



## Research article

## The VALS: A new tool to measure people's general valued attributes of landscapes

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## ABSTRACT

Research on values for natural areas has largely focussed on theoretical concerns such as distinguishing different kinds of values held by people. However practice, policymaking, planning and management is typically focused on more tangible valued attributes of the landscape such as biodiversity and recreation infrastructure that can be manipulated by management actions. There is a need for valid psychometric measures of such values that are suited to informing land management policies.

A Valued Attributes of Landscape Scale (VALS) was developed, derived from a document analysis of values expressed in public land policy documents. The validity of the VALS was tested in an online survey comparing values across one of three randomly presented landscape contexts in Victoria, Australia: all publicly managed natural land, coastal areas, and large urban parks. A purposive snowball sample was used to recruit participants with a range of views and professional experience with land management, including members of the urban public. Factor analysis of responses ( $n = 646$ ) separated concepts relating to natural attributes, social functions, the experience of being in natural areas, cultural attributes and productive uses. Relative importance of valued attribute factors was similar across all landscape contexts, although there were small but significant differences in the way people valued social functions (higher in urban parks) and productive uses (lower in urban parks). We conclude that the concept of valued attributes is useful for linking theoretical understandings of people's environmental values to the way values are considered by land managers, and that these attributes can be measured using the VALS instrument to produce data that should be useful for the policy and planning of natural resources.

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## 1. Introduction

Legitimate management of the natural environment must consider the range of values that members of the community have for the areas being managed (O'Neill and Spash, 2000; Trainor, 2006). While policy makers generally have an understanding of the interests of stakeholders that they interact with regularly, these may not include the full range of views and interests of the broader public in relation to public land (Endter-Wada et al., 1998). Developing an understanding of the public's values for land can help

managers in several ways. It can provide insights into the basis for people's attitudes and behaviours (Dietz et al., 2005) including their responses to management decisions (Gobster, 2001); it can help align management priorities with trends in public values as these change over time; and it can inform management decisions that involve conflicts or trade-offs among different values held by sections of the community (Bengston, 1994). However, differences in meaning and use of the term 'values' between theory and practice are a barrier to the effective incorporation of public values into natural resource policy making and land management (Reser and Bentrupperbäumer, 2005).

Within social psychology, research about values in relation to the environment largely focuses on values as held by people, abstract conceptions of the good or preferable that underlie attitudes and behaviours such as social justice, personal wealth or respecting tradition (Rokeach, 1973; Schultz et al., 2005; Schwartz, 1992; Stern

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et al., 1995; Winter and Lockwood, 2003). In contrast, the practice of planning and managing natural areas is mainly focussed on a less abstract conception of values as tangible things 'in' the landscape such as biodiversity, scenic places, water and infrastructure (Bentrupperbäumer et al., 2006). These more tangible values are the target of policy settings, management actions and monitoring, with many policy tools organised around them, including management plans (e.g. *Parks Victoria, 2005*), codes of practice (e.g. *Department of Environment and Primary Industries (2014)*), criteria and indicator frameworks for monitoring (e.g. *Montreal Process Implementation Group for Australia, 2013*) and heritage conservation frameworks (*Australian Heritage Commission, 2002*). There is a need for measurement instruments that have a clear and valid basis in theory but also resonate with the ways values are understood and used by policy-makers.

Although a number of instruments have been developed to measure the values people have for forests, there is a lack of standardised tools allowing the comparison of landscape values across groups of people and different landscape contexts. Within a forest context, the Public Values of Forests (PVF) scale developed in the USA measures the relative importance of the 12 primary values for which US national forests are managed (Tarrant et al., 2003). A large scale study confirmed the twelve value items to be organised within a three factor structure: protection, amenity and outputs (Tarrant et al., 2003). A similar three factor structure was identified in a scale developed to measure the relative importance of different objectives for forest management in Australia (Ford et al., 2009b). While there were some differences between the US and Australian studies, both found protection of the natural forest environment was of greater relative importance to public participants than amenity or productive outputs. In contrast to this, research examining people's values relevant to the management of other kinds of landscapes tends to be qualitative, investigating values within a particular group of people (e.g. local stakeholders) within a single landscape context (e.g. forests, urban parks) and at a single scale (e.g. a particular park or forest). Studies have identified the values assigned by people to particular river landscapes (Seymour et al., 2010), explored concepts of value in World Heritage management (Reser and Bentrupperbäumer, 2005) and elicited spatially explicit forest and park values to assist management (Brown et al., 2014; McIntyre et al., 2008). While these studies provide insight into the range of landscape values found in specific contexts, there is a need for tools to allow a more structured comparison of values across groups of people and different landscape contexts. Such tools would assist planners and managers to more fully understand the range and diversity of values attributed to natural landscapes. For example, the relative importance of particular values (e.g. biodiversity, timber production) might be expected to vary with landscape context (e.g. National Parks, managed forests) as people's expectations of these landscapes vary.

While theory and practice have tended to focus on the values of local stakeholders, other groups in society, including consumers, investors, the broader public and policy-makers have interests and views (Wüstenhagen et al., 2007) that are relevant to attempts to incorporate values into land management policies (Cashore, 2009; O'Neill and Spash, 2000). Studies have shown that general public attitudes and values differ from those of experts such as land management professionals and other key stakeholders (Ford et al., 2009a; Wagner et al., 1998), and specific investigations that survey the general public are required to adequately represent their views. Existing methods for identifying environmental values tend to be most useful for eliciting values of local people familiar with the area being studied. For example, spatially explicit methods such as Public Participatory GIS (Brown, 2004) are most useful when participants are familiar with the landscape in question. Although the

general public may be aware of the types of values present in a more abstract sense, lack of familiarity with the landscape may impede the spatial location of these values on a map.

This paper describes a general survey instrument, the Valued Attributes for Landscape Scale (VALS), developed by researchers in conjunction with staff in the Department of Environment, Land, Water and Planning (DELWP) in the state of Victoria, Australia to measure values the general public have for landscapes. The scale links theoretical understanding of values to the way they are understood by policymakers and land managers. The tool has been designed to operate across a range of contexts, including forests, urban parks, coastal areas and natural land in general.

## 2. Theoretical background

A key challenge for developing a tool to measure environmental values relevant for policy-making is to identify concepts of value that are resonant with the understanding of 'value' used in policy and management, but are also clearly defined in relation to concepts of value in social science theory. Values attributed to public land are more likely to be incorporated into policy and management if they can be measured in a way that is consistent with practitioner thinking. Basing these concepts of value in theory ensures the tool is valid, reliable and able to be generalised, in other words, that it measures the concepts intended. In Natural Resource Management (NRM) the term 'values' tends to refer to things located in the environment. In a study of the use and meaning of 'value' and 'values' in World Heritage conservation areas, Reser and Bentrupperbäumer (2005) found that about 90% of references to values by management agency staff related to physical attributes, ecosystem properties or other descriptions of the environment, while 10% of references were to human practices or beliefs. In contrast, this pattern was reversed for visitors and local residents, with nearly 70% of references to values referring to human practices and beliefs. This reflects an important epistemological distinction between NRM practitioner uses of 'values' and general psychological concepts of value. While the interest in NRM lies in understanding values as tangible things in the natural environment, the interest in psychology lies in understanding values as mental structures that help explain people's subjective experiences of environments.

The use of the term 'value' by land managers tends to refer both to attributes, properties or qualities of the environment such as biodiversity, uniqueness or beauty, as well as specific entities or objects in the environment, such as particular sites or animal species (Reser and Bentrupperbäumer, 2005). For clarity it is useful to maintain this distinction between physical objects (from here on referred to as 'valued objects'), and attributes or qualities of the physical environment (referred to here as 'valued attributes'). Valued objects can vary in scale (McIntyre et al., 2008) from quite general contexts such as 'forests' or 'coasts' (Department of Sustainability and Environment, 2007; Victorian Coastal Council, 2014), through to 'assets' which may be mapped precisely and attributed with different priorities (Seymour et al., 2010), or as specific sites, such as particular parks or even structures such as walking tracks or historical sites. For policy-makers, measures of the relative importance to various social groups of these tangible values has direct relevance, for example in identifying competing priorities and managing trade-offs among them (Bengston, 1994).

In contrast, most social research focusses on values as an essential part of individuals or groups of people (referred to here as core values, but also known as held or underlying values). In this context, a value is "a specific mode of conduct or end-state of existence [that] is personally or socially preferable" (Rokeach, 1973 p5). Brown (1984) developed a conceptual framework that

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