1. Curriculum Vitae (in brief) for nomination to Ecosystem Science Council

Associate Professor Pauline Mele

Qualifications, Training & Awards

- PhD Microbial Ecology (Microbial Ecology of Cropping Soils), LaTrobe University (Commonwealth Scholarship) (1986-1991)
- Postdoctoral Research "Development of Inoculant delivery systems for non-legume crops" (Joint project: Institute for Agronomic Research, INRA Dijon and Liphatec Lyon, France) (1993-1995)
- Advanced Project Leadership Program Mt Eliza Business School (2005)
- Collaborative leadership program (2014-2015)
- Land and Water Australia Senior Research Fellow (2008-2010)

Current position

- AgriBio Joint Appointee DEDJTR/LaTrobe University
    - DEDJTR: Principal Research Scientist- Soil Microbial Ecologist
    - LaTrobe University: Associate Professor Microbiology.

Current responsibilities & interests

- GRDC Soil Biology Initiative Coordinator (2009-2015; 17 projects $20M); developed a business case for investment (approved by GRDC Board), an evaluation approach (eg MERI) and a BCA
- Consortium co-leader BASE- Biomes of Australian Soil Environments Program with BioPlatforms Australia Ltd ($1.2M; 2010-present). Coordinate monitoring activities on agricultural land (18 project partners).
- Advocate for Soil Health (Major General Michael Jeffery)- member of Soil Consultative Group; provided specialist advice to set the strategic direction and coordination of soil research in Australia.
- Member of Working Group to establish global standards for monitoring Soil Biodiversity (UN funded Global Biodiversity Initiative fund) November 2014-present

Relevant communications

Journals:

Bissett, A., Fitzgerald, A., Meintjes T., **Mele, P.M.** et al **(2016).** Introducing BASE - the Biomes of Australian Soil Environments soil microbial diversity database. *GigaScience **5:21*** doi: 10.1186/s13742-016-0126-5

Chapman, R., et al. and **Mele, P.M. (2012).** Development of an environmental microarray to study functional genes in Australian soil agroecosystems. *Pedobiologia,* 55 (1):41-49

Bennett, LT, **Mele, PM**, Annett, S, Kasel, S. **(2010).** Examining the links between soil management, soil health, and publicbenefits in agricultural landscapes: An Australian perspective. *Agric, Ecosys &Environment.* 131: 1-12

Books/chapters:

Global Soil Biodiversity Atlas (2016) Orgiazzi et al (eds) EU Publications Office Luxembourg, 176pp; Chapter III – Geographical and Temporal Distribution; Anthropogenic ecosystems- Agroecosystems pg 88**;** Chapter VII - Policy, Education and Outreach; Global Soil Biodiversity Assessment pp158-159

Mele, P.M. (2011). Soil health, soil biota and climate change. Chapter 8. In 'Soil Health and Climate Change'. Editors: Bhupinder P Singh, Annette L Cowie & K Yin Chan. Soil Biology Series (Springer, Amsterdam).

Conferences:

P.M. Mele, et al **(2014).** Biomes of Australian Soil Environments (BASE): a dataBASE of Australian soil microbial diversity. First Global Soil Biodiversity Conference (2-5 December 2014 | Palais des Congrès, Dijon, France)

P.M. Mele and M. Blumenthal **(2014).** Harnessing the Biological Potential of Australian Cropping Soils Proceedings of the 6th World Congress on Sustainable Agriculture, Winnipeg, Canada (21-24th June 2014).

Television:

Australian Broadcasting Commission (ABC) Landline Program Feature 'Unlocking the soils secrets' November 2012.Full length feature, Soil Biology Initiative.

2) Statement of my motivation for nominating on the Ecosystem Science Council and capacity for the role (*for* Associate Professor Pauline Mele)

As a soil microbial ecologist I have a passion for promoting and protecting all ecosystems and particularly one that has long been overlooked; the soil microbial ecosystem underpinning food and fibre production. Over the past 30 years, I have been supported in my RD&E by a range of rural industries including the Grains Research and Development Corporation (GRDC), the Wine Australia (AGWA), Dairy Australia (DA), the now defunct Land and Water Australia (LWA), and the Rural Industry Research and Development Corporation (RIRDC). These industries represent the interests and priorities of stakeholders from a variety of industries (eg land holders, advisers/consultants, researchers) that together identified soil biology as 'the last frontier' of knowledge and the least understood component of the soil resource. Together with science colleagues, I have attempted to do 3 things; 1) provide a better understanding of the significance of soil microbial communities in delivering essential ecosystem goods and services, 2) to quantify the long-term impacts of current soil management practices and 3) to devise solutions for managing soils to better promote and support these biological communities.

State of the Environment reporting has highlighted over many years the continuing degradation of the soil resource (eg acidification, salinisation, wind and water erosion) but has failed to consider the degradation of the complex and diverse biological communities that reside in soils and deliver many critical services (eg nutrients, C sequestration, disease control, pesticide degradation etc). I have significant concerns regarding the lack of awareness and understanding of Australia's ecosystems particularly those associated with food and fibre production. This concern extends to our limited ability to link ecosystems in space and time and the knock on consequences of human activities (eg agroecosystems and coastal ecosystems).

The release of the Foundations for the Future document highlights the priorities for action and provides a much needed focus on some key directions. My personal interests align with several of these priorities, particularly those around data management and access, long term monitoring and inspiring a generation. Recognition of the importance of these factors and some emergent challenges has been reinforced through my involvement in the development of soil quality (www.soilquality.org.au) and soil biodiversity monitoring programs (www.bioplatforms.com.au/special-initiatives/environment/soil-biodiversity). The importance of consistency, accessibility and interpretability is an ongoing issue and linkages to like-minded scientists and programs eg Earth Microbiome Program, www.earthmicrobiome.org, will only assist in building a consistent global picture of the health and status of our ecosystems.

Building and linking capabilities and communicating messages tactically are key to increasing awareness of the value of soil ecosystems to the wider community. Creating broader awareness of the plight of our ecosystems based on robust long term data is the most effective way to convince people that a problem is real and then motivate them to take action. Indeed, GRDC's Soil Biology Initiative (SBI-II; 2009-2015), recognised that greater awareness is a critical first step to achieving broad scale on-farm practice change related to soil management. Effective communication through deliberate targeting of stakeholders is endorsed by the global soil biodiversity community (See First Global Soil Biodiversity Symposium, Dijon France 2014) who cooperated in the development of the Global Soil Biodiversity Atlas that was launched recently in Parliament House, Canberra (10th October 2016) by Assistant Minister to the deputy Prime Minister Hon. Luke Hartsuyker and the Minister for the Environment and Energy, Hon Josh Frydenberg. Such events provide a much needed platform to promote awareness of the long-term economic benefits/services of our ecosystems and reinforce the urgent need for their protection.

My connections and experience with the food and fibre industry, particularly the long term exposure to the 'production efficiency ethos' gives me unique perspectives that may help bridge the cultural gap between the natural and managed ecosystem science communities. As coordinator of a national industry supported initiative, I have some appreciation for the challenges associated with managing the often conflicting interests of stakeholders from researchers, to farmers, to commercial agronomists, advisers/consultants. Experience has shown that identifying common interests and mutual benefits is the best way forward. This is very difficult if there is limited shared understanding of the underlying ecosystem and therefore poor articulation of the threats to the identified benefits. As a scientist, I recognise the power of evidence-based

information and critical need for tactical narrative to engage these diverse interests. Further authentic collaboration involving all of these interest groups may also provide a way forward, though to date there is few examples of this in agroecosystem science.

The Foundations for the Future long-term plan was developed and distilled by the Australian ecosystem science community. This approach generated six key directions which I fully support because they emerged from a spirit of collaboration and cooperation and align broadly with the RDE priorities of my own R&D team in AgriBio, Melbourne. My two year involvement in the Ecosystem Science Council has enabled me to consider more broadly the issues and challenges associated with ecosystem science in Australia. While often operating outside my comfort zone, I have thoroughly enjoyed offering support to 2 of these key directions; Inspiring a Generation (IaG) and Making the Most of Data Resources (DR) and more broadly in the promotion of the ESC. I remain energetic and passionate in my efforts to maintain the momentum that has been established through the working groups and recognise there is much work to be done, particularly in attracting investment to facilitate actions developed by these groups. I would therefore be delighted to be considered for another term on the ESC.

3) Declaration of commitment to Ecosystem Science Council

I, Pauline Mele, subscribe to the principles and ideals outlined for the Ecosystem Science Council, and are willing to commit the required time and energy to undertake the Council's work.

Signature: 

Date: 10th October 2016