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Healthier land, healthier farmers: Considering the potential of natural resource management as a place-focused farmer health intervention



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ABSTRACT

Farmers have particular wellbeing-related vulnerabilities that conventional health interventions struggle to address. We consider the potential of natural resource management (NRM) programs, which reach large numbers of farmers, as non-conventional place-focused wellbeing interventions. Although designed to address environmental degradation, NRM can influence the wellbeing of farmers. We used qualitative meta-synthesis to reanalyse studies examining social dimensions of NRM in Australia and generate a theoretical framework identifying potential pathways between NRM and wellbeing, intended to inform subsequent empirical work. Our results suggest NRM programs influence several important determinants of farmer wellbeing, in particular social capital, self-efficacy, social identity, material wellbeing, and health itself. The pathways by which NRM influences these determinants are mediated by distal factors such as changes in land conditions, farmer skills and knowledge and resources accessible to farmers. These, in turn, are moderated by the design and delivery of NRM programs, suggesting potential to enhance the health benefits of NRM through specific attention to program design.

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1. Introduction

The occupation of farming is 'associated with a unique set of characteristics that is potentially hazardous to mental health' (Fraser et al., 2005, p. 340), a sensitive indicator of poor overall wellbeing. Many, but not all, studies comparing farmers and non-farmers have identified that farmers have higher rates of mental illness than non-farmers (Fraser et al., 2005; Berry et al., 2011a; Hounsome et al., 2012) and it is well accepted that at least some groups of farmers (defined here as all people involved in managing rural properties for commercial agriculture) have demonstrably poorer mental and physical wellbeing than non-farmers (Berry et al., 2011a). Strikingly, even farmers scoring positively on mental health or wellbeing measures appear more likely than non-farmers to feel hopeless about the future, have suicidal ideation or complete suicide, a contradiction not yet fully understood but apparent in several countries (e.g. Boxer et al., 1995; Thomas et al., 2003; Berry et al., 2011a).

Farmer uptake of mental health support services is low (Hart et al., 2011), reflecting both limited or inappropriate provision of services in rural areas and social stigma about accessing them (Boxer et al., 1995; Gregoire, 2002; Robinson et al., 2009; Polain et al., 2011). Increasing

attention is being given to novel health interventions delivered outside the mainstream health sector that may better reach farmers, as evidence builds that these can be effective. For example, Kilpatrick et al. (2012) found that health interventions were most successful if access to them was facilitated by local community groups and industry associations.

In this paper we examine the potential of natural resource management (NRM) programs to serve as human health interventions focused on place (the farm and farming landscape), concurrently with their benefits for the environment. By 'health intervention', we are not suggesting that current NRM practitioners – largely trained in environmental science – should be expected to take on the role of health professionals. Rather, we are examining whether and when the wellbeing co-benefits of NRM may warrant further action, such as establishing a dialogue between the health and NRM sectors to ensure that both are aware of the activities they deliver to the same groups of landholders, and identify opportunities to cooperate to better meet both goals. Precedents already exist for this. For example, many Australian NRM networks now deliver frontline mental health training in recognition of the fact that, with farmers often unwilling to seek medical assistance, NRM professionals are often confronted with farmers in severe distress, and need skills to recognise these issues and refer farmers to appropriate assistance services (see for example Perrie, 2012). NRM groups are also used to deliver mental health courses to landholders (Kilpatrick et al., 2012). Our contention is that, by recognising and leveraging any identified co-benefits of NRM so

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Box 1–Types of NRM action.

Natural resource management (NRM) aims to address environmental degradation. Common ways in which NRM action is taken include (Marshall, 2011; Schirmer et al., 2012):

- **Group-based collaborative action:** Groups of farmers and other stakeholders work together to address land degradation, often with the support of government funding or government-appointed group facilitators. The best known example is the Australian ‘landcare’ movement.
- **Grants:** The provision of funds to farmers by governments or non-government organisations to undertake land rehabilitation activities such as tree planting, fencing of sensitive areas, etc. These grants vary in form and design: some cover costs of materials; some of labour; others of both; many European schemes provide annual payments to farmers in return for managing their land to provide environmental services. Recipients are determined in a range of ways, from market-based instruments such as auctions, to direct delivery of grants to pre-identified landholders
- **Extension, education and training:** The provision of external expertise to advise and train landholders in managing their land to improve its environmental condition
- **Government regulation:** Regulation constraining how landholders may manage their land or the resources they can access
- **Landholder action:** Independent action by landholders without assistance from other organisations.

In many regions, a combination of these methods is used. In Australia, for example, state and federal governments have changed regulations; funded collaborative NRM action in the form of landcare groups (with over 4000 landcare groups established by 1998, and 30% of all Australian landholders involved in a group) (Sobels et al., 2001, p. 266); and supported both individual landholders and collaborative NRM groups through provision of extension and funding grants. A bewildering variety of mechanisms have been used to allocate funding grants, and to determine who receives NRM funding, and for what purpose. In this paper we do not attempt to review the pros and cons of different approaches, but rather identify when a particular method of NRM delivery is likely to confer different pathways to wellbeing.

they complement conventional health interventions, there is potential to enhance wellbeing outcomes in rural and regional areas.

The term ‘NRM’ refers to policies and programs, delivered by government or non-governmental organisations, which help farmers address environmental and land degradation through actions such as revegetating areas of land, protecting streams, or altering their farm management practices (Box 1 describes various forms of NRM). As a potential intervention, NRM has a broad scope because it reaches large numbers of farmers. Across Europe, 20% of utilised agricultural land is under some form of agri-environmental scheme, with over 20 billion euros invested between 2007 and 2013 (Espinosa-Goded et al., 2013); in Australia, more than 30% of farm businesses have participated in ‘landcare’, one particularly prominent NRM program (Curtis and DeLacy, 1998).

Although NRM is not concerned with human health, studies have established that farmers are often highly sensitive to changes to their land and their relationship with it, as we identify further below (Albrecht et al., 2007; Higginbotham et al., 2007; Berry et al., 2011b). Farmer identity tends to be strongly linked to specific place, and farmers’ sense of worth (and mental health) dependent on their success as a steward of land and agricultural producer (Burton and Wilson, 2006; Polain et al., 2011). Further, farmer wellbeing is influenced by several occupation-specific stressors that, while also influencing other groups, affect farmers in specific ways (Malmberg et al., 1997), including drought, flood and pest/weed outbreaks; farm economic pressures, such as rising farm input costs and volatile agricultural commodity prices; complex government bureaucracy and regulation of farming; and social isolation of farmers (Ragland and Berman, 1991; Boxer et al., 1995; Malmberg et al., 1997; Gregoire, 2002; Thomas et al., 2003; Fraser et al., 2005; Judd et al., 2006; Freeman et al., 2008; Hossain et al., 2008; Berry et al., 2011a; Brumby et al., 2011; Das, 2011; Polain et al., 2011; Hanigan et al., 2012). Thus, it is reasonable to hypothesise that programs designed to address environmental and land degradation may also have co-benefits for farmer wellbeing.

There are compelling reasons to explore the potential of such co-benefits, and to consider the idea of NRM as a place-based health intervention. Environmental degradation has been shown to have negative impacts on farmers’ mental health (Higginbotham et al.,

2007). For example, Albrecht et al. (2007) found that farmers exposed to persistent drought in rural Australia experienced higher levels of psychological distress as a consequence, while Speldewinde et al. (2009) identified an association between higher incidence of dryland salinity, and incidence of depression in Western Australia. This suggests that addressing degradation through NRM may improve wellbeing. NRM may also provide wellbeing benefits beyond those associated with reduced environmental degradation, with previous studies reporting findings suggestive of NRM building increased social capital and higher self-efficacy (e.g. Mortlock and Hunt, 2008; Roche and Rolley, 2011), and improved material wellbeing (Greiner and Stanley, 2013). Overall, NRM has potential for wellbeing benefits that may achieve ‘substantial direct savings of health care costs and avoided and reduced individual and social impacts’ (Johnston et al., 2007, p. 496, citing Baker et al., 2005). Equally important, NRM has potential to worsen wellbeing and thus counteract other health or social interventions (Greiner and Stanley, 2013), with multiple studies identifying trade-offs between human wellbeing and reversing environmental degradation (e.g. McShane et al., 2011). For example, landholders may be asked to participate in activities that improve the ecological condition of their land but also reduce the area available for agricultural production, with attendant reductions in farmer income.

Despite the documented potential of NRM to influence farmer wellbeing, the pathways by which it may do so are not well understood (Dyack and Greiner, 2006). In fact, we identified only one study that examined *how* NRM programs that address environmental degradation influence farmer health and wellbeing (GSAHS, 2010). This task is particularly important given that some studies have identified trade-offs between reversing environmental degradation and human wellbeing (Greiner and Stanley, 2013), arguing that addressing degradation sometimes involves reducing the wellbeing of some groups (e.g. McShane et al., 2011).

In this paper, we begin to address this gap by identifying the likely pathways through which NRM influences farmer wellbeing and factors that may moderate these relationships, an essential first step in exploring the potential of NRM as a health intervention. While almost no research directly examines *how* NRM influences farmer wellbeing, multiple studies allude to it, including research examining farmer and volunteer engagement in NRM, the health

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