

**Gregor William Yeates**  
**PhD, DSc (Cantuar.), FSN, FRSNZ, FNZSSS**

19 May 1944 – 6 August 2012



Dr Gregor Yeates, a distinguished soil biologist, ecologist and systematist, died in his home town of Palmerston North on 6 August 2012 after a brief illness. Throughout his career he dedicated himself to understanding the ecology and systematics of soil organisms, primarily in New Zealand, and at the time of his death was an author of approximately 300 journal publications, spanning 45 years.

Gregor commenced his career with a BSc (with first class honours) in 1966 followed by a PhD in 1968, both completed through the then Department of Zoology at the University of Canterbury. His focus at that time was on characterising and understanding the communities of nematodes in New Zealand dune sands; prior to that the ecology of nematodes had seldom been studied in non-agricultural settings in either New Zealand or elsewhere. This work resulted in a series of nine papers produced in 1967 (e.g. Yeates 1967), while Gregor was still in his early twenties, representing some of the most detailed assessments of nematode communities ever conducted in natural environments.

After his PhD he carried out postdoctoral research at the Rothamsted Experimental Station in England in 1968–69, and at the Aarhus Museum of Natural History in Denmark in 1969–70, focusing on nematode community ecology, energetics and production in a Danish beech forest (e.g. Yeates 1972). On returning to New Zealand in 1970 he worked for the DSIR, first with Soil Bureau in Lower Hutt, then (following restructuring) from 1988 with the Division of Land Resources and from 1990 with DSIR Land Resources. Within three years of returning to New Zealand he was elected to the Rimutaka Ward of the Upper Hutt City Council for a term (1973–77) during which he also served on the Hutt Valley Drainage Board. While with Soil Bureau he was also awarded a Doctor

of Science (DSc) in 1985 from Canterbury University with a thesis on soil nematode populations. Following replacement of the DSIR by Crown Research Institutes in 1992, he worked with Landcare Research first in Lower Hutt, and from 1994 until his retirement in 2009 in Palmerston North, the city of his childhood. After retirement he continued his scientific work as an Honorary Research Associate in the Soil and Earth Science Group at Massey University until shortly before his death.

During his 39 years with DSIR and Landcare Research, he applied his skills tirelessly to a very broad range of topics and projects, the majority involving the ecology and systematics of soil nematodes, but many also involving other groups of fauna ranging from earthworms to grass grubs, and even Adélie penguins. While we cannot do justice here to all Gregor's contributions to ecology and soil biology, we now highlight what we see as some of his most significant and interesting contributions both in New Zealand and internationally.

- Although there has been much interest in the past two decades in characterising the role of soil nematodes in driving ecosystem processes, doing this in a satisfactory way requires the component nematode taxa to be placed reliably into feeding groups. Together with four overseas colleagues, Gregor prepared an exhaustive and much needed synthesis on which nematode taxa belong in which feeding group (Yeates et al. 1993) that has subsequently been very widely used as the definitive guide by ecologists; it has now been cited >900 times.
- Gregor, together with Dr Brian Boag from the Hutton Institute, Dundee, conducted invaluable work on the spread and impact of the invasive New Zealand flatworm *Arthurdendyus triangulatus*, a predator of resident burrowing earthworm species, in the northern UK (Boag & Yeates 2001). This serves as one of the earliest and most compelling examples of the indirect effect of an invasive predator on community and ecosystem processes resulting from its removal of prey species, a topic that has since attracted considerable attention.
- In his work on a long-term CO<sub>2</sub> enrichment ('FACE') experiment in a pasture near Palmerston North, Gregor and his colleagues demonstrated one of the first clear examples of the indirect effects of increasing CO<sub>2</sub> on soil food webs (e.g. Yeates et al. 2003; Yeates & Newton 2009), which highlighted the pervasive pathways through which enhanced CO<sub>2</sub> can alter communities through complex interactions.
- Several of Gregor's publications have focused on the potential of nematodes as bioindicators for environmental disturbance (e.g. Yeates 2003), and the ecological impacts of human disturbances, including those associated with agricultural intensification (e.g. Yeates et al. 1997). He has also written a number of influential review and synthesis articles that highlight the ecological role nematodes play in driving plant communities and ecosystem processes (e.g. Yeates 1987, 1999).
- In addition to Gregor's contribution to ecology, he also wore a second hat as a systematist. As such, Gregor proposed 106 nematode species (81 alone, 25 jointly), with the holotypes of 77 species being deposited in the National Nematode Collection of NZ (out of a total of 197 holotypes), as well as helping with several others.
- Gregor is also one of few soil biologists to have actively contributed publications to this journal. This includes an invaluable overview of the response of soil fauna to historical land use changes (Yeates 1991), and a study on

the above- and below-ground consequences of burning *Chionochloa* grassland (Yeates & Lee 1997).

- The breadth of Gregor's interests is apparent even through the last two published papers that he authored; one an assessment of the conservation status of New Zealand's nematode species (Yeates et al. 2012), the other an account of the above- and below-ground consequences of long-term loss of *Carmichaelia* on a floodplain in central Westland (St. John et al. 2012).

Gregor also generously contributed his nematode identification skills to many studies both in New Zealand and abroad and on a range of topics; and the publications that resulted from these studies would have been far lesser papers had it not been for his contribution. As such, Gregor was a highly valued collaborator in projects ranging from studying ecological impacts of invasive plants and animals, to understanding the below-ground community consequences of plant and foliar herbivore diversity and composition, to island geographical principles of treetop epiphytes, to the environmental impacts of land management and intensification.

While Gregor worked a lot by microscope, he also enjoyed fieldwork whenever the opportunity arose, both in New Zealand and abroad. One such example was in 1998 where Gregor and a mutual UK colleague (Prof. Richard Bardgett, University of Lancaster) visited one of us (DAW) in northern Sweden to participate in soil and litter sampling for several days on a group of lake islands; following that work the three of us then drove along the Norwegian coast, with Gregor actively searching for signs of invasive flatworms under any object that could be lifted; while no flatworms were to be found, we had a lot of fun not finding them.

Gregor particularly enjoyed editorial and reviewing work, and had served on the editorial boards of several journals (several up until shortly before his death, and some for well over 20 years) including *Pedobiologia*, *Biology & Fertility of Soils*, *Nematologica*, *Applied Soil Ecology*, *Fundamental and Applied Nematology*, the *Russian Journal of Nematology*, *New Zealand Journal of Zoology*, and *Journal of Nematology*.

Gregor's contribution to science, both in New Zealand and abroad, was recognised by a number of honours. He was made a Fellow of the New Zealand Society of Soil Science (NZSSS) in 1995; a Fellow of the Royal Society of New Zealand (RSNZ) in 1998; an Honorary Member of the RSNZ Manawatu Branch in 2004, and a Fellow of the Society of Nematologists (SN) in 2007. He was also chosen as the NZSSS Norman Taylor Memorial Lecturer for 2006. In addition, he performed a number of tasks for New Zealand's science community. As such he served on the RSNZ Member Bodies' Management Committee representing the branches during 1990–92 and on the Interim Board during 1992–97; later he served on the Research Grants, Awards and Academic Fellowship Board Committees. He was a Trustee of the RSNZ Endowment Trust Fund during 2010–12, and served in various roles on the RSNZ Wellington Branch Committee during 1981–94, including President during 1987–88. He served on the RSNZ Manawatu Branch Committee during 1996–2012, and was President during 1998–99. He was also President of the NZ Society of Parasitology during 1990–91. Gregor was also the New Zealand representative on the European Society of Nematologists from 2005 and had several roles in the Society of Nematologists, USA, between 1976 and 2008.

In his most recent years, he remained involved in a number of activities that served to communicate science to a broader

population than just his scientific peers. As such he assisted with an Auckland Bio-Blitz, and co-published *Plains Science 1* on scientific achievements in the Manawatu with Prof. Vince Neall. Gregor judged at Manawatu Science Fairs and mentored students in both Science Fair and CREST projects. Not long before his death he was assisting Bunnythorpe Primary School with their Science Fair projects, which led to the memorable quote from one of the students: 'Dr Yeates, you are so COOL'.

Gregor will be remembered not only as an extraordinary scientist, but also as a mentor and friend to many. He had a considerable and infectious enthusiasm for everything he worked on, which inevitably has a lasting impact on those who interacted with him. His contribution will be missed. He is survived by wife Judy; Peter, Stephanie, and Alexandra; Stuart and Jacqui.

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