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Editorial

Teaching and research: challenges for academic staff

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I enjoyed the recent Editorial in *Pacific Conservation Biology* by Mike Calver on the scholarship of teaching conservation biology (Calver 2015). The challenges faced by academic staff in universities who teach and undertake research are real. I agree with Calver (2015) that publishing papers on teaching initiatives provides opportunities for academics to contribute to the scholarship of teaching. Publishing papers about tertiary teaching can help academics to maintain their publication rate while engaging in teaching (see Tomcho *et al.* 2015).

Publishing papers about teaching is only part of the solution to the challenges faced by academics who teach and do research. High, and sometimes unrealistic, expectations are placed on academic staff at universities who teach students and conduct research. Such staff are expected to have substantial research inputs (grants) and research outputs (papers), to provide high quality teaching to undergraduates and other coursework students, to supervise several post-graduate students, and to participate in administration and outreach. Calver's (2015) point about promotion committees at universities valuing research productivity over teaching is valid.

The expectations placed on academics who teach and do research are exacerbated by lack of understanding about levels of research productivity expected from different types of academic staff. While formal documents may specify different levels of research productivity required from research and teaching staff compared with research only staff, such differences are not emphasised in practice. Implicitly, if not explicitly, the research productivity (grants and papers) of teaching and research staff is often expected to be commensurate with that of research only staff. As one teaching and research academic said to me – the message to all academic staff from university management is write more papers (I would add – and publish them in highly cited journals, see Calver 2014 and references therein). Expecting similar levels of research productivity from teaching and research staff as from research only staff is unreasonable and unrealistic.

The demand for unrealistic levels of research productivity from academic staff who teach and conduct research could be resolved by delineating categories of academic staff according to the allocations of their time to teaching and to research, and then defining and clearly communicating reasonable levels of research productivity expected from staff in the categories. The categories vary between universities, but broadly there are five groups of academic staff according to the breakdown of their time into teaching and research. The groups are: teaching only, teaching and research (relative time allocations from 50 : 50 to 30 : 70 either way), research only (post-doctoral fellows), research only (research and professorial fellows), research only (paid from contract funds, various titles of positions). Some research only staff give some lectures, but usually only for a few hours per semester. Defining and clearly communicating reasonable levels of research productivity expected from staff in the different groups would alleviate some of the tension caused by unrealistic demands on teaching and research academics for high research productivity. (Staff doing research on contract funds have other challenges in maintaining research outputs through papers, but this problem is outside the scope of this editorial.)

The high and unrealistic expectations of research inputs and outputs from teaching and research academics exacerbate another problem. Graduates from undergraduate courses in environmental science in Australian universities mostly obtain positions in conservation and environmental management and policy. Few become scientists. Conservation and environmental managers and policy officers need a solid understanding of the science of their profession. Equally importantly, they need a strong understanding of the management and policy aspects of their profession, for example, working with stakeholders, communication skills, problem solving skills, managing projects and contractors, developing priorities, and legislation (see Thomas and Nicita 2003, Muir and Schwartz 2009, Blickley *et al.* 2013, Rupp 2012). Such understanding is learnt best through tutorials using scenarios based on real world problems, as Calver (2015) briefly discusses. Perhaps Environmental Science courses should be called Environmental Science and Management, to reflect the professions for which they are training students.

Academics who teach and are under pressure to have high research productivity struggle to find time to prepare tutorials that expose students to real world problems in environmental and conservation management and policy. Tutorials that provide scenarios about real world problems in conservation/environmental management and policy are best run in conjunction with practitioners, that is, with people in relevant business, government and non-government organisations. Academics need to develop and maintain networks to know and interact with such people. Developing and maintaining such networks is time consuming. Academic staff who both teach and are expected to have high research productivity rarely have time to interact with conservation and environmental managers and

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policy makers about teaching, or to prepare tutorials with these practitioners using real world scenarios. Students thus miss out on opportunities to learn skills in conservation and environmental management and policy.

I recommend that universities state and clearly communicate the levels of research productivity expected from academic staff, according to the relative allocations of academics' time to teaching and research. The research productivity expected from staff who teach and do research should be realistic, and should make allowance for the time required to develop and run tutorials that address real world problems in conservation and environmental management and policy. Such tutorials should teach problem solving and other skills required for conservation and environmental management, and for development and implementation of policy. The tutorials should be run with practitioners.

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