Social acceptability of a Duty of Care for Biodiversity

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ABSTRACT
Biodiversity in Australia continues to decline despite substantial government efforts to promote conservation. A statutory duty of care for biodiversity could promote positive outcomes and complement existing regulatory and voluntary approaches. Interest in a duty of care has been persistent, but progress elusive. Two interrelated issues around the social acceptability of a statutory duty of care are impeding progress: (a) the absence of a practical framework to facilitate its implementation, and (b) concerns about the acceptability of a legal instrument to landholders. In this paper we present research that for the first time in Australia, addresses the social acceptability of a duty of care for biodiversity, drawing on data from surveys in two Victorian regions. Our findings suggest there is broad acceptance of ‘duty of care’ as an abstract concept, but diminished support for its detailed implications. Farmers in particular, are concerned about the potential for wider community input, the prospect of a legally defined instrument, and the use of industry standards as a surrogate measure for compliance with a duty of care. These findings suggest that efforts to introduce a statutory duty of care need to engage farmers closely.

Key words: duty of care; biodiversity; Australia; regional catchment management; policy instruments; social acceptability

INTRODUCTION
Despite substantial financial investment by Australian governments in arresting environmental degradation, success continues to be elusive, particularly where biodiversity conservation in agricultural landscapes is concerned. In these altered landscapes, more effective policy and implementation measures are needed (Cork et al. 2006).

It is widely accepted that no single policy instrument will adequately address biodiversity needs (Gunningham & Grabosky 1998, Pannell 2005). In Australia the main policy approaches employed to achieve biodiversity outcomes on private land over the past three decades have been:

- Legislation and regulation;
- Suasion in the form of programs providing education, information and training; and
- Financial instruments including grants, rate rebates and subsidies, and more recently market-based instruments (Cocklin et al. 2007).
Characteristically, biodiversity regulation has focused on prohibiting or restricting activities that reduce the quantity of assets. Legislation is typically framed to address particular aspects of biodiversity conservation, for example, threatened species, e.g. the *Flora and Fauna Guarantee Act 1988*, or broad-scale clearing, e.g. the *NSW Native Vegetation Act 2003*, consequently excluding some elements of biodiversity and not providing for ongoing management of ecological processes. More recently, regulatory provisions such as the Native Vegetation Framework in Victoria have incorporated measures of habitat condition (DSE 2008a).

Statutory approaches have been poorly received by many private landholders. Much of this resistance has been attributed to landholder perceptions that limitations on property rights implicit in conservation legislation are invalid (Farrier 1995), and a belief that the costs of biodiversity conservation are unfairly borne by landholders (Martin et al. 2007). In practice biodiversity legislation has been costly to administer (Carruthers & Vanclay 2007; VAGO 2009), difficult to enforce (Bates 2001; Martin et al. 2007), and poorly designed for its application on private property (Gunningham & Grabosky 1998).

Given these constraints, governments have made substantial investment in voluntary approaches that rely on engaging and building human and social capital and sharing the costs of on-ground work. These programs have enhanced the commitment and capacity of some landholders and led to substantial on-ground work (Curtis 2000). However, a substantial proportion of landholders have not been engaged through these processes and actions engendered have not been sufficient to effect large scale improvements in environmental condition (Curtis 2000; Curtis et al. 2008b; Pannell et al. 2006).

A mechanism for recognising minimum standards of acceptable biodiversity management, irrespective of threat status, tenure, or life-form, could occupy the policy ‘space’ between existing regulatory instruments and voluntary approaches, and provide a ‘safety net’ extending some measure of protection to all biodiversity. A statutory duty of care has been proposed as a potential mechanism to fulfil this role (e.g. Industry Commission 1998; HRSCEH 2001). Progress towards implementation of a statutory duty of care for the environment generally, and biodiversity specifically, has been intermittent, stymied by a number of impediments including a lack of clarity about what ‘duty of care’ means in an environmental context, and uncertainty about how it could be implemented fairly and transparently. A major policy review of land and biodiversity management in Victoria (DSE 2008b) has rekindled interest in an environmental duty of care.

In this paper we explore the social acceptability of a statutory duty of care for biodiversity, and draw on data from landholder surveys in two Victorian regions, the Corangamite and
Wimmera catchments (Curtis et al. 2006, 2008a). Social acceptability is an essential element of public participation in the development of public policy (Stankey & Shindler 2006), and without broad public support a particular policy instrument is unlikely to persist, regardless of its scientific basis or economic advantages (Howe et al. 2005; Martin et al. 2007). Where statutory regulation is involved, weak social acceptability may lead to high costs for regulatory authorities, associated with enforcement, and a loss of goodwill from affected people (Davies & Hodge 2006).

Current social acceptability research draws mainly on the Theory of Planned Behaviour (Ajzen 2005) which examines the relationship between beliefs, attitudes and behaviour. The Theory of Planned Behaviour emphasises the importance of understanding how judgements are made about whether or not to accept a proposition. Making judgements involves more than just reviewing and weighing up factual information; judgements evolve from a complex suite of factors including individual and cultural contexts, knowledge and understanding of alternatives and consequences, and trust in decision makers (Shindler et al. 2002). The idea of judgement also implies comparative assessment of options (Howe et al. 2005; Stankey & Shindler 2006).

In the following sections we explain the concept of a duty of care for biodiversity and discuss in more detail issues surrounding its implementation; explain the methods used in the landholder surveys; discuss the main findings; and reflect on the implications of our findings for natural resource management policy and implementation by regionally based catchment organisations.

**BACKGROUND**

**Duty of care**

‘Duty of care’ is imposed on people, usually by society or governments, and reflects existing social norms or ones that governments are seeking to establish. The duty of care requirement to take ‘reasonable steps’ to avoid ‘foreseeable harm’ is obligatory, not voluntary, and is specific to a class of objects (e.g. workers, students, patients, natural resources). A duty of care is usually enshrined in legislation, often accompanied by codes of practice or guidelines developed to give clearer understanding of what the duty entails (Earl et al. in press). The concept of duty of care is grounded in common law (based on precedence established in earlier judgements) and is most readily understood in relation to the law of negligence. Liability for negligence may arise if:

a. A person has a duty of care to another person or their property;

b. They have not taken reasonable steps in carrying out or not carrying out actions, and;
Because of these actions or non-actions, any harm to the person or their property was reasonably foreseeable (Bates 2001, 2006).

However, the common law focus on protecting people and their property has resulted in little or no concern for the environment or matters of public interest (Gardner 1998) and it is currently viewed as ineffective in addressing such matters (Lyster et al. 2009).

Other problems with a common law duty of care exist in a biodiversity context. These include difficulties in establishing standing for third parties (Bates 2006; Bonyhady 2000; Lyster et al. 2009); variable interpretations of cause-effect relationships where cumulative impacts from non-point sources are often involved (Bradsen 2000; Gardner 1998); a reactive approach that deals with harm after the event (Bradsen 2000; Lyster et al. 2009) and requires proof (Bates 2006); dependence on actions being brought to court (Lyster et al. 2009); potentially high costs which act as a strong deterrent to initiation of complaints (Bonyhady 2000); and variable interpretations by judges (Bates 2001).

**A statutory duty of care for biodiversity**

A statutory duty of care could potentially augment existing mechanisms for protecting biodiversity, by specifying measures designed to avoid foreseeable harm. The Industry Commission (1998) set out a model for an environmental duty of care, while Binning and Young (1997) suggested that the costs of meeting a duty of care should be incorporated into normal farm management. Bates (2001) suggested a statutory duty of care for biodiversity would be a useful vehicle for articulating broad-based management standards, if used in conjunction with other policy instruments such as voluntary programs and financial incentives.

A legislated duty of care for biodiversity also faces some serious implementation challenges. These include questions about who (or what) a duty of care should be owed to, who should have standing to bring an action to court on behalf of biodiversity, the acceptability amongst landholders of allowing a broadly defined community to have some say in how they manage their land for biodiversity, and the prospect of having articulated standards for biodiversity management determined in conjunction with industry representatives.

**A duty of care to…?**

In its common law sense a duty of care may exist between one person and another (or their property). Codification of duty of care in statutory law often preserves this interpersonal relationship, even in environmental statutes, e.g. the Victorian *Catchment and Land Protection Act (1994)* where:
“a land owner must take all reasonable steps to avoid causing or contributing to land degradation which causes or may cause damage to land of another land owner” (Sec 20.1.a).

The potential designation of a duty of care to biodiversity represents a significant departure from its original application in the eyes of some lawyers (R. Duncan, Charles Sturt University, 2006, pers. comm., 9 August), albeit a potentially beneficial one (e.g. M. Raff, University of Canberra, 2006, pers. comm., 22 September). Others, (e.g. G. Bates, University of Sydney, 2006, pers. comm., 21 August) consider such adaptation of the concept as being appropriate for today’s circumstances. An alternative approach, specifying a duty of care to the interested community, for biodiversity, offers some potential benefits. A duty to the community that values and is interested in biodiversity, would retain the anthropocentric character of the traditional duty of care concept, while giving a needed voice to biodiversity, and the environment more broadly (Martin & Verbeek 2006).

**Standing**

Standing provisions determine who has the right to bring an action in court. In New South Wales, most environmental statutory legislation has provided open standing for ‘any person’ for over twenty years (Lyster et al. 2009). In contrast, more restrictive standing provisions have been set in other jurisdictions. For instance the Environment Protection and Biodiversity Conservation Act 1999 affords standing to affected individuals, or those with an interest based on defined criteria. Standing may also be extended to organisations (Lyster et al. 2009). The importance of providing avenues for public participation in environmental legislative processes has been stressed repeatedly (e.g. ANEDO 2009; McGrath 2006; Preston 2005). We suggest a duty of care owed to the interested community would need to be supported by open standing provisions. Promoting public participation through open standing provisions could potentially allow the ‘interested community’ to fulfil a role as surrogate regulator (Gunningham & Grabosky 1998), thus expanding the number of actors involved in regulatory enforcement.

**Standards for biodiversity management**

Under a statutory duty of care for biodiversity, performance-based measurable outcomes would indicate that requirements of the duty had been met. In recent years the use of performance-based standards has gained currency in a wide range of policy settings including health, safety and environment (Coglianese et al. 2002). Purported advantages of performance-based standards include flexibility that results from a focus on outcomes rather than practices, providing scope for development of customised and innovative ways to achieve regulatory goals (Coglianese & Kagan 2007).
In associated research we have developed a framework outlining how a statutory duty of care for biodiversity could operate in regional catchment settings of Australia (Earl et al., in press). In our proposed framework, the standards would focus primarily on desired outcomes for biodiversity, and responsibility for determining them would be borne by a series of sub-catchment, community-based committees, including local and non-local members, thus providing an avenue for a wider ‘interested community’ input (Harrington et al. 2008). Once those desired outcomes had been determined, landholders in the sub-catchment would have a legal responsibility to manage their land in ways that would contribute to their achievement (Earl et al. in press).

But how acceptable is the concept of a statutory duty of care for biodiversity? To begin to answer this we draw upon empirical research in two Victorian regions, the Corangamite and Wimmera catchments (Curtis et al. 2006, 2008a). In mail surveys rural landholders were asked to respond to propositions reflecting key concepts embedded in our framework. Information provided by the survey respondents has been analysed to assess the social acceptability of a duty of care for biodiversity amongst rural landholders in Victoria.

**The study areas**

The two study areas, Corangamite and Wimmera catchments, are located in western Victoria (Figure 1) encompassing approximately 13 340 km$^2$ and 30 000 km$^2$ respectively (Curtis et al. 2006, 2008a). Together they represent a typical slice of regional Victoria, excluding irrigation districts along the Murray in northern Victoria, encompassing diverse bioregional (VRO 2008) and social landscapes (Barr et al. 2005), and accommodating a broad suite of industries and land tenures.

![Figure 1. Map of study areas](image-url)
**Corangamite region**
The Corangamite region is home to approximately 330,000 people, most of whom live in the cities of Geelong and Ballarat (CCMA 2003). The biophysical landscape incorporates varied features including the wet, mountainous ecosystems of the Otway Ranges, the coastal plains of the Warrnambool Plain and Otway Plain bioregions, the extensive grassy ecosystems of the Victorian Volcanic Plain, and the forest and woodland ecosystems associated with hilly areas of the Central Victorian Uplands in the north east part of the region (VRO 2008). On average 75% of the pre-European vegetation has been cleared in the Corangamite region, but in the Victorian Volcanic plain it is estimated that only 3.6% of the native vegetation remains. Wetlands occupy some 65,000 ha in the region and include a number of RAMSAR listed sites (CCMA 2003).

**Wimmera region**
The Wimmera region has a population of approximately 48,000 people. Horsham is the largest centre with a population of 13,000. In contrast to Corangamite, approximately 33% of residents in the catchment live on farms or in small townships, and the overall population is declining (WCMA 2003).

The Wimmera catchment is landlocked, with the main drainage system of the Wimmera River arising in the foothills of the Great Dividing Range, flowing north through the centre of the catchment to the internally draining Lake Albacutya and Lake Hindmarsh. Bioregions in the catchment, include rocky areas of the Greater Grampians, and the northern foothills of the Goldfields and Central Victorian Uplands in the southern part of the catchment. Further west and north, much of the catchment falls in the Wimmera bioregion, interspersed with the Lowan Mallee and the Murray Mallee bioregions at the northern end of the catchment (VRO 2008). The region contains more than 3000 wetlands, over 25% of Victoria’s total, many of which occur in the western part of the region in the Millicent Coast Basin, with 90% on privately owned land (WCMA 2003).

**METHODS**
Questionnaires were mailed to landholders as part of a collaborative research process explained in detail in Curtis et al. (2005). These surveys were part of a long-term social research effort providing information to underpin catchment planning, implementation and evaluation (Curtis et al. 2008a). Five statements relating to duty of care were included in the surveys, two in Corangamite and three in Wimmera (Table 1). Statements were phrased in non-technical language. The survey propositions explored several potential elements of our duty of care framework, ranging from broad endorsement of the concept to more detailed, implicit aspects. Propositions included the moral imperative to care for biodiversity; the
normative implication that wider society could have a say in framing a duty of care; the implication of legally binding requirements; and the potential role that industry standards could play in determining whether duty of care was being met. Collectively these propositions represented a range of potential triggers for social unease about a duty of care. Understanding the levels of social unease in rural communities is critical for policy makers considering the introduction of this type of instrument.

**TABLE 1 Statements relating to duty of care**

<table>
<thead>
<tr>
<th>Corangamite (Curtis et al. 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Landholders have a moral responsibility to act in ways that minimise harm to native plants and animals</td>
</tr>
<tr>
<td>2. It is reasonable that the wider community asks landholders to act in ways that will not harm native plants and animals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wimmera (Curtis et al. 2008a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. It is fair that the wider community asks landholders to manage their land in ways that do not cause foreseeable harm to the environment</td>
</tr>
<tr>
<td>4. In future, landholders should expect to be legally responsible for managing their land in ways that will not cause foreseeable harm to the environment.</td>
</tr>
<tr>
<td>5. Using industry standards developed with landholder input would be an acceptable way of determining if land is managed responsibly</td>
</tr>
</tbody>
</table>

Participants were asked to record their views based on a five-point Likert scale. For each statement, respondents were asked to choose a response option from “strongly agree”, “agree”, “not sure”, “disagree”, or “strongly disagree”. In addition a “not applicable” option was also included. No background information or explanation of the duty of care concept was provided to participants.

Responses were collated to produce frequency distributions, and analyses undertaken to compare differences across different groups of landholders, including farmer and non-farmer occupations, new and long-term property owners, new settlers and long-term settlers in the district, and resident and absentee landholders.

**The mail survey process**

Surveys were mailed to random samples of landowners with rural properties larger than 10 hectares who were identified from lists provided by local governments. Final checking to remove deceased estates, public property (including city councils) and duplicate entries resulted in final mail-out samples of 972 in Corangamite, and 1000 in the Wimmera.

The survey design and administration employed a modified Dillman (1979) process that has been refined through the experience of successive catchment-scale surveys. After a period of
approximately 12 weeks a final survey response rate of 57% was achieved in Corangamite, and 56% in Wimmera. Of the 972 surveys sent out to landholders in Corangamite, 552 were completed and returned. Of these 70 were unusable, giving a final N value for Corangamite of 482. Of the 1,000 surveys sent out to landholders in Wimmera, 526 were completed and returned. Of these, 23 were unusable. The final N value for Wimmera was therefore 503.

**Data analysis**
Frequency distributions were produce from raw data through customised scripts that utilised core summary statistic functionality. Significant differences in responses to individual questions relating to duty of care between different groups, including farmers and non-farmers; new property owners (<10 years) and longer-term owners; new settlers in the district (<10 years) and longer-term settlers in the district; those resident on-property and non-resident/absentee owners, were calculated using Kruskal-Wallis rank sum tests. These cohorts were chosen because preliminary analyses identified that they were significantly different on key items measuring values, attitudes and implementation of management practices (Curtis et al. 2006, 2008a). All statistical analyses were performed using the SPLUS software package and basic data manipulation in Microsoft Excel.

**FINDINGS**
In this section we discuss the key findings, identifying significantly different responses from participant groups and paired groups from each region. To simplify the presentation of data, responses have been grouped into three categories – “agree” (combining agree and strongly agree), “disagree” (combining disagree and strongly disagree), and “not sure”. “Not applicable” responses are shown in data tables, but were not included in analyses to determine statistical significance.

**Support for duty of care as a moral concept**
In most groups there was substantial agreement (≥ 70%) with the proposition that landholders have a moral responsibility to minimise harm to native plants and animals (Table 2). Farmers were the exception, with 67% in agreement but a substantial minority (32%) either disagreeing or uncertain. It is tempting to conclude from these results that the concept of a duty of care is broadly acceptable across the range of rural landholders in the Corangamite region, but as other research has shown, support for abstract concepts is often accompanied by limited understanding of the likely impacts and consequences, or the alternatives (Stankey & Shindler 2006). The difference in mean responses was statistically significant (p<0.05) for all paired groups tested, suggesting support for the moral foundation for a duty of care was stronger amongst non-farmers, new settlers in the district, newer property owners and non-
residents (Table 2). While the proportion of farmers to non-farmers was roughly similar (52:43), proportions in other groupings were quite disparate: longer-term settlers versus new settlers (80:16), long- term property owners versus new owners (78:20), and residents versus non-residents (73:21). The strongest support was found amongst the smaller segment of the respondent groups.

**TABLE 2** Landholders have a moral responsibility to act in ways that minimise harm to native plants and animals (rural landholders, Corangamite 2006, N= 486)

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>N/A</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>73%</td>
<td>13%</td>
<td>12%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>1a Farmers (n=238, 52%)</td>
<td>67%</td>
<td>18%</td>
<td>14%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>1b Non-farmers (n=199,43%)</td>
<td>82%</td>
<td>9%</td>
<td>9%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>2a Longer-term settlers (≥ 10 years) in the district (n=370, 80%)</td>
<td>71%</td>
<td>16%</td>
<td>12%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>2b New settlers (&lt; 10 years) in the district (n=76, 16%)</td>
<td>87%</td>
<td>3%</td>
<td>9%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>3a Longer-term property owners (≥ 10 years) (n=359, 78%)</td>
<td>70%</td>
<td>16%</td>
<td>13%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>3b Newer property owners (&lt;10 years) (n=90, 20%)</td>
<td>89%</td>
<td>2%</td>
<td>8%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>4a Resident on property (n=334, 73%)</td>
<td>72%</td>
<td>16%</td>
<td>11%</td>
<td>1%</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>4b Non-resident (n=95, 21%)</td>
<td>81%</td>
<td>7%</td>
<td>11%</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

**Support for duty of care as a social norm**

The majority of Corangamite respondents (54%) agreed with the proposition that it is reasonable that the wider community asks landholders to act in ways that will not harm native plants and animals, but support was stronger among non-farmers (69%) than farmers (44%) (Table 3). Newer settlers in the district, newer property owners and non-resident property owners indicated significantly greater support for the proposition (p<0.01) than their paired counterparts, but represented smaller segments of the sample population. Importantly amongst all respondent groups a substantial minority either did not agree or were unsure about the proposition (44%), and amongst farmers the majority did not agree or were unsure (54%). So again the strongest agreement was found amongst the smaller segment of the respondent group.

In contrast to Corangamite, the majority of farmers in the Wimmera survey (52%) agreed with the similar proposition that it is fair that the wider community asks landholders to manage their land in ways that do not cause foreseeable harm to the environment, although a substantial minority of farmers either disagreed or were uncertain (48%) (Table 4). Amongst non-farmers there was 68% agreement, with 31% either disagreeing or not sure, reflecting a similar response to Corangamite. However, in the Wimmera survey non-farmers represented only 32% of the sample population in 2008. In other groups there was majority support for the proposition, but amongst long-term settlers, long-term property owners and residents,
substantial numbers of respondents (45-46%) either disagreed or were uncertain. The mean variation was statistically significant for each paired group, but the proportional representation of each group was quite disparate. In Wimmera, farmers represented 66% of respondents, long-term settlers 86%, longer-term property owners 82%, and residents 76%, consistent with the traditional production landscape for the region. These proportions are slightly higher than in Corangamite, where amenity or lifestyle landscapes are more widespread (Barr et al 2005) and the extent of production landscapes is diminishing.

TABLE 3 It is reasonable that the wider community asks landholders to act in ways that will not harm native plants and animals (rural landholders, Corangamite 2006, N= 486)

<table>
<thead>
<tr>
<th>Overall</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>N/A</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a Farmers (n=237, 52%)</td>
<td>54%</td>
<td>20%</td>
<td>24%</td>
<td>2%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>1b Non-farmers (n=198, 43%)</td>
<td>44%</td>
<td>23%</td>
<td>31%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>2a Longer-term settlers (≥ 10 years) in the district (n=369, 80%)</td>
<td>51%</td>
<td>21%</td>
<td>26%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>2b New settlers (&lt; 10 years) in the district (n=76, 17%)</td>
<td>68%</td>
<td>17%</td>
<td>13%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>3a Longer-term property owners (≥ 10 years) (n=357, 78%)</td>
<td>51%</td>
<td>22%</td>
<td>25%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>3b Newer property owners (&lt;10 years) (n=90, 20%)</td>
<td>69%</td>
<td>14%</td>
<td>14%</td>
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</tr>
<tr>
<td>4b Non-resident (n=95, 21%)</td>
<td>68%</td>
<td>16%</td>
<td>15%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
</tbody>
</table>

Support for a duty of care as a legally defined instrument
Most Wimmera respondents did not agree with the proposition that in future, landholders should expect to be legally responsible for managing their land in ways that will not cause foreseeable harm to the environment (Table 5). There was a fairly even distribution of those who agreed (36%) and those who disagreed (37%), and a significant proportion who were
unsure (26%). When looking at the pair-wise comparisons, there was a low level of acceptability for this proposition amongst farmers, longer-term settlers, longer-term property owners and those residing on properties. This statement elicited the least support amongst farmers at 41%. Even amongst non-farmers and non-residents there was only minority support for the proposition (48% and 42% respectively), with most respondents disagreeing or uncertain. In each group at least 23% of respondents were unsure, indicating there was a potentially large ‘swinging’ element of the Wimmera landholder community where the topic of a legally defined duty of care is concerned. No clues to the underlying reasons for the high level of disagreement and uncertainty could be deduced from the data, suggesting a need for further research to explore this aspect. The current low level of acceptability for a legally defined instrument should be of great concern to biodiversity policy developers, as it suggests there is currently a major impediment to the implementation of a statutory duty of care.

In all pair-wise comparisons, the differences between groups were statistically significant, with the differences between residents and non-residents being less pronounced than with the other groups. As with previous results however, it must be remembered that some groups were represented by relatively small proportions of respondents, e.g., non-farmers (33%), new settlers in the district (10%), new property owners (14%), and non-residents (22%).

TABLE 5 In future, landholders should expect to be legally responsible for managing their land in ways that will not cause foreseeable harm to the environment (rural landholders, Wimmera 2008, N= 503)

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>N/A</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>36%</td>
<td>26%</td>
<td>37%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>1a Farmers (n=316, 66%)</td>
<td>30%</td>
<td>27%</td>
<td>41%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>1b Non-farmers (n=153, 32%)</td>
<td>48%</td>
<td>25%</td>
<td>27%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>2a Longer-term settlers (&gt;10 years) in the district (n=414, 86%)</td>
<td>32%</td>
<td>27%</td>
<td>40%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>2b New settlers (&lt;10 years) in the district (n=48, 10%)</td>
<td>67%</td>
<td>23%</td>
<td>10%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>3a Longer-term property owners (&gt;10 years) (n=394, 82%)</td>
<td>33%</td>
<td>25%</td>
<td>41%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>3b Newer property owners (&lt;10 years) (n=67, 14%)</td>
<td>54%</td>
<td>34%</td>
<td>12%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>4a Resident on property (n=368, 77%)</td>
<td>34%</td>
<td>26%</td>
<td>39%</td>
<td>1%</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>4b Non-resident (n=107, 22%)</td>
<td>42%</td>
<td>25%</td>
<td>33%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

Support for codes of conduct
More respondents agreed (39%) than disagreed (17%) with the proposition that using industry standards developed with landholder input would be an acceptable way of determining if land is managed responsibly, but a large number were not sure (43%) (Table 6). A similar response came from farmers as a group, with more agreeing than disagreeing, but many were unsure. Amongst non-farmers 48% agreed, and a small number disagreed (10%) but 41% were
unsure. Amongst the other groups more respondents agreed than disagreed, but there were higher numbers of respondents who were uncertain about the proposition. Support was highest amongst new settlers in the district (69%) and newer property owners (57%).

**TABLE 6** Using industry standards developed with landholder input would be an acceptable way of determining if land is managed responsibly (rural landholders, Wimmera 2008, N= 503)

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>N/A</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>39%</td>
<td>43%</td>
<td>17%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>1a Farmers (n=316, 66%)</td>
<td>35%</td>
<td>43%</td>
<td>20%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>1b Non-farmers (n=152, 32%)</td>
<td>48%</td>
<td>41%</td>
<td>10%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>2a Longer-term settlers (≥ 10 years)</td>
<td>36%</td>
<td>46%</td>
<td>17%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>2b New settlers (&lt; 10 years)</td>
<td>69%</td>
<td>20%</td>
<td>10%</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>3a Longer-term property owners (≥10 years)</td>
<td>36%</td>
<td>45%</td>
<td>18%</td>
<td>1%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>3b Newer property owners (&lt;10 years)</td>
<td>57%</td>
<td>34%</td>
<td>7%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>4a Resident on property (n=368, 77%)</td>
<td>38%</td>
<td>42%</td>
<td>18%</td>
<td>2%</td>
<td>Not significant</td>
</tr>
<tr>
<td>4b Non-resident (n=106, 22%)</td>
<td>44%</td>
<td>43%</td>
<td>12%</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Amongst residents more respondents were uncertain (42%) than agreeing (38%), and amongst non-residents similar numbers agreed (44%) or were uncertain (43%). All pair-wise comparisons were statistically significant except for residents versus non-residents. However, as with the previous statements, it must be remembered that the support was higher amongst groups that currently represent a small proportion of respondents.

The use of industry standards to provide quality assurance has become well established around the world. In the Australian agricultural sector, programs like Environmental Management Systems (EMS) include provision for industry standards and codes of practice. The proposition that industry standards for biodiversity management, developed with landholder input, could be used as an indicator of compliance drew the least conclusive responses in the survey, with high levels of uncertainty in all groups (Table 6).

Overall these findings suggest the need for further exploration to ‘unpack’ the underlying concerns that rural landholders have about the duty of care concept. Farmers stand out as an important and highly organised group that is currently not overly supportive of the duty of care aspects explored in the survey.

Policy makers who may be contemplating the introduction of a statutory duty of care for biodiversity are advised to adopt an inclusive approach to the farming community, to ensure farmers gain an understanding of duty of care based on reliable information.
The potential for industry standards including codes of practice to be used as indicators of compliance with a duty of care will need close involvement of stakeholder and industry groups, including the ‘biodiversity industry’. Management agencies may find it productive to work with stakeholders and industry groups in developing standards that gain widespread social acceptability.

CONCLUSIONS
No research into the social acceptability of a duty of care for biodiversity in Australia has been published before. The preliminary indications from this study are that rural landholders currently have significant concerns. While there is broad endorsement of the concept in principle, concerns arise in relation to more specific aspects of the concept and its implementation.

These results are consistent with social acceptability theory which recognises that judgements are based on a complex suite of factors including personal knowledge and experience, personal context (spatial, temporal, social), trust in individuals and organisations, and attitude to risk (Stankey & Shindler 2006). For policy developers contemplating the introduction of a duty of care for biodiversity, social acceptability should be an important consideration, because of the legitimacy it can confer on policy and statutes. Without it, even well designed, effective and efficient policies may fail to survive (Davies & Hodge 2006). In the context of biodiversity conservation on privately managed land, a supportive and willing landholder population is imperative if positive outcomes are to be achieved.

While the results suggest some important impediments to the implementation of a statutory duty of care for biodiversity currently exist, they also present an opportunity for natural resource managers to engage in purposeful conversation with landholders so that underlying concerns landholders may harbour, can be articulated. In particular, our findings suggest that management agencies considering introducing a statutory duty of care would be wise to involve farmer groups in its development at an early stage. Where survey responses suggest a high level of uncertainty, for instance with the proposition that industry standards could be developed to give a measure of compliance with a duty of care (Table 6), there may be an opportunity to address this uncertainty with effective engagement. A substantial portion of the landholder cohort which is uncommitted and could be ‘converted’ if proponents invested in efforts to effectively engage them. In addition there is scope for further research to explore the reasons for the substantial aversion to the concepts of the wider community having a say in biodiversity management on private land, a legally defined duty of care, and the use of industry standards as a surrogate measure of compliance.
These are immediate problems that require addressing, but looking into the future also provides some valuable insight into a potential trajectory of a statutory duty of care for biodiversity. Our findings show that the most supportive respondent groups (non-farmers, newer settlers in the district, newer property owners, non-residents) currently represent a small proportion of the survey population, and hence the actual rural population in the Corangamite and Wimmera regions. Curtis et al. (2006, 2008a) predict that this demographic group will increase dramatically over the next 10-15 years, while the traditional rural population of farmers is predicted to decline. The social acceptability of a duty of care for biodiversity may therefore increase over this period, as the makeup of the rural population changes, perhaps making the task of introducing this policy instrument easier for regional agencies. However, as Howe et al. (2005:92) observe “the job is never finished because contexts, conditions, and populations change”, and so the task of attaining social acceptability for a duty of care will require ongoing effort on the part of agencies regardless of predicted rural population transition.

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REFERENCES


Barr, NF, Wilkinson, R & Karunaratne, K 2005, Understanding rural Victoria, Department of Primary Industries, Melbourne.


CCMA (Corangamite Catchment Management Authority) 2003, Corangamite Regional Catchment Strategy, Corangamite Catchment Management Authority, Colac, Victoria.


Curtis, A, McDonald, S, Mendham, E & Sample, R 2008a, Understanding the social drivers for natural resource management in the Wimmera region, Report No 46, Institute for Land Water and Society, Charles Sturt University, Albury.


Dillman, DA 1979, Mail and telephone surveys: the total design method, Wiley, New York.

DSE (Department of Sustainability and Environment) 2008a, Native vegetation net gain accounting first approximation report, Department of Sustainability and Environment, Melbourne.
DSE (Department of Sustainability and Environment) 2008b, *Land and biodiversity at a time of climate change: Green Paper*, Government of Victoria, Melbourne, Australia.


Pannell, DJ 2005, *Someone has to pay ... any volunteers? Voluntary versus regulatory approaches to environmental protection in agricultural landscapes of Australia*, CRC for Plant-based Management of Dryland Salinity, Perth.


WCMA (Wimmera Catchment Management Authority) 2003, Wimmera Regional Catchment Strategy, Wimmera Catchment Management Authority, Horsham.