Microlaena* to *Ehrharta*. However, Chippindall (1955) regards *Ehrharta* as an African genus of some 26 species, of which *E. erecta* is "widely distributed in the Cape, also from Natal, Basutoland, the OFS [Orange Free State] and Transvaal". Interestingly, Chippindall notes that *E. erecta* "has a tolerance of a wide range of climatic and edaphic conditions that is singular in the genus". She points out that in its native range it is an important and often dominant constituent of the undergrowth in many forests, occurs as a weed in disturbed areas, on hillsides, and even in sand on the coast.

As well as having established in New Zealand (Fig. 4), veld¹ grass is naturalised in Western and South Australia, New South Wales, and Victoria (Black 1978), and is recorded on the campus of Berkeley, University of California (Munz 1963).

There are some differences between authors in their use of a common name for *E. erecta*. Black (1978) follows South African usage of "panic veld grass" specifically for it, presumably because at least five other species of the genus are naturalised in Australia. In New Zealand there is only one other naturalised species of the genus, the very local *E. calycina* which is on coastal dunes of the Manawatu. Presumably the rarity of the latter species means that there has been no demand here for a distinguishing common name.

It had been my impression that veld grass was a relative new-comer to our region. It seemed to be little known in New Zealand until about 15 years ago and it spread rapidly around Wellington since then. An examination of herbarium material at Botany Division of DSIR and at the National Museum revealed that veld grass has been in New Zealand since at least 1943 (Table 1). Until 1955, all collections were from the Wellington region. An impression of its rate of spread can be gained from Figure 5. Although the manner of its introduction to New Zealand will probably never be known, it is possible that it came in imported cage-bird seed. The 1952 collection from Wellington Zoological Gardens (Table 1) supports this hypothesis; veld grass seed is eaten eagerly by caged finches and small parrots.

1 The spelling "veld" is favoured by New Zealand authors, including the Weed and Pest Control Society in its list of standard common names. In Australia, at least, "veldt" is used by some authors (eg Gardner 1952, Wheeler et al. 1982).

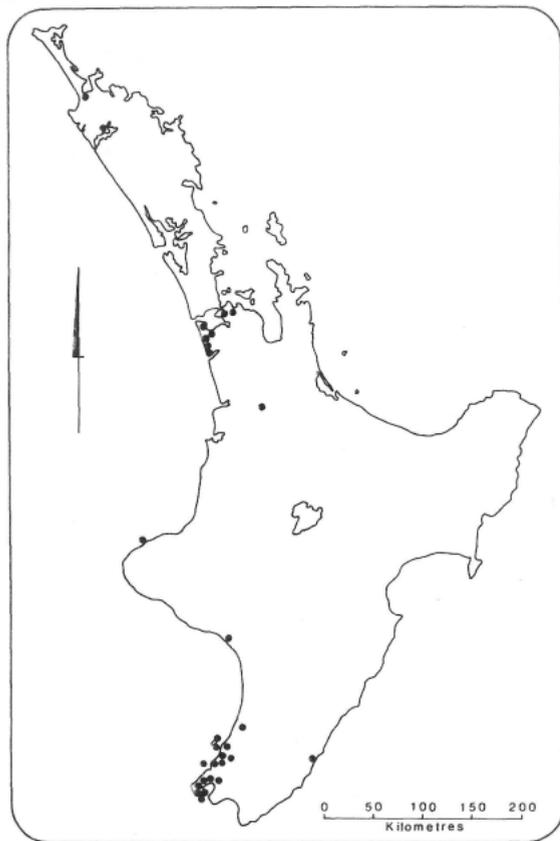


Fig. 4. North Island records of veld grass, based on herbarium specimens and, for Palmerston North, Dr M Forde (pers. comm.). There are three specimens in Botany Division herbarium (CHR) from the South Island (see Table 1).

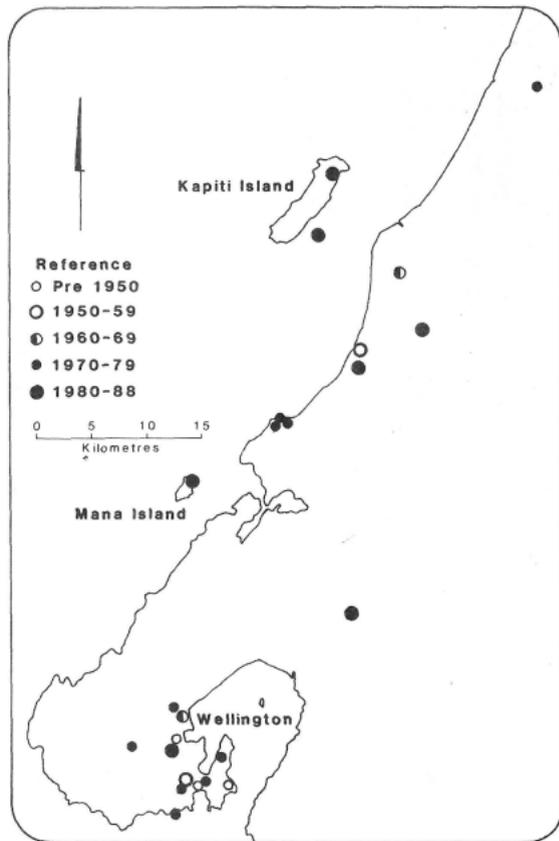


Fig. 5. The origins of herbarium collections of veld grass from the Wellington region, shown by decades from 1940 onwards (see also Table 1).

Veld grass is undoubtedly more widespread already than herbarium specimens show (Table 1, Fig. 4). Specimens which I gathered in 1987 at Riversdale (Eastern Wairarapa coast), and in 1988 at Wanganui and New Plymouth, all apparently "new" locations remote from other collections of the grass, attest to this. The species was not recorded in a botanical survey of Moturoa Island, 0.7 km offshore from New Plymouth, on 23 February 1981 (Boase et al. 1981). In April 1988 it was common over several square metres of the island's main ridge, and it was seen in gardens of central New Plymouth in the same period. The experienced team on Moturoa in 1981 was unlikely to have missed veld grass had it been present; the inference is that it arrived since then.

Veld grass was known to Dr Margot Forde (pers. comm.) around Palmerston North in the early to mid-1970's; Esler (1978) found it at that city's motor camp in 1968 but commented that it "does not seem to be established anywhere in the Manawatu".

THE FUTURE?

Many of the properties of successful weeds, as stated by Timmins and Williams (1987), are exhibited by veld grass, such as prolific seed production, effective seed dispersal, rapid germination and flowering, and tolerance of a wide variety of environmental conditions. One mystery is why it took more than 40 years from its arrival in Wellington to the point where it could be regarded as a common plant and an important weed.

Notes in Table 1 show that most collections are from sites disturbed or created by human activities. Even in forest, veld grass seems to be confined to canopy gaps. Although its ability to invade other types of native vegetation has not been studied in detail, veld grass seems likely to become an important weed in some situations. Around Wellington's coast it is already abundant and maybe smothering native species in some areas of low stature scrub dominated by *Coprosma propinqua* and *Muehlenbeckia complexa*. Meadow ricegrass has a similar, but probably less aggressive, role in these plant communities, and may be replaced by veld grass in time. On Kapiti Island and at Pukerua Bay, mats of veld grass overwhelm other ground cover species under tall kanuka (*Kunzea ericoides*) forest, and are likely to prevent, or at least reduce, the establishment of potential canopy trees like mahoe (*Melicytus ramiflorus*) and kohekohe (*Dysoxylum spectabile*).

Dr Forde drew my attention to experiments of Radcliffe and Dale (1964) with veld grass at Raumati, near Paraparaumu. They planted tufts of veld grass and other species to stabilise unconsolidated sand, and observed that establishment of veld grass compared "very favourably". It seeded freely at most times. In the second summer of the trial "individual transplants had spread to form a healthy dense mat . . . often surviving dry spells better than browntop and the ryegrasses" (loc. cit.). At the end of their paper, Radcliffe and Dale used a sub-heading: "caution". Beyond indicating that the trial showed the species "to be persistent, although not aggressive", the caution merely reinforced the virtues of veld grass for sand country lawns.

Whether directly encouraged or not, veld grass is here to stay. I predict that it will become an increasingly common weed in a wide variety of ungrazed sites through much of lowland New Zealand. Hand eradication is easy and worth attempting in the early stages of establishment in a new locality, but the chances are that by the time veld grass is recognised it will already have gone through

several generations of plants. When this has happened, only the most dedicated efforts are likely to wipe out a colony.

ACKNOWLEDGEMENTS

My thanks to Dr Margot Forde (Grasslands Division, DSIR, Palmerston North) for providing useful comments on an early draft of this paper and many extra references; to Mr Kenyon Moore of the same department for permission to use his sketches of veld grass; to Miss Bryony-Macmillan (Botany Division, Christchurch), Dr Patrick Brownsey (National Museum, Wellington) and Dr Anthony Wright (Auckland Museum) for their assistance in collating distribution data; to Drs Brownsey and Wright, and to Ms Susan Timmins and Drs Philip Simpson and Rob McColl (Department of Conservation, Wellington) for critical reading of drafts of this paper.

REFERENCES

- Black, J M. 1978. *Flora of South Australia, Part 1* (revised and edited by J P Jessop).
- Boase, M R; Clarkson, B D; Clarkson, B R; Waters, M. 1981. Moturoa Island. Checklist of the higher plants. Unpublished file note, Dept of Conservation, New Plymouth.
- Chippindall, Lucy K A. 1955. A guide to the identification of grasses in South Africa. Pp. 1-531 in *The grasses and pastures of South Africa* (Editor: D Meredith). Central News Agency, Parow, Cape Province, South Africa. 771p.
- Esler, A E. 1978. *Botany of the Manawatu*. Government Printer, Wellington. 206p.
- Gardner, C A. 1952. *Flora of Western Australia, Vol. 1, Part 1: Gramineae*.
- Munz, P A. 1963. *A California Flora*.
- Radcliffe, Joan; Dale, W R. 1964. *Ehrharta erecta* — a possible turf species for coastal sands. *New Zealand Institute for Turf Culture Newsletter No. 30:6-7*.
- Timmins, Susan M; Williams, P A. 1987. Characteristics of problem weeds in New Zealand's protected natural areas. Pp 241-7 in *Nature conservation: the role of remnants of native vegetation* (Editors: D A Saunders, G W Arnold, A A Burbidge, A J M Hopkins). Surrey Beatty and Sons, Chipping Norton, NSW, in association with CSIRO and CALM, Western Australia.
- Wheeler, D J B; Jacobs, S W L; Norton, B E. 1982. *Grasses of New South Wales*.